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Assessment of the first draft national building renovation plans

Part 1: Belgium (Walloon Region), Bulgaria, Denmark, Germany, Spain, France, Croatia, Cyprus, Lithuania, Netherlands, Austria, Portugal, Romania, Slovenia, Finland, Sweden

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Abstract

The European Union is reshaping its energy sector towards a cleaner, more electrified and competitive future, guided by the principles of affordability, sustainability, energy independence and security. High-performing buildings, with reduced and decarbonised energy consumption, are central to this transition.

The recast Energy Performance of Buildings Directive (EPBD) requires Member States to develop national building renovation plans (NBRPs) to transform the EU building stock into a highly energy-efficient and decarbonised one by 2050. This report assesses the first 16 complete draft NBRPs submitted by Member States between December 2025 and May 2026. It supports the European Commission's feedback process and provides suggestions for improvement, with a view to the finalisation of the NBRPs by 31 December 2026.

The assessment focuses on the ambition of the draft plans in terms of targets, policies and financial resources, as well as on their completeness and consistency with other EU reporting exercises. The findings show a clear level of ambition towards an energy-efficient and decarbonised building stock, with all draft plans including targets for reducing energy consumption and greenhouse gas (GHG) emissions. Compared with the 2020 long-term renovation strategies, the draft plans show significant improvements in completeness, structure and overall comparability. However, several areas would benefit from further strengthening, such as energy poverty alleviation, the quantification of policy impacts, minimum energy performance standards for non-residential buildings, and data on the current status of building renovation.

Overall, the draft NBRPs demonstrate strong commitments towards the EU's energy and climate objectives. They provide a solid basis for developing robust final plans aimed at saving energy, reducing GHG emissions, strengthening energy independence and security, lowering energy bills, improving health and indoor comfort, safeguarding economic prosperity and social justice, and supporting renewable energy integration and grid stability. The assessment also identifies good practices that may inspire other Member States and provides country-specific indications for further improvement.

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1. Introduction

Building renovation plays a pivotal role in advancing the European Union's (EU) objectives for energy and climate change mitigation. Buildings account for approximately 40% of the EU's energy consumption and one-third of operational greenhouse gas (GHG) emissions (European Commission, 2024). Considering that in the EU, more than 50% of natural gas is used directly or indirectly by buildings, the improvement of their energy performance is essential to reduce EU fossil fuels imports and exposure to global energy market volatility due to geopolitical instability (European Commission, 2026).

While new buildings are already well covered by EU legislation, having been required to achieve the status of nearly zero-energy building (NZEB) standard as of 2021 and set to move towards the more ambitious zero-emission building (ZEB) standard starting in 2030, the existing building stock remains old and energy inefficient where it has not been renovated (D'Agostino et al., 2025; Maduta et al., 2025). In 2020, the rate of building renovation across the EU was low, at an estimated 1% annually, with deep renovation representing only a 0.2% per year. Estimates indicate that three-quarters of EU buildings have poor energy performance, which highlights the scale of the challenge, its critical impact on energy poverty and even on public health, amid increasingly frequent heat waves (European Commission, 2024).

To unlock the potential for energy and GHG emission reductions, the 'renovation wave' strategy, introduced an indicative target to at least double the renovation rate by 2030 and to promote deep renovation across Member States (European Commission, 2020). Beyond contributing to the achievement of the EU's energy and climate commitments, renovating the European building stock helps reduce energy costs especially for the most vulnerable citizens, as well as improve living conditions. It also increases the availability of affordable housing while boosting Europe's competitiveness, energy independence and security.

The Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD') is one of the most important EU regulatory frameworks for driving this transition (European Commission, 2024). The Directive, revised in 2024 with a general transposition deadline of 29 May 2026, aims to improve energy standards, accelerate the renovation rate across the EU, and prioritise the worst-performing buildings. Article 3 of the EPBD requires Member States to prepare and submit to the European Commission a national building renovation plan (NBRP) every five years.

The NBRP must aim to renovate the national stock of residential and non-residential buildings, both public and private transforming it into a highly energy-efficient and decarbonised building stock by 2050.

Article 3 provides the main elements that the NBRPs shall include:

(a) Overview of the building stock;

(b) Roadmap with targets by 2030, 2040 and 2050 for e.g., renovation rate, final and primary energy consumption, GHG emissions and energy poverty reduction;

(c) Overview of policies and measures supporting the plan implementation;

(d) Investment needs, financing sources and administrative resources for the plan implementation;

(e) Thresholds for new and renovated ZEB;

(f) Minimum energy performance standards (MEPS) for non-residential buildings;

(g) National trajectory for the renovation of the residential building stock;

(h) Expected energy savings and wider benefits;

The plans must be prepared using the template provided in Annex II.

Member States were required to submit their first draft NBRPs by 31 December 2025. To support Member States and simplify the process, the Commission prepared an annotated template and a spreadsheet template[1] providing suggestions and recommendations to streamline the plans and improve their consistency.

The Commission, in turn, has to assess these draft plans in accordance with Article 3(5) and may provide feedback to Member States to consider when finalising their plans by 31 December 2026.

This report provides a country-specific assessment of the draft NBRPs, covering the first 16 draft plans received between December 2025 and May 2026: Belgium (Walloon Region), Bulgaria, Denmark, Germany, Spain, France, Croatia, Cyprus, Lithuania, Netherlands, Austria, Portugal, Romania, Slovenia, Finland, and Sweden. The assessment addresses the key elements outlined in Article 3(5), as follow:

— The level of ambition of the targets, including alignment with the national energy and climate plan (NECP)2;

— The sufficiency of policies and measures;

— The sufficiency of budgetary and administrative resources;

— Alignment of the financing sources with the planned reduction of energy poverty;

— Prioritisation of worst-performing buildings;

— Inclusiveness of the public consultation;

— Compliance with the overall objective of Article 3 and Annex II.

The assessment also considers housing affordability, in line with the Commission's priority of responding to the housing crisis across the EU. Although affordability is not the primary focus of NBRPs, it is expected to be addressed alongside energy poverty and support for vulnerable citizens, and to be reflected in renovation policies and measures.

The primary purpose of this assessment is to guide Member States in submitting complete and comprehensive final plans that are aligned with the goal of achieving a highly energy-efficient and decarbonised building stock by 2050. It illustrates the progress made by different Member States in enhancing the energy performance of their building stocks and outlines their future objectives.

[1] NBRP annotated template and spreadsheet for data collection.

[2] National energy and climate plans (2024).

The assessment identifies missing, inconsistent or unclear elements. It includes suggestions on how to address them. Additionally, it highlights strong elements and good practices in the draft plans, that merit particular attention and could be used as examples.

The structure of the report is as follows: Chapter 1, the introduction, sets out the policy background and scope of the report, Chapter 2 presents the assessment methodology and Chapter 3 the country-specific assessments. Chapter 4 introduces cross-country main take-aways and Chapter 5 draws the conclusions.

2. Assessment methodology

The methodology was rigorously developed prior to the submission of the draft plans which resulted in an assessment template with guiding questions and two main phases of work:

i. **Preliminary completeness check** involving a systematic evaluation to determine whether each draft plan includes the necessary mandatory elements allowing a meaningful analysis and assessment of the draft plan.

ii. **Comprehensive assessment** involving a detailed examination of each draft plan, using pre-established guiding questions to ensure adherence to the assessment criteria outlined in Article 3(5) and uniform scrutiny across all plans.

The assessment template is structured into the following seven sections:

1. Selection of **main indicators**: Both baseline and targets, including some visual representations, divided into the following areas: building renovation, energy consumption, GHG emissions, renewable energy (including solar technologies deployment), energy poverty, trajectory for the progressive renovation of residential buildings, MEPS for non-residential buildings, primary energy factors, investment needs and funding, and main policies and measures to support building renovation and heating decarbonisation.
2. **Executive summary:** Provides the main elements in each draft plan and highlights the good practices and areas for improvement.
3. **Ambition**: Assesses how the national defined targets align with the objective of highly energy-efficient and decarbonised building stock, the NECP commitments, implementation of Article 9 of the EPBD, prioritisation of worst-performing buildings, and reduction of energy poverty. To evaluate the ambition for a highly energy-efficient and decarbonised building stock by 2050, in the absence of quantitative targets in the EPBD, several key indicators are assessed:

- Reduction in final and primary energy and GHG emissions compared to baseline levels, use of primary energy and emission factors, their impact on reducing primary energy and GHG emissions, respectively, and alignment with renewable energy deployment.
- Targets for average primary energy use in kWh/(m^2y) by 2050 for residential buildings and MEPS for non-residential buildings, compared with national zero-emission standards and recent cost-optimal levels (2023). Comparison of NBRP targets with 2024 NECP and 2020 LTRS targets in the building sector to identify changes in ambition.
- Contribution of building renovation to the 2030 energy efficiency target according to Article 4 of Directive (EU) 2023/1791 on energy efficiency (European Commission, 2023), and renewable energy target according to Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources (European Commission, 2018), as set in the final NECP (2024).
- Building renovation targets, identifying whether the energy and GHG emission targets are supported by the targeted annual renovation rates.

4. **Sufficiency of policies and measures**: Assesses i) whether the overview of existing and planned measures addresses all mandatory policy areas listed in Annex II to the EPBD; ii) if the impact of these policies and measures is adequately quantified in terms of energy

savings, GHG emission reduction, building renovation, or other relevant indicators; and iii) whether these quantifications are sufficient to determine whether the measures can achieve the roadmap targets.

5. **Sufficiency of financing sources and administrative resources**: Assesses if and how the investment needs to implement the NBRP have been calculated, the financing sources and administrative resources identified, and whether these are sufficient to implement the policies and contribute effectively to the targets set.

6. **Inclusiveness of the public consultation**: Assesses whether the consultation process was inclusive in terms of the stakeholders consulted, and if it provided time and opportunities for feedback. It also evaluates whether the feedback was used to inform the draft NBRP.

7. **Completeness of the draft plan and consistency with other reporting exercises**. Checks the consistency of the draft NBRPs with other exercises, such as the 2024 NECP, the 2025 national energy and climate progress reports (NECPRs), the 2023 national cost-optimal reports[3], and the 2020 long-term renovation strategies (LTRS)[4]. It also assesses the plausibility of certain indicators by comparing them with reliable databases, such as the EU building stock observatory (BSO)[5] and Eurostat datasets on final energy consumption[6].

Besides the consistency checks with other reporting exercises of each Member States, which involved other national plans as explained above, this assessment considers only the information provided in the draft NBRPs. In limited cases, studies referenced in the draft NBRPs were consulted if the information provided in the draft NBRPs was not clear.

[3] National cost-optimal reports (2023).

[4] National long-term renovation strategies (2020).

[5] EU building stock observatory.

[6] Eurostat - final energy consumption by sector.

3. Country assessment

This chapter provides a country-specific assessment of the 16 submitted draft national building renovation plans (NBRPs).

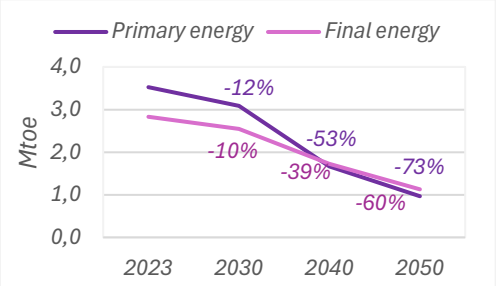
3.1. Walloon Region (Belgium)

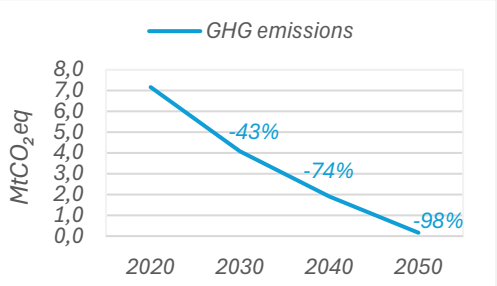
3.1.1. Main indicators

Table 1. Selection of main indicators from Wallonia's draft NBRP.

Renovation				
Floor area (Million m^2)	2023	2030	2040	2050
	Baseline	Cumulative renovation		
Residential	267.0	48.6	189.9	336.9
Non-residential	63.0	14.5	61.4	61.4
Total	330.0	63.1	251.2	398.2
Cumulative renovation (%)		19%	76%	121%
Number of buildings	2023	2030	2040	2050
Total	2 002 592	371 106	1 482 566	2 167 844
Cumulative renovation (%)		19%	74%	108%
Annual renovation rate (%)[7]	**0.84%**	**3.09%**	**5.55%**	**4.82%**
Energy consumption				
Primary energy (Mtoe)	2023	2030	2040	2050
Residential	2.4	2.1	1.3	0.6
Non-residential	1.1	1.0	0.4	0.4
Total	3.5	3.1	1.7	1.0
Change vs 2023 (%)		**-12%**	**-53%**	**-73%**
Final energy (Mtoe)	2023	2030	2040	2050
Residential	2.1	1.9	1.4	0.8
Non-residential	0.7	0.6	0.3	0.3
Total	2.8	2.5	1.7	1.1
Change vs 2023 (%)		**-10%**	**-39%**	**-60%**
Energy end-uses included	Heating, cooling, hot water, auxiliary energy and in non-residential buildings, also lighting			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2020	2030	2040	2050
Residential	5.50	3.4	1.8	0.15
Non-residential	1.7	0.7	0.1	0.01
Total	7.2	4.1	1.9	0.16
Change vs 2020 (%)		**-43%**	**-74%**	**-98%**
GHG emissions in $kgCO_2/m^2$	16.78	12.25	5.62	0.59
Change vs 2020 (%)		**-27%**	**-67%**	**-96%**

[7] In Wallonia's draft NBRP, the annual renovation rate is calculated based on the number of buildings, specifically as the ratio between the number of buildings renovated in a year and the total number of buildings.

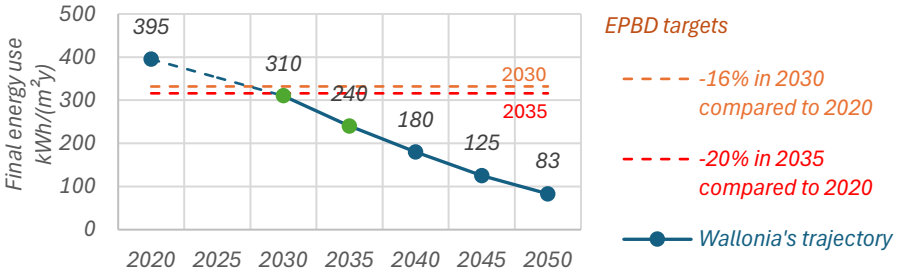




Renewable energy				
Renewable energy in final energy	2020	2030	2040	2050
Share of renewable energy in buildings' final energy consumption	-	40%	51%	91%
Solar energy technologies in buildings	2020	2030	2040	2050
MW installed	-	4 870	10 980	14 960
GWh generated	-	5 039	11 525	15 710

Energy poverty				
People affected by energy poverty	2020	2030	2040	2050
Share of households	29.2%	-	-	-
Reduction in households' energy bills	-	-	-	-60.0%

Trajectory for the progressive renovation of residential buildings



Minimum energy performance standards for non-residential buildings

Not available

Primary Energy Factors				
Total PEF	2023	2030	2040	2050
Electricity	2.50	-	-	1.32
Natural gas	1.00	1.00	1.00	1.00
District heating	-		-	-

Investment needs for renovation and funding and financing sources			
Investments needs (billion EUR)	2030	2040	2050
		Cumulative	
Residential	15.9	62.2	110.7
Non-residential	17.0	64.0	64.0
Total	32.9	126.2	174.7
Funding and financing (billion EUR)	2030	2040	2050
Public	-	-	-
Private	-	-	-
Total	33.00	126.00	174.00

Source: JRC elaboration on Member State reporting

3.1.2. Executive summary

Wallonia has submitted a comprehensive and complete draft of its national building renovation plan (NBRP).

It sets a detailed and well-structured roadmap towards achieving a highly energy-efficient and decarbonised building stock by 2050, supported by binding renovation objectives, strong regulatory instruments and an integrated policy mix.

Wallonia's targets for **primary energy consumption**[8] in the building sector are 3.1 Mtoe by 2030, 1.7 Mtoe by 2040 and 1.0 Mtoe by 2050, which correspond to reductions of about 12%, 53% and 73% compared with the 2023 level of 3.5 Mtoe.

Wallonia's targets for **final energy consumption** in the building sector are 2.5 Mtoe by 2030, 1.7 Mtoe by 2040 and 1.1 Mtoe by 2050, which correspond to reductions of about 10%, 39% and 60% compared with the 2023 level of 2.8 Mtoe.

Wallonia's targets for total **operational greenhouse gas GHG emissions**[9] in the building sector are 4.08 Mt CO_2eq in 2030, 1.9 Mt CO_2eq in 2040 and 0.2 Mt CO_2eq in 2050, corresponding to reductions of 43%, 74% and 98% compared with the 2020 baseline of 7.2 Mt CO_2eq.

The draft NBRP is aligned with the objectives and the policies and measures outlined in the final **national energy and climate plan** (NECP), although the targets are not fully comparable.

The contribution of Wallonia's building sector to the **EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED') is clearly outlined. Energy savings in the building sector represent 64% of the total energy savings needed to reach the energy efficiency target in 2030. The contribution of Wallonia's building sector to the **EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED').

Wallonia has set a trajectory for the **progressive renovation of residential buildings**. It aims to reduce average primary energy use in 2050 by 79% (to 83 kWh/(m^2y)) compared with 2020 levels. It sets milestones for reducing average primary energy use in 2030 and 2035 by 22% and 39%, respectively, exceeding the requirements of the Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD'), e.g., reductions of at least 16% by 2030 and 20-22% by 2035). The draft NBRP provides a good explanation of the methodology used to calculate average primary energy use. Also, the baseline and targets are consistent across the various parts of the draft plan. These targets are underpinned by an ambitious regulatory framework that aims for dwellings to reach energy performance certificate (EPC) class F by 2031, eliminating class G, and to achieve energy class E by 2036, phasing out class F. This demonstrates the priority given to renovating the worst-performing residential buildings, which are

[8] The JRC calculates the targets for absolute primary energy consumption on the basis of the relative reduction for each building type compared with the year 2023 provided in the draft plan.

[9] Targets are extrapolated from Figure 46 of the draft NBRP.

defined as buildings with an energy class F or G and represent around 36.5% of the total residential building stock in 2023 (about 650 000 dwellings)[10].

As regards the **minimum energy performance standards** (MEPS) for **non-residential buildings**, the draft NBRP states that Wallonia does not have a harmonised EPC framework or related EPC scheme for existing non-residential buildings, except public buildings, and therefore it is not yet possible to define the maximum thresholds. However, the draft plan introduces a measure aiming to establish a regulatory framework for renovating the 16% worst-performing non-residential buildings by 2030 and the 26% share by 2033, in accordance with Article 9.1 of the EPBD.

Energy poverty alleviation is partially addressed. In 2024, 29.2% of Walloon households faced at least one form of energy poverty, such as high energy expenditure, inability to keep homes adequately warm, and under-consumption (hidden energy poverty). Wallonia estimates that implementing the draft NBRP will help reduce energy bills by 60% by 2050 compared with current costs. This is in line with the reduction of the final energy use of residential stock. However, the draft plan does not set a target for reducing household energy poverty.

The draft NBRP addresses **housing affordability** comprehensively. For private rental housing stock, the plan aims to provide safe and affordable housing without raising rent or energy costs. Measures include monitoring rental stock, studying socio-economic impacts of renovations, and facilitating tenant relocation with guaranteed return rights. Wallonia proposes a standardised renovation lease template, allowing operators to renovate in exchange for long-term leases, using the rents collected for financing purposes while keeping rents affordable. This scheme will target vacant or dilapidated housing, aiming to make them available for social rental. For public housing, the focus is on increasing the annual renovation rate while keeping rents affordable post-renovation.

Wallonia addresses the **decarbonisation of heating** in a comprehensive way. The phasing-out of fossil fuels by 2040 relies on boiler replacement, guided by local heating and cooling plans. These plans will support the choice of the most suitable alternative between connecting to an efficient district heating network, where possible, or to a heat pump. Hybrid systems may be allowed only on a temporary basis, with a capped fossil-fuel share and a withdrawal deadline set by decree. The measures are clear and credible, but the projected decrease in gas emission factor is not underpinned by specific actions.

The **overview of implemented and planned policies and measures** is broad and coherent. All mandatory policy areas are addressed, with 28 measures composed of over 200 specific actions. These measures are well defined qualitatively and quantitatively, with clear short-term objectives set. While immediate impacts are outlined, there is a lack of broader, overarching quantified objectives, such as the contribution of these measures to renovation objectives or energy and GHG emission reduction targets. Despite this, the detailed structure and scope of the measures suggest they are sufficient to meet the renovation targets.

[10] There is currently no definition for worst-performing non-residential buildings.

The **investment needs for implementing the plan** are estimated at EUR 175 billion between 2025 and 2050 (representing an average of EUR 440/m^2)[11]. The calculation methodology used to estimate these needs relies on a bottom-up approach using building-level investment costs from the latest cost-optimal calculation, ensuring consistency and credibility. However, the draft plan does not clearly specify the sources of funding – especially public funding – making it uncertain whether the investment needs can be fully met. The draft establishes strong regulatory drivers for mobilising **private financing**, with innovative financial instruments like deferred-repayment and asset-backed loans. It encourages strategic partnerships with the public and banking sectors and introduces third-party investment models and renovation leases to make financing more accessible and attractive to private investors.

The **public consultation** allowed broad public participation, allocating enough time and opportunities for contributions from various stakeholders, which were documented and considered in the draft.

The assessment process has identified the following elements of the draft NBRP as strengths, **innovative measures** and/or **examples of good practice.**

— Wallonia aims to include climate resilience criteria (relating to heatwaves, runoff water, droughts, extreme winds) in renovation, with specific actions (e.g. comprehensive mapping of climate risks in the region) and clear objectives (e.g. 100% of energy audits issued from 2030 onwards should include a 'climate vulnerability' component).

— Wallonia intends to set up a building-renovation observatory which, from 2028 onwards, will monitor implementation of the plan, including some main indicators such as deep-renovation rate, the average energy class of the housing stock, and the sector's critical workforce and business needs.

— The use of dynamic emission factors that reflect the impact of renewable energy deployment according to the NECP scenarios for gas, electricity and district heating.

— The renovation trajectory of residential buildings includes the operational GHG emission milestones in addition to average primary energy use (which are consistent with the overall roadmap).

— The communication of EPC results for public buildings will be redesigned. Instead of presenting only the energy use (kWh) or EPC energy class, the results will be expressed in terms of euro saved, improved comfort and public-health benefits.

— To limit the 'rebound effect' after renovation, households receive an educational kit and follow-up assistance – either on-site visits or online support – to help them operate the refurbished dwelling efficiently and limit energy consumption.

[11] JRC calculation considering the total investment needs between 2026 and 2050, divided by the total floor area expected to be renovated between 2020 and 2050.

— Strong support for residential-building renovation through two complementary mechanisms: (i) a market-driven obligation that requires the new owner to carry out energy-efficiency upgrades within five years after sale; and (ii) a stock-wide mandate that targets the entire residential stock, prioritising the phase-out of the worst-performing buildings.

— Wallonia is introducing a set of policies and measures to help all stakeholders plan and perform building renovation. These include, in particular, support for carrying out self-renovation, promoting the involvement of co-ownership associations in renovation planning, strengthening support for precarious households, and support for collective renovation.

— The systematic inclusion of social safeguards in the renovation framework is clearly defined. The draft plan explicitly links regulatory obligations to income-differentiated subsidies, public-backed loans, social housing renovation programmes, support to co-ownership associations, and tailored support for vulnerable households and landlords.

However, there are several aspects of the draft NBRP that require **completion** and **improvement**, which should be addressed in the final version. These aspects are set out below.

— Define the MEPS thresholds for non-residential buildings in accordance with Article 9(1) of the EPBD and provide the methodology to identify the 16% and 26% worst-performing non-residential buildings.

— Quantify the impacts of all policies and measures for the overall targets (expected energy savings, energy poverty reduction, GHG emission reductions, number of renovated buildings).

— Provide the numerical targets for total operational GHG emissions by 2030, 2040 and 2050 for residential and non-residential buildings (provided only in graphical format in the draft NBRP).

— Introduce targets for energy poverty reduction by 2030, 2040 and 2050 and ensure that the energy poverty indicator reflects the multidimensionality of energy poverty in accordance with the EED definition.

— Ensure consistency between the baseline floor area (2020) and the planned renovated floor area by 2050, as the latter equals or even exceeds the entire floor area.

— Explain how the projected decrease of the gas emission factor will be achieved.

— Identify the budgetary and administrative resources by type (e.g. public and private) and explain how these will cover the estimated investment needs for implementing the NBRP.

— Ensure that important missing elements such as the MEPS thresholds and their associated framework undergo some sort of public consultation.

3.1.3. Ambition of the draft plan

Box 1. Key insights of Wallonia's draft NBRP.

- Wallonia plans to reach a **primary energy use**[12] in the building sector of 3.1 Mtoe by 2030, 1.7 Mtoe by 2040 and 1.0 Mtoe by 2050. This means reductions of 12%, 53% and 73% compared with 2023 (3.2 Mtoe).
- Wallonia plans to reach a **final energy use** in the building sector of 2.5 Mtoe by 2030, 1.7 Mtoe by 2040 and 1.1 Mtoe by 2050. This means reductions of 10%, 39% and 60% compared with 2023 (13.9 Mtoe).
- Wallonia plans to decrease **total operational GHG emissions**[13] in the building sector to 4.1 $MtCO_2eq$ in 2030, 1.9 $MtCO_2eq$ in 2040 and 0.2 $MtCO_2eq$ in 2050. This means reductions of 43%, 74% and 98% compared with 2020 (7.2 $MtCO_2eq$).

Assessment of the overall ambition of the draft plan to achieve a highly energy-efficient and decarbonised building stock by 2050

The level of ambition is in line with the goal of achieving a highly energy-efficient and decarbonised building stock in Wallonia by 2050.

The draft NBRP sets a target of a 55% reduction in GHG emissions by 2030 (compared with 1990) and aims to achieve climate neutrality by 2050. Buildings are identified as a priority sector, given that they represent nearly 30% of the region's final energy consumption and 20% of its CO_2 emissions.

By 2050, Wallonia aims to substantially reduce primary energy use by 73% and final energy use by 60% compared with 2023 levels. Simultaneously, Wallonia aims to reduce total operational GHG emissions by 98%, aiming towards nearly zero emissions (0.2 $MtCO_2eq$) in the building sector in 2050.

To achieve this, Wallonia plans an annual renovation rate in the residential building stock of 3% between 2024 and 2030, 5.1% between 2031 and 2040, and 5.2% between 2042 and 2050, with a focus on deep renovations. In the non-residential sector, the targeted annual renovation rates are 3.8% between 2024 and 2030, 7.4% between 2031 and 2040, and 0% beyond 2040. However, this entails renovating 337 million m^2 of residential floor area and about 61 million m^2 of non-residential floor area. The expected renovated residential floor area (337 million m^2) is larger than the 2023 floor area for this segment (267 million m^2) which is inconsistent and not plausible.

Building decarbonisation is also supported by an increase in the share of renewable energy in final energy use in buildings of up to 40% in 2030 and 91% in 2050. Moreover, Wallonia sets targets for the deployment of solar energy in buildings, aiming for 4.87 GW installed power in 2030, 10.98 GW in 2040 and 14.96 GW in 2050.

[12] The JRC calculates the targets for absolute primary energy consumption on the basis of the relative reduction for each building type compared with the year 2023 provided in the draft plan.

[13] Targets are extrapolated from Figure 46 of the draft plan.

Assessment of the alignment between the draft NBRP and national commitments on climate and energy set out in the NECP

The draft NBRP is aligned with the ambition and objectives of the final NECP, although the targets are not fully comparable, as described below. The section below also addresses how the NBRP ambition compares with the 2020 long-term renovation strategy (LTRS) adopted by Wallonia.

Energy efficiency

Wallonia aims to reduce primary energy consumption by 13% (residential) and 11% (non-residential) and final energy consumption by 8% (residential) and 16% (non-residential) by 2030 compared with 2023.

The draft NBRP energy accounting explicitly covers EPBD energy uses (heating, cooling, domestic hot water, auxiliaries).

While the final NECP provides building sector targets for final energy (which are similar to the 2020 LTRS), any comparison with the NBRP energy targets is not possible, as the relative reductions are calculated using different baseline years and the draft NBRP provides the absolute values only in graphical format. However, when these values are extrapolated from the graph, the ambitions in both plans appear similar, with no significant changes.

The Walloon draft NBRP reports a quantified contribution to the energy efficiency target under Article 4 of the EED of 9.7 TW (6.77 TW from the renovation of residential buildings and 2.92 TW from the renovation of non-residential buildings). This contribution represents 64% of the 15.05 TW of total energy savings needed to reach the energy efficiency target, illustrating the significant contribution of the building sector to the overall energy efficiency target.

Wallonia used the forward-looking primary energy factor (PEF) for electricity when calculating primary energy targets. By 2050, the electricity PEF is estimated to decrease to 1.32 from 2.5 in 2020. The projections are considered plausible, because they are based on energy scenarios that align with final NECP. For the other fuels (natural gas, coal, biomass, etc.) the value is 1 and kept constant over the 2020 to 2050 period.

The energy targets are sufficient and in line to achieve the national commitment on energy efficiency laid down in the NECP.

Decarbonisation

In its draft NBRP, Wallonia aims to reduce operational GHG emissions per unit of floor area ($kgCO_2/m^2y$) by about 96% by 2050, with intermediate targets of a 27% reduction in 2030 and a 67% reduction in 2040 compared with 2020. Wallonia also sets targets for total operational GHG emissions (tonnes of CO_2-eq), but these values are provided solely in graphical format by building type (residential and non-residential).

The targets are derived from the final energy consumption targets and emissions factors, which, in turn, are derived from the final NECP projections. The emissions factor for gas is projected to decrease from 203 gCO_2eq/kWh in 2020 to 152 gCO_2eq/kWh in 2050. However, this does not seem to be underpinned by concrete action such as biogas injection in the grid. Similarly, the emission factors of electricity and district heat are projected to decrease from 2020 to 2050.

The Walloon draft NBRP appears more ambitious and more granular than the final NECP with respect to the GHG emissions of the building sector. However, in both plans, the targets are provided in graphical format only, so the comparison is not very clear.

The NBRP operational GHG emission targets are sufficient and in line to achieve the national commitment on **decarbonisation** laid down in the NECP.

Renewable energy

The Walloon plan sets explicit, quantified targets for the share of renewable energy in final energy consumption of buildings expressed in EPBD end-uses (heating, cooling, domestic hot water, auxiliaries, lighting). These target shares are: 40%, 51% and 91% for 2030, 2040 and 2050, respectively. They apply jointly to residential and non-residential buildings and exclude renewable energy drawn from networks (electricity, gas, heat networks). Only on-site and directly attributable renewable energy (solar photovoltaic, ambient heat, as well as solar thermal and geothermal) is counted. This means that the renewable energy target set by the Walloon draft NBRP complies with the scope and definitions set out in Article 15a of the RED.

The draft NBRP indicates that 56% of Wallonia's 2030 renewable energy target is attributable to building renovation, equivalent to approximately 17.3 TWh of renewable final energy.

Compared with the indicative national shares provided in the Commission guidance on heating and cooling (C/2025/2238), Annex C, Wallonia's draft NBRP target for 2030 is significantly higher (56% vs 31.2%).

Expected reduction in the number of people affected by energy poverty

Energy poverty is described with harmonised indicators: disproportionate energy expenditure, inability to keep one's home adequately warm in winter and hidden energy poverty (under-consumption). The plan reports EU-SILC 2022 data contained in the Energy Poverty Barometer 2024, which state that almost one third (29.2%) of Walloon households face at least one form of energy poverty (compared with 16.4% in Flanders and 28.2% in Brussels). Among these households, 21.7% reported disproportionate energy expenditure relative to income and 4.1% reported an inability to keep their homes adequately warm. Moreover, Walloon households spend on average 9.2% of their disposable-income equivalent on energy (compared with 6.6% in Flanders and 5.4% in Brussels).

Wallonia emphasises that one of the main renovation objectives is to improve comfort and health, particularly for vulnerable households. Based on the final energy target in residential buildings (a 60% reduction by 2050), the draft plan estimates that the average household energy bill could be reduced by 60% by 2050 compared with current costs.

However, the draft NBRP does not set targets (for 2030, 2040 or 2050) for reducing household affected by energy poverty.

Prioritising the renovation of the worst-performing buildings

The Walloon draft NBRP prioritises renovating the worst-performing buildings. The plan defines 'worst-performing residential buildings' as buildings with an EPC energy class F or G. This choice is explicitly justified as corresponding to the 43% worst-performing buildings (around 770 000 dwellings in 2020). There is currently no definition of worst-performing non-residential buildings. There is also no established EPC scheme for non-residential buildings, except for public ones.

The plan introduces explicit renovation obligations for F and G dwellings, aimed at a complete phase-out of G-rated dwellings from 2031 and F-rated dwellings from 2036. This will translate into ambitious targeted annual renovation rates for worst-performing buildings of 6.35% in the 2024-2030 period, 8.80% in the 2031-2040 period and 5.94% in the 2041-2050 period.

Minimum energy performance standards for non-residential buildings

The Walloon draft plan mentions that there is currently no comprehensive and harmonised framework to assess the energy performance and related EPC scheme for existing non-residential buildings, except public buildings, and therefore it is not possible to define MEPS[14]. The draft plan transparently acknowledges that MEPS modelling for non-residential buildings is pending, which should plug this gap. The draft plan introduces a measure focused on the renovation of non-residential buildings, aiming to establish a regulatory framework for renovating the 16% worst-performing non-residential buildings by 2030 and the 26% share by 2033, in accordance with Article 9.1 of the EPBD.

Exclusions (if applicable) pursuant to Article 9(6) of the EPBD and criteria for exemptions

As allowed by Article 9(1), Wallonia plans to exempt some non-residential buildings from the MEPS renovation requirement based on criteria such as buildings with specific uses, serious hardship, or unfavourable cost-benefit assessments. However, it is not possible using the current databases to accurately identify the exempted buildings or to estimate the equivalent level of energy savings to be achieved in other parts of the stock.

National trajectory for the progressive renovation of residential buildings

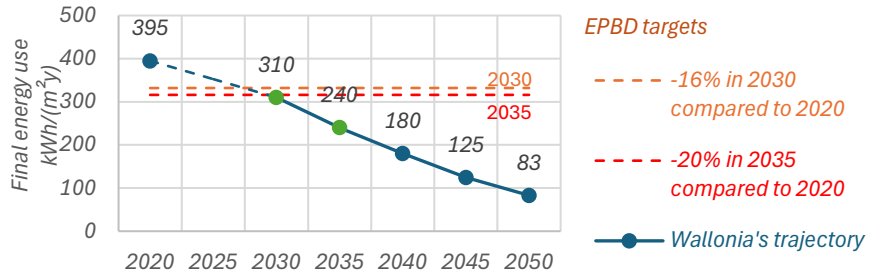
Wallonia defines the renovation trajectory of residential buildings with the aim of transforming them into zero-emission buildings by 2050. The targeted average primary energy use of residential buildings is set at 83 kWh/(m^2y) in 2050, which corresponds to EPC class A.

The 2030 and 2035 targets for average primary energy use are 310 kWh/(m^2y) and 240 kWh/(m^2y)[15], respectively. Compared with 2020 (395 kWh/(m^2y), these values are 22% and 39% lower, which makes them more ambitious than the EPBD requirements (e.g. a 16% decrease in 2030 compared with 2020 and a 20-22% decrease by 2035). For the draft NBRP, Wallonia used primary energy use calculated under standard conditions, which reflects the intrinsic performance of the building.

[14] Currently, the EPC scheme for existing non-residential buildings applies only to public buildings and relies on metered energy consumption.

[15] The numerical targets are extrapolated from Figure 60 of the draft NBRP.

Figure 1. Trajectory for the progressive renovation of residential buildings in Wallonia.



Source: JRC elaboration on Member State reporting

In addition to the reduction of average residential primary energy use, the trajectory includes operational GHG emission milestones, which are consistent with the overall roadmap's targets (reductions of 38% by 2030, 45% by 2035 and 97% by 2050).

The renovation targets – annual renovation rate, floor area and number of buildings – are adjusted to deliver this trajectory. Moreover, the number, floor area and annual renovation rate of the 43% worst-performing buildings to be renovated are provided. These 43% worst-performing buildings account for more than 55% of the decrease in average primary energy use at each milestone, particularly in the first few years (e.g. 60% in 2030, 70% in 2035, 59% in 2040 and 55% in 2050). This is a result of the obligation set by Wallonia of phasing out dwellings with energy classes F and G by 2031 and 2036, respectively.

The plan acknowledges approx. 5% exemptions (because of heritage considerations and/or technical constraints).

The methodology used to establish the trajectory is robust; it relies on the theoretical primary energy consumption from the EPC database and the floor area of residential buildings. The 2020 baseline (residential building stock data and total primary energy consumption) is consistent across the various parts of the draft NBRP.

3.1.4. Sufficiency of the policies and measures

The overview of implemented and planned policies and measures is comprehensively addressed in the Walloon draft NBRP. All mandatory indicators/areas of action are addressed, including several optional ones (Annex II to the EPBD).

The plan consists of 28 measures covering about 210 actions of different forms and nature: regulatory (obligations, bans, standards); financial (premiums, loans, guarantees); institutional (governance, tools, alliances); technical (EPB reform, passports, audits); social (energy poverty, targeted support); and market-oriented (skills, industrialisation, supply chains).

The policies and measures are both consistent with existing strategies and complemented by new ones. They align with the Belgian NECP and the relevant Walloon strategies, such as the air-climate-energy plan, the social climate plan, and the renovation support schemes, building on the 2020 LTRS. They are all described qualitatively (objectives, scope, timeline) and in most cases quantitatively (coverage, shares). Most measures provide their *ex ante* quantified impact related to their main objective (e.g. 100% of residential buildings with a valid EPC by 2030). Several measures also provide the expected impact on overall objectives, such as the number of buildings to be

renovated. The structure and depth of the measures described suggest they are sufficient to meet the NBRP target.

Renovation and MEPS for non-residential buildings

The Walloon plan places renovation obligations and MEPS at the core of its strategy for non-residential buildings.

The plan commits to introducing MEPS for non-residential buildings in accordance with Article 9(1) of the EPBD, with thresholds designed to capture the 16% most energy intensive of the 2020 stock by 2030 and 26% by 2033. However, as explained in the ambition section, it acknowledges that numerical kWh/(m^2y) thresholds cannot be set due to insufficient certification data. Specifically, measure 7 introduces a renovation obligation for non-residential buildings under the 'Regulatory measures' package and entails a transformation of the Walloon framework: defining a common assessment methodology; establishing a comprehensive register of non-residential stock; adopting progressive regulatory thresholds; and creating a sectoral support system. For this purpose, the measures define nine areas of action, with clear timelines. Those actions are: setting up an EPC for non-residential buildings (2025-2026); creating a centralised database of non-residential buildings (2027-2029); identifying worst-performing buildings in the database (2029); defining MEPS and compliance deadlines (2026); providing exemption criteria (2026); setting up technical and financial support (2030-2040); launching control and display (2027-2033); implementing monitoring and sanctions (2030-2033); and planning and providing information on the next steps (2026-2050).

Renovation of residential buildings

For residential buildings, the plan introduces two distinct and complementary mechanisms to progressively renovate the stock.

— An obligation upon a change of ownership (e.g. in the event of a sale), which requires the new owner to carry out an energy efficiency upgrade. The new owner has five years to carry out the works so as to reach the relevant EPC class. The thresholds and deadlines are EPC class D for all purchases from 2028, class C from 2031, class B from 2036 and class A from 2041 onwards.

— An obligation for the entire building stock, which aims to phase out worst-performing buildings. All residential buildings (or units) must meet at least EPC class F in 2031, class E in 2036, class D in 2041, class C in 2046 and class B in 2050.

To support these mechanisms, Wallonia plans for all existing and new residential buildings to have a valid EPC by 2030 registered in an interoperable database (with other databases such as land register, taxes, leases). This will also support the development of renovation passports.

These measures support the renovation objectives, e.g. requiring annual renovation rates of 6-10% for the worst-performing segment, substantially higher than the average rate for the total stock. The draft plan highlights clear steering and transparent monitoring as key actions to successfully implement the trajectory for residential building renovation by creating a dedicated observatory.

The building renovation passport as a tool to support energy savings, complement MEPS and assist the trajectory for residential buildings

In the Wallonia draft plan, the building renovation passport is a key instrument for supporting renovation. A centralised database will store each building's administrative, technical and energy

data, allowing the passport to be generated. The passport will also be linked to regional financial- and administrative-support databases, directing owners to a one-stop-shop for assistance.

Box 2. Example of policies and measures in Wallonia.

- **Promote the involvement of co-ownership associations in renovation planning.** Wallonia proposes introducing a collective approach to energy performance and planning through three main strategies: developing a collective energy certificate, establishing a renovation roadmap for co-owned properties, and providing tailored support for project management. The aim is to overcome barriers to renovation, ensure equitable access to finance, and align co-owned properties with regional energy goals by 2050. Quantified objectives include achieving full EPB certification for co-owned properties by 2030, creating 10 000 roadmaps, and renovating 10 000 co-owned properties by 2035.

- **Support for collective renovation**. By leveraging economies of scale, the measure seeks to reduce renovation costs and simplify processes for homeowners. It includes creating a regional support platform to coordinate local initiatives, deploying 'renovation trains' worksites carried out simultaneously on similar buildings, allowing for a faster, industrialised approach) for simultaneous renovations, and integrating district-based programming for energy infrastructure and climate adaptations. Quantified objectives include renovating 2 000 housing units collectively by 2030, deploying 10 refurbishment trains by 2029, and supporting pooled renovation strategies in 25% of municipalities by 2030.

- **Support for the renovation of private rental housing.** The measure seeks to create a balanced framework that promotes extensive renovation while protecting tenants. Key strategies include providing regional aid subject to maintaining reasonable rents, enhancing the role of social estate agencies (*agences immobilières sociales* – AIS) in supporting landlords, and implementing monitoring mechanisms to track renovation impacts. Quantified objectives include reducing F or G-class rental housing by 50% by 2030 and supporting 20 000 rental units through AIS by 2033.

Alleviation of energy poverty and housing affordability

Although Wallonia has not set quantified targets for alleviating energy poverty, it is a structuring objective of its draft NBRP and is closely linked to prioritising the worst-performing residential buildings. The draft plan addresses this issue comprehensively through specific, quantified measures. For instance, measure 15 – Strengthening support for precarious and digitally excluded households – has two main objectives: 1) 80% of municipalities will have an energy vulnerability map by 2030 and use it to adapt their local actions; and 2) 10 000 precarious households will have benefited from a complete renovation between 2026 and 2030. The measure includes actions aiming to make renovation accessible to all, increase awareness, and use identified, trusted intermediate partners such as social services and schools. A proactive follow-up will be ensured to maximise the number of contact households for requesting additional technical assistance.

Moreover, the draft NBRP includes measures to ensure energy-efficient and affordable housing without any increase in housing costs[16], while ensuring that rental stock is in line with the renovation objectives (measure 18). The quantified objectives are: 1) to phase out rental housing classed as F or G by 50% by 2030; and 2) to support 20 000 rental units through AIS or one-stop

[16] Including rent, and operating costs such as energy.

shops by 2033. The main actions planned are: strengthening access to regional aid subject to a rent cap; establishing a monitoring tool for the rental stock tasked with tracking the level of rents; facilitating the temporary relocation of tenants during renovation works, with a guaranteed right of return and transparent financial conditions; and strengthening communication through regional roundtables with landlord and tenant associations, AIS and public authorities.

As an innovative financing mechanism to support building renovation, the draft NBRP introduces a 'renovation lease on private rental housing stock'. The measure includes a standardised renovation lease template that allows operators to carry out renovation work in exchange for a long-term lease (18-30 years). The operator finances the work and reimburses itself via the rents received, maintaining an affordable rent for the tenant. This mechanism targets vacant or dilapidated housing, ensuring that they remain in the social housing rental market . A seed fund for a first batch of about 500 dwellings will be launched together with the lease template.

Furthermore, by 2030, Wallonia aims to renovate 25 000 of the 110 000 public-housing dwellings mostly occupied by vulnerable households, with an annual renovation rate of 5 000 by 2027. The measure also aims to ensure an affordable rent for all those households after renovation. Actions include: drawing up a regional plan for public-housing renovation; developing a coherent regulatory framework; implementing a social support strategy; developing an innovative financial strategy (combining subsidies, long-term public borrowing, EU funding and third-investment mechanisms); implementing independent monitoring; and training local stakeholders.

The Walloon reform of renovation subsidies aims to combine full subsidy and loan schemes and to focus on the worst-performing dwellings (classes F and G) by 2027. The reform provides for progressive support based on household income. The largest multipliers and greatest aid intensity are directed towards lower-income households (zero-interest loans and pre-financing), including vulnerable landlords whose ability to invest is constrained. This design ensures that compliance with the ban on F/G-class dwellings is paired with higher support for those least able to pay.

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

The draft plan addresses this area mostly with measure 17 – Developing one-stop shops (OSSs). The OSS architecture is ambitious and aims to implement the requirements of Article 18. It represents a significant improvement on the current fragmented advisory system. The tasks of the OSS will cover access to financial aid and a simplification of administrative procedures. The plan also provides for the development of a digital building passport that will work in synergy with the OSS. Furthermore, measure 4 – Simplification of administrative procedures – aims to equip the OSS in helping users identify which operations require a building permit and which do not.

Decarbonisation of heating and the phasing-out of fossil fuels in heating with a view to a complete phasing-out of fossil fuel boilers by 2040

The draft NBRP identifies the decarbonisation of heating as one of the major challenges of Wallonia's energy transition. It is addressed comprehensively through a coherent package of regulatory, financial and planning measures.

The draft NBRP demonstrates clear and credible measures for the decarbonisation of heating and the phasing-out of fossil fuels. Its main instrument is the replacement of fossil fuel boilers. While it does not explicitly include measures to promote fossil fuel replacement, e.g. biogas injection (pathways specified in Commission guidance C/2025/6438), it assumes that the gas emission

factor will fall as biogas is gradually introduced from 2030, reaching a 25% share of the gas mix by 2050. The draft plan demonstrates consistency with existing policies and strategic plans, such as the local heating and cooling plans developed in accordance with Article 25 of the EED.

As described below, the measures in this area address the territorial planning of heating and cooling networks, a roadmap for phasing out fossil fuels by 2040, and the development of renewable alternatives such as heat pumps, solar-thermal systems and geothermal energy.

— Measure 10, covering the development of heating and cooling plans at local level in accordance with Article 25 of the EED, aims to steer public and private investment, reduce systemic costs and ensure the long-term optimisation of energy infrastructure. Besides strengthening the ability of municipalities to plan and manage the energy transition in their territory, the plans are expected to make it easier to include energy priorities in planning documents and support proactive communication to households and businesses through neighbourhood maps.

— Another important measure is introducing a roadmap to phase out fossil fuel boilers by 2040 (measure 11). Based on the local heating and cooling plans, an energy-substitution schedule will be developed: in areas where an efficient heating network is available, connection to a non-fossil collective solution will be mandatory; in remote areas, electrification will be achieved through heat pumps; and hybrid systems will be permitted only on a transitional basis, with the fossil-fuel share limited and a withdrawal deadline set by decree. Specific actions are: 1) introducing a legally binding trajectory for phasing out fossil fuels; 2) using local heating and cooling plans for energy planning and public decisions on aid, authorisations or connections; 3) mobilising public buildings (schools, hospitals, administrative and sports buildings) to guarantee a minimum demand base in network projects (to attract investment); 4) organising the gradual transition to a zone-differentiated schedule; 5) converting existing district heating networks to low-temperature regimes and extending them to the areas identified in the local planning; 6) adapting power grids and deploying local flexibility tools for heat-pump deployment; 7) prioritising households affected by energy poverty; and 8) providing heating engineers, auditors and community teams with training in decarbonised heat technologies and quality commissioning.

— Finally, the Wallon draft plan introduces a measure for developing renewable alternatives in buildings (measure 12), which completements measures 10 and 11. The launch of a massive heat-pump installation programme (2027-2035) is seen as the pillar of the decarbonisation strategy and includes actions such as: reducing taxes on electricity; promoting solar thermal systems; feasibility studies for geothermal technology; and information campaign.

Prevention of construction and demolition waste

Circularity and waste prevention are addressed mainly through measure 26 – Developing the circular economy in the construction and renovation sector and applying the do no significant harm (DNSH) principle to public support schemes. The draft plan promotes the reuse of materials and circularity through financial support, dedicated training, and certification. Quantitative targets are also set (e.g. 1 000 trained/certified 'circular skills' professionals by 2030).

Promotion of renewable energy sources in line with Article 15a of the Renewable Energy Directive

The promotion of renewable energy in buildings is a major strength of the plan, as developed through measure 12 – Deploying renewable energy alternatives in buildings – with a focus on mitigating high investment costs, inadequate energy taxation and lack of skills. Main actions include

rebalancing energy taxation (electricity and gas), heat-pump installation, solar-thermal deployment, geothermal use assessment, and communication and information campaigns.

Wallonia provides quantified objectives for renewable energy generation: 2 TWh/year of useful heat will be produced by heat pumps by 2030, 0.2 TWh/year of solar thermal heat will be generated by 2030, and 0.25 TWh/year of heat from deep geothermal and mining will be generated by 2030.

Deployment of solar energy installations on buildings

Solar energy deployment is addressed in the draft NBRP. The draft focuses on photovoltaics (PVs) for setting the long-term target of about 15 GW of installed PV capacity by 2050, which would generate roughly 15.7 TWh of electricity per year. However, it does not include any specific measure to support the deployment of PVs on buildings.

The draft NBRP refers horizontally to the deployment of solar PVs, including energy storage. For instance, the measure for promoting the renovation of co-owned properties (measure 4) includes actions to develop collective renewable energy systems: solar self-consumption, shared energy storage, and charging stations for electric vehicles. Moreover, industrialised solar roofs are also mentioned under the promotion of modular construction (measure 27).

Reduction of whole life cycle GHG emissions and the uptake of carbon removals

Whole-life-cycle emissions are addressed through measure 24 – Reducing the carbon footprint of buildings throughout their life cycle – notably by institutionalising the TOTEM life cycle assessment tool[17] (developed jointly with Flanders and Brussels). As main objectives, Wallonia aims to use the tool for 100% of new public buildings over 1 000 m^2 from 2028, then for all new buildings from 2030. It also introduces actions to train professionals to use this tool. Moreover, Wallonia aims to publish at the end of 2026 a regional roadmap with limit values for global warming potential (GWP) thresholds by building typology. This roadmap will define the 2030 baselines and the 2040 trajectory, with annual monitoring. In addition, the plan targets a 40% reduction in lifecycle GHG emissions of new and renovated buildings by 2040 compared with 2020. Bio-based materials and low-carbon solutions are promoted, but the role of carbon storage and removals is not explicitly addressed, leaving room for further clarification.

Promotion of district and neighbourhood approach and integrated renovation programmes

The Walloon draft NBRP recognises the role of neighbourhoods in deep renovation and heating decarbonisation. This requires coordination beyond the individual building level. For that reason, the draft NBRP promotes district- and neighbourhood-based approaches through many different actions. In particular, measure 16 – Supporting collective renovation – includes actions and quantified targets, such as training, supporting platforms, and district-based programming. It aims to collectively renovate 2 000 housing units between 2026 and 2030, deploy at least 10 'renovation trains' (worksites carried out simultaneously on similar buildings, allowing for a faster, industrialised approach) by 2029, and for 25% of municipalities with a local pooled renovation strategy to be supported by the regional support platform by 2030.

[17] https://www.totem-building.be/.

The neighbourhood approach is also being developed horizontally through several policy areas (e.g. heating and cooling plans, vulnerable households). The local heating and cooling plans are intended to map energy demand, identify renewable heat sources, and coordinate building renovation with infrastructure deployment at territorial level. The measure explicitly encourages municipal and inter-municipal authorities to take a leading role, in close cooperation with distribution system operators and building owners. The plan also refers to the development of integrated renovation programmes targeting groups of buildings or entire neighbourhoods, particularly in areas with high concentrations of worst-performing dwellings or social housing. Such programmes are expected to generate economies of scale, reduce costs and facilitate the deployment of collective solutions such as district heating.

Improvement of buildings owned by public bodies

Public buildings are given a prominent role in the draft NBRP under measures 21 and 22 for the ambitious renovation of public buildings and public-housing renovation, respectively. The plan states that buildings owned or occupied by public bodies must not only comply with general renovation obligations, but also anticipate future standards, including zero-emission requirements and solar energy obligations.

This approach is explicitly linked to the obligations under Articles 5, 6 and 7 of the EED, notably the renovation of public buildings and the exemplary role of public procurement.

The plan refers to existing strategies for public buildings (*Stratégie immobilière globale à long terme*) and stresses the need for systematic planning, monitoring and reporting. The communication of the energy performance of public buildings (EPC display) will be redesigned: the benefit will be expressed in terms of euro saved, improved comfort and public-health benefits. Public buildings are also expected to serve as demonstration projects, showcasing innovative solutions and supporting market development. As quantified objectives, the draft plan aims to reduce final energy consumption in the public sector by 1.9% per year, incorporating social and environmental clauses into 100% of public contracts as early as 2028.

Finally, the draft plan places a strong focus on the renovation of public buildings (measure 22, already described under the alleviation of energy poverty).

Promotion of smart technologies and infrastructure for sustainable mobility

The promotion of smart technologies and infrastructure for sustainable mobility is addressed in the Walloon draft NBRP. The plan refers to electric vehicle (EV) charging readiness and the deployment of charging points in new buildings and buildings undergoing major renovation, in line with the revised EPBD provisions (measure 27). This is being implemented through adaptations of the Walloon regulatory framework, ensuring that renovated residential and non-residential buildings are progressively equipped with the necessary pre-cabling, electrical capacity and charging infrastructure to support the electrification of transport. The regional decree must specify the parking space requirements, the pre-cabling rates (50%), and the minimum number of EV charging stations by building category, and include provisions on bicycle parking spaces (15% of average capacity or 10% of total capacity). The link between building renovation and sustainable mobility is therefore mainly regulatory and enabling in nature, focusing on infrastructure readiness rather than active mobility management.

The draft plan does include information on the smart readiness indicator, such as whether a test phase was implemented.

Accessibility for persons with disabilities

Accessibility is not identified as an element in the overview of the building stock. The draft plan does not provide data on accessible buildings or buildings in need of accessibility renovation, nor can they be estimated based on the information available in the draft plan. Moreover, accessibility is not included among the elements of the buildings identified as targets for renovation. It is not possible to estimate which percentage of the targeted building renovation will include accessibility renovations.

Accessibility for persons with disabilities is addressed under policies and measures related to sustainable mobility infrastructure. The requirement of accessibility to charging stations for persons with disabilities will apply to all buildings (new and existing, residential and non-residential, public and private). Specifically, Wallonia aims to include in its regulations minimum requirements on the width of parking spaces, accessible paths, height, and the ergonomics of charging stations. The objective is for 100% of new public charging points and 80% of private charging points installed between 2027 and 2030 to meet the accessibility criteria. Moreover, for bicycle parking, a certain proportion of spaces should be set aside for cargo bikes or bicycles for persons with disabilities.

Moreover, ensuring accessibility to information on renovation is also addressed through a measure on the regular update of communication tools tailored to each target audience.

No specific information is provided when it comes to estimating the investments needs for accessibility renovation.

Addressing market barriers and market failures and skill gaps

The Walloon draft plan provides a detailed diagnosis of market and skills barriers, identifying access to finance, renovation costs, administrative complexity, behavioural and social barriers, and fragmentation of institutional processes.

These challenges are addressed primarily through the following actions: creating a centralised database, including information about the building stock; creating an observatory on renovation and building professions responsible for monitoring indicators; introducing a reform of the financial support scheme, combining financing tools of different types; promoting one-stop shops to simplify procedures; and establishing effective coordination between the various stakeholders.

Regarding skill and workforce gaps, the draft NBRP estimates that Wallonia will have a deficit of almost 25 000 full-time equivalents by 2030. Measure 25 sets out a strategy to train, attract and retain renovation workers. Its main goal is to train or reskill 10 000 people by 2030, with a specific target of raising the share of women in the sector to 15% by that date. The actions cover the development of a prospective study on job creation; modernising training programmes and training centres and deploying campuses; training in digital tools; accrediting new professions; and promoting access to employment for groups that are difficult to reach (unskilled young people, long-term jobseekers, etc.).

Awareness-raising campaigns and other advisory tools

Awareness-raising and behavioural change are embedded throughout the plan via a suite of coordinated actions, in particular measure 1, which focuses on ensuring fair access to information for all renovation stakeholders.

Specifically, the measure aims to provide harmonised information on renovation in Wallonia on a unified portal, as well as communication kits to activate key moments in the building lifetime for renovation (purchase, inheritance, rental) and a proactive strategy for professional stakeholders.

Communication on the wider benefits of renovation will be strengthened with tangible results. The housing-audit tool[18] is being upgraded and made mandatory before any public financial support, with the cost of the audit fully or partially covered for vulnerable households, and with auditors receiving enhanced training. This tool underpins the future renovation passport by delivering personalised, actionable recommendations on measures and financing and regulatory requirements.

After renovation, households receive an educational kit and follow-up assistance – either on-site visits or online support – to help them operate the refurbished dwelling efficiently and limit energy consumption. A self-renovation guide together with practical training modules empowers owners to carry out minor works themselves, encouraging wider participation. Targeted outreach to precarious households is ensured through simple, concrete local communication strategies, a network of municipal actors and mobile hotlines staffed by energy advisers and digital mediators, guaranteeing that information reaches those most in need. Finally, continuous campaigns from 2026 to 2035 promote sustainable, local and circular building materials, informing developers, businesses and public authorities of their technical and environmental advantages. This integrated approach combines information, training and support to foster informed, lasting renovation across the residential stock.

Promotion of modular and industrialised solutions

The promotion of modular and industrialised renovation solutions is explicitly addressed in the Walloon plan through measure 27 for promoting modular, industrialised and innovative solutions in renovation and promoting sustainable mobility infrastructure. This measure recognises industrialisation as a key lever to achieve the high renovation rates and deep renovation levels required by the draft NBRP. As a quantified objective, the draft plan aims, by 2035, to renovate about 1 000 residential buildings with industrialised solutions and reduce the average unit cost of deep renovation by 20%. The draft plan provides for a regional pilot programme for industrialised renovation, support for the creation of regional production units for prefabricated elements (facade, roof) and a seed fund for innovative projects focusing on prefabricated bio-based solutions (e.g. recycled materials, integrating heat pumps and ventilation systems, smart sensors). The measure is closely linked to the objectives of addressing labour shortages and skills constraints, as industrialised processes can reduce dependence on scarce on-site labour and facilitate standardisation and training. There is also provision for training and reskilling the workforce for industrialised processes.

3.1.5. Sufficiency of financing sources and administrative resources

The draft NBRP provides a quantification of investment needs to meet the renovation targets. The calculation methodology for these investment needs relies on a bottom-up approach. It uses building-level investment costs from the latest cost-optimal calculation, ensuring the consistency

[18] The housing-audit tool complements the EPC, offering a more operational and advisory role by informing the public about coherent renovation measures, regulatory requirements and financing options. It is regarded as the direct foundation for the future renovation passport.

and credibility of the approach. Although the quantified investment appears adequate to deliver the renovation, the draft plan does not clearly specify the sources of funding – especially public funding – making it uncertain whether the investment needs can be fully met.

These **investment needs** in the draft NBRP by building type (residential and non-residential) are estimated at EUR 175 billion between 2020 and 2050 (representing about EUR 440/m^2 of total renovated floor area)[19]. Wallonia estimates the investment needs for residential building renovation by assigning a cost per m^2 based on Wallonia's latest (2023) cost-optimal report. For non-residential buildings, the costs rely on the 2020 LTRS and information collected from the public consultation. The approach ensures credibility and suggests sufficiency in achieving the targets. However, the estimates do not include sensitivity analyses or account for additional costs, such as administrative and human resource expenses.

The **funding and financing sources** are not clearly outlined. The draft plan mentions that high investment needs are putting pressure on both public and private stakeholders, and that flexibility should be allowed to adjust the objectives when needed. However, funding and financing mechanisms are identified under policies and measures. For instance, measure 19 deals with developing innovative financing mechanisms, and measure 20 addresses reforming financial support.

Public funding plays a catalytic but not dominant role in the financing architecture of the plan. The plan clearly states that direct public subsidies alone cannot finance the renovation wave, given the estimated scale of needs. Public resources are therefore primarily used to (i) trigger private investment; (ii) address social equity concerns; and (iii) de-risk private financing. The draft plan does not consolidate all public funding into a single multiannual budget line. As mentioned in the energy poverty section, the reform of the renovation subsidies will aim to provide higher and more targeted support to vulnerable landlords.

Key public funding streams include:

— regional renovation subsidies with enhanced support for low-income households and worst-performing dwellings, covering up to 70% of eligible costs for vulnerable households;

— public investment in social housing renovation, implemented through housing companies and supported by regional and European instruments; and

— administrative and technical funding for advisory services (one stop shops), EPB reform, monitoring systems and data infrastructure.

Private financing is expected to provide the largest share of total investment, particularly for owner-occupied and rental residential buildings and for non-residential buildings subject to MEPS. Private financing is expected to come mainly from:

— household savings and mortgage refinancing;

— bank loans supported by public guarantees;

— owner and landlord investment, driven by market access constraints; and

[19] JRC calculation.

— corporate investment in the non-residential sector.

The draft NBRP recognises affordability and credit-access constraints, especially for low-income households and small landlords, linking private financing expectations closely to public-backed loan instruments. While the reliance on private capital is realistic given the scale of needs, it also represents a key delivery risk if financing conditions deteriorate.

The Walloon draft plan relies on innovative financing instruments to deliver the investment needs, aiming to mobilise private financing through public resources. It introduces a new measure for developing financing mechanisms, relying on three pillars. The first pillar is a regional innovative financing fund responsible for piloting, pooling and guaranteeing various investments. The second pillar is represented by financial products adapted to each profile, such as deferred-repayment loans, third-party investment, asset-backed loans, renovation leases, and land transfers. The third pillar is the strategic partnership mobilising public actors and the banking sector. The purpose is to mobilise EUR 200 million of private capital through guarantees and co-financing by 2030.

Assessment of the adequacy of total investments

The Walloon draft plan intends to mobilise substantial public and public-backed financial resources and establishes strong regulatory drivers for private investment. While the draft plan provides the estimated investment needs, it does not identify the planned funding and financing sources. As a result, while the financing framework appears broadly credible in principle, the sufficiency of planned investments to meet the renovation and decarbonisation targets cannot be fully demonstrated.

Linking investment needs to targets through policies and measures

The draft plan does not systematically allocate investment needs to individual measures, nor does it provide a full measure-by-measure financing gap analysis. This makes it difficult to assess whether specific objectives are fully backed by dedicated financial resources.

3.1.6. Inclusiveness of the public consultation

The Walloon draft NBRP was developed through a broad, transparent and participatory consultation process. The objective was to co-construct a shared pathway towards zero-emission building stock by 2050, involving all relevant stakeholders.

At the heart of this process is the *Alliance Climat Emploi Rénovation* (ACER), established in 2021 as the main platform for continuous consultation on energy renovation in Wallonia. ACER brings together around 105 public and private organisations (nearly 290 participants) from sectors including construction, energy, housing, employment, finance, research and civil society. Between 2022 and 2025, more than 50 meetings of thematic and operational working groups resulted in over 200 concrete actions to support the large-scale rollout of renovation. ACER operates through a structured and open governance model, combining administrative coordination, neutral facilitation, thematic operational groups and targeted expert working groups. Beyond its operational outputs, ACER has fostered a lasting culture of dialogue and co-construction among a wide range of stakeholders.

In parallel, a targeted consultation specific to the drafting of the NBRP was organised between May and September 2025. Four thematic working groups — public buildings, employment and training, energy poverty, and financing — were convened to address the plan's strategic dimensions. These groups ensured coherence between policy objectives, alignment with other regional and European

strategies, and strong grounding in field realities. The discussions were documented through official minutes annexed to the plan. It is unclear if civil society organisations representing persons with disabilities were consulted and whether accessibility was raised during the consultations.

Overall, Wallonia's approach meets the consultation requirements by ensuring openness, inclusiveness, multidisciplinary input, continuity of dialogue, and effective inclusion of stakeholder contributions into the final plan. The participatory process is fully documented through annexes, including ACER's activity report and the minutes of the thematic working groups, demonstrating the breadth, diversity and quality of the consultation.

3.1.7. Completeness of the draft plan and consistency with other planning or reporting exercises

The draft plan includes almost all the main indicators. Further information is provided in the following table.

Table 2. Indicators checklist for Wallonia.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings	Yes	
	Floor area (m^2)	Yes	
	Definition of worst-performing buildings	Yes	
	Share of worst-performing buildings (%)	Partially	Non-residential not quantified.
	Renovated buildings/ floor area (number/m^2)	Partially	Renovated buildings
	Renovation rate (%)	Yes	Calculated on the basis of the number of renovated buildings.
	Primary energy use (ktoe)	Yes	
	Final energy use (ktoe)	Yes	
	Specific primary energy for residential buildings (kWh/m^2y)	Yes	
	Share of renewable energy (%)	Yes	
	Operational GHG emissions (Mt CO_2-eq)	Yes	
	Energy poverty share (%)	Yes	
Roadmap for 2030, 2040 and 2050	Renovation targets (floor area or number)	Yes	
	Renovation rate targets (%)	Yes	
	Primary energy targets (ktoe) or reduction (%)	Yes	
	Final energy targets (ktoe) or reduction (%)	Yes	
	Renewable energy targets (%)	Yes	
	GHG emission targets (Mt CO_2-eq) or reduction (%)	Yes	
	Energy poverty targets (%)	Partially	No quantified % reduction.
	Contribution to energy efficiency target	Yes	
Policies and measures	Scope and type	Yes	
	Quantified objective	Partially	Some measures quantified, others contribute to system-level targets.

Section	Indicator	Yes/No/Partially	Explanatory notes
	Status and implementation period	Yes	
	Budget and funding source	Partially	Funding described at programme/strategy level.
Investment needs	Total and/or average investment needs (million EUR), EUR/m^2	Yes	
Residential buildings	Average specific primary energy decreases between 2020 and 2050	Yes	
	Number of residential buildings/dwellings to be renovated	Yes	
	Residential floor area to be renovated (m^2)	Yes	
	Worst-performing buildings contribution (%)	Yes	
Non-residential buildings	MEPS 16% threshold	No	
	MEPS 26% threshold	No	
	2040 and 2050 MEPS thresholds	No	

Source: JRC elaboration on Member State reporting

Consistency checks have been performed by comparing the data with previous Member State reports such as: the 2024 NECP, the 2025 NECPR, the 2020 LTRS and the 2023 national cost-optimal report.

Box 3. Consistency and plausibility check for Wallonia.

Primary energy factors are consistent with previous reporting in the 2023 national cost-optimal report.

Energy poverty

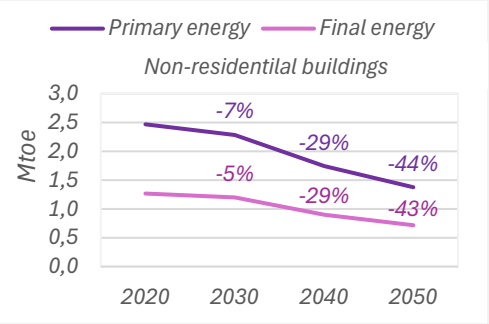
The draft NBRP aligns with the NECP through the inclusion incorporation of structural factors related to energy poverty. References to the EED and Commission Recommendation (EU) 2023/2407 are not explicitly included, but the draft plan seems consistent overall.

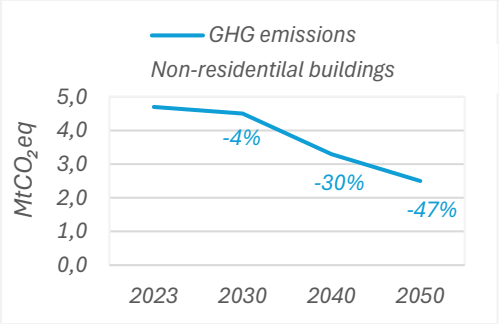
3.2. Bulgaria

3.2.1. Main indicators

Table 3. Selection of main indicators from Bulgaria's draft NBRP.

Renovation				
Floor area (Million m^2)	2020	2030	2040	2050
	Baseline	Cumulative renovation		
Residential	252.3	55.9	-	-
Non-residential	76.1	15.4	43.5	51.8
Total	328.5	71.3	-	-
Cumulative renovation (%)		22%	-	-
Annual renovation rate (%)[20]	**0.48%**	**2.17%**	**-**	**-**
Number of buildings	2020	2030	2040	2050
Total	1 635 128	137 701	-	-
Cumulative renovation (%)		8%	-	-
Energy consumption				
Primary energy (Mtoe)	2020	2030	2040	2050
Residential	4.1	3.5	-	-
Non-residential	2.5	2.3	1.7	1.4
Total	6.6	5.8	-	-
Change vs 2020 (%)		**-13%**	**-**	**-**
Final energy (Mtoe)	2020	2030	2040	2050
Residential	2.4	2.0	-	-
Non-residential	1.3	1.2	0.9	0.7
Total	3.7	3.2	-	-
Change vs 2020 (%)		**-11%**	**-**	**-**
Energy end-uses included	Heating, cooling, hot water, ventilation, lighting and operation of electrical appliances, cooking			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2023	2030	2040	2050
Residential	7.5	7.3	-	-
Non-residential	4.7	4.5	3.3	2.5
Total	12.2	11.8	-	-
Change vs 2023 (%)		**-3%**	**-**	**-**
GHG emissions in $kgCO_2/m^2$	31.9	-	-	-
Change vs 2023 (%)		**-**	**-**	**-**





[20] The baseline annual renovation rate includes only residential buildings.

Renewable energy				
Renewable energy in the final energy	2023	2028	2029	2030
Share of renewable energy in buildings' final energy consumption	55%		Not available	
Solar energy technologies in buildings		2030	2040	2050
			Not available	
Energy poverty				
People affected by energy poverty	2020	2030	2040	2050
Population in energy poverty	28.5%	-18.7%	-	-
Trajectory for the progressive renovation of residential buildings				
Not available				
Minimum energy performance standards for non-residential buildings				
Building categories	Primary energy kWh/(m^{2}year)/EPC class			
	2030	2033	2040	2050
Administrative buildings	488/E	390/D	C and B	NZEB
Schools	188/E	150/D		
Universities	325/E	260/D		
Kindergartens and nurseries	321/E	260/D		
Hospitals	550/E	440/D		
Hotels and restaurants	550/E	440/D		
Commercial buildings	813/E	650/D		
Buildings for cultural event	398/E	320/D		
Buildings for sport	563/E	450/D		
Other buildings	E	D		
Primary energy factors				
Total PEF	2023	2030	2040	2050
Electricity	2.50	2.50	2.50	2.50
Natural gas	1.10	1.10	1.10	1.10
District heating	1.30	1.30	1.30	1.30
Investment needs for renovation and funding and financing sources				
Investment needs (billion EUR)		2030	2040	2050
			Cumulative	
Residential		8.3	-	-
Non-residential		2.6	16.9	48.2
Total		10.9	-	-
Funding and financing (billion EUR)				
Public		-	-	-
Private		-	-	-
Total		-	-	-

Source: JRC elaboration on Member State reporting

3.2.2. Executive summary

Bulgaria submitted a draft of the national building renovation plan (NBRP) that, while partially complete, is comprehensive in the sections provided. It includes a voluntary spreadsheet showing the results of the main quantitative indicators. However, as described below, the different parts of the plan are lacking consistency in terms of data and some information is missing.

An important observation is that the roadmap and trajectory for residential buildings in the draft NBRP only goes to 2035 and does not cover 2040 and 2050. For this reason, it is not possible to determine the level of ambition of the draft NBRP to achieve a highly energy-efficient and decarbonised building stock by 2050. Therefore, the targets for primary and final energy, and

greenhouse gas (GHG) emissions after this date do not capture this significant segment of the building stock, which represented 76.1% of the total building stock in 2025.

Overall, the draft NBRP seems aligned with the energy targets and policies and measures outlined in the final Bulgarian national energy and climate plan (NECP), which covers only targets for 2030 for the residential building stock. However, the use of different indicators and missing information mean that the ambition cannot be fully assessed.

Bulgaria's targets for **primary energy consumption** in the building sector are 5.8 Mtoe by 2030, which corresponds to a reduction of 13% compared to 2020 (6.6 Mtoe). Targets beyond 2030 are only provided for non-residential buildings and are set to 1.7 Mtoe by 2040 and 1.4 Mtoe by 2050, representing reductions of 29% and 44%, respectively, compared to 2020 (2.5 Mtoe).

Bulgaria's targets for **final energy consumption** in the building sector are 3.2 Mtoe by 2030, which corresponds to a reduction of 12% compared to 2020 (3.7 Mtoe). Targets beyond 2030 are only provided for non-residential buildings and are set to 0.9 Mtoe by 2040 and 0.7 Mtoe by 2050, representing reductions of 29% and 43%, respectively, compared to 2020 (1.3 Mtoe).

Bulgaria's targets for **total operational GHG emissions** in the building sector are 11.8 Mt CO_2eq by 2030, which corresponds to a reduction of 3% compared to 2023 (12.2 Mt CO_2eq). Targets beyond 2030 are only provided for non-residential buildings and are set to 3.3 Mt CO_2eq by 2040 and 2.5 Mt CO_2eq by 2050, representing reductions of 30% and 47%, respectively, compared to 2023 (4.7 Mtoe).

The contribution of Bulgaria's building sector to the **EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED') is expressed as 750 ktoe of primary energy savings and 444 ktoe of final energy savings[21], representing 19% and 63%, respectively, of the total expected primary and final energy savings in Bulgaria by 2030[22]. This indicates the significant contribution of the building sector in achieving the energy efficiency target by 2030. The draft NBRP does not indicate Bulgaria's contribution to the **EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED').

The draft NBRP does not include targets for deploying solar installations, but Bulgaria indicates that an estimation of the solar energy generated in non-residential buildings will be included in the final version of the plan.

To achieve these targets, Bulgaria aims to **renovate** 194 445 non-residential buildings per year until 2050 and 79 980 residential buildings per year until 2030. This represents about 51 789 596 m^2 of non-residential floor area cumulatively in the period 2025-2050 (corresponding to 55% of the non-residential floor area in 2025) and about 55 884 507 m^2 of residential floor area cumulatively for the period 2025-2030 (corresponding to 22.2% of the residential floor area in

[21] These savings are aligned with the energy savings derived from the roadmap targets between 2020 and 2030 of 848 ktoe of primary energy and 456 ktoe of final energy savings.

[22] The percentages were calculated by the JRC by subtracting the primary energy and final energy consumption targets for 2030, as defined in the final 2024 NECP (13.2 Mtoe and 8.82 Mtoe, respectively), from the Eurostat primary energy and final energy consumption values in 2020 (17.1 Mtoe and 9.5 Mtoe, respectively), and using the building sector expected savings (from draft NBRP) to the total expected savings.

2020). The total annual renovation rate of residential buildings in 2025 was 0.48[23]% , a value assessed as not sufficient to achieve a goal of a highly energy-efficient and decarbonised building stock by 2050.

The **trajectory for progressive renovation of residential buildings** is incomplete as it does not provide clear milestones for average primary energy use. Therefore, compliance with the requirements of the Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD') for reducing the average primary energy use (a reduction of -16% by 2030 and of -20-22% by 2035 compared to 2020) cannot be verified. However, Bulgaria sets the 2030 target for total primary energy (ktoe) for residential buildings at -16% compared to 2020. The renovation of 55 million m^2 of residential buildings is calibrated to deliver this reduction. Beyond 2030, no targets are set for residential buildings in the draft NBRP[24]. The sub-targets for achieving 55% of the expected average primary energy savings by renovating the 43% worst-performing buildings are included only in the voluntary spreadsheet.

As regards the **minimum energy performance standard** (MEPS) for **non-residential buildings**, Bulgaria sets thresholds for **2030 and 2033** for 10 building categories[25]. By 2050, Bulgaria aims to bring all non-residential buildings to the nearly zero-energy building (NZEB) standard identified as the MEPS threshold for 2050 but does not specify its numerical value. Bulgaria also intends to use EPC classes to implement the MEPS thresholds for communication purposes, interactions with owners and ensuring compliance. Thresholds for **2040** have not yet been assigned a numerical value in terms of primary energy use, and have only been assigned energy classes.

Overall, the calculation methods and the data sources for setting the limited elements of the trajectory that are provided in the draft NBRP for residential buildings and the MEPS threshold for non-residential buildings appear clear and robust. However, the trajectory is highly incomplete, while the MEPS framework shows missing information. This raises questions as to how thoroughly the implementation of Article 9 of the EPBD has been planned in Bulgaria.

Worst-performing buildings are identified based on energy performance certificate (EPC) class[26] and primary energy consumption and are prioritised for renovation. The energy performance classes have different thresholds across building categories. Worst-performing buildings account for 56 084 and 481 041 non-residential and residential buildings, respectively, corresponding to 15.8% and 41.3% of total non-residential and residential buildings. By 2030, 91% of the total renovated buildings across all building categories will be covered by worst-performing buildings.

The alleviation of **energy poverty** is addressed adequately in Bulgaria's draft NBRP. The share of the population affected by energy poverty was estimated at 28.5% in 2024. The aim is to reduce this share to 18.7%[27]. The draft NBRP gives some details about the methodology used to estimate

[23] JRC calculation based on total floor area of residential buildings in year x-2, as reported in the voluntary spreadsheet, and the renovated floor area in year x-2, as reported in both the report and the voluntary template. The year x-2 corresponds most probably to 2025 as regards the building stock floor area and number of buildings.

[24] The voluntary spreadsheet includes also the 2035 target in total primary energy (ktoe) for residential buildings.

[25] Administrative buildings, educational buildings (schools, kindergartens and universities into separate categories), health buildings, hotels and restaurants, sports buildings, commercial buildings, cultural and arts buildings, other non-residential.

[26] Different thresholds between single-family houses and multi-apartment buildings.

[27] This data is provided in the voluntary spreadsheet.

this indicator from the underlying data. However, there is no clear roadmap and the energy poverty targets beyond 2030 that are identified in the draft NBRP, as well as the relevant measures, are described only very briefly. Furthermore, Bulgaria notes that the high and growing share of vacant homes, particularly in multi-family buildings, combined with low income, represents a significant organisational and financial barrier to renovation. It aims to overcome this barrier through instruments included under the National Decarbonisation Fund, such as technical assistance, guarantees, low-risk investment windows and a grant component.

The draft NBRP of Bulgaria provides a comprehensive overview of **implemented and planned policies and measures**. All mandatory and optional policy areas are addressed (Annex II of the EPBD). More than 100 measures and actions, most with brief descriptions, are included. However, for most of them, key details, such as the quantified expected impacts, the available budget or the implementation period are neither sufficiently reported nor provided in a consistent way. Therefore, it is not possible to assess if they could be sufficient to reach the targets.

Bulgaria addresses the **decarbonisation of heating only partially** and some further details are needed. The measures are mainly descriptive and there are no details on financing and expected impact that would allow their credibility to be assessed. There is an intention to achieve synergies with the local heating and cooling plans that will be developed by municipalities and to assess the potential for using renewable energy and waste heat. Consistency with the NECP cannot be assessed as there is no reference to this in the draft NBRP.

Investment needs are included in the draft NBRP for the years 2026-2050 for non-residential buildings and for the years 2026-2035 for residential buildings. Between 2026 and 2050, the total investment needs are estimated at EUR 59 billion, of which EUR 48 billion for non-residential buildings. The draft NBRP points to some financing sources but without amounts and timelines after 2030, making it impossible to assess if they are sufficient to cover the investment needs. The draft NBRP indicates that the grant approach is expected to shift to a more sustainable system of combined financial instruments, combining public resources, guarantees, repayable financing and social support. However, it remains unclear which concrete measures will be adopted to implement this approach and mobilise private financing effectively.

The **public consultation** consisted of one meeting only, held in December 2025 with stakeholders mainly from public authorities and businesses. The draft NBRP does not clearly describe how the inclusiveness of the stakeholders' consultation was ensured and how the feedback from stakeholders was taken into account.

The assessment process has identified the following aspects of the draft NBRP as strengths, innovative measures and/or examples of good practice.

— Comprehensive framework for MEPS implementation, featuring a simplified mechanism for identification and compliance, synergy with cost-optimality, and financial, technical assistance and information measures.

— Comprehensive analytical explanation of the methodology used to calculate the energy poverty rate, clearly identifying the underlying indicators and data sources;

— Inclusion of innovative aspects to incorporate renewable energy into buildings and to use carbon capture and storage in the construction sector (e.g.. grant mechanism for use of natural materials), with an emphasis on digitalisation.

— Thorough description of the building renovation passport scheme to be created.

— Consideration of accessibility issues in the overview of the building stock.

— Public instruments to support the financing of energy renovations of buildings, energy service companies (ESCOs), one-stop shops (OSSs) and technical assistance.

However, there are several aspects of the draft NBRP that require **completion and improvement,** and which should be addressed in the final version. These aspects are set out below.

— Complete the overall targets for final and primary energy, and GHG emissions, after 2030 and until 2050, by including the residential building stock.

— Ensure that the targets for operational GHG emissions in the building sector are sufficient to achieve the national commitment on decarbonisation laid down in the NECP and in line with the objective of a decarbonised building stock by 2050.

— Ensure that the NBRP roadmap with the 2030, 2040 and 2050 targets is aligned with the projected trend in power and heat generation (from the NECP), in particular to ensure that the projected trend in primary energy factors and GHG emission intensity is reflected in the final NBRP roadmap.

— Define the trajectory for renovating the residential building stock in terms of a decrease in the average primary energy use in kWh/(m2y) and provide milestones for 2030, 2035, 2040, 2045 and 2050. Include the contribution of the 43% worst-performing buildings in line with the sub-target of decreasing, by at least 55%, the average primary energy use by renovating the 43% worst-performing residential buildings. Provide relevant data for 2040 and 2050. Ensure that the baseline for residential buildings includes the whole building stock and not only the occupied stock.

— Provide the floor area and number of residential buildings to be renovated from 2035 to 2050, in line with the set trajectory.

— Quantify the impacts of policies and measures on the overall targets (e.g. expected energy savings, reduction in energy poverty, GHG reductions, number of renovated buildings or any other relevant indicator).

— Provide energy poverty targets for the years 2040 and 2050, as well as measures to achieve them with quantified funding, objectives and impact. Indicate how the proposed measures will contribute to reduce housing deprivation and increase the availability of affordable housing.

— Ensure that the national definition of energy poverty is consistent with Article 2(52) of the EED.

— Ensure that the residential and non-residential floor areas to be renovated are aligned with their respective baselines.

— Provide the 2040 and 2050 MEPS thresholds for non-residential buildings in terms of primary or final energy use (kWh/m^2y).

— Provide the numerical targets for deploying solar energy in buildings in 2030 and until 2050 and the targets for the share of renewable energy in the final energy consumption of the building sector in accordance with Article 15a of the RED.

— Consolidate the overview of building stock data to provide consistent information in comparison with other parts of the draft NBRP (e.g. clarify inconsistencies compared to the MEPS baseline area, explain the increase of 24% in the total non-residential floor area from 2020 to 2025).

— Include credible measures to ensure the phase-out of fossil fuel boilers by 2040. Ensure the consistency of these measures for decarbonising heating and phasing out fossil fuel boilers with other plans, including the NECP.

— Complete the estimation of investment needs, including also the renovation needs of residential buildings up to 2050. Perform a sensitivity analysis on key variables.

— Add the financing sources up to 2050 and include the projected amounts linked to investment needs and policies and measures for the whole period studied. Clarify how private financing will be mobilised.

— Quantify, substantiate and explain how the primary energy factors will evolve over time.

— Include a description and quantification of expected wider benefits such as growth in gross domestic product (GDP), job creation and health improvements.

3.2.3. Ambition of the draft NBRP

Box 4. Key insights of Bulgaria's draft NBRP.

- Bulgaria plans to reach a level of **primary energy use** in the building sector of 5.8 Mtoe by 2030, representing a reduction of 13% compared to 2020 (6.6 Mtoe). For non-residential buildings, it aims to reach 2.3 Mtoe by 2030, 1.7 Mtoe by 2040 and 1.4 Mtoe by 2050. This means reductions of 7%, 29% and 44%, respectively, for non-residential buildings, compared with 2020 (2.5 Mtoe).

- Bulgaria plans to reach a level of **final energy use** in the building sector of 3.2 Mtoe by 2030, representing a reduction of 12% compared to 2020 (3.7 Mtoe). For non-residential buildings, it aims to reach 1.2 Mtoe by 2030, 0.9 Mtoe by 2040 and 0.7 Mtoe by 2050. This means reductions of 5%, 29% and 43%, respectively, for non-residential buildings, compared with 2020 (1.3 Mtoe).

- Bulgaria plans to decrease **total operational GHG emissions** in the building sector to 11.8 $MtCO_2eq$ in 2030, representing a reduction of 3% compared to 2023 (12.2 $MtCO_2eq$). For non-residential buildings, it aims to reach 4.5 $MtCO_2eq$ by 2030, 3.3 $MtCO_2eq$ by 2040 and 2.5 $MtCO_2eq$ by 2050.This means reductions of 4%, 30% and 47%, respectively, for non-residential buildings, compared to 2023 (4.7 $MtCO_2eq$).

Assessment of the overall ambition of the draft NBRP to achieve a highly energy-efficient and decarbonised building stock by 2050

In the Bulgarian draft NBRP, the level of ambition to achieve a highly energy-efficient and decarbonised building stock is not clear as the roadmap does not cover the residential building stock beyond 2030.

The 2050 targets for primary and final energy consumption for the entire building stock are expected to be presented in the final plan, as currently they are provided only for non-residential buildings. Bulgaria's 2050 decarbonisation target seems less ambitious compared to the energy efficiency targets and, similarly to the previously described targets, is incomplete as it considers only non-residential buildings.

Bulgaria has not yet set a target in terms of share of renewable energy use in the building sector, but decarbonising the building stock by integrating renewables is supported by other legislative measures in Bulgaria (e.g. the requirement for 55% of the energy consumption of NZEBs to come from renewable energy).

In terms of renovating residential buildings, the draft NBRP shows an increased ambition compared to the NECP (around 55 million m^2 to be renovated by 2030, while this was set at 19 million m^2 in the NECP). However, it is not clear whether the NBRP renovation targets are sufficient to reach the ambition of a highly energy-efficient and decarbonised residential building stock by 2050.

The cost-optimal levels for the specific primary energy use of non-residential buildings are included in the draft NBRP. For non-residential buildings, the MEPS thresholds set are above the cost-optimal values for the categories for which data is available.

Assessment of the alignment between the draft NBRP and national commitments on climate and energy set out in the NECP

The draft NBRP seems aligned with the objectives outlined in the final Bulgarian NECP, which includes only targets for 2030 for the residential building stock. However, the use of different indicators and baselines prevents full comparability. The section below also addresses how the NBRP ambition compares with the 2020 long-term renovation strategy (LTRS) adopted by Bulgaria.

Energy efficiency

The draft NBRP sets a target for Bulgaria to reduce its primary energy consumption in the building sector by 12% and final energy consumption by 13% by 2030, compared to 2020.

The NECP and the LTRS set a target of 251 ktoe of energy savings for the period 2021-2030 for the building sector. The draft NBRP reports 444 ktoe of expected final energy savings thanks to building renovation measures. Therefore, the NBRP target is slightly more ambitious than the NECP and LTRS target for the reduction of final energy.

In 2020, the building sector accounted for 38.3% of total final energy in Bulgaria and this is projected to decrease to 36.2% in 2030. This indicates that the energy savings in the building sector are planned to occur at a slightly higher pace than the energy savings across all sectors, suggesting alignment with the overall target for final energy consumption.

As regards primary energy factors, the draft NBRP explains that the 2024 values are used to set the targets for 2030, 2040 and 2050 (no projections of primary energy factors). However, it mentions that the factors are expected to change in the long-term, especially electricity (currently 2.5) and district heating (currently 1.3), which are both expected to decrease due to an increase in the use of renewables. These decreases could be partially explained by the targets of 49.34% of electricity from renewable sources (up from 23.6% in 2020 and 33.8% in 2024) and 44.01% of renewables sources in heating and cooling in 2030 (NECP).

Therefore, the draft NBRP energy targets seem sufficient and in line with the national commitment on **energy efficiency** laid down in the NECP.

Decarbonisation

By 2030, Bulgaria aims to reduce total operational GHG emissions in the building sector by 4% (-0.4 $MtCO_2eq$) compared to 2023 (12.2 $MtCO_2eq$).

The NECP and the LTRS provide only CO_2 emission saving targets for the building sector (-1.31 $MtCO_2$ between 2021 and 2030) without providing the baseline value. Thus, the values are not directly comparable due to using different baselines and scopes.

It cannot be assessed if the operational GHG emission targets in the draft NBRP are sufficient and on track to achieve the national commitment on **decarbonisation** laid down in the NECP.

Renewable energy

Bulgaria does not set targets for the share of renewable energy in the final energy consumption of the building sector in its draft NBRP. It seems that the targets in accordance with Article 15a of the RED have not yet been set by Bulgaria.

The draft NRBP restates the NECP 2030 renewable energy targets: renewable energy to account for 34.96% of total gross final energy consumption, 49.34% of the electricity sector and 44.01% of the heating and cooling sectors by 2030.

Expected reduction in the number of people affected by energy poverty

The share of population affected by energy poverty was 28.5% in 2024. In the voluntary template, Bulgaria targets a reduction of 18.69% in the number of people affected by energy poverty in 2030. No details about the method for measuring the reduction are given.

The main indicators used to estimate energy poverty in Bulgaria are the following: percentage of people affected by energy poverty (%), proportion of disposable household income spent on energy (10.8% in 2024) and population living in inadequate housing (16.6% in 2024).

The draft NBRP sets out a detailed explanation of how the energy poverty rate indicator (people affected by energy poverty) has been calculated. The data sources are also included. More specifically, the estimated share of people affected by energy poverty is based on the following data: statistics on the average number of persons per household for the country as a whole provided by the National Statistical Institute (NSI) for Statistics on Income and Living Conditions, the type of area in which the household is located, determined in proportion to the number of persons, in accordance with Article 6(4) of Regulation (EU) 2018/1999 and the annual final energy consumption for residential buildings with the worst energy performance, determined in accordance with Article 6(1) of Regulation (EU) 2018/1999.

The draft NBRP does not include data on the geographic distribution of energy poverty, the energy performance of the social housing stock, the segment of the building stock where people in energy poverty live, or the use or repurposing of vacant buildings; nor does it include quantified progress (e.g. number of units renovated per year, accommodation capacity for the homeless).

Bulgaria also reports a share of 33.6% of households to be classified as vulnerable based on their national definition. Vulnerable households are further disaggregated by type of dwelling and energy source. The historical trends for this indicator are also provided. It seems that this analysis will be the basis for designing the social climate plan.

Furthermore, Bulgaria notes that the high and growing share of vacant dwellings, particularly in multi-family buildings, combined with low income, represents a significant organisational and financial barrier to renovation. It aims to overcome this barrier through instruments under the National Decarbonisation Fund, such as technical assistance, guarantees, low-risk investment windows and a grant component.

Prioritising renovation of the worst-performing buildings

Worst-performing buildings are identified based on EPC class and primary energy use and are prioritised for renovation.

For residential buildings, worst-performing buildings are those falling into EPC classes E, F and G for multi-apartment buildings (primary energy consumption above 290 kWh/(m^2y)) and those falling under EPC class G for single-family houses (primary energy consumption above 360 kWh/(m^2y)).

Regarding non-residential buildings, see the section below on MEPS thresholds.

The Bulgarian draft NBRP provides the number and floor area of worst-performing buildings and includes plans for their gradual improvement among the policies and measures. By 2030, worst-performing buildings will account for 91% of the total renovated buildings, e.g. 57% of the targeted floor area to be renovated in 2030 (based on data provided in the voluntary spreadsheet).

Minimum energy performance standards for non-residential buildings

Bulgaria has set thresholds for 2030 and 2033 corresponding to the 16% and 26% worst-performing non-residential buildings in nine different categories for average primary energy use, as shown in Table 7.

Bulgaria intends to use EPC classes to implement these MEPS thresholds for communication purposes, interactions with owners and ensuring compliance. Therefore, the different MEPS thresholds for each category have been assigned to the corresponding class E for 2030 and class D for 2033 of each category.

Thresholds for 2040 have not yet been assigned a numerical value in terms of primary energy use but only assigned energy classes (C for public buildings and B for private and mixed non-residential buildings). The 2050 thresholds are set at NZEB level, without providing the numerical value.

Table 4. MEPS for non-residential buildings in Bulgaria.

Building categories	**Primary energy use** kWh/(m^2y)/**EPC class**					
	2030		**2033**		**2040**	**2050**
Administrative	488	E	390	D	C and B	NZEB
Schools	188		150			
Universities	325		260			
Kindergartens and nurseries	321		260			
Health buildings	550		440			
Hotels, restaurants and catering	550		440			
Commercial buildings	813		650			
Cultural buildings	398		320			
Sports buildings	563		450			
Other buildings	-		-			

Source: JRC elaboration on Member State reporting

Data sources used to set MEPS are: the national cadastre kept by the Agency for Geodesy, Cartography and Cadastre, identified as the main data source; EPC datasets and the national databases for energy performance of buildings (Sustainable Energy Development Agency (SEDA)); and the rate of new construction from the national statistics institute. To identify the 16% and the 26% worst-performing buildings, Bulgaria analyses the non-residential buildings by building category in terms of non-renewable primary energy use (kWh/m^2y), sourced from the EPC database. About 12.8% of the existing non-residential floor area in 2025 had a valid EPC. Within each category, the number and floor area of non-residential buildings are grouped into EPC classes based on their energy performance and using the cadastre datasets. Although the distribution in terms of floor area and number of buildings is not provided, the methodology appears coherent, and likely leads to appropriate thresholds being set to identify the 16% and 26% worst-performing buildings.

It is important to note that the corresponding floor area to be renovated, of around 57 million m^2, is not fully aligned with the one reported in the roadmap (51 million m^2).

Exclusions (if applicable) pursuant to Article 9(6) of the EPBD and criteria for exemptions from MEPS

Bulgaria plans to exempt from MEPS requirements those non-residential buildings exempted from the obligation to have an EPC under Bulgaria's Energy Efficiency Act. However, it is not clear if these categories of buildings are compliant with the exemptions allowed under Article 9(6). In 2025, there were 5 503 such buildings, or 1.13% of all buildings, with a floor area of 1 120 707 m^2.

National trajectory for the progressive renovation of residential buildings

The national trajectory for the progressive renovation of residential buildings is highly incomplete. The draft NBRP does not lay down milestones in terms of average primary energy for residential buildings. However, it sets a target for reducing the total primary energy consumption of residential buildings by 16% by 2030, compared to the 2020 level. Moreover, it provides an indicator for the floor area of residential buildings that need to be renovated on a cumulative basis (marked, however, as annual floor area) for the years 2030 and 2035 only.

The draft NBRP mentions the number of buildings that constitute the 43% worst-performing buildings and dwellings to be renovated. It includes the sub-target of a 55% reduction in primary energy (in GWh) in the worst-performing residential buildings. However, this is only in the voluntary spreadsheet and for the year 2030. Moreover, the values are not consistent and do not seem reliable.

The data source used to analyse the residential baseline situation is the SEDA database, which includes also invalid EPCs. The data on the residential building stock in 2020 and total primary energy consumption is robust and consistent across the different parts of the draft NBRP.

The total residential floor area reported under the trajectory part is consistent with the figures provided in the overview for 2020. It is explained that the baseline included only occupied dwellings instead of the whole residential building stock, which is not in line with the requirements.

New buildings

The number of new NZEBs is not provided.

The indicative definition of zero-emission building (ZEB), e.g. thresholds in specific primary energy consumption are provided by building category.

3.2.4. Sufficiency of the policies and measures

There are more than 100 policies and measures and actions included in the draft NBRP. However, essential and quantified information is lacking. The plan mostly includes brief descriptions, timelines and financing sources. Most of the measures have an implementation period starting in 2026, but it is not always clear if they are extensions, updates or amendments to previously implemented policies. The most innovative measures seem to be those related to: building renovation passports, pilot projects for heating and cooling communities, carbon capture and storage and integrated solar technologies.

Bulgaria reports that in total 444 ktoe of final energy savings are expected as a result of implementing the reported policies and measures. However, it does not provide the expected energy

savings of each individual measure, which prevents their sufficiency from being assessed in a meaningful way.

At the same time, Bulgaria reports the impact of each measure in terms of cumulative expected floor area and number of residential buildings to be renovated. The total expected floor area of residential buildings to be renovated for the period 2015-2030 amounts to 63 million m^2 which is not in line with the target of 55 million m^2 mentioned in the roadmap plan.

Renovation and MEPS for non-residential buildings

Bulgaria plans to apply the principle of setting renovation requirements at specific trigger points such as: change of use or ownership, end of life of building equipment, and replacement of energy systems.

Bulgaria's draft NBRP sets out some of the significant provisions for implementing MEPS among its policies and measures. The competent authorities for this policy are SEDA and the Ministry of Energy and the Ministry of Regional Development and Public Works. The non-residential buildings concerned will be identified through their EPC. For buildings without an EPC, an energy labelling system based on a digital tool developed by SEDA will be set up. The draft NBRP also describes the monitoring mechanisms and associated penalties. The framework underpinning the measures consists also of financial support and technical assistance schemes.

These aspects might be sufficient to trigger the renovation of the relevant buildings and ensure the effective implementation of the MEPS (update of tools, regulatory framework, monitoring). However, it remains unclear how they will work together to achieve this goal.

Renovation of residential buildings

There are around 10 measures of various types (labelling, financial, technical assistance, regulatory, monitoring) to support the progressive renovation of residential buildings, and they are comprehensively designed. Introducing ZEB levels, deep renovation actions and building renovation passports will also contribute to the residential renovation trajectory when it is determined. Some renovation measures also aim to empower vulnerable households and alleviate energy poverty, especially by aiming to raise awareness and provide technical assistance.

The building renovation passport as a tool to support energy savings, complement MEPS and assist the trajectory for residential buildings

The building renovation passport will be an important tool for deep renovations and MEPS. It will be an individual document, prepared by a qualified expert, that will include useful information in a form of a roadmap, such as expected energy and carbon savings, technical measures and financial support. The fact that it will be digitalised is also emphasised in the draft NBRP, which also mentions that it will be linked to energy performance certification.

Box 5. Example of policies and measures in Bulgaria.

- A national renovation programme for energy efficiency in multi-apartment buildings, introducing a 100% grant model for eligible activities focused on energy-poor households.
- Introduction into legislation of mandatory minimum energy classes for the worst-performing segment of the non-residential building stock (class E by 2030; class D by 2033), including powers to update thresholds. The plan also includes trigger points, financial incentives for buildings below the minimum threshold, technical assistance and information campaigns.

Alleviation of energy poverty and housing affordability

The policies and measures to alleviate energy poverty are described only very briefly in the Bulgarian draft NBRP, and they do not indicate the concrete impact in reducing the energy poverty rate. More specifically, they relate to financial and awareness-raising actions with the aim of improving the energy performance of buildings, modernising heating installations and promoting the use of energy from renewable sources.

The social climate plan is described in the NECP as expected to include policies and measures, and investments for supporting vulnerable households, but it has not yet been submitted.

A number of funds, including parts dedicated to alleviating energy poverty, can be identified in the draft NBRP (e.g. Decarbonisation Fund, Social Climate Fund, Cohesion Fund). However, no further explanations are provided.

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

One-stop shops are analysed in the Bulgarian draft NBRP, especially under the measure on creating 'single points of contact' (CCAs).

The analysis of the existing OSSs in Bulgaria shows that their role in the energy efficiency of building renovation is limited, and that they could be improved by increasing the support they provide, which could go beyond providing information before renovation towards offering support throughout the whole journey. This raises the need to set up more advanced structures with the capacity to cover all technical, financial and legal aspects of renovation. This will be achieved in combination with the development of a network of CCAs, which will need to be more accessible over the national territory.

OSSs in combination with CCAs will provide information and technical assistance through digital tools in order to select financial instruments. The aim is to cover various aspects of the renovation process, including the administrative, technical and financial aspects of the whole investment cycle. They will also provide coordination and decision-making functions for the different stakeholders, as well as quality control and management.

Even if the link to energy poverty is not mentioned explicitly, the draft NBRP explains that OSSs will also help protect vulnerable people.

Decarbonisation of heating and the phasing out of fossil fuels with a view to a complete phasing out of fossil fuel boilers by 2040

The draft NBRP includes 10 measures of different types addressing the decarbonisation of the heating sector and the phase-out of fossil fuel boilers. These include financial tools, establishing a legal framework, digitalisation, pilot projects and monitoring.

The timeline for an effective phase-out by 2040 is outlined through a number of clear but not ambitious measures. These include: (i) discontinuing public financial incentives for the purchase of fossil fuel boilers by 2025 according to Article 17(15) of the recast EPBD; (ii) banning the installation of new boilers using fossil fuels by 2028; (iii) limiting the installation of gas boilers in areas where it is technically and economically feasible to use heat pumps or connect to an efficient district heating system by 2032; (iv) introducing a requirement for renewable energy to account for a minimum share of 50% in each replacement of heating sources in the building sector by 2035; and (v) phasing out individual and central fossil fuel boilers and replacing them with high-efficiency, low-carbon technologies such as heat pumps, thermal solar systems, waste heat recovery systems or connection to efficient district heating systems by 2040. Targets are also set for the renewables share in district heating and cooling, from 5% in 2028 to 100% in 2050, and some actions are also mentioned for achieving these. The draft NBRP also mentions providing financial instruments, tax reductions, digitalisation and OSSs but without further details. Overall, the measures are mainly descriptive, with no details on how they would be implemented, their expected impact or their financing that would allow them to be assessed in terms of credibility.

The draft NBRP mentions local heating and cooling plans to be developed by municipalities of more than 45 000 residents. The responsible entities and the monitoring process for implementing the measures and the achieving long-term consistency between the different strategic plans are also included. The entities include associations of municipalities, ministries and the Agency for Sustainable Energy Development, which will develop a coordination mechanism.

There are no references to other strategic documents, such as the NECP, network development plans, the national heating and cooling assessment and national plans to support EU action to phase out Russian gas. The Bulgarian final NECP also includes several measures on integrating renewables and decarbonising the heating and cooling sector, but does not set a clear timeline up to 2040.

A comprehensive heating and cooling assessment was not submitted with the NECP, so it is not possible to evaluate if the draft NBRP is consistent with this assessment.

Prevention of construction and demolition waste

The draft NBRP highlights the preparation necessary to comply with Article 7(2) and 7(5) of the EPBD relating to life-cycle GHGs. It outlines comprehensive measures to tackle construction and demolition waste (CDW). It aims to minimise CDW by integrating waste minimisation requirements at the design stage and by setting out requirements for re-use of entire elements where technically possible. It also introduces digital tools for CDW declarations and sets out mandatory pre-audits and separate on-site collection. It also sets out the use of the circularity principle and bio-based materials during renovation, public procurement and the taxonomy regulation, as well as the publication of annual statistics. The draft NBRP has already sufficiently detailed the measures related to the uptake of carbon removals.

Promotion of renewable energy sources and deployment of solar energy installations on buildings

Promoting renewable energy sources in buildings is an important part of Bulgaria's draft NBRP. The draft NBRP mentions the NECP targets of including a 34.96% share of renewable energy in total

gross final energy consumption, a 49.34% share of renewable energy sources in the electricity sector and 44.01% in the heating and cooling sectors by 2030. It also mentions the current requirement for 55% use of renewable energy sources in NZEBs. Measures consist of setting a national target for renewable energy sources in buildings, updating the regulatory framework for the use of renewable energy in multi-family buildings, and creating communities, digital tools, financial incentives (including grants and loans for vulnerable households) and OSSs.

There are measures for solar energy in buildings, setting a clear timeline up to 2030. These include regulations for implementing photovoltaics or solar thermal installations in all building types and car parks, financing and digital tools, training schemes and integrated solutions.

Reduction of whole-life-cycle GHG emissions and the uptake of carbon removals

The reduction of whole-life-cycle GHG emissions is addressed through different tools. Examples are amendments to the regulatory and methodological requirements (e.g. introducing rules on the calculation of life-cycle carbon emissions of buildings), the circular economy (e.g. laying down standards and guidelines for re-use and recycled materials), carbon capture and storage (pilot projects on buildings), data and monitoring (e.g. national registry of total carbon footprint of buildings), funding and raising awareness.

Promotion of the district and neighbourhood approach and integrated renovation programmes

The draft NBRP comprehensively addresses the promotion of sustainable neighbourhoods and urban regeneration. The related measures include guidelines for integrated approaches and coordination (e.g. digital tools, open data, interaction with heating and cooling plans and encouraging municipalities to develop relevant initiatives), support and capacity building (training programmes, coordination between stakeholders), and funding support to municipalities.

Improvement of buildings owned by public bodies

Bulgaria includes measures on improving public buildings aligned with Articles 5, 6 and 7 of the revised EED. It seems, however, that these articles are still being implemented as the inventory was expected to be completed by the end of 2025. Specifically, the reported measures include governance and planning, aligning requirements to the MEPS and applying an alternative approach, with renovation passports for phased renovation to reach NZEB level.

Promotion of smart technologies and infrastructure for sustainable mobility

Bulgaria includes measures related to smart technologies, including a dedicated smart readiness assessment toolkit, combined with training programmes for energy auditors and building automation specialists, and an online platform named ‘Smart Readiness Virtual Training Centre’.

Bulgaria was one of the Member States that voluntarily participated in the test phase for implementing the smart readiness indicator. The test results showed that the lack of specific legislative and regulatory requirements, as well as the insufficient capacity of designers and auditors, remain key obstacles to the wider application of smart technologies. Some measures to address these barriers have been proposed.

The draft NBRP includes measures on sustainable mobility. More specifically, it describes the requirements for pre-cabling and recharging by building type for both new and existing buildings. It includes measures on simplifying procedures and managing shared property. It also aims to update the tools on fire safety and accessibility of recharging points.

Accessibility for people with disabilities

Accessibility has been identified as an issue in the overview of the national building stock of Bulgaria. It is estimated that a significant number of occupied residential buildings do not comply with current technical standards in Bulgaria and are not in line with regulatory requirements on mechanical resistance and stability, fire safety, accessibility and functional safety.

The draft NBRP highlights that the accessibility rules and standards are to be updated in cooperation with Bulgaria's Directorate-General for Fire Safety and Civil Protection. It is not possible to assess the share of the buildings to be renovated that will include accessibility-related renovations.

The types of buildings targeted for accessibility improvements are not specified, but it seems that there are relevant measures covering all the building categories. In general, the draft NBRP mentions the intention of addressing accessibility issues when renovating for energy efficiency. The aspect of checking/monitoring compliance as regards accessibility is not mentioned. Funding for accessibility is not specified.

Addressing market barriers, market failures and skills gaps

The draft NBRP of Bulgaria thoroughly analyses market barriers and suggests solutions to address them. It focuses, however, on training, skills development, coordination of stakeholders, access to financing and digitisation. Zoning or permitting regulations, fragmentation of actions and supply chain issues are not mentioned.

Awareness-raising campaigns and other advisory tools

Awareness-raising and training are significant aspects of the draft NBRP. It is specified that at least 2% of the total budget for each programme should be allocated to targeted communication, information and training activities. Moreover, CCAs are among the most important tools for information and communication.

Promotion of modular and industrialised solutions

Some measures for promoting modular and industrialised solutions for construction and renovation, as well as the current situation, are included in Bulgaria's draft NBRP. The measures include workforce development and funding, cooperation and knowledge sharing mechanisms, pilot projects and research initiatives, and developing a regulatory framework.

3.2.5. Sufficiency of financing sources and administrative resources

As described below, the draft NBRP provides a detailed description of investment needs. Moreover, it discusses the financial and administrative resources that will be mobilised to meet the renovation targets. However, it does not provide the available budget, implementation periods or leverage factors. It is not possible to assess whether budgetary and administrative resources are sufficient to cover investment needs. Private financing will be promoted through a shift from the 100% grant approach to a more sustainable system of financial instruments combining public resources, guarantees, repayable financing and social support, but without concrete measures. Furthermore, the draft NBRP estimates that existing sources (State budget and European programmes) are not sufficient to cover the estimated needs, suggesting a funding gap that is not explicitly acknowledged.

The draft NBRP of Bulgaria indicates **investment needs** for non-residential buildings up to 2050 (EUR 48 billion) and for residential buildings up to 2035 (EUR 11 billion). This results in 142 EUR/m^2 for residential buildings and 930 EUR/m^2 for non-residential buildings[28]. The information is not sufficient to explain this misalignment between investment needs in different segments of the building stock. The absence of residential buildings in the total estimation after 2035 undermines the completeness of the approach.

Nonetheless, the methodology for estimating investment needs seems robust as regards the input parameters and the projected timeline for non-residential buildings. The draft NBRP indicates that the following aspects were considered for the estimates: area to be renovated at different stages, consideration of MEPS and NZEBs, investments for renewables, and adjustment of prices to the current market conditions. The draft NBRP also considers an average annual growth rate in construction prices of 3%.

The **funding and financing sources** identified are not described with the specific amounts of budget available. Thus, it is not possible to assess if the sources are sufficient to cover the investment needs. It is explained that the final plan will include the financial sources too. A specific funding gap is not explicitly acknowledged and quantified. However, it seems clear that Bulgaria has not clearly identified how it will cover the estimated investment needs.

The **public funding** instruments to finance building renovation are extensively discussed but without stating the available budgets. Most of the European funds that are analysed do not cover a long-term period after 2030. These include the Recovery and Resilience Facility, the Cohesion Fund, the Modernisation Fund, the Social Climate Fund, InvestEU, public and private cofinancing, the State budget, technical assistance, energy service company models, the National Decarbonisation Fund, etc.

Mobilising **private financing** is mentioned several times in the document as necessary to achieve the renovation objectives. The use of private funds is indicated as a financial source under several measures of the draft NBRP. Energy service companies and mechanisms within the National Decarbonisation Fund will support the mobilisation of private funds. The draft NBRP highlights the need to develop complementary financial mechanisms, targeted loan products, guarantee schemes and specialised support for owners. However, the specific amounts and leverage factors are not included. More information is expected to be provided in the final plan.

Assessment of the adequacy of total investments

The amounts of the available budgets reported under policies and measures refer to a previous time period (prior to 2027) so it is not possible to assess if they are sufficient to cover investment needs for the period up to 2050.

Linking investment needs to targets through policies and measures

A clear link between the financing of policies and measures and the investment needs is missing. Most of the policies and measures listed in the plan do not include quantified objectives or a planned budget. There is no information on the leverage factors to estimate private investments,

[28] JRC calculations considering the total investment needs between 2026 and 2050, divided by the total floor area expected to be renovated between 2020 and 2050.

the available budget and the quantified objectives and impact. It is unclear how any public funding will be distributed among the different policy areas of the plan.

3.2.6. Inclusiveness of the public consultation

The draft NBRP includes an annex that comprises the minutes of a public consultation meeting held on 17 December 2025. The meeting brought together representatives from various organisations, in particular public authorities and businesses, including the Chamber of Energy Auditors, the Chamber of Architects in Bulgaria, the Chamber of Investment Design Engineers, the Bulgarian Association for Building Isolation, the National Association of Municipalities of the Republic of Bulgaria, the Bulgarian-Austrian Consulting Company, the Energy Efficiency Centre EnEffect and the National Centre for Territorial Development. Additionally, a panel from the interdepartmental working group, consisting of ministry representatives, the NSI and the Academy of Sciences, participated in the meeting. The minutes of the meeting contain several general suggestions for improving the plan, such as taking into account material cost increases and installation renovations, as well as implementing monitoring and control measures to ensure investment sustainability.

The format of the consultation process for the building renovation plan is assessed as inadequate for ensuring the inclusiveness of the public consultation as it involved a single meeting, as mentioned above, held in mid-December, which is a very brief and late-stage engagement of stakeholders. The timing did not allow for sufficient stakeholder participation, and the general public and vulnerable households, including those representing persons with disabilities, were not represented. Furthermore, there is no indication that the consultation involved civil society organisations representing persons with disabilities. Nor does the summary of the public consultation mention accessibility for persons with disabilities as an issue raised during the consultation.

The consultation was also too late to allow feedback from it to be incorporated into the text of the draft NBRP in a meaningful way. The draft NBRP does not clearly explain how input from the public consultation was considered. Overall, the consultation process was inadequate and insufficient, and the plan would have benefited from earlier and more inclusive stakeholder engagement, and from the representation of vulnerable groups such as persons with disabilities.

3.2.7. Completeness of the draft NBRP and consistency with other planning or reporting exercises

Almost all mandatory indicators are included in the draft NBRP, at least partially. The voluntary spreadsheet for data collection is submitted with the draft NBRP. More information is provided in the following table.

Table 5. Indicators checklist for Bulgaria.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings (number)	Yes	
	Floor area (m^2)	Yes	
	Definition of worst-performing buildings	Yes	
	Share of worst-performing buildings (%)	Yes	
	Renovated buildings/ floor area (number/ m^2)	Partially	The data for non-residential buildings are missing. Renovation rate for residential

Section	Indicator	Yes/No/Partially	Explanatory notes
	Renovation rate (%)	Partially	buildings can be calculated based on available data.
	Primary energy use (ktoe)	Yes	
	Final energy use (ktoe)	Yes	
	Specific primary energy for residential buildings (kWh/m^{2}y)	Yes	
	Share of renewable energy (%)	Yes	
	Operational GHG emissions (Mt CO_2-eq)	Yes	
	Energy poverty share (%)	Yes	
Roadmap for2030, 2040 and 2050	Renovation targets (floor area or number)	Partially	2040 and 2050 targets for residential buildings are missing.
	Renovation rate targets (%)	Partially	Targets for annual renovation rates are included only in the voluntary spreadsheet and do not seem correct (values above 15%).
	Primary energy targets (ktoe) or reduction (%)	Partially	The targets are not disaggregated by end-use. The plan mentions that this assessment will be presented in the final version. 2040 and 2050 targets for residential buildings are missing.
	Final energy targets (ktoe) or reduction (%)	Partially	
	Renewable energy targets (%)	No	The plan mentions that the quantification of the renewable energy produced in buildings will be added in the final version of the plan.
	GHG emission targets (Mt CO_2-eq) or reduction (%)	Partially	Reduction targets for residential buildings are not provided for all years.
	Energy poverty targets (%)	Partially	Targets for 2030 are only included in the voluntary spreadsheet.
	Contribution to energy efficiency target	Yes	
Policies and measures	Scope and type	Yes	
	Quantified objective	Partially	This information is not provided for all the measures in a consistent way.
	Status and implementation period	Partially	
	Budget and funding source	Partially	
Investment needs	Total and/or average investment needs (million EUR), EUR/m^2	Partially	Investment needs only up to 2035 are included for residential buildings.
Residential buildings	Average specific primary energy decreases between 2020 and 2050	No	
	Number of residential buildings/dwellings to be renovated	Partially	Projected values cover the period until 2030 only.
	Residential floor area to be renovated (m^2)	Partially	Projected values cover the period until 2035 only.
	Worst-performing buildings contribution (%)	Partially	Projected values cover the period until 2030 only.
Non-residential buildings	MEPS 16% threshold	Yes	Energy class thresholds for both residential and non-residential buildings.
	MEPS 26% threshold	Yes	
	2050 and 2050 MEPS thresholds	Yes	
Summary of the public consultation		Yes	

Source: JRC elaboration on Member State reporting

Consistency checks have been performed by comparing the data with previous Member State reporting such as: 2024 national energy and climate plan, 2025 national energy and climate progress reports (NECPR), Eurostat and 2020 LTRS.

Plausibility checks have been performed by comparing the data with other reliable datasets: the building stock observatory (BSO) for building stock indicators and Eurostat datasets for final energy consumption

Box 6. Consistency and plausibility check for Bulgaria.

The number of buildings by type, floor area by building type and final energy consumption by building type are consistent with previous reporting (NECPR).

The primary energy factors are consistent with those reported under the cost-optimal report, with some minor variations.

The report is consistent with the spreadsheet submitted by the country.

The number of buildings by type and floor area by building type are plausible when compared to the BSO dataset.

The final energy consumption is plausible when compared to the Eurostat dataset.

Energy poverty

The definition of energy poverty in the draft NBRP classifies households in energy poverty and vulnerable electricity consumers separately. It also sets out the criteria for vulnerable households. Households in energy poverty are determined as follows: *'Disposable income per person after reduction in energy consumption is obtained by subtracting from the sum of disposable income of household members the household's standard energy consumption, and dividing the income obtained by the number of household members by 12. If the income received is below the official poverty threshold , the household is in energy poverty'*. Furthermore, the definition sets the criteria for vulnerable electricity consumers (e.g. disposable income, need for social assistance, age, etc.) and vulnerable households (households in energy poverty and households affected by the price impact of including greenhouse gas emissions from the buildings sector within the scope of Directive 2003/87/EC). The draft NBRP uses a definition for energy poverty consistent with that included in the final NECP (Article 38e of the Energy Act).

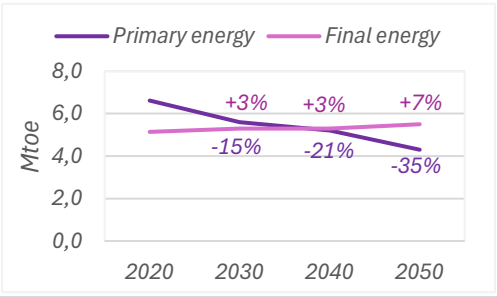
The revised EED and Commission Recommendation (EU) 2023/2407 are not referenced in the plan. The definition of energy poverty in the draft NBRP categorises households in energy poverty and vulnerable electricity consumers separately. It also provides a definition of vulnerable households.

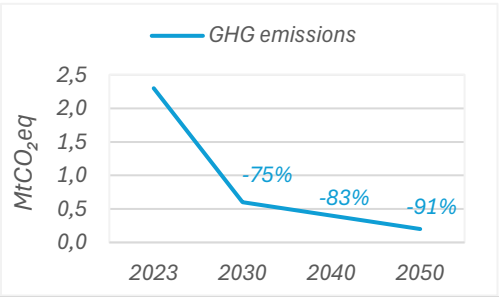
3.3. Denmark

3.3.1. Main indicators

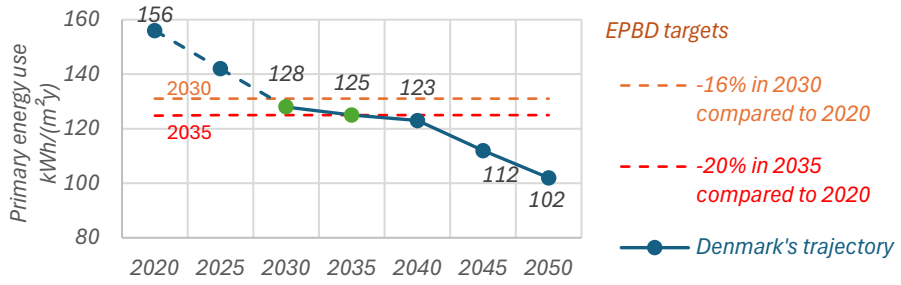
Table 6. Selection of main indicators from Denmark's draft NBRP.

Renovation				
Floor area (Million m^2)	2020	2030	2040	2050
	Baseline	Cumulative renovation		
Residential	342.4	97.0	194.1	291.1
Non-residential	127.2	13.5	37.0	65.9
Total	469.6	110.5	231.1	357.0
Cumulative renovation (%)		24%	49%	76%
Annual renovation rate (%)	-	**2.4%**	**2.6%**	**2.7%**
Number of buildings	2020	2030	2040	2050
Total	1 953 507	530 040	1 071 140	1 618 270
Cumulative renovation (%)		27%	55%	83%
Energy consumption				
Primary energy (Mtoe)	2020	2030	2040	2050
Residential	4.6	4.0	3.9	3.3
Non-residential	2.0	1.6	1.3	1.0
Total	6.6	5.6	5.2	4.3
Change vs 2020 (%)		**-15%**	**-21%**	**-35%**
Final energy (Mtoe)	2020	2030	2040	2050
Residential	3.8	3.4	3.3	3.2
Non-residential	1.3	1.9	2.0	2.3
Total	5.1	5.3	5.3	5.5
Change vs 2020 (%)		**+3%**	**+3%**	**+7%**
Energy end-uses included	Heating, cooling, hot water, ventilation, lighting and other technical building systems			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2023	2030	2040	2050
Residential	1.8	0.4	0.2	0.1
Non-residential	0.6	0.2	0.2	0.1
Total	2.3	0.6	0.4	0.2
Change vs 2023 (%)		**-74%**	**-83%**	**-91%**
GHG emissions in $kgCO_2/m^2$	4.8	1.2	0.7	0.4
Change vs 2023 (%)		**-75%**	**-86%**	**-92%**





Renewable energy				
Renewable energy in the final energy	2021	2028	2029	2030
Share of renewable energy in buildings' final energy consumption	71%	77%	78%	79%
Solar energy technologies in buildings		2030	2040	2050
Share of residential building equipped		17%	31%	45%
Share of non-residential buildings equipped		12%	22%	32%
Energy poverty				
People affected by energy poverty	2020	2030	2040	2050
Share of people affected	0.55%		No targets	
Trajectory for the progressive renovation of residential buildings				



Minimum energy performance standards for non-residential buildings				
Building categories	Primary energy kWh/(m²year)			
	2030	2033	2040	2050
One category	190	168	139	97
Primary energy factors				
Non-renewable PEF	2023	2030	2040	2050
Electricity	0.04	0.01	0.01	0.01
Natural gas	0.57	0.15	0.00	0.00
District heating	0.19	0.11	0.10	0.09
Investment needs for renovation and funding and financing sources				
Investment needs (billion EUR)		2030	2040	2050
			Cumulative	
Residential		1.88	5.67	9.45
Non-residential		0.46	2.54	3.73
Total		2.35	8.21	13.18
Funding and financing (billion EUR)				
Public		0.77	2.56	4.74
Private		1.59	5.65	8.43
Total		2.35	8.21	13.18

Source: JRC elaboration on Member State reporting

3.3.2. Executive summary

Denmark has submitted an almost complete draft of its national building renovation plan (NBRP), including the optional spreadsheet containing the values of the main quantitative indicators.

The level of ambition of the draft plan is in line with the goal of achieving a highly energy-efficient and decarbonised building stock by 2050. The total final energy consumption in the buildings sector is expected to rise by 7% between 2020 and 2050 due to an increase in floor area. However, the final energy consumption per m^2 is projected to decrease during the same period. Denmark plans to improve the energy performance of existing buildings by 2050 by requiring that they be renovated to the nearly zero-energy buildings (NZEB) level (similar to the major renovation level in Denmark).

Denmark's targets for **primary energy consumption** in the buildings sector are 5.6 Mtoe by 2030, 5.2 Mtoe by 2040 and 4.3 Mtoe by 2050. This corresponds to reductions of about 15%, 21% and 35% respectively, compared to the 2020 level of 6.6 Mtoe.

Denmark's targets for **final energy consumption** in the buildings sector are 5.3 Mtoe by 2030, 5.3 Mtoe by 2040, and 5.5 Mtoe by 2050, representing increases of 3%, 3% and 7% respectively, compared to the 2020 level of 5.1 Mtoe.

Denmark's targets for total **operational greenhouse gas (GHG) emissions** in the buildings sector are 0.6 Mt CO_2eq by 2030, 0.4 Mt CO_2eq by 2040, and 0.2 Mt CO_2eq by 2050. This corresponds to reductions of 74%, 83% and 91% respectively, compared to the 2023 baseline of 2.3 Mt CO_2eq.

The draft NBRP is aligned with the objectives, policies and measures outlined in the final **national energy and climate plan** (NECP), although the targets provided in the draft NBRP are not fully comparable.

The draft plan does not specify the contribution that Denmark's buildings sector will make **to the EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED'). In 2020, the buildings sector accounted for 39% of total final energy consumption in Denmark, and this share is projected to remain the same in 2030, indicating that the energy savings in the buildings sector are scheduled to occur at the same rate as the overall energy savings[29]. Regarding the contribution of Denmark's buildings sector **to the EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED'), Denmark's target share of renewable energy in the energy consumption of buildings is 79% by 2030, which is less than the 87.3% projected in the NECP.

To meet the decarbonisation objective, Denmark has also set targets to roll out renewable energy by equipping 45% of residential buildings and 32% of non-residential buildings with solar installations by 2050.

To achieve these targets, Denmark aims to **renovate** 1 545 000 residential buildings and 73 240 non-residential buildings by 2050. This represents about 291 million m^2 of residential floor area and about 66 million m^2 of non-residential floor area (85% and 52%, respectively, of the total in 2020). The planned annual renovation rate for residential buildings is 2.83% over the entire period from 2020 to 2050. For non-residential buildings, the annual rates are 1.06% from 2020 to 2030, 1.85% from 2030 to 2040 and 2.27% from 2040 to 2050 [30]. Although provisional, the targets are calibrated to phase out worst-performing buildings, and the renovation depth is adjusted to deliver the average primary energy consumption targets by 2050.

Denmark has set a trajectory for the **progressive renovation of residential buildings**, aiming to reduce average primary energy use by 35% by 2050 (to 102 kWh/(m^2y)), compared to 2020 levels.

[29] The JRC calculates the percentages as follows: In 2020, as a ratio of final energy consumption in buildings to total final energy consumption sourced from Eurostat. In 2030, as a ratio of the draft NBRP target for final energy consumption in buildings to the national energy efficiency target set under Article 4 of the EED, sourced from the final NECP 2024.

[30] These values are provisional and have been reported only in the optional spreadsheet. Denmark states that consolidated values will be provided in the final version of the plan.

It sets milestones for 2030 and 2035, targeting reductions of 18% and 20%, respectively. The 2030 milestone is thus more ambitious than the Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD') requirement (a reduction of at least 16%, compared to 2020).

As regards the **minimum energy performance standard** (MEPS) for **non-residential buildings**, Denmark sets indicative thresholds for 2030 and 2033 of 190 kWh/(m^2y) and 168 kWh/(m^2y), respectively, and aims to further reduce the threshold to 97 kWh/(m^2y) by 2050. The thresholds apply across the entire non-residential building stock in Denmark, ensuring that 16% and 26% of the worst-performing non-residential buildings are renovated by 2030 and 2033, respectively.

The methodology used to describe the residential building stock using the Energy Performance Certificate (EPC) data is explained only briefly, and the assumptions used are not stated clearly. Apart from average primary energy use milestones, the trajectory outlined in the draft plan is incomplete, with the other targets provided only in the optional spreadsheet. The 55% contribution to be achieved through the renovation of the 43% worst-performing buildings is missing. The underlying methodology for calculating the MEPS is clear, and the data are consistent throughout the plan. The draft NBRP states that the 2050 threshold aligns with the latest cost-optimal level; however, the two values are not consistent.

Denmark identifies **worst-performing buildings** as all buildings in energy class D and below on the basis of their EPC. The methodology is clear. Worst-performing buildings include 712 000 residential buildings (totalling 136 million m^2) and 46 000 non-residential buildings (totalling 44 million m^2), representing 38% and 34% of the respective stocks. The draft plan states that priority will be given to renovating the worst-performing buildings by targeting 55% of the worst-performing residential buildings and phasing out non-residential worst-performing buildings by 2040 to meet MEPS targets.

The draft plan partially addresses the goal to alleviate **energy poverty**. Denmark estimates the energy poverty rate to be 0.2% – 0.9% on the basis of three indicators: low income, home with low energy performance, and high energy consumption. These indicators are combined in two models. However, no details are provided on the methodology used to calculate the rate on the basis of these three indicators. More importantly, Denmark sets no forward targets for alleviating energy poverty. Vulnerable groups receive support through existing subsidy programmes, including the energy renovation scheme, the heat pump scheme and the district heating scheme, along with other forms of assistance (e.g. green loans). Information and awareness-raising measures and guidance on efficient behaviour aimed at vulnerable groups are also described. However, it is not clear how the measures are expected to reduce energy poverty.

Housing affordability is addressed through the National Building Fund, which allocates special resources to support vulnerable households with the aim of preventing social exclusion due to rising housing costs. Moreover, regulatory measures to simplify the repurposing of existing buildings and remove barriers to renovation aim to increase housing supply and improve affordability.

The draft plan includes an **overview of implemented and planned policies and measures**. All mandatory policy areas are addressed. Denmark has established a number of mechanisms to support building decarbonisation, including (i) the energy policy agreement on achieving a cost-effective balance between energy efficiency and renewable energy, (ii) the Climate Act targeting climate neutrality, and (iii) the climate policy agreement for energy and industry, which is focused on phasing out fossil fuels. However, there are inconsistencies in the estimated targets and investment needs. Furthermore, in most cases the policies and measures are short on essential

details, such as quantified objectives, funding sources, expected impacts and regulatory frameworks. This makes it impossible to assess whether the measures are sufficient to meet the targets.

Denmark has set ambitious goals to **decarbonise heating**, with the aim of replacing natural gas with domestically produced biomethane in the gas grid by 2032. As part of the efforts to decarbonise heating, Denmark aims to significantly reduce the number of gas boilers by 2040 (-90% compared to 2023[31]) and **completely phase out oil** boilers by **2035**.

The draft NBRP refers to the measures set out in the national comprehensive heating and cooling assessment, the final NECP and local heating and cooling plans. These measures include grants for heat pumps, new district heating areas, green loans and state guarantee schemes, taxation reform and regulatory changes.

The i**nvestment needs** for 2026-2050 are estimated at EUR 13.1 billion[32] (about EUR 35/m^2 of total floor area that is expected to be renovated[33]). This amount seems extremely low and is not aligned with the expert study referenced in the draft NBRP[34]. Therefore, the estimated investment needs might not be sufficient to achieve the stated renovation targets. The financing sources have been identified, and they fully cover the estimated investment needs (no gap). The draft NBRP shows an overreliance on public funding to cover the investment needs, with a share estimated to range from 60% in 2030 to 90% in 2050. Furthermore, the draft NBRP does not set out clear funding programmes beyond 2026. Private financing needs are estimated, but the specific instruments to meet them are not clearly identified.

The **public consultation** on the draft NBRP allowed a wide variety of parties to participate and provided sufficient time for feedback. However, the draft NBRP does not clearly show if and how the feedback was taken into account.

The assessment process has identified the following elements of the draft NBRP as strengths, **innovative measures** and/or **examples of good practice.**

— The ambitious goals for decarbonising heating, aiming for full gas decarbonisation by 2030 and a complete phase-out of oil boilers by 2035.

— Denmark has in place regulation that requires the calculation of life-cycle GHG emissions in buildings and introduces maximum emission limit values ahead of the regulatory timeline set out in EPBD.

— The National Building Fund (the Danish revolving fund for housing), which finances energy efficiency upgrades in the non-profit housing sector (comprising about 600 000 houses) and safeguards affordability through subsidy schemes that keep rents in renovated buildings affordable.

[31] JRC calculation based on available data in the draft NBRP.

[32] This estimate includes direct renovation costs, but not administrative resources.

[33] JRC calculation considering the total investment needs between 2026 and 2050, divided by the total floor area expected to be renovated between 2020 and 2050.

[34] https://vbn.aau.dk/da/publications/omkostninger-og-energibesparelser-ved-energieffektivisering-af-by/

— The introduction of a higher and more uniform CO_2 tax on fossil fuels used for heating buildings, to be phased in by 2030, and, simultaneously, a significant electricity tax cut, making electricity-based solutions, such as heat pumps and district heating, more attractive than fossil-fuel-based solutions.

— The clear estimation of the share of exempted non-residential buildings under Article 9(1) of the EPBD, including a calculation of equivalent energy performance improvements achieved in other parts of the building stock.

— High degree of consistency with the NECP, EED, RED and related plans, such as the comprehensive heating and cooling assessment and local heating and cooling planning.

However, the following aspects of the draft NBRP need to be **completed** and **improved** and they should be addressed in the final version. These aspects are set out below.

— Explain in more detail the drivers of the expected increase in final energy consumption.

— A more comprehensive description of the reported policies and measures needs to be provided, including their quantified expected impacts and contribution to the roadmap for achieving the targets.

— Ensure alignment between the worst-performing buildings expected to be renovated by 2050 and the respective baseline.

— Ensure that that at least 55% of the decrease in average primary energy use is achieved through the renovation of the 43% worst-performing residential buildings.

— Quantify the contribution to the EU's energy efficiency targets in Article 4 of EED that can be attributed to building stock renovation.

— Clarify the availability of biomethane for the decarbonisation of the gas grid to the extend it will be used for heating purposes considering the expected level of production, exports and imports.

— Ensure and demonstrate that the volume of investment needs matches the planned renovations, and specify the methodology used to make the estimates, the sensitivity analyses and the assumptions. Moreover, describe the planned financing sources, from public and private sources and related schemes and instruments, including the mechanisms for mobilising private investments.

— Ensure that the definition and indicator to monitor the energy poverty capture its multidimensional nature and is consistent with the EED. Explain how the energy poverty rate is calculated.

— Set targets for reducing energy poverty by 2030, 2040 and 2050.

— Clarify how the current use of one-stop shops ensures that they are available and accessible across the whole country, as required by Article 18 of EPBD, and that they provide dedicated services for vulnerable households.

— Demonstrate that the final version of the NBRP has taken into account the feedback received from stakeholders during the public consultation.

— Clarify whether the indicative MEPS target for 2050 is set at the latest cost-optimal level for existing buildings, as the two values are not identical.

— Consolidate the overview of the building stock with information and data on renovations (number of buildings, floor area, renovation rate).

— Include a description of the expected wider benefits, such as lower energy bills, job creation, economic growth and improved health.

3.3.3. Ambition of the draft plan

Box 7. Key insights of Denmark's draft NBRP.

- Denmark plans to reduce **primary energy use** in its buildings sector to 5.6 Mtoe by 2030, 5.2 Mtoe by 2040 and 4.3 Mtoe by 2050. This means reductions of 15%, 21% and 35% respectively, compared with 2020 levels (6.6 Mtoe).
- Denmark plans to reach a level of **final energy use** in its buildings sector of 5.3 Mtoe by 2030, 5.3 Mtoe by 2040 and 5.5 Mtoe by 2050. This means increases of 3%, 3% and 7% respectively, compared with 2020 levels (5.1 Mtoe).
- Denmark plans to reduce **total operational GHG emissions** in its buildings sector to 0.6 $MtCO_2eq$ by 2030, 0.4 $MtCO_2eq$ by 2040 and 0.2 $MtCO_2eq$ by 2050. This means reductions of 74%, 83% and 91% respectively, compared with 2023 emissions (2.3 $MtCO_2eq$).

Assessment of the overall ambition of the draft plan to achieve a highly energy-efficient and decarbonised building stock by 2050

The level of ambition is in line with the goal of achieving a highly energy-efficient and decarbonised building stock in Denmark by 2050.

Denmark's main objective is to reduce overall GHG emissions by 70% by 2030, compared to 1990 levels, and to achieve climate neutrality by 2050, at the latest. While the total final energy consumption in the buildings sector is expected to rise by 7% between 2020 and 2050 due to an increase in total floor area, the final energy consumption per m^2 is projected to decrease during the same period. However, the drivers of these trends are not clearly explained. By 2050, Denmark plans to improve the energy performance of existing buildings, aiming for the NZEB level for renovation (which is similar to the major renovation level in Denmark). In parallel, Denmark aims to reduce total operational GHG emissions in the buildings sector by 91%, with a view to reaching almost zero GHG emissions by 2050 (0.2 $MtCO_2eq$).

To achieve this, Denmark plans to renovate about 85% of the 2020 residential floor area and 52% of the 2020 non-residential floor area by 2050. The renovation rates and depths are provided indicatively in the accompanying spreadsheet for data collection and may be refined or confirmed in the final version of the NBRP. These rates take into account the goal of achieving a zero-emission building (ZEB) stock by 2050.

Building decarbonisation is also supported by the plan to increase the share of renewable energy in final energy use in buildings to 79% by 2030. Moreover, Denmark plans to increase the share of residential buildings equipped with solar technologies (only solar photovoltaics), initially to 17% by 2030, then to 45% by 2050. For non-residential buildings, the share is expected to increase to 12%, then 32%, in the same period.

In addition, Denmark includes targets for whole-life-cycle GHG emissions ($kgCO_2eq/(m^2y)$) for new buildings, with thresholds ranging from 4 to 8 $kgCO_2eq/(m^2y)$, depending on the type of building[35].

The cost-optimal levels of minimum energy performance requirements play an important part in the Danish draft NBRP. The draft NBRP mentions that the MEPS thresholds for non-residential buildings for 2050 are set at the latest cost-optimal level (2023 report). This value is around 60 $kWh/(m^2y)$ for existing non-residential buildings and 44 $kWh/(m^2y)$ for new non-residential buildings (total primary energy use). However, as the MEPS threshold for 2050 is higher, the alignment cannot be verified.

Assessment of the alignment between the draft NBRP and national commitments on climate and energy set out in the NECP

The draft NBRP is aligned with the objectives in the final NECP. However, as described below, the targets are not fully comparable. The section below also addresses how the NBRP ambition compares with Denmark's 2020 long-term renovation strategy (LTRS).

Energy efficiency

According to the draft NBRP, Denmark aims to reduce the primary energy consumption of its buildings sector by 15% by 2030, compared to 2020. The final energy consumption is expected to increase by 3% over the same period. The draft NBRP mentions that the increase in final energy consumption is due to an increase in the size of the non-residential building stock, which offsets the improvements in energy efficiency. At the same time, it states that the final energy use per m^2 is declining. However, this information cannot be verified for non-residential buildings due to missing data.

The NECP and the 2020 LTRS do not provide final or primary energy consumption targets for the building sector. However, the final NECP does provide indicative projections of the final energy consumption of households and services. Between 2022 and 2030, the final energy consumption of households is projected to decrease by 9%, while the final energy consumption of services is projected to increase by 62%. The NBRP targets therefore seem to be aligned with the NECP building-related projections, even though they are not fully comparable.

The draft NBRP mentions that the contribution to the EU's energy efficiency targets set in Article 4 of EED that can be attributed to building stock renovation is not available. However, in 2020 the buildings sector accounted for 39% of the total final energy consumption in Denmark, and this share is projected to remain at 39% in 2030. This indicates that the energy savings in the buildings sector are scheduled to occur at the same pace as overall energy savings.

Forward-looking primary energy factors (PEFs) have been taken into account in the primary energy targets. The draft NBRP proposes non-renewable, renewable and total primary energy factors for the 2030, 2040 and 2050 targets for five energy carriers. For instance, the total (PEF) of district heating is expected to decrease from 1.05 in 2020 to 0.87 in 2023, then 0.76 in 2040, before increasing slightly to 0.77 in 2050. The PEF of electricity is expected to decrease from 1.60 in 2020 to 1.36 in 2030, 1.16 in 2040 and 1.11 in 2050. For gas, from 2030 the total PEF of 1.4 will be

[35] Summer homes (ranging from 4.0 to 6.7 $kgCO_2eq/(m^2y)$, depending on the total floor area), single-family and terraced houses (6.7 $kgCO_2eq/(m^2y)$), multi-family buildings and offices (7.5 $kgCO_2eq/(m^2y)$) and other buildings (8.0 $kgCO_2eq/(m^2y)$).

equal to the renewable PEF. The projections are supported by the commitments on renewables and grid decarbonisation. However, it is mentioned that these values are subject to political agreement and may change in the final version of the NBRP.

The draft NBRP energy targets thus seem sufficient and in line with the national commitment on **energy efficiency** laid down in the NECP.

Decarbonisation

The building decarbonisation target mentioned above (-91% by 2050, compared with 2023 figures) is expected to contribute significantly to the overarching goal of climate neutrality by 2050. The draft plan mentions that from 2033, the buildings sector is expected to generate only very limited GHG emissions (operational emissions), as the energy supply will be almost completely based on renewable sources by then.

At the same time, the NECP and the 2020 LTRS do not provide operational GHG emissions targets for the buildings sector. It is therefore not possible to compare the respective ambitions set out in those documents with that of the draft NBRP on this front.

Renewable energy

Denmark sets targets for the share of renewable energy in the buildings sector's final energy consumption for every year from 2026 (71%) to 2030 (79%), in accordance with Article 15a of the RED. These targets cover renewable energy in the district heating network, which represents an important heating source for many buildings in Denmark. The targets are lower than those in the NECP (79% vs 87.3%). However, the NECP targets are only intended to be indicative.

Denmark's NBRP target for the share of renewable energy in buildings is broadly aligned with the indicative national share listed in Annex C to the Commission guidance on heating and cooling (C/2025/2238) (79% vs 80%).

Expected reduction in the number of people affected by energy poverty

Between 7 000 and 29 000 households are estimated to be in energy poverty, representing 0.2-0.9% of all Danish households. The indicator is based on the combination of three factors – low income, home with low energy performance, and high energy consumption – in two models. The methodology used to calculate this rate is not explained further, and there is no reference to the data sources. The indicator does not seem to be aligned with available and reliable statistics. For instance, the EU Energy Poverty Observatory[36] shows that 4.5% of households in Denmark declared themselves unable to keep their homes adequately warm in 2025. Moreover, the share of energy expenditure in income (2M indicator) was 22.7% in 2020, while the low absolute energy expenditure (M/2 indicator) was 15.1%.

The draft NBRP does not provide data on the energy performance of social housing or on the use and repurposing of vacant housing. It also does not indicate quantified progress in terms of units renovated per year or increased accommodation capacity for the homeless.

[36] https://energy-poverty.ec.europa.eu/epah-indicators

The draft NBRP does not include targets for energy poverty reduction, noting that the targets will be set once the work on the official definition of energy poverty has been completed.

Prioritising the renovation of the worst-performing buildings

Denmark's NBRP identifies the worst-performing buildings and states that they will be prioritised for renovation. Worst-performing buildings are defined as buildings in energy performance certificate (EPC) class D or lower. In 2023, they accounted for 38% of residential buildings and 34% of non-residential buildings.

The 2020 baseline number of worst-performing buildings is based on the EPC database, scaled according to the distribution of buildings in the total building stock using the Danish building stock registry.

However, the number of worst-performing buildings to be renovated by 2050 is higher than this baseline number, suggesting that the values might be indicative and further validation is required.

Minimum energy performance standards for non-residential buildings

The MEPS thresholds for transforming non-residential buildings into ZEBs by 2050 have been calculated using 2020 as the baseline. The draft NBRP states that the 2050 threshold has been set at the latest cost-optimal value. However, it mentions a value of 97 kWh/(m^2y), whereas the latest cost-optimal value for existing non-residential buildings is around 60 kWh/(m^2y).

The draft NBRP sets thresholds for primary energy use. Single values have been set across the non-residential building stock (e.g. not by building category) as shown in Table 7.

Table 7. MEPS for non-residential buildings in Denmark.

Building categories	**Primary energy use** kWh/(m^2y)			
	2030	**2033**	**2040**	**2050**
One category	190	168	139	97

Source: JRC elaboration on Member State reporting

It is important to note that:

— values might change in the final NBRP, as the recast EPBD is still to be transposed into Danish law; and

— the 2040 threshold is an interpolation between 2033 and 2050.

The number and floor area of buildings to be renovated according to these thresholds are not included in the draft NBRP but are listed in the optional spreadsheet. They seem to be sufficient to contribute effectively to achieving the roadmap's targets for reducing energy consumption and GHG emissions.

The thresholds are based on the assumption that 16% and 26% of the worst-performing residential buildings will be renovated by 2030 and 2033, respectively. The Danish EPC database and the Danish housing register are the main data sources for these thresholds. The baseline number and floor area of buildings by category have been sourced from Statistics Denmark.

Exclusions (if applicable) pursuant to Article 9(6) of the EPBD and criteria for exemptions

Buildings used for agricultural purposes, industry, power production and transport, as well as garages, are excluded from the baseline, as these are not considered to be within the scope of the EPBD in Denmark.

As regards the criteria for exempting individual buildings, building owners may request an exemption if the building is to be demolished or if its use changes. The procedure is set out in the draft NBRP. Moreover, Denmark is considering granting exemptions in the following hardship situations concerning the building owner: (i) bankruptcy, (ii) liquidity problems, (iii) serious illness, (iii) to new owners/tenants following the death of the previous owner and (iv) in cases of force majeure (calamities).

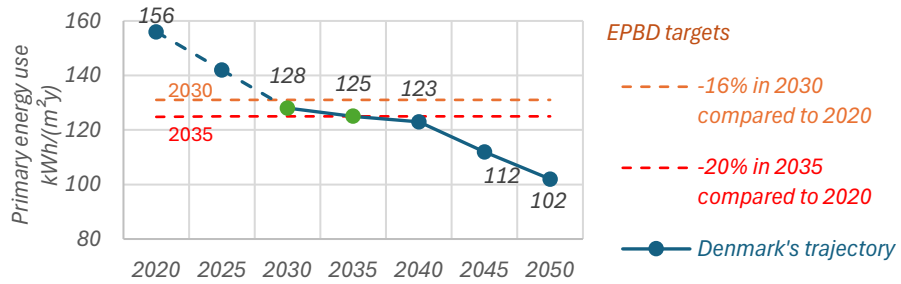
In addition, the building owner may request an exemption on the basis of an unfavourable cost-benefit assessment. To do so, the building owner must submit a profitability assessment to the Danish Energy Agency, which will then assess the documentation and estimate the equivalent savings to be achieved in the remaining non-residential building stock. There are two options for documenting the profitability assessments: on the basis of the Danish Building Code or on the basis of the EPC (showing that the building cannot comply with the MEPS threshold). Both options are described in the draft NRBP.

The expected number and floor area of exempted non-residential buildings is estimated at 14 519 buildings with a total floor area of 23 672 000 m^2, representing about 4.8% of the total floor area in 2023. The equivalent energy savings to be achieved in the non-exempted stock are estimated at 80 ktoe for the same period, with data disaggregated by year and energy class.

National trajectory for the progressive renovation of residential buildings

The 2050 target for the average primary energy use of the entire residential building stock is set at 102 kWh/(m^2y), the level considered necessary to reach a zero-emission building stock (Figure 2). The milestones for average primary energy use are set at 128 kWh/(m^2y) by 2030 and 125 kWh/(m^2y) by 2035. Compared with 2020, these values correspond to a decrease of 18% and 20%, respectively. This means that the 2030 milestone is more ambitious than the EPBD requirement set out in Article 9(2), while the 2035 milestone is aligned with it.

Figure 2. Trajectory for the progressive renovation of residential buildings in Denmark.



Source: JRC elaboration on Member State reporting

The accompanying optional spreadsheet includes the number and floor area of residential buildings (including the worst-performing buildings) to be renovated annually in order to reach these milestones. However, in the draft NBRP, the respective fields are marked as 'not available'. As a result, it is not clear if the values provided in the optional spreadsheet can be considered definitive.

The Danish EPC database, complemented by the Danish housing register, is the main data source for plotting the trajectory. The number and floor area of buildings by category (single-family houses, apartment blocks, multi-family houses) are sourced from Statistics Denmark. All types of residential buildings are included in the baseline, including vacation houses.

The 2020 residential building stock data and the total primary energy consumption data are robust and consistent across the different parts of the draft NBRP. However, the methodology used to characterise the residential building stock on the basis of the EPC data sets is only explained briefly, and the underlying assumptions are not set out explicitly.

New buildings

In Denmark, the voluntary 'low energy class' is considered the starting point for ZEBs. Residential buildings (and other residential occupancies, such as dormitories or hotels) must have a primary energy use for heating, cooling, ventilation and hot water below 27 kWh/(m^2y). For non-residential buildings, primary energy use must be below 33 kWh/(m^2y). This is more than 10% lower than the current NZEB level in Denmark. For existing buildings, Denmark plans to calculate the ZEB level as NZEB-10% (new building level), whenever this is technically and economically feasible. However, when compliance cannot be achieved, renovation must aim for the highest cost-effective energy performance. The ZEB criteria will be monitored and updated over time. No thresholds for operational GHG emissions are provided.

Currently, all new buildings are NZEBs. In 2023, there were 68 326 new NZEBs with a total floor area of 30 725 997 m^2, and 94 618 renovated NZEBs with a total floor area of 54 128 404 m^2. The numbers are checked against the national EPC database.

3.3.4. Sufficiency of the policies and measures

All mandatory policies and measures listed in Annex II are addressed in Denmark's draft NBRP. However, it lacks some essential and mandatory information on the measures, including quantified objectives, funding sources, expected impact and status of implementation. The sufficiency of the policies and measures to achieve the targets is therefore not clearly demonstrated.

Denmark has in place a series of political agreements and legislation (e.g. the energy policy agreement, the green housing agreement, the climate policy agreement on energy and industry and the Climate Act) to support implementation of the NBRP. However, in some cases the draft NBRP mentions that future initiatives are expected as from 2026.

The measures are consistent with other plans and strategies, such as the final NECP, the comprehensive heating and cooling assessment and local heating and cooling plans under the EED.

Renovation and MEPS for non-residential buildings

The framework for MEPS implementation in Denmark is described in the draft NBRP. The main instruments are the Danish Building Code, the EPC scheme, the Knowledge Centre for Energy Savings in Buildings, the 'Erhvervspuljen' business scheme providing support to private firms, sparenergi.dk, and one-stop shops.

The draft NBRP mentions that, under Danish legislation, when existing buildings undergo specific building works identified as trigger points (such as reroofing, facade works, partial building reconstruction), the envelope must be upgraded (thermal insulation), provided this can be done in a cost-effective way.

The Danish Energy Agency is listed as the body responsible for ensuring that non-residential buildings comply with the MEPS requirements, once they have been implemented. The draft legislation on MEPS states that the threshold values and the deadlines will be set out in an executive order that will enter into force on the same date as the law. The EPC will be used to identify and document whether a building complies with the MEPS threshold. Denmark plans to carry out risk-based compliance checks after the 2030 and 2033 MEPS deadlines and to perform an annual stocktake of the energy consumption trends in buildings. Non-compliance with MEPS thresholds may lead to penalties that will take into account the financial situation of the building owner and their access to adequate financial support.

Renovation of residential buildings

To ensure that the trajectory for residential building renovation continues to be followed, Denmark relies on the same mix of political agreements, legislation and policy measures mentioned in relation to non-residential buildings. The Danish Energy Agency will conduct an annual stocktake of developments in energy consumption in buildings to monitor whether residential building renovation continues to follow the trajectory.

Measures to tackle the worst-performing residential buildings include focused information campaigns and financial measures. The Danish Energy Agency has launched a campaign targeting owners of residential buildings in EPC classes D to G, outlining the energy renovation measures that would be most cost-effective in specific cases. In addition, Denmark plans to support the renovation of this building category with the energy renovation subsidy scheme, which aims to support envelope upgrades and ventilation systems with about EUR 39 million allocated for 2023-2026.

The building renovation passport as a tool to support energy savings, complement MEPS, and assist the trajectory for residential buildings

Denmark is currently in the process of introducing the voluntary renovation passport scheme (which is an extension of the EPC). The renovation passport indicates, in a series of steps, the renovations that must be carried out to achieve ZEB status by 2050. It will be based on the information already available in the EPC, which is being developed further. However, the draft NBRP mentions that the information related to the renovation passport may be amended in the final version of the NBRP.

Box 8. Example of policies and measures in Denmark.

- *The deduction for home improvement services* (Håndværkerfradrag 2025) allows households to deduct up to EUR 1 150 (DKK 8 600) per person from taxable income for labour costs associated with specified energy-saving renovations and climate proofing measures. The deduction is designed to encourage owners to make sustainable home improvements.

- *The energy taxation reform* introduces a higher and more uniform CO_2 tax on fossil fuels used for heating buildings, to be phased in by 2030. Simultaneously, the electricity tax has been reduced significantly, making electricity-based solutions, such as heat pumps and district heating, more attractive than fossil-fuel-based ones.

- *The National Building Fund* (Landsbyggefonden) is the Danish national revolving housing fund that supports the non-profit housing sector financially. It provides financing for large-scale renovations and green upgrades in housing while safeguarding affordability through subsidy schemes, thereby keeping rents in the renovated buildings affordable.

Alleviating energy poverty and housing affordability

In Denmark, there are a wide range of social and housing policy initiatives aimed at improving conditions for vulnerable groups. These include information, awareness-raising and training provided by the Knowledge Centre for Energy Savings in Buildings. Moreover, through sparenergi.dk the Danish Energy Agency provides information on deep renovation opportunities and guidance on energy-efficient behaviour, focused on vulnerable groups. The campaign 'good energy everywhere' ('god energi til enhver lejlighed') focuses on residents in social housing apartment buildings.

Vulnerable groups also receive support through other financing mechanisms, including (i) the energy renovation scheme (*Energirenoveringspuljen*), which provides grants for envelope improvements and ventilation; (ii) the heat pump scheme (*Varmepumpepuljen*), which provides funding to replace oil, gas or pellet boilers or electrical heating with electric heat pumps; (iii) the district heating scheme (*Fjernvarmepuljen*), which provides support for connection to district heating; (iv) the scheme for deducting costs associated with energy upgrades and climate proofing (*Håndværkerfradrag 2025*); and (v) other forms of financing such as green loans. In addition, various schemes and funding programmes designed to promote energy efficiency are available in the energy sector, under which vulnerable groups may receive support.

Some measures aimed at encouraging renovation while maintaining housing affordability are included in the draft NBRP. The National Building Fund supports the non-profit housing sector financially. The fund provides financing for large-scale renovations and green upgrades, while safeguarding affordability through subsidy schemes which keep rents in the renovated buildings affordable. The fund has a particular focus on disadvantaged neighbourhoods, where investments combine physical improvements with social initiatives. The main aim is to ensure that energy efficiency renovation also benefits vulnerable and low-income households, thereby preventing social exclusion linked to rising housing costs.

Several measures identified in the draft NBRP are consistent with Article 24 of the EED, such as technical assistance, information campaigns to promote positive behavioural changes, the National Building Fund and other subsidy schemes to encourage greater energy efficiency. However, in relation to other measures, such as energy taxation, it is not clear if specific action will be taken to protect vulnerable households.

Creation of one-stop shops or similar mechanisms pursuant to Article 18 for the provision of technical, administrative and financial advice and assistance

In Denmark, technical, administrative and financial advice and guidance is provided primarily through the website sparenergi.dk, which is hosted by the Danish Energy Agency. This approach is aligned with the general Danish policy of delivering public services digitally. The main services provided include (i) advice on practical steps to increase energy efficiency and savings; (ii) information on envelope renovation measures, with the option of adjusting parameters and obtaining estimates of energy savings and investments costs; (iii) information on heating source options, including the possibility to connect to district heating (depending on the address); (iv) EPC label checks; and (v) links to relevant financing schemes. Citizens can also request independent advisory services and receive individual tailor-made guidance on energy savings and financing schemes. The Danish Energy Agency organises public meetings across the five regions of Denmark, where citizens can meet staff in person and receive individual advice. However, the draft NBRP does not specify how it will ensure one-stop shops are available throughout the country on a permanent basis, nor which services will be covered. It also does not indicate whether one-stop shops offer specialised services for vulnerable households.

Decarbonisation of heating and cooling and the phasing out of fossil fuels in heating and cooling with a view to the complete phasing out of fossil-fuel boilers by 2040

Denmark's draft NBRP includes clear and credible measures to decarbonise heating and to phase out fossil fuels in heating and cooling. The draft NBRP is also consistent with existing policies and strategic plans.

Denmark's targets are more ambitious than the EPBD requirements on decarbonising heating. Specifically, under the climate agreement on green electricity and heating Denmark aims to achieve full decarbonisation of the gas supply by 2030. With current policies and measures, it is estimated that this goal will be met only in 2032, by phasing out gas use in domestic heating, in particular, and replacing natural gas with domestically produced biomethane in the gas grid[37]. Denmark addresses both paths specified in Commission guidance C/2025/6438 for phasing out fossil-fuel boilers: (i) fossil-fuel replacement and (ii) boiler replacement.

On the phasing out of fossil-fuel boilers, the draft NBRP specifies that Denmark will have a boiler stock of 36 000 in 2040, down from approximately 330 000 in 2023 (a drop of 90%), and from 215 000 in 2030. Since Denmark expects to have full biomethane supply in the Danish gas grid by 2032, it is estimated that the remaining gas boilers will be classified as using renewable gas and not as fossil-fuel boilers. In light of the projected reduction in the boiler stock by 2040 and Denmark's already high share of biomethane in the gas grid, this assumption appears broadly consistent with the decarbonisation pathway described in the draft NBRP. However, further clarification would be useful on the availability of biomethane for heating purposes, notably in view of expected production levels and the balance between domestic use, exports and imports. Regarding oil boilers, projections made under the same economic, technical and policy assumptions show that Denmark's stock of oil boilers will be phased out by 2035, from around 24 000 in 2030.

The draft NBRP makes reference to (i) the Danish comprehensive heating and cooling assessment pursuant to Article 25 (1) of the EED, submitted in 2024 with the final NECP; (ii) the final NECP; and (iii) local heating and cooling plans (in 2025 Denmark adopted legislation on municipal cooling planning). Moreover, it mentions that Denmark is planning to introduce new measures in 2026 and intends to estimate the funding required to meet the political ambitions of phasing out fossil-fuel gas boilers for domestic heating by 2035 and to achieve a decarbonised gas grid by 2030.

Prevention of construction and demolition waste

The draft NBRP mentions that, since July 2025, Denmark has had in place regulations on selective demolition. Selective demolition refers to the full or partial dismantling of buildings of 250 m^2 or more in a manner that allows construction materials to be separated and sorted during the process. To ensure compliance, it is mandatory to appoint an authorised coordinator who is responsible for drawing up and overseeing the execution of the demolition plan. The aim is to ensure the highest possible degree of reuse and recycling according to the waste hierarchy. Materials containing hazardous substances must be identified and removed for processing or responsible disposal. This ensures that buildings are increasingly dismantled rather than destroyed.

[37] The share of natural gas in space heating in Denmark was 12.3% in 2023, significantly lower than the EU share of 34.3%.

Moreover, to further support recycling, in the calculation of life-cycle GWP in the Building Code, recycled building products are treated as 0 kg CO_2eq.

Promoting renewable energy sources in line with Article 15a of the Renewable Energy Directive

Regarding the promotion of renewable energy sources in buildings in line with Article 15a(1) of the RED, Denmark refers to the measures set out in the final NECP.

Deployment of solar energy installations on buildings

The draft NBRP covers the roll-out of solar energy installation on buildings. Denmark aims to roll out solar energy installations on different categories of buildings, where technically and economically feasible. In line with Article 10 of the EPBD, the requirements will include national criteria for practical implementation, including for protected and historical buildings, as well as requirements on storage integration. These requirements are expected to be brought into force in the Danish building regulations by 29 May 2026.

Reducing whole-life-cycle GHG emissions and the uptake of carbon removals

Denmark has already in place national regulations stipulating that whole-life-cycle GHG emissions in buildings must be calculated and setting maximum emission limit values ahead of the regulatory timeline set out in Article of the EPBD. These limit values vary by building category (eight categories) and are expected to be tightened every two years. The whole-life-cycle GHG emission limits were already tightened in July 2025, with category-specific values averaging 7.1 kg CO_2eq/(m^2y).

At the same time, the energy performance requirements for converting a building to a use that consumes more energy have been lowered. The main purpose of this measure is to support the repurposing of existing buildings and thereby encourage renovation instead of demolition. This measure also contributes to enhancing the housing supply.

No further information on the uptake of carbon removal measures is reported in the draft NBRP.

Promoting a district and neighbourhood approach and integrated renovation programmes

The draft NBRP mentions the promotion of sustainable neighbourhoods and integrated renovation programmes. In Denmark, various initiatives have been launched at municipal and regional level. One such initiative is '*Klimaalliancen*', under which all participating municipalities have voluntarily drawn up a climate action plan that is now being implemented. Another initiative is the regions' strategy for sustainable hospitals, as part of which the five Danish regions set a common goal to reduce hospitals' operational CO_2 emissions by 50% by 2035, compared to 2022, with the broader objective of becoming CO_2 emissions free by 2050.

Some municipalities have implemented subsidy schemes offering funding to improve households' energy performance on a voluntary basis. Moreover, the National Building Fund focuses on disadvantaged neighbourhoods, where investments combine physical improvements with social initiatives.

Finally, through its digital one-stop shop (sparenergi.dk), the Danish Energy Agency offers municipalities the possibility of sending information to citizens based on geographical building segmentation layers, targeting specific districts or neighbourhoods.

Improving buildings owned by public bodies

Denmark has in place a joint agreement between the Ministry of Climate, Energy and Utilities, the Association of Danish Municipalities and Danish Regions on energy efficiency in public buildings. The common target is to identify approximately 3.9 million m^2 of public building floor area to be renovated by 2030 and upgraded to at least class B (current NZEB level in Denmark) by 2040. Renovations will be prioritised in terms of savings and cost-efficiency, and where possible, synergies with the MEPS requirements under Article 9(1) of the EPBD will be ensured. Supportive measures include a digital tool for building stock management and a simplified EPC update procedure. The parties have agreed to set up a forum for cooperation to follow up on the agreement and ensure consistency with other requirements (e.g. implementation of the recast EPBD). The work will be monitored by the Danish Energy Agency, with a mid-term review scheduled for 2027.

Promoting smart technologies and infrastructure for sustainable mobility

In 2022, Denmark implemented a national smart readiness indicator (SRI) pilot scheme in 25-30 buildings, including offices, single and multi-family buildings and buildings for education, both old and new and with different energy supplies. The draft NBRP mentions that a report has been drawn up but does not provide further details on the outcome of the SRI pilot scheme.

The draft NBRP introduces a utilities digitisation programme that aims to create uniform and easy access to data from the utilities sector. The programme is based on a partnership between public authorities, the utilities sector and data users, and it aims to set the direction for digitisation. It will initially focus on data in the electricity, heating and water sectors.

The draft plan also covers sustainable mobility. From 2026, new buildings and major renovations with on-site parking must include electric vehicle (EV) charging facilities (e.g. a number of operational recharging points, along with pre-cabling conduit infrastructure for future chargers) and provide dedicated bicycle parking spaces. By 2027, existing large non-residential buildings will also be required to ensure a baseline level of charging capacity or ensure, by means of cabling provisions, that at least 50% of parking spaces are EV-ready. All new charging points must also be smart, capable of intelligent load management and, where appropriate, two-way vehicle-to-grid (V2G) operation (to enable energy to be exported from the car back into the home or grid when needed). These requirements are expected to be adopted by 29 May 2026.

The draft plan includes measures to simplify and streamline the procedures for installing electric charging points. Tenants and owner-occupiers in apartment buildings and houses can install their own charging point at their parking space, without the consent of landlords or co-owners.

Fire safety in car parks is also mentioned. Danish authorities, with input from fire safety experts, are examining measures to manage fire risks associated with EV batteries in garages.

Accessibility for people with disabilities

New charging and bicycle facilities in buildings must comply with current accessibility standards, to ensure that they can be used by all residents.

The draft plan does not include any further information on accessibility measures for people with disabilities.

Addressing market barriers, market failures and skills gaps

The draft NBRP addresses barriers and market failures extensively. Measures include developing and promoting tools and material for vocational education and mandatory training for EPC experts and energy consultants organised by business academies throughout the country. Denmark has added a provision to the permitting regulations that removes the price cap on waste heat and thereby creates an incentive for waste heat use that can contribute to more efficient district heating. This provision has been in force since July 2025.

In 2022, the Danish government established a national energy crisis taskforce charged with speeding up the green transition in selected areas in Denmark. Public authorities, municipalities, the energy sector and other stakeholders are contributing to finding solutions and minimising market barriers to the green transition.

Denmark focuses on adult vocational training to bridge skills gaps and enhance employability, particularly for people with a low level of qualifications. It offers various schemes tailored to education level and union affiliation, focusing on jobs in areas experiencing labour shortages, such as the green transition. These schemes are updated annually with input from the social partners. Unemployed individuals can access skills development programmes, including training programmes under the regional education fund and vocational training.

Awareness-raising campaigns and other advisory tools

Denmark's sparenergi.dk informs citizens about programmes and subsidies for replacing fossil energy sources, improving energy efficiency and undertaking deep building renovations. The Knowledge Centre for Energy Savings in Buildings complements sparenergi.dk by collecting and sharing information on energy savings, specifically targeting the construction and energy sectors and building owners. It provides tools and teaching materials to support tradespeople and consultants in effective energy renovations and vocational training, thereby helping to upskill the workforce. Denmark also implements targeted campaigns and organises public information meetings to educate citizens on energy initiatives.

Promoting modular and industrialised solutions

Denmark has indicated in the draft NBRP that, through its building codes, it also encourages market actors to develop modular and industrialised construction and renovation solutions, making full use of the existing building stock data and the high levels of digitisation.

Furthermore, the Danish government supports entrepreneurship through initiatives such as the '*Entrepreneurship Package'* launched in June 2024, which allocates capital to green entrepreneurs. Funding opportunities for these solutions are available through the energy technology development and demonstration programme, although no applications had been received under this programme by the time the draft NBRP was submitted.

3.3.5. Sufficiency of financing sources and administrative resources

The draft NBRP includes an estimate of the investments needed to achieve the 2030-2050 renovation targets. However, the methodology and assumptions underpinning this estimate are not provided, and the aggregated volumes result in a very low value per m^2. This does not seem commensurate with the expected volume (breadth and depth) of renovations. The allocation of public and private funding is only set out in broad terms, and the share of public funding ranges from 60% in 2030 to 90% in 2050. Furthermore, the mechanisms for mobilising private financing are not clearly described. More information is needed to evaluate the accuracy of the investment needs (e.g. the methodology, including assumptions) and the adequacy of the planned budget.

Denmark estimates **investment needs** by building type (residential, including worst-performing, and non-residential) and for the period 2026-2050. Between 2026 and 2050, total investment needs are estimated to amount to EUR 13.2 billion.

Considering the floor area to be renovated between 2020 and 2050, the investment needs come to EUR 35/m^2. This value seems extremely low and is not aligned with the expert study referenced[38], particularly as the total volume has been estimated using a bottom-up approach. Therefore, the investment needs do not seem sufficient to deliver the planned renovations[39].

The costs include expenses related to improving the energy performance of the building stock, but exclude expenses related to energy poverty alleviation, infrastructure for smart mobility and administrative resources, including the creation and operation of one-stop shops.

The **financing sources** have been identified on the basis of statistics on funds spent on construction projects in the municipalities and regions and on behalf of the state in 2023. The funding sources match the expected investment needs according to the draft NBRP (no gap is identified).

The subsidy schemes available in Denmark include the funding available for the current periods (e.g. 2023-2026, 2020-2026), but no information on future funds is provided. Energy poverty is mainly addressed through the National Building Fund, which aims to ensure that energy efficiency renovations also benefit vulnerable and low-income households by preventing social exclusion linked to rising housing costs. There is a particular focus on disadvantaged neighbourhoods, where investments combine building upgrades with social initiatives. Vulnerable groups also receive support through other subsidy schemes, such as the energy renovation scheme, the heat pump scheme and the district heating scheme, along with other forms of financing (e.g. green loans).

The draft NBRP shows an overreliance on **public funding** to cover the estimated investment needs, with the share of public funding estimated to range from 60% in 2030 to 90% in 2050. The highest share of funding comes from local funds (about 60% of total funding), with national funds accounting for 35% and regional funds accounting for the remaining 5%. No contribution from EU funds is foreseen.

The draft NBRP provides an estimate of total **private financing**, but the specific instruments for mobilising this form of financing are not listed. According to the draft NBRP, it was not possible to disaggregate the private funds in a meaningful way.

Assessment of the adequacy of total investment

For every period (2026-2030, 2031-2035, 2036-2040, 2041-2045, 2046-2050) the funding is equal to the estimated investment needs (100% coverage). The share of public investment is projected to increase from 60% in 2030 to over 90% in 2050.

Linking investment needs to targets through policies and measures

[38] https://vbn.aau.dk/da/publications/omkostninger-og-energibesparelser-ved-energieffektivisering-af-by/.

[39] However, the renovated targets might also bias the results and need further check validation.

It is not possible to link investment needs to specific targets, as the draft plan does not provide a clear link between investments, policies, measures and targets.

3.3.6. Inclusiveness of the public consultation

The public consultation included a wide variety of stakeholders and allowed sufficient time to provide feedback. It was led by the Danish Energy Agency, with contributions from the Danish Social and Housing Authority, the Ministry of Climate, Energy and Utilities, the Ministry of Social Affairs and Housing, the Ministry of Industry, Business and Financial Affairs, the Danish Financial Supervisory Authority, the Ministry of Employment, the Danish Agency for Education and Quality, and the Ministry of Culture.

In total, 32 responses were received from 29 different stakeholders, including the Danish association of private cooperative housing, Disabled People's Organisations Denmark, the Danish Construction Industry, the Danish Water and Wastewater Association, The Danish District Heating Association, and the Danish Institute of Fire and Security Technology.

The summary of the public consultation is annexed to the draft NRBP. It is structured by topic discussed (16 topics). The comments and feedback provided by the stakeholders, as well as the responses of the authorities, are included.

In several cases, the feedback relates to a specific concern, but in several cases, it covers ongoing or future actions (e.g. additional initiatives relating to gas grid decarbonisation, the ongoing consultation on the recast EPBD, including considerations for preserving cultural and architectural value while implementing the NBRP, or EPC scheme updates).

Moreover, during the consultation on the draft NBRP, the Disabled People's Organisations Denmark, raised the issue of making building stock accessible to everyone. The authorities' response points to the Danish building regulations, which include (i) accessibility requirements relating to level-free access and access routes, (ii) the fitting-out of buildings and publicly accessible areas (e.g. accessible toilets), (iii) lift specifications, and (iv) access to undeveloped areas and parking (including disabled parking spaces). However, it is not clear how this input was taken into account in the draft NRBP.

3.3.7. Completeness of the draft NBRP and consistency with other planning or reporting exercises

The draft plan includes almost all mandatory indicators, as well as a number of optional indicators. Denmark also submitted the optional spreadsheet for data collection. The table below provides a detailed overview of the information provided.

Table 8. Indicators checklist for Denmark.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings	Yes	
	Floor area (m^2)	Yes	
	Definition of worst-performing buildings	Yes	
	Share of worst-performing buildings (%)	Yes	
	Number of renovated buildings/ floor area (number/ m^2)	No	Expected to be included in the final version of the NBRP.
	Renovation rate (%)	No	Expected to be included in the final version of the NBRP.

Section	Indicator	Yes/No/Partially	Explanatory notes
	Primary energy use (ktoe)	Yes	
	Final energy use (ktoe)	Yes	
	Specific primary energy for residential buildings (kWh/m^{2}y)	Yes	
	Share of renewable energy (%)	Yes	
	Operational GHG emissions (Mt CO_2-eq)	Yes	
	Energy poverty share (%)	Yes	
Roadmap for 2030, 2040 and 2050	Renovation targets (floor area or number)	Yes	
	Renovation rate targets (%)	Yes	
	Primary energy targets (ktoe) or reduction (%)	Yes	
	Final energy targets (ktoe) or reduction (%)	Yes	
	Renewable energy targets (%)	Yes	
	GHG emission targets (Mt CO_2-eq) or reduction (%)	Yes	
	Energy poverty targets (%)	No	Under development.
	Contribution to energy efficiency target	No	
Policies and measures	Scope and type	Yes	
	Quantified objective	Partially	The quantification is rather generic, and the expected impact is descriptive in most cases.
	Status and implementation period	Partially	Only for some measures.
	Budget and funding source	Partially	Only for financial schemes.
Investment needs	Total and/or average investment needs (million EUR), EUR/m^2	Yes	
Residential buildings	Average specific primary energy decreases between 2020 and 2050	Yes	
	Number of residential buildings to be renovated	Partially	Only in the optional spreadsheet.
	Residential floor area to be renovated (m^2)	Partially	Only in the optional spreadsheet.
	Worst-performing buildings contribution (%)	No	
Non-residential buildings	MEPS 16% threshold	Yes	
	MEPS 26% threshold	Yes	
	2040 and 2050 MEPS thresholds	Yes	
Summary of the public consultation		Yes	

Source: JRC elaboration on Member State reporting

Consistency checks were carried out by comparing the data with previous Member State reporting: the 2024 NECP, the 2025 national energy and climate plan report (NECPR), the 2023 national cost-optimal report, and the 2020 LTRS.

Plausibility checks were carried out by comparing the data with other reliable data sets: the Building Stock Observatory (BSO) for building stock indicators, and Eurostat data sets for final energy consumption.

Box 15. Consistency and plausibility check for Denmark.

The number and floor area of residential buildings are consistent with previous reporting (2025 NECPR). Non-residential buildings are not included in the 2025 NECPR.

The number of public buildings is not consistent with the 2025 NECPR (60% fewer public buildings in the draft NBRP than in the NECPR).

Primary energy factors are consistent with previous reporting in the 2023 national cost-optimal report.

The draft NBRP report and the optional spreadsheet submitted with the draft NBRP are not fully consistent. For instance, the target for the number of buildings and floor area to be renovated is missing in the report, and the values provided in the spreadsheet are not fully plausible and consistent across the different sections (e.g. overview, roadmap, national trajectory). However, the draft NBRP mentions that the renovation targets are preliminary.

The number and floor area of residential buildings are plausible based on a comparison with the BSO data set. The number of non-residential buildings shows differences (50% lower in the draft NBRP than in the BSO database).

The final energy consumption is plausible based on a comparison with Eurostat data set.

Energy poverty

The draft NBRP mentions the fact that Denmark does not have an official definition of energy poverty. However, some indicators have been calculated in order to comply with the EED and to prepare the social climate plan. In particular, Denmark has estimated the number of low-income households facing significant energy expenditure. For this purpose, three factors (low income, home with low energy performance, and high energy consumption) have been combined in two models to define and quantify energy poverty.

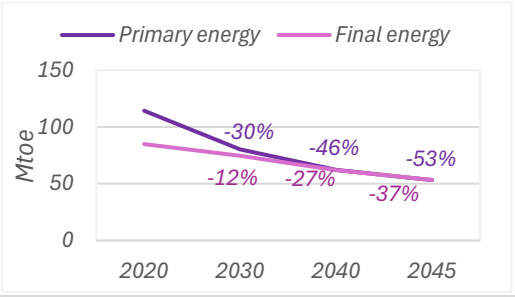
The definition of households in energy poverty in Denmark is partially aligned with Article 2(52) of the EED. In the Danish definition, low income appears to be a proxy for non-affordability and insufficient disposable income, while high energy consumption is a proxy for high energy expenditure. The definition and quantification of energy poverty and the measures on alleviating energy poverty are consistent with the NECP. The draft NBRP adopts the definition and figures from the final NECP. The draft NBRP mentions that Denmark is still working on the social climate plan and on the definitions of energy poverty and vulnerable households.

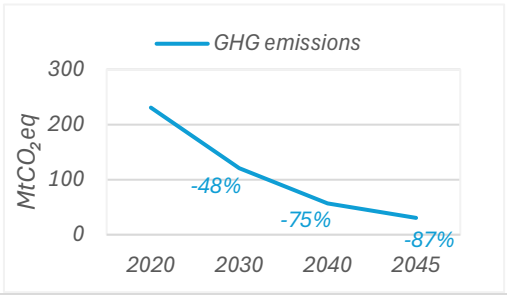
3.4. Germany

3.4.1. Main indicators

Table 9. Selection of main indicators from Germany's draft NBRP.

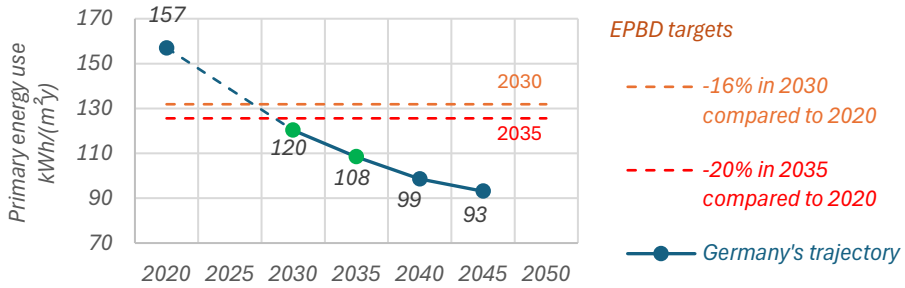
Renovation				
Floor area (Million m^2)	2020 Baseline	2030 Cumulative renovation	2040 Cumulative renovation	2050 Cumulative renovation
Residential	4 161.0	-	-	-
Non-residential	3 252.6	-	-	-
Total	7 413.6	-	-	-
Cumulative renovation (%)		-	-	-
Annual renovation rate (%)	-	-	-	-
Number of buildings	2020	2030	2040	2050
Total	21 257 053	-	-	-
Cumulative renovation (%)		-	-	-
Energy consumption				
Primary energy (Mtoe)	2020	2030	2040	2045
Residential	73.7	56.3	45.8	40.1
Non-residential	40.5	23.9	16.4	13.0
Total	114.2	80.2	62.2	53.1
Change vs 2020 (%)		**-30%**	**-46%**	**-53%**
Final energy (Mtoe)	2020	2030	2040	2045
Residential	58.0	52.6	45.0	39.5
Non-residential	26.8	22.0	16.9	13.7
Total	84.8	74.5	61.9	53.2
Change vs 2020 (%)		**-12%**	**-27%**	**-37%**
Energy end-uses included	Heating, cooling, hot water, ventilation, lighting and operation of electrical appliances, cooking			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2020	2030	2040	2045
Residential	156.0	86.0	41.0	20.5
Non-residential	75.0	35.0	16.0	10.0
Total	231.7	121.0	57.0	30.5
Change vs 2020 (%)		**-48%**	**-75%**	**-87%**
GHG emissions in $kgCO_2/m^2$	27.0	16.0	7.0	5.0
Change vs 2020 (%)		**-41%**	**-74%**	**-81%**





Renewable energy				
Renewable energy in the final energy	2020	2028	2029	2030
Share of renewable energy in buildings' final energy consumption	24%	41-44%	43-47%	48%
Solar energy technologies in buildings		2030	2040	2050
Residential buildings		22%	34%	-
Non-residential buildings		18%	27%	-
Energy poverty				
People affected by energy poverty	2020	2030	2040	2050
Share of people affected	-	-	-	-

Trajectory for the progressive renovation of residential buildings



Minimum energy performance standards for non-residential buildings
Not available

Primary energy factors				
Non-renewable PEF	2023	2030	2040	2045
Electricity	1.93	1.38	1.16	1.15
Natural gas	1.00	1.00	1.00	1.00
District heating	0.86	0.91	0.94	0.95

Investment needs for renovation and funding and financing sources			
Investment needs (billion EUR)	2030	2040	2045
		Cumulative	
Residential	214.8	718.2	857.0
Non-residential	59.1	255.4	362.8
Total	273.9	973.6	1 219.8
Funding and financing (billion EUR)			
Public	69.2	221.3	299.6
Private	204.7	752.4	920.2
Total	273.9	973.7	1 219.8

Source: JRC elaboration on Member State reporting

3.4.2. Executive summary

Germany has submitted a **partially complete draft** of the national building renovation plan (NBRP) including a voluntary spreadsheet presenting the values of the main quantitative indicators.

The **level of ambition** of the draft NBRP is in line with the goal of reaching a highly energy-efficient and decarbonised building stock in Germany. However, the roadmap is provided only until the year 2045.

Germany's targets for **primary energy consumption** in the building sector are 80.2 Mtoe by 2030, 62.2 Mtoe by 2040 and 53.1 Mtoe by 2045. This corresponds to reductions of about 30%, 46% and 53% compared with 2020 level of 114.2 Mtoe.

Germany's targets for **final energy consumption** in the building sector are 74.5 Mtoe by 2030, 61.9 Mtoe by 2040, and 53.2 Mtoe by 2045. This corresponds to reductions of 12%, 27% and 37%, respectively, compared with 2020 level of 84.8 Mtoe.

Germany's targets for total **operational greenhouse gas (GHG) emissions** in the building sector are 121 Mt CO_2eq by 2030, 57 Mt CO_2eq by 2040, and 30.5 Mt CO_2eq by 2045. This corresponds to reductions of 48%, 75% and 87% compared with the 2020 baseline of 230.7 Mt CO_2eq.

The draft NBRP is aligned with the objectives and policies and measures outlined in the final **national energy and climate plan** (NECP). Although targets are not fully comparable, the renewable energy targets are similar with the final NECP.

The draft NBRP outlines the contribution that Germany's building sector will make to the **EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED'). The final energy savings in the buildings sector set in the draft NBRP account for 13.5% of the total final energy savings by 2030. This indicates a rather low contribution of the building sector to the overall energy efficiency target. In terms of Germany's contribution to the **EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED'), Germany's target a share of renewable energy in building energy consumption ranging between 46 and 50% by 2030.

To meet the decarbonisation objective, Germany has also set targets to roll out renewable energy by equipping 34% of residential buildings and 27% of non-residential buildings with solar installations by 2040.

The draft NBRP **does not provide targets for the renovation of non-residential buildings** but as further described includes targets for residential buildings in the trajectory for the progressive renovation of residential buildings considering only building envelope upgrades in equivalent full renovation[40].

In terms of its **trajectory for progressive renovation of residential buildings**, Germany aims to bring the residential building stock to a level of 93 kWh/(m^2y) in 2045. The milestones for 2030 and 2035 are to reduce the average primary energy use compared to 2020 baseline by 23 and 31%, in line with the Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD'). The draft NBRP estimates that, by 2045, about 1.39 billion m^2 of residential floor area will need to be renovated at equivalent full envelope renovation, representing 33% of the residential floor area in 2020. However, an estimate of the actual number of buildings and floor area requiring intervention to achieve these milestones is not provided. The contribution of the worst-performing buildings is quantified only up to 2035.

The draft NBRP does not provide the thresholds for the **minimum energy performance standard** (MEPS) for **non-residential buildings** but indicates that these are currently under development and provides the data sources, methodology, and assumptions.

[40] The draft NBRP does not define the term 'equivalent full renovation'.

Overall, the calculation models to set the trajectory for residential buildings renovation and MEPS threshold for non-residential buildings are generally robust.

The draft plan identifies the **worst-performing residential buildings** based on EPC class (currently H as per the national EPC scale). In 2020, these accounted for 2.39 billion m^2 floor area, representing 58% of the total residential floor area. The draft NBRP provides targets for the renovation of worst-performing buildings only up to 2035 and includes measures targeting these buildings. The draft NBRP does not define worst-performing **non-residential** buildings.

Alleviating **energy poverty** is only partially addressed in the draft NBRP. The draft plan does not provide either the baseline energy poverty rate or the reduction targets. However, the draft plan makes reference to the EED definition through drafting the social climate plans and lists the relevant indicators to be provided in the final NBRP.

The draft NBRP includes several measures that contribute to enhancing **housing and energy affordability** for lower income groups or vulnerable households including measures focusing on split incentives (such as the Cost Allocation Act). A housing allowance scheme offers subsidies for rents and housing costs, including heating costs, to low-income citizens, while the 'young buys old' scheme contributes to affordability of the energy efficient housing by providing an interest reduced loan on an old house (EPC class F – H) with an obligation to renovate it in an energy efficient manner after purchase.

Germany's draft NBRP provides a well-structured and **systematic overview of implemented and planned policies and measures**, covering all mandatory policy areas. The measures are compressively described even if e the quantified objectives and expected impacts are not always clearly provided. They demonstrate potential to effectively support the targets once renovation targets are defined and the measures are better linked to them.

On **decarbonisation of heating**, the draft plan describes the current rules and measure in force stemming from the Building Energy Act[41]. The measures include a combination of regulatory and financial measures to decarbonise heating networks and replace fossil-fuel boilers. It includes legislative actions such as replacing oil and gas boilers, with deadlines for compliance, and mandates on renewable energy use in heating systems. Financial incentives, such as subsidies, bonuses, and low-interest loans, support the installation of renewable heating systems and the upgrading of municipal networks, complemented by a comprehensive programme targeting heat pumps. The measures are compressive and consistent with an effective phase-out of fossil fuel in heating by 2045 as indicated in the draft NBRP. However, the time horizon set is not fully aligned with the one mentioned in Annex II of the EPBD (e.g., 2040).

The **investment needs** are included in the draft NBRP. Between 2026 and 2045, the investment needs are estimated at EUR 1 220 billion, covering both residential and non-residential buildings. The assumptions and calculation details are not provided, leaving it unclear whether the investment needs are sufficient to achieve the targets. Funding sources are identified by type—public and private—and appear adequate, with no gaps identified. However, the financing mechanisms and

[41] Gebäudeenergiegesetz, GEG

strategies for **mobilising private financing**, which accounts for 70% to 80% of the total funds, are not clearly presented.

The **public consultation** facilitated broad participation through expert consultation rounds and online consultation, allowing various stakeholders to provide input. However, it remains unclear whether this input has been considered in the draft plan or will be integrated into the final plan. Moreover, some stakeholders expressed concerns about insufficient time to respond to the consultation.

The assessment process has identified the following elements of the draft NBRP as examples of particular strengths, **innovation** and/or **good practice** to highlight.

— The draft NBRP of Germany presents a comprehensive and well-designed policy package for building renovation. The draft plan combines regulatory measures, financial support for structural measures, such as loans, social benefits and tax incentives, project support and advisory service.

— The comprehensive federal funding for energy efficient buildings is adapted to different building types and target groups by several funding lines and well linked to the provision of advisory service by networks that operate as one-stop-shops.

— Clear requirements for the share of renewable energy and waste heat in district heating networks: 30% in each network by 2030, 80% in each network by 2040 and climate neutrality in each network by 2045. Indicative target at national level by 2030: 50% of the conductive heat to be sourced from renewable energies or unavoidable waste heat.

— 'Jung kauft Alt' (young buys old) funding programme assists households and families with purchasing and renovating buildings. It links the assistance to a condition to renovate the building within a certain period of time.

— The 'worst-performing buildings bonus' funding line for energy-efficient buildings aims to scale up the renovation of worst-performing buildings. If such building is upgraded to meet high energy efficiency standards, the applicable funding percentage is increased by an additional ten percentage points.

— The CO_2 Cost Allocation Act tackles split incentives. It is a national law that stipulates that the carbon dioxide cost is to be distributed among the landlord and the tenant in accordance with the energy consumption and GHG emissions of the building.

However, there are several aspects of the draft NBRP that require **completion and improvement,** and which should be addressed in the final version. These aspects are set out below.

— Complete the NBRP roadmap by providing the targets beyond 2045, e.g. by 2050.

— Provide the annual renovation targets for 2030, 2040 and 2050 by number of buildings, floor area, renovation rate and renovation depth for residential and non-residential buildings, including worst-performing buildings.

— Ensure that the energy targets in the building sector are sufficient and in line with the national commitment on energy efficiency laid down in the NECP and provide the assumptions underlying the evolution of primary energy factors.

— Provie the MEPS thresholds for non-residential buildings in accordance with Article 9(1).

— Complete the trajectory for residential building renovation with renovation targets for the floor area and number of buildings (beyond envelope renovation) and the contribution of worst-performing buildings beyond 2035, ensuring that at least 55% of the decrease in the average primary energy use is achieved through the renovation of the 43% worst-performing residential buildings.

— Provide the energy poverty national definition and baseline data, as well as the energy poverty rate, including the methodology, in line with the definition provided in Article 2(52) of the EED and set targets for the reduction of energy poverty for the years 2030, 2040 and 2050,

— Provide a link between housing affordability and measures addressing energy poverty , expected impact towards the target and building renovation and financing.

— Strengthen the link between policies and targets by systematically quantifying the expected impacts in terms of energy savings, GHG emission reduction, renovation volume or other relevant indicator, the budgets and implementation timeline.

— Consolidate the baseline data for non-residential buildings by providing the number of buildings and floor area by building category as well as the current renovation status (floor area, number, annual renovation rate).

— Provide the primary energy and operational GHG emission thresholds for new and renovated zero-emission buildings.

— Ensure that the planned policies and measures on the decarbonisation of heating are effectively setting a pathway to a complete phase-out of fossil fuel boilers by 2040.

— Provide the assumptions for estimating investment needs, conduct a sensitivity analysis on key parameters, and specify the financing dedicated to worst-performing buildings and vulnerable households. Identify the financing instruments and outline how private financing will be mobilised.

— Provide the quantitative description of wider benefits of the NBRP implementation.

— Explain how the public consultation feedback has informed the NBRP.

3.4.3. Ambition of the draft plan

Box 10. Key insights of Germany's draft NBRP.

- Germany plans to reduce **primary energy use** in the building sector to 80.2 Mtoe by 2030, 62.2 Mtoe by 2040 and 53.1 Mtoe by 2045. This means reductions of 30%, 46% and 53% compared with the level of primary energy use in 2020 (114.2 Mtoe).
- Germany plans to reduce **final energy use** in the building sector to 74.5 Mtoe by 2030, 61.9 Mtoe by 2040, and 53.2 Mtoe by 2045. This means reductions of 12%, 27% and 37%, compared with the level of final energy use in 2020 (84.8 Mtoe).
- Germany plans to reduce **total operational GHG emissions** in the building sector to 121 Mt CO_2eq by 2030, 57 Mt CO_2eq by 2040, and 30.5 Mt CO_2eq by 2045. This means reductions of 48%, 73% and 85% compared with 2020 emissions (230.7 MtCO_2eq).

Assessment of the overall ambition of the draft plan to achieve a highly energy-efficient and decarbonised building stock by 2050

As further described, the level of ambition of the draft NBRP is in line with the goal of reaching a highly energy-efficient and decarbonised building stock in Germany by 2050. The renovation roadmap is provided until the year 2045, consistent with the national planning timeline[42].

By 2045, the primary energy consumption is expected to fall by 53% and the final energy consumption by 37% compared with 2020 baseline. By 2045, Germany aims to bring all existing residential buildings at the level of 93 kWh/(m^2y). Germany has not yet set the MEPS thresholds for non-residential buildings. The draft is therefore broadly directed towards a more efficient building stock, even if the roadmap itself is described as provisional. An outlook to 2050 is missing but is to be provided in the final NBRP. Simultaneously, Germany aims to reduce total operational GHG emissions of the building sector by 87% by 2050 compared with 2020 levels. The sectoral split is presented and shows strong reduction of energy consumption and GHG emission for both residential and non-residential buildings.

The draft NBRP does not provide targets for building renovation noting that, currently, such reporting is not possible. However, the trajectory for the progressive renovation of residential buildings includes renovation figures considering only building envelope upgrades in terms of full renovation equivalent. By 2045, about 1.39 billion m^2 of residential floor area is expected to be renovated[43], representing 33% of the residential floor area in 2020.

The draft plan also pursues the objective of decarbonisation by rolling out renewable energy. It plans to equip 34% of residential buildings and 27% of non-residential buildings with solar installations by 2040. Targets are also provided for 2030.

The NBRP presents some elements related to the cost-optimal levels, but it is unclear if these have been used to inform the trajectory for the progressive renovation of residential buildings.

Assessment of the alignment between the draft NBRP and national commitments on climate and energy set out in the NECP

The draft NBRP is aligned with the objectives and policies and measures outlined in the final NECP of Germany. While the primary energy and GHG emission targets are not comparable (as described below), the draft NBRP shows a similar ambition for the renewable energy in buildings' energy consumption as in the final NECP.

The section below also assesses how the draft NBRP's ambition compares with the 2020 long-term renovation strategy (LTRS) adopted by Germany.

Energy efficiency

[42] The draft NBRP references this national report Treibhausgas-Projektionen 2025 für Deutschland which provides projections from 2025 to 2045. Regarding 2050 target, this report mentions that scenarios extending into the year 2050 involve considerable uncertainties.

[43] JRC calculation based on average data per period.

The draft NBRP sets a primary energy consumption target for Germany of 80.2 Mtoe in 2030. On the other hand, the final NECP 2024 recalls the LTRS 2020 targets for non-renewable primary energy consumption in 2030, equal to 47.8 Mtoe. The targets are not comparable.

The draft plan sets out the contribution to the EU's energy-efficiency targets in accordance with Article 4 of the EED attributable to the building sector. Between 2020 and 2030, the building sector is expected to save 3.2 Mtoe final energy, representing 13.5% from the total energy savings based on the final NECP (23.2 Mtoe). This relatively low percentage contribution from the building sector suggests that it is not playing a leading role in achieving the overall energy efficiency goals.

Furthermore, in 2020, the buildings sector accounted for 43.0% of total final energy in Germany, increasing to 47.9% by 2030. This indicates that energy savings in the building sector are planned to occur at a slightly slower pace than the average energy savings across all sectors.

The draft NBRP presents dynamically changing primary energy factors (PEFs), the evolution of which is aligned with the NECP, as reported in the draft NBRP[44]. From 2020 to 2023, the total PEF for grid electricity fell from 2.08 to 1.93 (and from 1.46 to 1.19 the non-renewable component). Renewable energy generated 44.2% of electricity in 2020 and 54.1% in 2024. Total electricity PEF is projected to fall further to 1.38 in 2030, 1.16 in 2040 and 1.15 in 2045.

It remains unclear if the NBRP energy targets are sufficient and in line with the national commitment on **energy efficiency** laid down in the NECP.

Decarbonisation

The 2020 LTRS provides a target of 70 $MtCO_2eq$ of direct operational GHG emissions in the buildings sector in 2030, representing a reduction of 41% compared with the 2020 baseline. While the absolute values are not comparable due to the different scope (direct vs total GHG emissions), the relative reduction in the draft NBRP is higher than the 2020 LTRS (48% vs 41%), indicating more ambitious decarbonisation target.

The 2024 NECP does not provide targets for operational GHG emissions in the buildings sector. However, it recalls the 2020 LTRS target for 2030 (70 $MtCO_2eq$) and mentions that the amended Federal Climate Action Act includes an indicative value of 67 $MtCO_2eq$ direct operational GHG emissions in the buildings sector in 2030, more ambitious than the LTRS target.

Overall, the operational GHG emission targets seem sufficient and in line to achieve the national commitment on **decarbonisation** laid down in the NECP.

Renewable energy

Germany's draft NBRP sets annual targets for the share of renewable energy in the final energy consumption of its buildings sector from 2026 (36-38%) to 2030 (46-50%). The targets are in line with Article 15a of the RED and calculated for the EPBD energy uses. Germany supports these targets with measure for solar and district heating network deployment.

[44] The PEFs considered in the draft NBRP roadmap are used in national energy balances and differ from the PEFs used building energy modelling provided in the national building code.

The renewable-energy pathway is therefore broadly aligned with the national decarbonisation objective described in the draft. The 46-50% range for the share of renewable energy in buildings presented in the draft NBRP is identical to the figure mentioned in the Germany's final NECP.

Compared with the indicative national shares set out in Annex C to the Commission guidance on heating and cooling (C/2025/2238), Germany's draft NBRP target for 2030 is 4 to 8 percentage points higher (46-50% vs 43.0%).

Expected reduction in the number of people affected by energy poverty

The draft NBRP does not report the baseline percentage of people affected or a methodology for its calculation neither does it have targets for energy poverty reduction over time. Although energy poverty is to a certain level addressed by listing financial schemes and measures, a national definition and related indicators are not provided, and this information was missing also in the NECP. Germany claims that these elements are being developed as part of Germany's upcoming social climate plan, but the plan is limited in time (2026 – 2034) and not yet in place.

Moreover, the draft NBRP does not provide data on the energy performance of social housing or the use and repurpose of vacant housing, nor does it include quantified progress in terms of units renovated per year or accommodation capacity for the homeless.

Prioritising renovation of the worst-performing buildings

Germany identifies the worst-performing residential buildings based on the EPC class (class H). The definition of non-residential worst-performing building is not clear in the draft NBRP.

The 43% worst-performing residential buildings is identified considering two methods i) the 43% share based on the floor area and ii) the 43% share based on the number of buildings, without clearly stating which method is informing the renovation targets. According to the first method, these buildings account for 2.39 billion m^2 of residential floor area in 2020, representing 58% of the total residential floor area. This segment is prioritised for renovation according to the indicative figures provided in the trajectory for the progressive renovation of residential buildings.

Minimum energy performance standards for non-residential buildings

The draft plan does not yet provide MEPS thresholds. It sets out the methodology, exclusions and data sources, but the threshold values themselves are deferred to the final NBRP.

The draft NBRP explains that Germany intends to use total primary energy as the basis for the non-residential MEPS. The methodology relies on the non-residential building stock data (dataNWG, which contains a relevant sample of non-residential buildings), the EPC dataset (containing a sample of non-residential buildings' energy performance), and the national PEF framework (explaining the calculation of PEFs). Statistical methods are employed on the existing datasets to produce a representative database. The methodology appears robust.

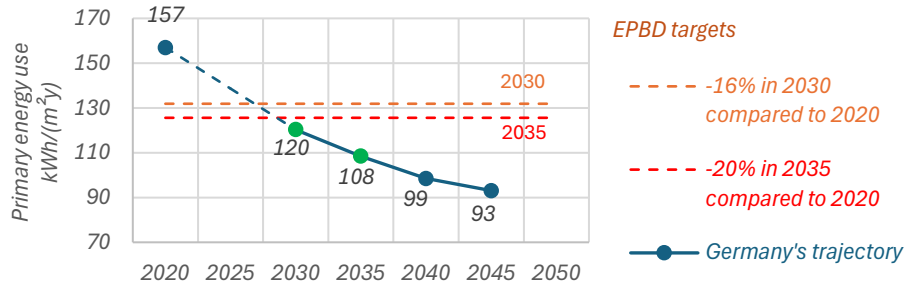
Exclusions (if applicable) pursuant to Article 9(6) and criteria for exemptions

Germany proposes to exclude agricultural buildings, religious buildings, temporary buildings , buildings heated temporary, and heritage buildings if compliance with the requirements impairs the appearance or if measures lead to a disproportionately high effort. In addition, detached non-residential buildings with a floor area of 50 m^2, certain properties of the Federal Ministry of Defence and buildings mainly used for residential purposes are also excluded from MEPS. The number and the floor area of these buildings is not reported.

National trajectory for the progressive renovation of residential buildings

Figure 3 shows the trajectory for the progressive renovation of Germany's residential building stock. The aim is to reach an average primary energy use of residential buildings below 93 kWh/(m^{2}y) by 2045. The 2030 and 2035 milestones for average primary energy use are 120 kWh/(m^{2}y) and 108 kWh/(m^{2}y) respectively. This is 23% and 31% below 2020 figures (157 kWh/(m^{2}y), which means they are more ambitious than the EPBD requirements (e.g. to reduce by 16% by 2030 compared with 2020 and by 20-22% by 2035).

Figure 3. Trajectory for the progressive renovation of residential buildings in Germany.



Source: JRC elaboration on Member State reporting

To reach these milestones, the draft NBRP provides indicators in terms of floor area and number of residential buildings that need to be renovated. The targets consider only building envelope upgrades as equivalent full renovation (with fuel changes and system upgrades not included). It also covers only the period by 2045.

The contribution of the worst-performing buildings to the trajectory is determined only by 2035, and it considers the 2 methods: i) the 43% of the floor area, and ii) the 43% of the number of buildings. In each case, the 55% contribution to the reduction of average primary energy use is provided. The renovation of worst-performing buildings considers both envelope and heating system upgrades (unlike the targets above which refer to equivalent full renovation of the envelope) therefore the share of renovated such buildings from the residential building renovation targets cannot be calculated.

The residential stock data appear sufficiently robust for assessment purposes. The draft provides a complete 2020 residential-building and floor-area baseline and combines this with a detailed average-primary-energy starting point. However, the 2020 baseline primary energy consumption is lower in the trajectory compared with the overview. The draft NBRP states that the overview contains energy end-uses beyond the EPBD scope, while the trajectory excludes these. In the overview, these energy end-uses seem to be aggregated in 'other technical building systems' consequently it is not possible to distinguish their contribution.

New buildings

Germany does not include threshold values for new and renovated zero-emission buildings (ZEBs) in accordance with Article 11 of the EPBD. The draft plan explains that due to ongoing national consultations and pending decisions, the figures cannot yet be provided at the time of submission of the draft NBRP and will be included in the final plan.

Regarding nearly zero-energy building (NZEB) uptake, in 2023, they accounted for 358 679 814 m^2 floor area, representing about 4.7% of the total floor area. This number represents the new NZEB

because for renovated buildings, the draft plan explains that Germany has not established a national NZEB definition for comprehensively renovated existing buildings and therefore reports only a fallback subset based on applications for federal funding schemes.

3.4.4. Sufficiency of the policies and measures

Germany's draft NBRP provides a comprehensive overview of implemented and planned policies and measures. It covers all mandatory indicators and areas of action listed in Annex II to the EPBD, including the optional ones.

The draft plan contains 41 existing and 6 planned policies and measures. It includes a policy matrix and detailed fiches across all major categories, including regulation, public funding, advice, heating decarbonisation, renewable energy, circular economy, public buildings, skills and industrialized renovation.

The quantified expected impacts are provided by group of policies and not by individual measure in terms of GHG savings. A quantitative sufficiency assessment is not yet possible because several policies and measures do not provide quantified objectives, and the roadmap renovation-rate tables are not populated.

Renovation and MEPS for non-residential buildings

The framework for implementing non-residential MEPS in Germany is under preparation. The identified responsible authority is the Federal Ministry for Economic Affairs and Energy.

The draft plan mentions several trigger points. It aims to address them mainly through technical and life-cycle interventions rather than through a single explicit sale-or-rent trigger regime. The building energy act in force (GEG), part on minimum energy performance requirements for building elements, applies when external building elements are altered, and the NBRP measures focus on cost-effective renovation approaches that take relevant life-cycle moments into account.

The draft NBRP does not describe how compliance will be monitored and enforced. The measures do not include penalties for non-compliance.

Since the quantified impact of the MEPS measures is not available, the threshold values are still missing and several elements are still under development, it is not possible to assess whether the proposed measures will be sufficient to trigger the renovation of buildings covered by MEPS.

Renovation of residential buildings

The measures to support the progressive renovation of residential buildings are comprehensively designed but the draft plan lacks a precise estimate of impacts.

The residential policy mix appears broadly supporting the implementation of Article 9(2). Germany combines grants, loans, tax incentives, advice, serial-renovation support and targeted support for poorly performing buildings with a quantified residential pathway.

The dedicated worst-performing-building bonus within the federal funding for energy efficient buildings , the 'Young Buys Old' scheme for F-G-H homes, the income bonus indicate that the most inefficient stock is being addressed in a direct manner.

The building renovation passport as a tool to support energy savings, complement MEPS and assist the trajectory for residential buildings

A national building renovation passport scheme is not yet included as a standalone operational instrument in the draft plan. Renovation passports are mentioned in the consultation annex in connection with EPCs and the building database, but the draft does not yet explain in detail how a future passport scheme would complement Article 9 of the EPBD delivery and promote staged deep renovation.

Box 11. Example of policies and measures in Germany.

- *Energy-efficient buildings, funding line 'worst-performing buildings bonus'* promotes the financing of buildings with the lowest overall energy efficiency in the form of a ten-percentage-point bonus for all applicant groups. For a worst-performing building, the applicable percentage is increased by an additional ten percentage points if the building is renovated to the German efficiency house levels of 40, 55 or 70.

- *'Young Buys Old' funding programme* aims to assist young families with a maximum taxable household income of EUR 90 000 (for one child, with an increase for multiple children) in building renovation. Low-interest loans are offered ranging from EUR 100 000 to EUR 150 000. The scheme is also funding the purchase of existing buildings in need of renovation (in EPC classes F-G-H), which must undergo renovation within 4.5 years of purchase. The renovation costs can be financed by making use of further funding schemes.

- *The CO_2 Cost Allocation Act* is a national law that stipulates that the carbon dioxide cost burden is to be distributed among the landlord and the tenant accordance with the energy efficiency of a relevant building. The aim of the law is to tackle the split incentives and stimulate energy savings and renovation in the building sector, thus also supporting housing affordability.

Alleviating energy poverty and housing affordability

Germany includes in the draft plan a comprehensive set of measures to alleviate energy poverty, empower vulnerable citizens and improve housing affordability, covering a mix of financial, advisory and regulatory measures.

The heating subsidy scheme provides a basic 30% subsidy for the installation of new heating systems based on renewable energy in existing buildings with additional support available for special conditions. For instance, an income-dependent bonus of 30% for households with taxable income up to EUR 40 000 is available as of 2024. The 'energy saving check' programme provides free advice on electricity and heat consumption to low-income households and social-security recipients and can include free or subsidised replacement of inefficient equipment. Moreover, the housing allowance scheme, in force since 1965, provides subsidies for rents and housing costs to low-income citizens. State support for decent housing and heating is also provided for citizens who are entitled to social support.

The draft NBRP recognises the tenant-landlord split incentive as a market barrier and notes that households with low incomes and a high share of energy costs are particularly affected because they are more likely to live in rented accommodation and have little influence over energy-efficiency measures. The CO_2 cost allocation act, in force since 2023, stipulates the sharing of CO_2 cost between the landlord and tenant. The allocation is determined based on the level of GHG emissions and is the responsibility of the landlord.

These measures, designed in accordance with Article 24 of the EED, seem comprehensive and ambitious but without a defined targeted reduction in energy-poor households, it is not possible to fully assess their plausibility.

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

The draft NBRP comprehensively covers one-stop shops (OSSs) in Germany. Besides existing measures related to advisory services and energy consulting; the draft plan plans the coordination of existing services to ensure a coherent OSS network. Germany has in place more than 38 regional energy and climate agencies which advice on energy (on integration of renewable, energy efficiency, energy planning). The draft plan indicates that OSSs should provide coordinated advisory support, including technical, administrative and financing-related guidance within a coherent ecosystem of existing services. OSSs have specific focus on households at risk of energy poverty and on buildings with the lowest energy efficiency. The appropriate geographic coverage has to be improved through the future development of OSS network. In 2024, the impact of OSS actions (energy consulting) has been estimated to 7 TWh energy saved and about 2.6 $MtCO_2$ emission reduction.

As advisory services, the draft NBRP mentions the German energy agency (dena) which provides support in renovation measures, financing programmes, implementation of pilot project and other similar activities. The Climate Neutral Buildings Forum operated by dena is a platform that provides information on sustainable practices for new construction and renovation.

Decarbonisation of heating and cooling and the phasing out of fossil fuels in heating and cooling with a view to a complete phasing out of fossil fuel boilers by 2040

On decarbonisation of heating, the draft plan describes the current rules and measure in force stemming from the German Building Energy Act (GEG).

The implementation of the measures further described are comprehensive and consistent with an effective phase-out of fossil fuel in heating by 2045 as indicated in the draft NBRP. However, the time horizon set is not fully aligned with the one mentioned in Annex II of the EPBD (e.g., 2040). Moreover, the draft NBRP lacks a clear reference to the NECP, the comprehensive heating and cooling assessment and other national planning. Therefore, the synergies with other plans cannot be established.

The current measures and provision in force include a combination of regulatory and financial instruments. On one hand the regulatory measures consist in rules for renewable energies use in heating or a timeline for replacement of in fossil-fuel boilers in combination with financing schemes for efficient heating networks and systems. The planned measures relate to both the decarbonisation of heating networks and the replacement of fossil-fuel boilers, as described below.

Regarding legislative measure, the current rules, as indicated in the draft NBRP, require that fossil-fuel boilers cannot operate after 2044. The final cut-off date is December 2044 for all fossil fuel boilers. Moreover, the heating planning law ensures that heat planning is prepared by municipalities with a population over 100 000 as of mid-2026 and by all municipalities as of and mid-2028. It includes requirements on the share of renewable energy and waste heat in district heating network: 30% in each network, 50% national average by in 2030, 80% in each network by 2040 and climate neutrality in each network by 2045. The draft NBRP mentions the current obligation of 65% use of renewables in the newly installed heating systems from mid-2026 for municipalities with a population over 100 000 and mid-2028 for all municipalities.

As financial measures, the draft NBRP describes a subsidy scheme consisting of grants covering 30% of the installation of heating systems based on renewables in existing buildings. This scheme includes bonuses for water/ground and wastewater heat-pumps, use of natural refrigerant, biomass

boilers compliant with air pollution requirements, early replacement of inefficient heating systems and lower incomes.

Measures also include regulatory, training and awareness raising aspects.

Prevention of construction and demolition waste

Germany outlines comprehensive measures to manage construction and demolition waste (CDW) and pursue circular economy objectives.

The national ordinance on substitute building materials creates a uniform national framework for mineral substitute building materials from CDW, and the ordinance on commercial waste implements the five-stage waste hierarchy and prioritises material recovery over energy recovery. The German circular economy act frames the legal framework for circular economy in Germany (implementation of the EU Waste Framework Directive), while the national circular economy strategy has the key objective of doubling the share of secondary raw materials in the total use of raw materials by 2030, in line with the EU's requirements. Moreover, objectives are also set for waste prevention. For example, the amount of municipal waste per capita is to be reduced by 10% from 2020 to 2030, and by 20% by 2045.

Promoting renewable energy sources in line with Article 15a of the RED

The promotion of renewable energy sources in buildings is an important part of Germany's draft NBRP. Renewable energy in buildings is promoted through several financing measures and legislative actions linked with heating decarbonisation (explained above). Moreover, the renewable energy act aims to increase the share of electricity generated from renewable energies in gross electricity consumption to at least 80% by 2030 and to provide a deployment pathway by generation technology. The federal funding for energy efficiency finances heat pump installation, biomass heating system and connection to heating networks, besides solar technologies.

Deployment of solar energy installations on buildings

The draft plan covers the deployment of solar energy installations in buildings with concrete solar-related provisions. Solar energy on buildings is addressed through renewable energy act funding for solar installations on, attached to or within buildings and through a planned mandatory solar roof measure. It also mentions the phased solar-installation requirements for new public and non-residential buildings from 2027, existing public buildings from 2028, existing non-residential buildings undergoing renovation from 2028, and new residential buildings and covered car parks from 2030. It includes also existing feed-in tariff, and related energy research on the topic.

Reducing whole-life cycle GHG emissions and the uptake of carbon removals

The draft plan includes measures to reduce whole-life cycle GHG emissions. The existing measures involve an ordinance on substitute building materials, the German circular economy act - both already discussed under the prevention of CDW and an energy research programme.

The draft NBRP introduces an expert report and implementation framework for calculation and disclosure of life-cycle global-warming potential and the introduction of limit values for life cycle GHG emissions. The proposed timeline is aligned with the EPBD requirements. The calculation and disclosure will apply from 1 January 2028 for new buildings above 1 000 m^2 and from 1 January 2030 for all new buildings, with a roadmap for limit values to be published on 1 January 2027.

Promoting district and neighbourhood approach and integrated renovation programmes

The draft NBRP comprehensively covers actions to promote sustainable neighbourhoods' approaches. More specifically, district and neighbourhood approaches are addressed through measures such as the financial support for efficient heating networks, urban development funding, energy-efficient urban regeneration, the heat planning act and the energy saving check programme.

Improving buildings owned by public bodies

Germany includes measures designed to improve public buildings, mainly in line with Article 6 of the EED. Specifically, the draft plan contains measures including municipal-facility renovation programmes and the planned implementation of the revised EED obligation for annual renovation of 3% of the total conditioned floor area of public buildings.

Promoting smart technologies and infrastructure for sustainable mobility

Germany includes measures related to the promotion of smart technologies. However, smart technologies are covered more briefly than other clusters. A first set of measures refers to the existing measures: funds for individual energy efficiency measures, building energy act minimum requirements, and the German energy research programme which covers smart and efficient energy management systems for buildings and districts. As planned measure, the draft NBRP mentions the implementation of Article 13 of the EPBD.

Future construction research funding will also include actions on smart technologies. Germany does not mention an assessment of the possible implementation of the voluntary smart readiness indicator scheme. Measures to promote digitalisation especially in heating and cooling through specific aid schemes are also included.

Germany's draft NBRP covers sustainable mobility too. However, it is also mentioned only briefly and under other measures. For example, it contains measures that focus on financing urban developments, including actions on sustainable mobility.

Access for people with disabilities

Accessibility is not included in the overview of the building stock. The draft plan does not provide information on accessible buildings or buildings in need of renovation for accessibility; not can this be estimated based on the information available in the draft plan. Accessibility is not covered in the criteria for the buildings identified as targets for renovation. The draft plan does not specify the estimated investment needed for accessibility renovation.

Accessibility is not presented as a distinct policy cluster in the measures section, and no information on financing accessibility during building renovation is provided. The consultation summary notes that advisory tools should link renovation with usability, accessibility, optimisation of living space, and adaptability. However, it does not seem that these have been considered in the draft NBRP.

Tackling market barriers, market failures and skill gaps

The draft NBRP addresses barriers and market failures comprehensively. The overview section provides a detailed explanation of divergent incentives between landlords and tenants. As measures to overcome this, the draft NBRP mentioned the CO_2 cost allocation act which distributes the cost burden between owner and tenant.

In addition, the draft NBRP also recognises capacity constraints in the construction and energy sectors, including high shares of small firms, difficulties filling vacancies and shortages in planning

and installation of renewable-energy and efficiency technologies. In particular, the skills gap in the construction and energy sector in 2026 is above 90 000 people.

To overcome this, the draft NBRP introduces measures that could contribute to increasing the capacity in the construction and energy sectors. The measures include developing the energy efficiency experts' list to ensure quality, training and qualification testing as energy consultant, and energy research programme. However, no other measure focusing on education, vocational training or upskilling are introduced.

Awareness-raising campaigns and other advisory tools

The draft plan includes specific measures on awareness-raising campaigns and advisory tools. Awareness-raising and advisory tools are comprehensively covered in the different programmes by the federal energy agency (dena), the regional energy and climate agencies and several awareness-raising components included in the renovation funding schemes. More specifically, there are four existing information measures, including energy certification requirement, energy consulting and energy transition campaigns.

Promoting modular and industrialised solutions

The draft plan includes measures on the promotion of modular and industrialised solutions for construction and renovation. The measures focus on using prefabricated elements in the renovation process and implementing serial, modular and systemic construction approaches.

The energy agency (dena) fosters a competence centre for serial renovation which assists the renovation process and implements pilot projects supporting product development. Its overarching aim is to facilitate the adoption of efficient, scalable renovation practices across the sector. Moreover, subsidies are offered for building renovated using prefabricated elements (subsidy is cumulative with other financial aids). Measure on information to increase the use of prefabricated elements and industrial methods is also included.

3.4.5. Sufficiency of financing sources and administrative resources

The draft NBRP outlines the investment needs required to achieve the NBRP roadmap up to the year 2045, aligning with target setting. However, assumptions and calculation details are not provided, leaving it unclear whether the investment needs are sufficient to achieve the targets. On the other hand, the allocation of budgetary resources appears adequate to meet the needs, but the specific mechanisms are not identified and there is no discussion on how private financing, representing 70% to 80% of the total funds, will be mobilised.

The draft NBRP provides the **investment needs** by building type, residential and non-residential buildings without specifying the needs for worst-performing building, energy poverty alleviation or the administrative resources. The estimations consider the full costs for envelope and heating system upgrades, but no further details or calculation assumptions are provided. Between 2026 and 2045, the investment needs are EUR 1 220 billion, corresponding to EUR 857 billion for residential buildings and EUR 363 billion for non-residential buildings. These needs are estimated for the renovated floor area on equivalent full renovation of the envelope as part of the trajectory for residential building renovation.

The draft plan also identifies **funding and financing sources,** up to 2045, fully covering the required investments (no financing gap). It presents the breakdown into private and public sources, without further disaggregation. The draft NBPR specifies the budget and financing for some of the

measures, but mainly for the years 2025 and 2026, while administrative resources for regulatory and organisational actions are provided as subsets of those measures.

The estimated **public funding** is based solely on national funds and expected to cover on average 25% from the total funds. Public support for renovation is in the form of interest-reduced repayment loans with a par of subsidies or tax-subsidies under various programmes (such as the special climate fund or the federal funding for energy-efficient buildings).

In terms of **private financing**, Germany mentions only the use of public-private partnership as a financial tool under policies and measures. It does not describe in details the mobilisation of private financing and does not specify any leverage factor.

Assessment of the adequacy of total investment

For every period or year up to 2045 the funding planned covers the estimated investment needs (100% coverage). The share of public funds ranges from 20% to 30%, while the remaining 70% to 80% is represented by private funds.

Linking investment needs to targets through policies and measures

It is not possible to link investment needs to specific targets as there is no clear link among overall investments, policies and measures and targets. The policies and measures with available budget for the current years (2025 or 2026) indicate that a significant portion of the budget, exceeding EUR 2 billion, is dedicated to the renovation of public or municipal buildings and urban renewal.

3.4.6. Inclusiveness of the public consultation

The public consultation enabled stakeholders to participate in three expert exchanges on selected EPBD implementation issues and in an online consultation on the full NBRP document. The draft plan provides the analytical feedback of the stakeholders, the timeline allocated, and the types of stakeholders participating.

In September and October 2025, three expert exchanges took place involving various stakeholders such as ministries, authorities, energy and property associations, and scientific institutes. These exchanges addressed topics like EPCs, renovation passports, inspections, and the national building database. Additionally, a public online consultation occurred, receiving 57 responses from associations, federal states, companies, and civil-society stakeholders, ensuring representation from local and regional authorities, socio-economic stakeholders, and civil society. Accessibility was highlighted in the consultation feedback on advisory tools.

The consultation took place while key options were still open and the consultation summary records stakeholder comments on areas still under development, such as the roadmap, ZEB thresholds, MEPS, and the residential trajectory. Some stakeholders expressed concerns about insufficient time allocated to provide their input.

3.4.7. Completeness of the draft plan and consistency with other planning or reporting exercises

The draft plan is partially complete, with mandatory indicators missing, such as renovation targets, targets for energy poverty reduction and MEPS for non-residential buildings. Germany submitted a voluntary spreadsheet on data collection. More information is listed in the following table.

Table 10. Indicators checklist for Germany.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings (number)	Yes	
	Floor area (m^2)	Yes	
	Definition of worst-performing buildings	Partially	Unclear definition for non-residential buildings.
	Share of worst-performing buildings (%)	Partially	The share for non-residential buildings is missing.
	Renovated buildings/ floor area (number/ m^2)	Partially	The figures for non-residential buildings are missing.
	Renovation rate (%)	Partially	The rates for non-residential buildings are missing.
	Primary energy use (ktoe)	Yes	
	Final energy use (ktoe)	Yes	
	Specific primary energy for residential buildings (kWh/m^2y)	Yes	
	Share of renewable energy (%)	Yes	
	Operational GHG emissions (Mt CO_2-eq)	Yes	
	Energy poverty share (%)	No	Under development together with the social climate plan
Roadmap for 2030, 2040 and 2050	Renovation targets (floor area or number)	Partially	Currently under development. For residential buildings, there are full equivalent renovation targets under the trajectory.
	Renovation rate targets (%)	No	
	Primary energy targets (ktoe) or reduction (%)	Yes	By 2045.
	Final energy targets (ktoe) or reduction (%)	Yes	By 2045.
	Renewable energy targets (%)	Yes	
	GHG emission targets (Mt CO_2-eq) or reduction (%)	Yes	
	Energy poverty targets (%)	No	Under development.
	Contribution to energy efficiency target	Yes	
Policies and measures	Scope and type	Yes	
	Quantified objective	Partially	Not for all measures
	Status and implementation period	Partially	Not for all measures.
	Budget and funding source	Partially	Not for all measures.
Investment needs	Total and/or average investment needs (million EUR), EUR/m^2	Yes	By 2045.
Residential buildings	Average specific primary energy decreases between 2020 and 2050	Yes	By 2045.
	Number of residential buildings/dwellings to be renovated	Yes	By 2045, only deep renovation equivalents.
	Residential floor area to be renovated (m^2)	Yes	By 2045, only deep renovation equivalents.
	Worst-performing buildings contribution (%)	Partially	By 2035.
Non-residential buildings	MEPS 16% threshold	No	Expected to be included in the final version of the plan.
	MEPS 26% threshold	No	
	2040 and 2050 MEPS thresholds	No	
Summary of the public consultation		Yes	

Source: JRC elaboration on Member State reporting

Consistency checks have been performed by comparing the data with previous Member State reports such as: the 2024 NECP, 2025 national energy and climate progress report (NECPR), 2020 LTRS and the 2023 national cost-optimal report.

Plausibility checks have been performed by comparing the data with other reliable datasets: building stock observatory (BSO) for building stock indicators and Eurostat datasets for final energy consumption.

Box 12. Consistency and plausibility check for Germany.

The number and floor area of residential and non-residential buildings are consistent with previous reporting in the 2025 NECPR. Public buildings are not reported in the NECPR 2025.

Primary energy factors differ compared with previous reporting in the 2023 national cost-optimal report. However, the draft NBRP explains that values vary depending on the scope (national energy balance and building energy modelling).

The report is consistent with the spreadsheet submitted by the country.

There are differences in the number of non-residential buildings compared to the BSO dataset.

The final energy consumption is plausible based on comparison with the Eurostat dataset.

Energy poverty

The draft NBRP refers to the definition of energy poverty in accordance with Article 2(52) of the EED, but it does not yet establish a final Germany-specific operational definition in the national context. The draft NBRP states that work on the definition and indicators is still ongoing as part of the social climate plan while promises are made that the indicators for the baseline and target will be provided in the final building renovation plan.

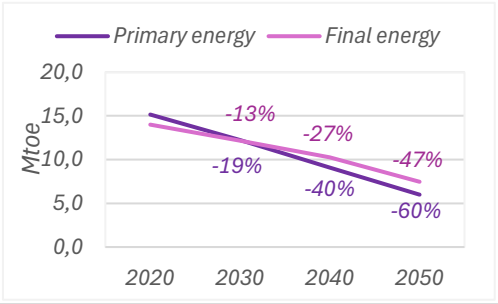
The indicators proposed for the final NBRP include the proportion of people affected by energy poverty, the proportion of disposable household income spent on energy, and the population living in inadequate housing conditions or inadequate thermal-comfort conditions. Similarly, the final NECP of Germany does not report an energy poverty definition or rate, but measures on energy poverty alleviation in the draft NBRP are consistent with the NECP.

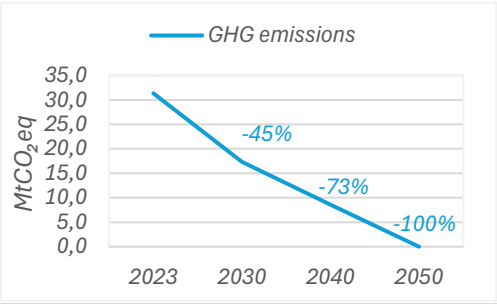
3.5. Spain

3.5.1. Main indicators

Table 11. Selection of main indicators from Spain's draft NBRP.

Renovation				
Floor area (Million m^2)	2020	2030	2040	2050
	Baseline	Cumulative renovation		
Residential	3 726	97	1 056	1 895
Non-residential	587	14	371	499
Total	4 310	111	1 427	2 394
Cumulative renovation (%)		17%	33%	56%
Annual renovation rate (%)[45]	**1.42%**	**1.66%**	**1.65%**	**2.24%**
Number of buildings	2020	2030	2040	2050
Total	9 206 736	1 635 700	3 537 029	6 239 862
Cumulative renovation (%)		18%	38%	68%
Energy consumption				
Primary energy (Mtoe)	2020	2030	2040	2050
Residential	8.7	6.6	5.1	3.7
Non-residential	6.5	5.7	3.9	2.3
Total	15.2	12.2	9.1	6.0
Change vs 2020 (%)		**-19%**	**-40%**	**-60%**
Final energy (Mtoe)	2020	2030	2040	2050
Residential	8.8	7.6	6.6	5.2
Non-residential	5.2	4.6	3.6	2.2
Total	14.0	12.2	10.2	7.5
Change vs 2020 (%)		**-13%**	**-27%**	**-47%**
Energy end-uses included	Heating, cooling, hot water and in non-residential buildings, also lighting			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2023	2030	2040	2050
Residential	18.4	10.8	6.7	0.0
Non-residential	12.9	6.6	1.9	0.0
Total	31.3	17.4	8.6	0.0
Change vs 2023 (%)		**-45%**	**-73%**	**-100%**
GHG emissions in $kgCO_2/m^2$	12.2	6.7	3.4	0.0
Change vs 2023 (%)		**-45%**	**-72%**	**-100%**



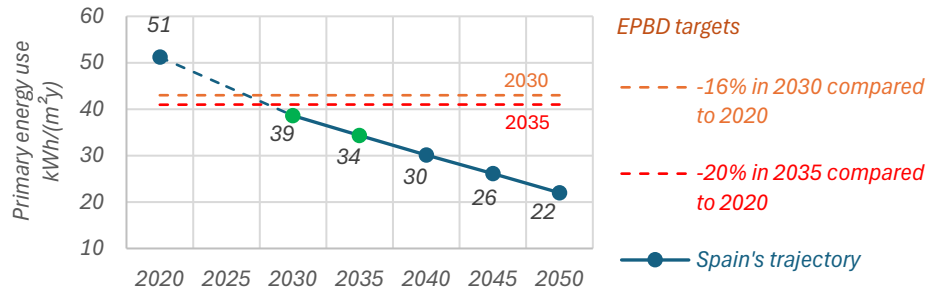


Renewable energy

[45] The annual renovation rates are calculated by Spain considering the floor area of main residences.

Renewable energy in the final energy	2027	2028	2029	2030
Share of renewable energy in buildings' final energy consumption	41.5%	43.2%	44.9%	46.6%
Solar energy technologies in buildings		2030	2040	2050
Share of residential building equipped		27%	33%	38%
Share of non-residential buildings equipped		25%	43%	61%
Energy poverty				
People affected by energy poverty	2020	2030	2040	2050
High share of energy expenditure	17.2%			
High share of energy expenditure and hidden energy poverty		-21.9%		

Trajectory for the progressive renovation of residential buildings



Minimum energy performance standards for non-residential buildings

Building categories and climatic zones	Primary energy kWh/(m²year) 2030	2033	2040	2050
Office and commercial Zone AAB	84	78	60	41
Office and commercial Zone C	110	102	77	41
Office and commercial Zone D	143	131	86	41
Office and commercial Zone E	187	170	106	41
Other non-residential Zone AAB	127	118	107	96
Other non-residential Zone C	186	166	131	96
Other non-residential Zone D	234	210	153	96
Other non-residential Zone E	294	262	179	96
Primary energy factors				
Non-renewable PEF	2023	2030	2040	2050
Electricity	1.95	1.40	1.30	1.20
Natural gas	1.19	1.10	1.10	1.10

Investment needs for renovation and funding and financing sources

Investment needs (billion EUR)		2030	2040 Cumulative	2050
Residential		14.7	47.5	88.1
Non-residential		22.9	73.8	136.8
Total		39.4	126.8	235.3
Funding and financing (billion EUR)				
Public		11.3	36.4	67.6
Private		28.4	90.4	167.7
Total		39.4	126.8	235.3

Source: JRC elaboration on Member State reporting

3.5.2. Executive summary

Spain has submitted a comprehensive and complete draft of the national building renovation plan (NBRP).

The level of ambition of the draft plan is in line with the goal of achieving a highly energy-efficient and decarbonised building stock by 2050. The cost-optimal levels updated in 2025 are used to set the long-term requirements for the building stock. Spain aims to bring all residential buildings to a zero-emission level derived from the cost-optimal level, and non-residential buildings to cost-optimal levels and it aims to reach zero operational greenhouse gas (GHG) emissions in the building sector by 2050. Spain describes and quantifies the wider benefits of implementing the plan, which include (i) reducing energy poverty, (ii) generating financial savings for households, (iii) improving public health, (iv) helping to boost economic growth and (v) creating stable, skilled and regionally distributed jobs.

Spain's targets for **primary energy consumption** in the building sector are 12.2 Mtoe by 2030, 9.1 Mtoe by 2040 and 5.9 Mtoe by 2050. This corresponds to reductions of about 19%, 40% and 60% compared with 2020 level of 15.3 Mtoe.

Spain's targets for **final energy consumption** in the building sector are 12.2 Mtoe by 2030, 10.2 Mtoe by 2040, and 7.5 Mtoe by 2050. This represents reductions of 15%, 27% and 47%, respectively, compared with 2020 level of 13.9 Mtoe.

Spain's targets for total **operational greenhouse gas (GHG) emissions** in the building sector are 17 Mt CO_2eq by 2030, 8.6 Mt CO_2eq by 2040, and 0 Mt CO_2eq by 2050. This corresponds to reductions of 45%, 73% and 100% compared with the 2023 baseline of 31.3 Mt CO_2eq.

The draft NBRP is aligned with the ambition, objectives and policies and measures outlined in its final **national energy and climate plan**, although the targets are not fully comparable.

The draft plan does not clearly outline the contribution that Spain's building sector will make to the **EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED'). However, in 2020, the sector accounted for 18.7% of total final energy use and aims to reduce this to 16.9% in 2030. This indicates that Spain plans to achieve energy savings in the building sector at a slightly faster rate than the average energy savings across all sectors, suggesting that the building sector energy targets are sufficient to deliver the expected overall energy savings by 2030. In terms of Spain's contribution to the **EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED'), Spain's target share of renewable energy in building energy consumption is 67.6% by 2030.

To meet the decarbonisation objective, Spain has also set targets to roll out renewable energy by reaching 38% of residential buildings and 61% of non-residential buildings equipped with solar installations by 2050.

To achieve these targets, Spain aims to **renovate** cumulatively 5 929 704 residential buildings and 310 158 non-residential buildings by 2050. This represents about 1 895 million m^2 of residential floor area and about 499 million m^2 of non-residential floor area respectively (or 50% and 85% of the floor area, from 2000 data). These objectives contribute effectively to the goal of achieving highly energy-efficient, zero-emission buildings (ZEB) by 2050 and the renovation targets are calibrated to deliver the expected energy savings.

In terms of its **trajectory for progressive renovation of residential buildings**, Spain aims to bring the residential building stock to a cost-optimal level of total primary energy of 22 kWh/(m^2y), identified as the zero-emission level in 2050. The milestones for 2030 and 2035 are to reduce the average primary energy use compared to 2020 baseline by 25% and 33%, above the Energy

Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD') requirements, the 'Energy Performance of Buildings Directive') to reduce energy use by at least 16% and 20-22% in 2030 and 2035, respectively.

As regards the **minimum energy performance standard** (MEPS) for **non-residential buildings**, Spain sets thresholds for 2030 and 2033 for two building categories[46] and four climatic zones. By 2050, Spain aims to limit the total primary energy use to 41 kWh/(m^2y) for office and commercial buildings and to 96 kWh/(m^2y) for all other non-residential buildings, aiming to reach an average energy consumption of non-residential buildings of 68 kWh/(m^2y). These are ambitious targets that would help Spain meet deliver the expected renovation volumes and the set targets.

Overall, the calculation models to set the trajectory for residential and MEPS threshold for non-residential are robust and based on clear and transparent assumptions, and the description of the building stock is comprehensive and consistent across the draft plan. However, a key limitation is the use of statistical, uncorrected data for residential energy demand, which may not accurately reflect energy performance by factoring in the impact of user behaviour and climate data.

The draft plan identifies the **worst-performing buildings** based on primary energy use, which are prioritised for renovation. These account for 3 799 163 (1 106 million m^2) and 238 653 (144 million m^2) residential and non-residential buildings, or 30% and 25% of the total floor area of residential and non-residential buildings. By 2030, 83% of the planned renovations are expected to cover the worst-performing residential buildings. However, the draft plan does not set a threshold for specific primary energy use to identify these buildings nor does it explain how they will be identified in practice (e.g. by using energy performance certificates (EPC)).

Alleviating energy poverty is an important goal in Spain's draft plan. In 2024, 17.2% of households spent a disproportionate share of their income on energy, 12.6% fell into 'hidden' energy poverty, 17.6% could not keep their homes adequately warm in winter and 9.7% paid energy bills late[47]. By 2030, measures under the draft plan will enable a 21.9% reduction in the number of energy-poor households as calculated by two indicators: disproportionate share of their income on energy and hidden energy poverty. However, it is not clear how the methodology to calculate the energy poverty rate combines the two indicators and there are no targets beyond 2030. The measures planned to reach this goal include financial incentives for vulnerable groups (subsidies, tax deductions, financial aid for pilot projects in vulnerable households and to meet energy costs associated with extreme climate events), technical assistance (provided by the Energy Poverty Observatory and one-stop shops with services for vulnerable households), capacity building and awareness-raising programmes.

Spain is tackling the goal of **housing affordability** by increasing the availability of social and affordable rental properties. To achieve this, it will provide financial support to renovate and free up vacant properties for social or affordable rent, with the requirement that they remain available for these purposes for at least five years.

Spain's draft plan provides a comprehensive **overview of implemented and planned policies and measures,** covering all mandatory and optional policy areas. It details 57 measures,

[46] Office and commercial / other (education, health, sports, cultural, public residential and other).

[47] A composite energy poverty rate is not provided.

composed of over 200 specific actions. In most cases, the quantified expected impacts are generic but the measures are developed using a comprehensive cross-cutting methodology that cover all relevant action areas, suggesting that they are sufficient to achieve the targets.

Spain takes a relatively comprehensive approach to tackle the goal to **decarbonise heating**. The reported measures are consistent and complementary in advancing towards the objective of **phasing out boilers powered by fossil fuels in buildings by 2040** and they are consistent with other related strategies and plans. However, the draft plan is not fully complete on this front, as Spain is still developing a detailed roadmap for phasing out the use of fossil fuels.

The **investment needs** are included in the draft plan. Between 2026 and 2050, the investment needs are estimated at EUR 235 307 million (representing about EUR 98/m^2 of the expected renovated floor area[48])). It identifies financing sources with detailed breakdowns up to 2030 and an overview for the subsequent period to 2050. These sources would cover the required investments in full (no financing gap). However, the projections lack a sensitivity analysis on the key variables of the investment needs. The budget is based on current and planned instruments and funds dedicated to renovation and the decarbonisation of the building sector, with public financing providing 28% of the total. The draft plan aims to secure **private financing** through cooperation with financial institutions offering favourable loan conditions and public guarantee schemes. It also proposes innovative financing instruments such as property-linked financing, on-bill financing and new business models that consolidate the role of energy service companies.

The **public consultation** included broad public participation at different stages of the process of drafting the NBRP, allocating enough time and opportunities for various stakeholders to provide input, which was then taken into account in the draft plan.

The assessment process has identified the following elements of the draft NBRP as examples of particular strengths, **innovation** and/or **good practice** to highlight:

— The energy-efficiency upgrades are projected to generate wide-ranging benefits between 2023 and 2030. It is expected to result in savings for households of about EUR 5.5 billion on energy bills, a reduction in premature deaths linked to indoor colds by roughly 26% (and greater resilience to extreme heat), a cumulative boost to GDP of about 0.54% and it is expected to generate approximately 534 000 new jobs.

— Spain will create a dedicated grant line (financial aid) to fund energy renovations of vacant housing, with the condition that the refurbished units be rented as social or affordable housing for a set period (at least five years).

— Spain is developing a robust MEPS framework for non-residential buildings based on building energy modelling and multiple existing datasets. It sets thresholds for two non-residential building categories across four climatic zones and charts a trajectory for the average primary energy use of non-residential buildings.

[48] JRC calculation considering the total investment needs between 2026 and 2050, divided by the total floor area expected to be renovated between 2020 and 2050.

— Spain aims to improve the regulatory framework for electricity self-consumption. In addition to the self-consumption roadmap and the energy storage strategy (already published), it will update the regulatory framework for electricity self-consumption to streamline the activation process of self-consumption. It sets a maximum two-month timeframe for consumers with small-scale production facilities to accelerate deployment.

— The regulations on industrialised construction will be revised. A sub-committee and working group will specify standards, terminology and methods to measure the level of industrialisation, aiming to reach 10% of industrialised residential construction by 2035 and to cut construction times by 20-50%, depending on the degree of industrialisation.

— In terms of simplification, Spain plans to bring in fast-track procedures for building renovation planning to cut processing time by 30%, digitise 70% of the paperwork (with interoperable databases and tools), and streamline the administrative burden for public renovation funding.

However, the following aspects of the draft NBRP need to be **completed and improved** and they should be addressed in the final version. These aspects are set out below.

— Quantify the impacts of policies and measures for the overall targets (e.g. expected energy savings, energy poverty reduction, GHG reductions, number of renovated buildings or any other relevant indicator).

— Quantify the contribution to the EU's energy efficiency targets in accordance with Article 4 of the EED attributable to building stock renovation).

— Ensure that the energy poverty indicator reflects the multidimensional complexity of energy poverty (in line with the definition provided in the EDD) and set targets for beyond 2030.

— Provide the threshold for primary energy use to identify the worst-performing buildings and explain how to apply the threshold in practice (e.g. using EPCs?).

— Clarify if and how the exempt consumption threshold of 65 kWh/(m^2y) affects the application of the 2050 MEPS threshold of 41 kWh/(m^2y) for all non-residential office and commercial buildings, across all climatic zones. Specifically, explain the implications of this exemption on achieving compliance with the 2050 MEPS targets.

— Check the mismatch between modelled residential primary energy use and EPC classes and ensure that the average primary energy use of residential buildings factors in user behaviour and climate data.

— Provide more details and the timeline to adopt the roadmap that sets quantitative targets for phasing out fossil fuel boilers. Provide an estimate the expected share of the boiler fleet that will still combust fossil fuel gas in 2040.

— Cross-check and validate the baseline data for the building stock, particularly for non-residential buildings (the figures used differ from those reported in the national energy and climate progress report (NECPR)).

— Add social housing and public buildings data.

— Perform a sensitivity analysis on the key variables of the investment needs between 2026 and 2050 and strengthen the projections for 2040 and 2050.

3.5.3. Ambition of the draft plan

Box 13. Key insights of Spain's draft NBRP.

- Spain plans to reduce **primary energy use** in the building sector to 12.2 Mtoe by 2030, 9.1 Mtoe by 2040 and 5.9 Mtoe by 2050. This means reductions of 19%, 40% and 60% compared with the level of primary energy use in 2020 (15.3 Mtoe).
- Spain plans to reduce **final energy use** in the building sector to 12.2 Mtoe by 2030, 10.2 Mtoe by 2040 and 7.5 Mtoe by 2050. This means reductions of 15%, 27% and 47% compared with the level of final energy use in 2020 (13.9 Mtoe).
- Spain plans to reduce **total operational GHG emissions** in the building sector to 17 $MtCO_2eq$ by 2030, 8.6 $MtCO_2eq$ by 2040 and to zero $MtCO_2eq$ by 2050. This means reductions of 45%, 73% and 100% compared with 2023 emissions (31.3 $MtCO_2eq$).

Assessment of the overall ambition of the draft plan to achieve a highly energy-efficient and decarbonised building stock by 2050

The level of ambition of the draft NBRP is in line with the goal of reaching a highly energy-efficient and decarbonised building stock in Spain by 2050.

By 2050, Spain aims to bring the residential buildings stock to the ZEB level (22 kWh/(m^2y), derived from the cost-optimal level) and non-residential buildings to cost-optimal levels, with maximum thresholds by building category for two main categories). This will help reduce the primary energy consumption in the building sector by 60% and final consumption by 47%, compared with 2020 levels. Simultaneously, Spain aims to reduce total operational GHG emissions of the sector by 100% by 2050 compared with 1990 levels.

To achieve this, it aims to renovate 5 929 704 residential buildings and 310 158 non-residential buildings by 2050. The draft plan also pursues the objective of decarbonisation by rolling out renewable energy. It plans to equip 38% of residential buildings and 61% of non-residential buildings with solar installations by 2050 and to achieve a high share of renewable energy in the grid electricity mix (81% by 2030).

The cost-optimal levels updated in 2025[49] are used to set the long-term requirements for the building stock. For residential buildings, the 2025 value of total 65 kWh/(m^2y) total primary energy is calibrated with Eurostat dataset using a scaling factor to extrapolate the target for 2050 (22 kWh/(m^2y)). For non-residential buildings, Spain aims to achieve a maximum consumption of 41 kWh/(m^2y) (in offices and commercial buildings) and 96 kWh/m^2y (in all other non-residential buildings).

Assessment of the alignment between the draft NBRP and national commitments on climate and energy set out in the NECP

[49] According to the draft NBRP, the cost-optimal values were updated to reflect the total primary energy instead of non-renewable primary energy.

The draft NBRP is aligned with the ambition and objectives in Spain's final NECP, although the targets are not fully comparable, as described below. The section below also assesses how the draft NBRP's ambition compares with the 2020 long-term renovation strategy (LTRS) adopted by Spain.

Energy efficiency

The draft NBRP sets a target for Spain to reduce its building sector primary energy consumption by 19% and final energy consumption by 15% by 2030 compared with 2020 levels.

The NECP does not provide final or primary energy consumption targets specific to the buildings sector. The targeted savings in final energy consumption in the 2030 draft NBRP are more ambitious than the LTRS targets (-14%). However, the targets are not fully comparable as the end uses covered are slightly different[50].

The draft NBRP also reports on the contribution to the energy savings obligation set for the buildings sector. The cumulative energy savings in the residential sector between 2021 and 2030, estimated at 7 528 ktoe (residential), are higher than the NECP expected contribution (5 578 ktoe). In the non-residential sector, the NECP estimates cumulative savings of 3 761 ktoe between 2021 and 2030, while the NBRP refers to 3 361 ktoe as other savings are not in EPBD end uses (however, the NBRP targets set for final and primary energy consumption in 2030 do include this aspect). To achieve savings in the residential sector, the NECP estimated the need to deep renovate 1 377 000 homes, while the draft NBRP increases the number to 1 567 986 (by 14%).

The draft plan does not set out the contribution to the EU's energy efficiency targets in accordance with Article 4 of the EED attributable to the building stock's renovation. However, in 2020, the buildings sector (considering only EPBD energy uses) accounted for 18.7% of total final energy in Spain, falling to 17.3% in 2023 and aiming to reach 16.9% by 2030 (ratio of the buildings-sector target to the energy efficiency target). This indicates that energy savings in the building sector are planned to come in slightly faster than the average energy savings across all sectors.

The evolution of primary energy factors (PEF) has been considered to set the primary energy targets. In particular, the electricity total PEF is estimated to decrease to 1.4 in 2030, 1.3 in 2040 and 1.2 in 2050 from a current value of 2.4 (mainland) and 3.0 (on the islands) in 2023. This decrease is underpinned by the target of 81% electricity from renewable sources in 2030 (NECP). Renewable energy generated 44.5% of electricity in 2020 and 56.8% in 2024. Moreover, the total PEF of renewable energy generated and consumed on-site is set to 0 across the entire period (2020-2050).

Therefore, the draft NBRP energy targets seem sufficient and in line with the national commitment on **energy efficiency** laid down in the NECP.

Decarbonisation

The NECP does not provide specific operational GHG emissions targets for the buildings sector. The 2030 target savings in the draft NBRP for operational GHG emissions are more ambitious than the LTRS targets (to save 35% by 2030, 77% by 2040 and 99% by 2050, aiming at 0.21 $MtCO_2eq$).

[50] The draft NRBP covers heating, cooling, domestic hot water and non-residential lighting, while the LTRS covers more end uses (heating, cooling, domestic hot water, lighting, cooking, electrical equipment and other).

However, the draft NBRP sets targets for total operational emissions while the LTRS only for direct emissions, thus the values are not directly comparable.

The draft NBRP operational GHG emission targets seem sufficient and in line with the national commitment on **decarbonisation** laid down in the NECP.

Renewable energy

Spain's draft NBRP sets annual targets for the share of renewable energy in the final energy consumption of its buildings sector from 2026 (40%) to 2030 (46.6%). The targets include on-site, near-by and the share of renewable energy in the electricity mix. The targets are in line with Article 15a of the RED and calculated for the EPBD energy uses.

However, the NECP does not provide renewable energy targets for the buildings sector. Regarding the contribution that renovating the building stock will make to the EU's renewable energy targets in accordance with RED, the draft plan estimates it will contribute to achieving 67.59% final energy from renewable sources.

Compared with the indicative national shares set out in Annex C to the Commission guidance on heating and cooling (C/2025/2238), Spain's draft NBRP target for 2030 is 4 percentage points lower (46.6% vs 50.5%). However, the 2030 target seems aligned with Eurostat data giving a 24.85% share of renewable energy in building energy consumption in 2023.

Expected reduction in the number of people affected by energy poverty

Energy poverty is described with indicators implemented in national legislation through the European Energy Poverty Advisory Hub, such as disproportionate energy expenditure (17.2%), hidden energy poverty (12.6%), inability to keep home adequately warm in winter (17.6%) and late payment of energy bills (9.7%). The share of Spain's population at risk of poverty or social exclusion was 25.85% in 2024. Data are provided for each year between 2018 and 2024. The draft NBRP also provides data on the geographic distribution of energy poverty (energy expenditure and inadequate temperature in homes), which show differences across regions. However, the draft plan does not provide data on the energy performance of social housing or the use and repurposing of vacant housing, nor does it include quantified progress in terms of units renovated per year or accommodation capacity for the homeless.

The draft plan describes the average annual expenses for electricity and gas from 2020 to 2023, with a breakdown by region in 2024 too. Although energy expenditure has decreased since 2022, it's acknowledged as a factor contributing to social vulnerability.

Spain indicates that by 2030, implementation of the NBRP will achieve a 21.9% reduction in the number of energy-poor households as tracked by two indicators: high energy expenditure and hidden energy poverty. However, the methodology to derive this rate from the two indicators is not provided. No other quantified targets are included.

The upcoming 2026-2030 national energy against poverty strategy proposes a national composite index that includes disproportionate expenditure, under-consumption, inability to air condition homes and late payments, as well as variables on housing efficiency and health.

Prioritising renovation of the worst-performing buildings

Spain explains that worst-performing buildings are identified based on primary energy use. The draft plan gives a breakdown in the number and floor area by building type, construction year and

national climatic zone. However, it does not set provide the primary energy use to identify these buildings, nor explain how they will be identified in practice (e.g. using EPCs).

In 2030, the worst-performing buildings are expected to represent 83% of residential building stock to be renovated, with the share expected to decrease to 44% by 2050.

Minimum energy performance standards for non-residential buildings

The draft plan sets out the renovation of non-residential buildings taking into account the 2050 decarbonisation objective for non-residential buildings. The objective is for all non-residential buildings stock to reach a primary energy consumption below the average cost-optimal value of 68 kWh/(m^2 year) (which means renovating 84% of non-residential buildings by 2050) down from 192 kWh/(m^2 year) in 2020.

Spain has set maximum thresholds for primary energy use for two categories of buildings (1 - office and commercial and 2 - other non-residential) and for four climatic zones (AAB, C, D and E) as described in the table below:

Table 12. MEPS for non-residential buildings in Spain.

Building categories and climatic zones	**Primary energy use** kWh/(m^2y)			
	2030	**2033**	**2040**	**2050**
Office and commercial zone AAB	84	78	60	41
Office and commercial zone C	110	102	77	41
Office and commercial zone D	143	131	86	41
Office and commercial zone E	187	170	106	41
Other (education, health, sports, cultural, public residential and other) zone AAB	127	118	107	96
Other non-residential buildings zone C	186	166	131	96
Other non-residential buildings zone D	234	210	153	96
Other non-residential buildings zone E	294	262	179	96

Source: JRC elaboration on Member State reporting

Cadastral data from five national registers, official statistics (INE), and other studies are used as input to the simplified energy model[51]. The model is robust; it is based on bottom-up energy modelling with 29 reference buildings for non-residential buildings (and 14 for residential buildings), standardised profiles, envelopes and technical system efficiencies broken down by year of construction and climatic zone. Both Eurostat and Spanish NECP targets are taken into account in the figures for final energy consumption and savings.

The 2050 thresholds are based on the cost-optimal levels calculation provided by Spain in its latest cost-optimal report. The thresholds for 2040 are based on interpolated figures for 2030 and 2050. The base year to set the thresholds is 2020.

Spain has produced a scenario under which buildings with a low average primary energy use (below 65 kWh/(m^2y)) are excluded from the baseline and from the MEPS requirement. This corresponds to the current average cost-optimal level for non-residential buildings. The purpose is to set MEPS thresholds that would not disproportionally cover buildings located in milder climates as these buildings do not have a high potential for energy savings due to low energy consumption. By taking

[51] Developed by the Eduardo Torroja Institute for Construction Science (IETcc), known as 'Modesto'.

this approach, Spain also aims to achieve the same level of impact for all climatic zones and to promote the renovation of the worst-performing buildings with a higher potential for energy savings. While setting thresholds that differentiate buildings in different climatic zones is encouraged, further details on the methodological assumptions would be needed to assess this approach and to understand how it would ensure consistency with the 2050 MEPS threshold (41 kWh/(m^{2}y).

The data reported for MEPS setting is consistent with the information provided in the overview of the building stock and other parts of the draft NBRP.

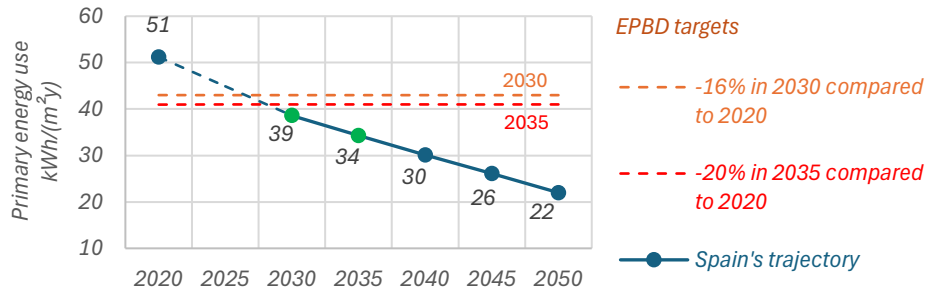
Exclusions (if applicable) pursuant to Article 9(6) of the EPBD and criteria for exemptions

Spain proposes to exclude religious buildings and buildings with official protection from MEPS compliance, in accordance with Article 9(6) (although it appears that these are currently included in the model). There are 50 000 such buildings with a floor area of 38.4 million m^2, or 0.9% of the total non-residential floor area falling under the EPBD scope (excluding buildings for industrial use and warehouses). No other exemptions are described.

National trajectory for the progressive renovation of residential buildings

Figure 4 shows the trajectory for the progressive renovation of Spain's residential building stock. The aim is to reach an average primary energy use of residential buildings below 22 kWh/(m^{2}y) by 2050 – which also represents the latest the cost-optimal level of residential buildings – also identified as the ZEB threshold (graph). The 2030 and 2035 milestones for average primary energy use are 38.6 kWh/(m^{2}y) and 34.3 kWh/(m^{2}y) respectively. This is 25% and 33% below 2020 figures (51.2 6 kWh/(m^{2}y), which means they are more ambitious than the EPBD requirements (e.g. to reduce by 16% by 2030 compared with 2020 and by 20-22% by 2035). These reductions also include grid improvements (electricity grid and district heat decarbonisation) in addition to energy efficiency upgrades, which alone bring reductions of 16% by 2030 (43 kWh/(m^{2}y)) and 24% (39 kWh/(m^{2}y) by 2035. The primary energy reduction from energy system improvements can therefore be clearly distinguished from energy efficiency upgrades, enabling clear tracking of progress.

Figure 4. Trajectory for the progressive renovation of residential buildings in Spain.



Source: JRC elaboration on Member State reporting

The renovation estimates are based on 2020-2023 data, which shows 540 000 dwellings with 31 532 deep renovations (distribution of 1:6:10 deep, medium and light renovation, meaning that for every deep renovation, there are 6 medium and 10 light renovations).

To achieve the 2030 NECP objectives, Spain will need to maintain a pace of deep renovation of 30 000 dwellings/year with a distribution of 1:2:12 of deep, medium and light renovation resulting

in 445 500 renovated dwellings/year by 2030. After 2030, deep renovation is set to fall to 24 000, while the total number of renovations rises to 850 000 dwellings/year by 2050. The draft plan also provides the number and floor area of the 43% worst-performing buildings and dwellings to be renovated, including the sub-target to reduce primary energy by 55% (in GWh) in the worst-performing residential buildings.

In the calculation of primary energy use, the total primary energy factors (electricity, fossil fuels) are projected to decrease due to the increase in the share of renewables in the grid[52].

The methodology used to chart the trajectory is based on several data sources: NECP forecasts, Eurostat, official statistics and census data and the baseline building stock data (2020), but not on EPC data. The draft plan only mentions that principal residences are included in the baseline.

The primary energy data are consistent across the different parts of the draft plan. Based on Eurostat data, the draft plan reports an average primary energy of 51.2 kWh/(m^2y) in 2020 and 46.2 kWh/(m^2y) in 2023. However, in the overview of the building stock, 85% of certified residential buildings are in energy classes E, F and G which typically have much higher energy consumption levels (e.g. the threshold of energy class E is 227 kWh/(m^2y non-renewable primary energy). This suggests that the actual estimate may not accurately represent typical building use and behaviour, as it may be influenced by specific factors such as unusual building use patterns (maybe unoccupied buildings) and specific climatic conditions in 2020 and 2023, rather than average conditions.

New buildings

All new buildings built after 2020 are nearly-zero energy buildings (NZEB). There were 45 004 NZEB built after 2020 with a floor area of 39 302 000 m^2, representing about 0.5% of all buildings and 0.9% of the total floor area.

Spain indicates that the thresholds for new and renovated ZEB will be set tentatively at 10% lower than current NZEB levels (in line with EPBD, Article 11) but they will be reviewed when the cost-optimal levels are updated. Specifically, Spain mentions the need to adjust the total primary energy indicator in line with the recast EPBD requirements (for instance regarding the use of electricity primary energy factors).

3.5.4. Sufficiency of the policies and measures

Spain's draft NBRP provides a comprehensive overview of implemented and planned policies and measures. It covers all mandatory indicators and areas of action listed in Annex II to the EPBD, including the optional ones.

The draft plan contains 57 measures and over 200 specific actions. The quantified expected impacts are generic in most cases, but the measures are developed using a comprehensive cross-cutting methodology that covers all relevant action areas, suggesting that they are sufficient to achieve the target. Several measures provide a precise quantification of the immediate output.

[52] The total primary energy factor for renewable energy generated and consumed on-site is set at 0.

These are not translated into overarching impacts such as the number of buildings to be renovated or the specific reduction in energy and GHG emissions.

The measures are consistent with other plans (e.g. the NECP, the social climate plan, local heating and cooling planning and the Urban Agenda for the EU Building Decarbonisation Partnership), which are consistently mentioned throughout the section.

Renovation and MEPS for non-residential buildings

The framework for implementing non-residential MEPS in Spain is made up of a package of 12 measures. The responsible authorities are the Ministry of Housing and Urban Agenda and the Ministry for the Ecological Transition and Demographic Challenge. The draft plan proposes two technical measures with several actions to monitor MEPS implementation: the creation of a single database and the update of the simulation tool (used to develop the draft NBRP and MEPS definition). The draft plan mentions the creation of a platform to exchange information and best practices, which could be used to engage with building owners subject to MEPS requirements and provide them with information and support.

Lastly, the draft NBRP describes generically how compliance will be monitored and enforced. These measures include penalties for non-compliance, but the draft NBRP is short on details such as the types of penalties or the procedures for imposing them.

Spain's draft NBRP identifies some specific measures that could trigger renovation and compliance with EPBD requirements, such as extensions to existing buildings or structural strengthening. It also identifies the use of tools such as the Building Assessment Report (which evaluates the state of conservation, accessibility and energy efficiency of old buildings) as potential additional trigger points.

The draft plan notes that the regulatory framework for MEPS implementation is at an early stage of preparation, including the work needed to revise the Spanish building code. Since the quantified impact of these measures is not sufficiently described and several elements are still under development, it is not possible to assess whether the proposed measures will be sufficient to trigger the renovation of buildings covered by MEPS.

Renovation of residential buildings

The measures to support the progressive renovation of residential buildings are comprehensively designed but the draft plan lacks a precise estimate of impacts, which means it is not possible to assess their sufficiency on quantitative grounds.

The draft plan covers the renovation of the worst-performing buildings transversally across various measures, for instance by promoting the renovation of rented housing, by providing public aid and tax incentives, updating the regulatory framework, monitoring compliance, promoting and supporting deep renovation, and measures to support vulnerable households.

The building renovation passport as a tool to support energy savings, complement MEPS and assist the trajectory for residential buildings

The building renovation passport is seen as an important tool in promoting deep renovation, in particular staged renovation. It will be linked to the EPC scheme and will include all information related to step-by-step renovation roadmap. The objective is to put in place a functional renovation passport system by 2030 with an interoperable database.

Box 14. Example of policies and measures in Spain.

- *Promoting the renovation of rented dwellings* includes adapting and revising the existing legal framework, bringing in direct subsidies for tenants to cover rent increases resulting from renovation, protecting tenants from eviction by creating a guarantee fund, an advisory mechanism (one-stop shop (OSS)) and renovating vacant housing for affordable rent. Spain plans to invest an estimated EUR 324 million with funds from central government. Implementation will be carried out jointly by the central government, autonomous communities and local authorities.

- *Promoting deep renovation* includes creating the building renovation passport scheme, bringing in more stringent requirements, analysing and rolling out a financial scheme for deep renovation at different stages (aid conditioned on the level of energy savings), technical assistance such as technical and methodological support and close cooperation between central government and autonomous communities.

- *Boosting funding for renovation and urban regeneration at neighbourhood level* with the aim of increasing the number of sustainable neighbourhoods by providing public aid, financed at a rate of 60% government funding and 40% from autonomous communities and cities. Specific guidelines to access this aid will be made available to communities of owners and renovation agents.

Alleviating energy poverty and housing affordability

Spain includes in the draft plan a comprehensive set of measures to alleviate energy poverty, empower vulnerable citizens and improve housing affordability.

The specific measures designed to support vulnerable households include targeted financial support, differentiated tax incentives, support programmes for pilot projects, a new climate shelter network (to protect from energy costs associated with climate extremes), technical assistance (setting up the Energy Poverty Observatory), OSSs with specific services for vulnerable consumers, technical guides on energy poverty, training for professionals and awareness-raising campaigns.

The targeted groups are mentioned (low-income groups, recipients of the minimum income or the social bonus, single-parent families, people over the age of 65, people with disabilities, electro-dependent users). Municipalities will play an important role in how some measures (differentiated tax incentives) will be implemented. Vulnerable households also receive support under other broader measures, such as sustainable neighbourhoods and the staged deep renovation scheme.

Measures to support access to affordable, energy-efficient housing for key groups are included. For tenants, the measures focus on strengthening the legal framework of rented housing renovation, incentives, protection against eviction, (guarantee fund managed by social services) and advisory mechanisms. Spain also aims to mobilise the stock of vacant housing by providing specific aid to finance energy renovation of vacant housing promoting the use of the home for social or affordable rent for at least five years.

These measures, designed in accordance with Article 24 of the EED, seem sufficient to achieve the targeted reduction in energy-poor households (a 21.9% reduction by 2030 from the current situation).

The comprehensive approach, coordinated with the national strategy against energy poverty for 2026-2030, shows Spain's commitment to reducing structural energy poverty and the target seems realistic.

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

The draft NBRP comprehensively covers the creation of OSSs in Spain with a view to creating a network of such facilities by 2030, in line with EPBD requirements[53] . The planned OSS network aims to cover both rural and urban areas, with a focus on regions experiencing higher rates of energy poverty and on vulnerable households. In rural areas, access will be facilitated through scheduled travel or itinerant models. An initial diagnosis will determine where new offices are to be located based on quantitative and qualitative criteria. The OSSs will deliver the following services:

- personalised information on technical and financial options;
- support in processing permits and grants;
- coordination with professionals and companies for renovation projects;
- comprehensive support throughout the renovation process;
- technical assistance for obtaining the EPC and renovation passports;
- public awareness campaigns on the benefits of energy renovation and circularity;
- specific services tailored to vulnerable groups;
- urban and social diagnostic studies to customise outreach and awareness strategies;
- data collection and analysis to evaluate the effectiveness of implemented measures;
- strategies to adapt the built environment to the effects of climate change.

Decarbonisation of heating and cooling and the phasing out of fossil fuels in heating and cooling with a view to a complete phasing out of fossil fuel boilers by 2040

As described further below, Spain tackles the goal to decarbonise heating in a relatively comprehensive way. The reported measures are consistent and complementary in advancing towards the objective of phasing out fossil fuel boilers in buildings by 2040. The measures also work in synergy with other related strategies and plans. However, they are not yet complete, as Spain is still developing a detailed roadmap for phasing out fossil fuel boilers. One of the measures in the draft plan is a preparatory measure to draw up a study, data collection and statistics.

The draft NBRP sets the scene to prepare the upcoming roadmap in close coordination with work on the final NECP. It outlines a scenario to phase out fossil-fuel boilers starting in 2021, in step with the pace of the NECP decarbonisation target. This would involve a reduction in the number of homes with fossil fuel boilers from 8.1 million in 2021 to 2 million by 2040 (considering a boiler lifetime of 20 years). To phase out full fossil fuel boilers completely, additional measures are needed and three scenarios are described. Spain explains that measures that aim to change the systems before end of life need to be considered but emphasises the need to determine the best approaches that take account of cost-optimality, energy efficiency first, life-cycle phase, adaptation requirements, synergies with other policies, energy network capacity and the impact on urban landscape.

The draft plan also proposes some regulatory measures to support the phase-out of fossil fuels, e.g. to update the Spanish building code to bring in requirements for emissions or supply criteria depending on the building type and or the system output rate. An update of the regulatory

[53] At least one facility per 80 000 inhabitants, by region, in areas with older building stock, in areas with planned integrated neighbourhood renovation programmes, or within a 90-minute travel radius, depending on local transport options.

framework on energy efficiency and safety requirements of thermal installations is also planned to ensure consistency with the overall scope of decarbonisation. There is also a plan to develop criteria for financial support schemes that aim to decarbonise thermal generation systems and to develop financial measures under the roadmap proposal. The heating system's life-cycle stage is a proposed criterion for funding, e.g. aid can be granted to change the system at specific points in the life cycle to stimulate the switch from fossil fuel use before the system reaches its end of life. Information and awareness-raising measures are also included (e.g. the EPC and renovation passports would include information on fossil fuel consumption and possible heating system alternatives).

Spain also sets out measures to promote the incorporation of biomethane into the existing natural gas distribution network (by 2030, the minimum biogas production will be 20 TWh/year). The aim of the measure is to explore the potential for decarbonising not the system itself (the boiler) but the fuel source, as a complementary measure. The following sub-measures are considered: the Biogas Roadmap (already published) which sets a minimum biogas production of 10.4 TWh/year by 2030, update of measures on biogas in the NECP, measures on biomethane in the energy security plan (a plan complementing the NECP on providing security to households regarding energy prices), financial support for the thermal use of biogas, criteria for standardising procedures and speeding up authorisation of plants and related processes.

However, it remains unclear to what extent decarbonising the gas grid will help decarbonise buildings overall, taking into consideration the developments across all energy vectors, infrastructure and the decarbonisation plans and pathways of end-use sectors other than buildings. It also remains unclear whether other measures are needed to achieve the phase-out of fossil fuels in boilers in 2040 and what these measures would be.

In addition, Spain tackles the goal to decarbonise heating and cooling by connecting buildings to efficient district heating networks, for example by providing financial support and standardisation to accelerate their development.

In its draft NBRP, Spain covers both paths specified in Commission guidance C/2025/6438 to phase out fossil fuel boilers: (i) fossil fuel replacement and (ii) boiler replacement. The measure on biomethane incorporation is based on several policies and strategies already in place, while the roadmap on boiler replacement is to be developed on criteria and solid data collection, in line with the NECP targets. The measures are credible and complementary in achieving the objective and work in synergies with other related strategies and plans. However, the measure on phasing out fossil fuel boilers is incomplete at this stage.

The draft NBRP is consistent with the NECP on this aspect. It places the phasing out of fossil fuel boiler in the broader context of the NECP decarbonisation target (37.36% share of renewables in heating and cooling by 2030). The draft plan mentions the alignment with Article 25 of the EED, and the NECP regarding the national heating and cooling assessment and planning with reference to local heating and cooling plans. It mentions creating inter-ministerial collaboration to identify synergies and avoid duplication, including setting up a technical working group to identify good practices and issue recommendations for transfer to other municipalities.

Spain also mentions the publication of the Spanish Heat Map, which shows the estimated heating and cooling demands of consumers in all sectors and the installations that can generate waste heat or cold, including those using energy from renewable sources.

Prevention of construction and demolition waste

Spain outlines comprehensive measures to manage construction and demolition waste (CDW) and pursue circular economy objectives. It aims to minimise CDW by amending the regulatory framework to mandate the sorting of waste into fractions, to promote selective demolition, bring in the requirement to produce digital material books for new buildings, incentivise the use of materials with high reusability and recyclability rate and set a target that at least 70% by weight of non-hazardous CDW is prepared for reuse, recycling or other material recovery, including backfilling.

The draft plan includes measures on strategic planning for circularity, such as Spain's circular economy action plan. It aims to improve circularity and to bring in environmental sustainability criteria in the building sector by using public procurement to drive significant changes in private projects. The draft plan incorporates circularity criteria for receiving support, the building information modelling (BIM) methodology in public procurement, and promotes strategic instruments at regional and local levels.

Promoting renewable energy sources in line with Article 15a of the RED

The promotion of renewable energy sources in buildings is an important part of Spain’s draft NBRP. This aspect will contribute to the national renewable energy targets to achieve at least 48% of renewable energy in Spain's final energy use by 2030. Measures consist of updates to the regulatory framework for the use of renewable energy in new and existing buildings, electricity generation from renewable sources leading to changes in primary energy factors and emission coefficients, updates of measures to upgrade infrastructure and technologies, and promoting renewable energy communities, including financial support and dissemination of information.

Deployment of solar energy installations on buildings

The draft plan extensively covers the deployment of solar energy installations in buildings (both photovoltaics and solar thermal collectors). The measures mention updating the regulatory framework to bring in requirements stemming from Article 10 of the EPBD. Simultaneously, Spain plans to analyse the effect of bringing in requirements for energy storage in buildings, considering ownership structures (co-ownership versus institutional or corporate).

Moreover, the draft plan includes a measure on updating the regulatory framework for self-consumption for electricity. In addition to the self-consumption roadmap and the energy storage strategy, which have already been published, this measure involves streamlining the activation process for electricity self-consumption by setting a maximum two-month timeframe for consumers with small-scale production facilities, encouraging faster adoption and use of renewable energy sources. It will promote good practice by the public administration. Financial support for pilot projects, for local and regional authorities, aid schemes for self-consumption and energy storage are also included. Lastly, the draft plan sets out measures on awareness-raising strategies to boost solar energy installations in buildings.

Reducing whole-life-cycle GHG emissions and the uptake of carbon removals

The draft plan includes measures to reduce whole-life-cycle GHG emissions. The measures involve amendments to the existing regulatory frameworks, such as a new calculation and disclosure of the life-cycle global warming potential (GWP) of buildings, in line with the Commission’s EPBD delegated act. It also involves amendments to the energy performance certification scheme and enforcement of support tools. GWP limit values are set in the National Roadmap on GWP targets and will be based on robust research and reliable data. It also includes measures such as the consolidation of a permanent budget for scientific and technical support research and boosting research on low embodied carbon materials.

Promoting district and neighbourhood approach and integrated renovation programmes

The draft NBRP comprehensively covers actions to promote sustainable neighbourhoods and urban regeneration. Measures include boosting funding in addition to the building-by-building approach, for example through State aid (e.g. 60% financed by the ministry budget and 40% financed by autonomous communities and cities). Other measures involve developing specific guidelines to promote access to public funding and revising the regulatory framework, creating a technical work group with autonomous communities to promote district approaches, drafting urban regeneration strategies at municipal level, inter-ministerial collaboration, piloting local energy renovation schemes and urban regeneration strategies at municipal level under the State Housing Plan for 2026-203054.

Improving buildings owned by public bodies

Spain includes measures designed to improve public buildings, in line with Articles 5, 6 and 7 of the EED. Specifically, the draft plan contains measures to (i) improve the management and use of administrative buildings, (ii) change the organisational structure to optimise energy demand and other resources (e.g. water), (iii) renovate buildings owned by the autonomous communities and national authorities, including monitoring registers, (iv) update the regulatory framework for green public procurement, strategic planning and coordination, (v) update tools for green public procurement and staff training and (vi) bring in circularity criteria applicable to the renovation of public buildings. It does not mention measures that focus on the worst-performing public buildings.

Promoting smart technologies and infrastructure for sustainable mobility

Spain includes measures related to the promotion of smart technologies. A first set of measures refers to regulatory measures such as introducing building automation and control system (BACS) requirements for existing non-residential buildings, installing smart metres in gas networks and revising the EPC scheme to consider the effect of BACS. It also notes an assessment of the possible implementation of the voluntary smart readiness indicator scheme, though this lacks further details. Measures to promote digitalisation through specific aid schemes are also included, for instance under the 'Smart Cities and Territories' initiative.

Spain's draft plan covers sustainable mobility too. For example, it contains measures that focus on introducing the Sustainable Mobility Law and updating the minimum requirements for sustainable mobility (pre-cabling, installing charging stations, bicycle parking spaces, bicycle access) by building type (new/existing, residential/non-residential). It aims to streamline procedures by removing the need for prior authorisation when installing charging stations for existing collective residential buildings. It brings in specific tax incentives to install charging stations and direct grant schemes to install charging points and sustainable mobility (to replace existing vehicles with zero-emission vehicles and to implement the new transport plan) in businesses and administrations.

The draft plan covers fire safety in car parks and brings in more stringent requirements (in line with Commission recommendations for the risks from parked electric vehicles) correlated with the

[54] The State Housing Plan 2026-2030, drawn up by the Ministry of Housing and the Urban Agenda and submitted for public consultation and information in September and October 2025, allocates 30% of its funds to renovating the existing housing stock through specific aid for housing, buildings and urban environments.

potential increase in fire risk resulting from higher charging infrastructure requirements for electric vehicles in buildings. These measures are underway.

Accessibility for people with disabilities

Accessibility is not included in the overview of the building stock. The draft plan does not provide information on accessible buildings or buildings in need of renovation for accessibility, not can this be estimated based on the information available in the draft plan. Accessibility is not covered in the criteria for the buildings identified as targets for renovation.

Access for people with disabilities is briefly mentioned in the section covering other building requirements in deep renovation. All new and existing buildings undergoing major renovation since 2010 must be adapted to meet basic accessibility needs, according to the Spanish Technical Building Code on Use-Safety and Accessibility. Some flexibility is permitted in building renovation if full adaptation is not possible. Importantly, under Royal Legislative Decree 1/2013 of 29 November 2015 approving the recast General Law on the Rights of Persons with Disabilities and their Social Inclusion, all existing buildings, even if not subject to renovation, must be adapted to meet basic accessibility needs by December 2017.

Beyond this, the draft plan contains several measures to improve accessibility in existing buildings, such as public financial aid for renovation, reuse of vacant housing and renovation of public buildings. It does not specify the estimated investment needed for accessibility renovation.

Addressing market barriers, market failures and skills gaps

The draft NBRP addresses barriers and market failures comprehensively. The measures focus on (i) simplifying the administrative procedures for planning and carrying out renovation (e.g. fast-track procedures) to reduce time by 30%, (ii) digitalising 70% of administrative procedures (including making various databases and tools interoperable) and (iii) reducing the administrative complexity of public funding procedures for renovation.

Measures such as boosting new business models and promoting existing models (including energy service companies and renovation agents) are estimated to reduce costs by 10-30% by centralising technical, administrative and financial management.

The draft plan also covers action to promote education, targeted training, upskilling and reskilling in the construction sector and energy efficiency and renewable energy sectors. It acknowledges that the lack of workforce, both qualified and non-qualified, is a major challenge and attracting and retaining talent is a priority.

The planned measures refer to improvements and updates of university degrees in architecture and engineering to meet emerging needs and innovative solutions (e.g. industrialised construction), related vocational qualifications in the construction sector (to meet market needs) promoted through public-private partnerships, and upgrading knowledge on energy efficiency and sustainability (through train-the-trainer programmes). Spain also plans to bring in programmes for continuous vocational training for all parties across the value chain to meet challenges, transfer knowledge and learn traditional techniques.

Awareness-raising campaigns and other advisory tools

The draft plan includes specific measures on awareness-raising campaigns and advisory tools. Inclusive and accessible communication strategies are planned (adapted to vulnerable groups, older

people, people with specific needs and language barriers), with campaigns for citizen empowerment and energy culture considering intergenerational needs, via multiple channels and local media.

The draft plan aims that by 2030, 80% of households whose homes are in need of renovation receive clear information, have access to advice and actively participate in awareness raining campaigns. It proposes digital platforms to support public action on energy, co-creation mechanisms and participatory governance. In this sense, the draft NBRP aims to achieve 30% of rehabilitation aid or programmes to incorporate public input through participatory processes or local governance structures.

Promoting modular and industrialised solutions

The draft plan includes measures to promote modular and industrialised solutions for construction and renovation. The measures focus on stimulating manufacturing capacity through public-private financing, increasing efficiency though digitalisation and regulatory updates, promoting open collaboration models (inter-ministerial committees, technical offices for housing industrialisation, public-private alliance for housing industrialisation), showcasing the initiative in Valencia, 'Ciudad de la Industrialización', and identifying companies, businesses or public bodies willing to collaborate. The main objective is that by 2035, at least 10% of residential construction investment includes prefabricated elements compared with 1% today. Moreover, Spain expects the annual production of prefabricated homes to double over the next 10 years (from 8 000 to 15 000 units with some degree of industrialisation).

Given the importance of standardisation and regulatory measures in fostering a business climate to support prefabricated construction, Spain plans to revise several regulations governing buildings and use of prefabricated elements in construction and has set up a subcommittee for prefabricated construction. It will set up a working group to carry out a state-of-the-art analysis and draft standard definitions, terminology, degrees of prefab construction and metrics. The objective is to reduce the construction timeframe by 20-50%, depending on the degree uptake of prefabrication technologies.

The draft plan also covers research into prefabricated construction, with measures on creating research centres and alliances to boost prefabricated constructions, and the goal to publish studies, white papers and research projects to implement and test innovation ideas.

3.5.5. Sufficiency of financing sources and administrative resources

The draft NBRP provides a detailed description of investment needs and the financial and administrative resources that will be mobilised to meet the renovation targets. The allocation of both budgetary and administrative resources appears sufficient to meet the short to medium-term needs (2026-2030). For the longer term (by 2050), the draft plan has a solid basis, but further adjustments would improve confidence that the resources will remain sufficient as the plan is implemented. The projections lack a sensitivity analysis on the key variables of the investment needs.

Spain details the **investment needs** in the draft NBRP by building type (residential including the worst-performing and non-residential buildings). The estimated investment need between 2026 and

2050 is EUR 235 307 million (representing about EUR 98/m^2 of total renovated floor area[55]). Spain also plans a substantial investment of EUR 3 billion to empower and protect vulnerable groups, EUR 10.4 million for technical assistance and EUR 1.75 million for capacity building over the period 2026-2030.

The draft plan also identifies **funding and financing sources,** with detailed breakdowns up to 2030 and an overview to 2050, fully covering the required investments (no financing gap). The draft NBPR specifies the budget and financing for all measures up to 2030, while administrative resources for regulatory and organisational actions are provided as subsets of those measures. The draft plan extensively details the public instruments to mobilise private investment and introduces innovative mechanisms and new business models to trigger building renovation.

The estimated public funding needed is based on implemented and planned programmes and expected to cover 28% of the total budget. Spain plans to mobilise various sources of funding, with local and regional administration providing about 55% of the total and EU funding covering about 10% of total investment needs. Public support for renovation is in the form of direct subsidies for renovation and other financial support under various programmes (such as the Recovery and Resilience Facility).

The draft plan focuses on public support to trigger investment in renovation, concentrating on the goal to expand and consolidate revolving funds and guarantee schemes. These schemes will be integrated with direct budgetary aid and tax deductions, such as personal- and corporate-income-tax deductions, municipal tax credits and other bonuses. A Social Impact Fund is planned to mobilise private capital for high-impact projects. Energy-saving certificates will monitor energy and financial savings and social energy-savings certificates will provide specific aid to vulnerable households.

In terms of private financing, Spain plans cooperation with banks and credit unions to promote unsecured loans at favourable conditions (soft-loan interest rates, extended repayment terms, grace periods, zero-coupon structures and inclusion in green loan portfolios). Partial public guarantees will lower the perceived risk, and increased mortgage lending will help unlock deep-renovation projects.

The draft plan also explores innovative financing models. These include ownership-linked schemes such as PACE (property-based repayment), census-based financing, on-bill financing, and co-investment platforms that channel multiple private investors into local projects. Spain will assess the feasibility of an Insured Lifetime Mortgage for Energy Efficiency - allowing debt repayment to be deferred until death - alongside energy-saving insurance products designed to further mitigate institutional risk. It also mentions strengthening the role of energy service companies and promoting the role of renovation agents as facilitators between social, financial, technical and administrative aspects of renovation.

Overall, the measures to leverage private funding seems plausible especially as they are based on previous implemented programmes.

Assessment of the adequacy of total investment

[55] JRC calculation.

For every period (2026-2030, 2031-2035, 2036-2040, 2041-2045, 2046-2050) the funding planned covers the estimated investment needs (100% coverage). The share of public investment is 28% for each period, while the remaining 72% is private investment (owners' own resources, mortgages, unsecured loans, energy performance contracting and other sources).

Linking investment needs to targets through policies and measures

Spain explains how the public budget finances each policy area in the plan: 28% is allocated to building renovation, a similar share, 27% is for energy poverty alleviation, 25% for deployment of renewable energy and 20% to other initiatives, such as urban regeneration, innovation and circulation, industrialisation, training and awareness raising campaigns.

3.5.6. Inclusiveness of the public consultation

The public consultation enabled the public to participate at different stages of the NBRP's drafting. Spain allocated enough time and opportunities to enable all those interested in participating in the process to provide input to the draft.

Spain mentions that the draft NBRP is integrated in the Spanish ARCE 2050 project – Zero Emission Architecture, run by the Ministry of Housing and Urban Agenda. The plenary sessions of ARCE 2050 involved 400 stakeholders (researchers, builders, technicians, the public administration, civil society, energy services, financers, etc.) organised in four working groups and five expert panels focusing on various topics. The recommendations of the expert panels are included, and they are referred to in the draft plan.

A prior public consultation took place online (on the public portal of the Ministry of Housing and Urban Agenda) in April 2025 with 500 submissions from 80 different stakeholders: civil society (33%), business associations (29%) and companies (24%). The draft NBRP was also open for a broad hearing and public consultation between 28 November and 31 December 2025 (online, on the public portal of the Ministry of Housing and Urban Agenda) with 725 contributions submitted. For both consultations, the contributions were analysed and taken into account, but there are no details on how this was carried out.

The consultation process also involved coordination with other initiatives (e.g. New European Bauhaus). Over 60 bilateral meetings were held with stakeholders in the construction and energy sectors.

3.5.7. Completeness of the draft plan and consistency with other planning or reporting exercises

Almost all mandatory indicators are included in the draft plan. More information is listed in the following table.

Table 13. Indicators checklist for Spain.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings (number)	Yes	The number of social housing buildings is not available.
	Floor area (m^2)	Yes	The floor area of social housing is not available.
	Definition of worst-performing buildings	Yes	

Section	Indicator	Yes/No/Partially	Explanatory notes
	Share of worst-performing buildings (%)	Yes	
	Renovated buildings/ floor area (number/ m^2)	Yes	
	Renovation rate (%)	Partially	Annual renovation rates not provided. The distribution of deep, medium and light renovation are provided.
	Primary energy use (ktoe)	Yes	
	Final energy use (ktoe)	Yes	
	Specific primary energy for residential buildings (kWh/m^2y)	Yes	
	Share of renewable energy (%)	Partially	Provided for the entire building stock as one aggregated figure.
	Operational GHG emissions (Mt CO_2-eq)	Yes	
	Energy poverty share (%)	Yes	Values of indicators provided separately, but not provided in a composite indicator.
Roadmap for 2030, 2040 and 2050	Renovation targets (floor area or number)	Yes	
	Renovation rate targets (%)	Yes	
	Primary energy targets (ktoe) or reduction (%)	Yes	
	Final energy targets (ktoe) or reduction (%)	Yes	
	Renewable energy targets (%)	Yes	
	GHG emission targets (Mt CO_2-eq) or reduction (%)	Yes	
	Energy poverty targets (%)	Partially	Only for 2030 (the energy poverty rate indicator is based solely on 2 indicators).
	Contribution to energy efficiency target	Yes	
Policies and measures	Scope and type	Yes	
	Quantified objective	Partially	Quantification is rather generic and the expected impact is descriptive in most cases.
	Status and implementation period	Yes	
	Budget and funding source	Yes	
Investment needs	Total and/or average investment needs (million EUR), EUR/m^2	Yes	
Residential buildings	Average specific primary energy decreases between 2020 and 2050	Yes	
	Number of residential buildings/dwellings to be renovated	Yes	
	Residential floor area to be renovated (m^2)	Yes	
	Worst-performing buildings contribution (%)	Yes	
Non-residential buildings	MEPS 16% threshold	Yes	
	MEPS 26% threshold	Yes	
	2040 and 2050 threshold	Yes	
Summary of the public consultation		Yes	

Source: JRC elaboration on Member State reporting

Consistency checks were carried out by comparing the data with previous Member State reporting: the 2024 NECP, the 2025 national energy and climate progress reports (NECPR), the 2023 national cost-optimal report, and the 2020 LTRS.

Plausibility checks were carried out by comparing data with other reliable datasets such as the Building Stock Observatory (BSO) for building stock indicators and Eurostat datasets for final energy consumption.

Box 17. Consistency and plausibility check for Spain.

The number and floor area of buildings are not consistent with previous reporting in the 2025 NECPR. The differences are significant for non-residential buildings (-90% and -75% number and floor area between the NBRP and the NECPR). This discrepancy suggests that the non-residential sector may be under-represented in the NBRP inventory.

Primary energy factors are consistent with previous reporting in the 2023 national cost-optimal report.

The number of buildings and floor area differ from the BSO dataset.

The final energy consumption is plausible based on a comparison with ESTAT dataset.

Energy poverty

The definition of energy poverty in the draft NBRP refers to a household's lack of access to essential energy services necessary to maintain basic levels of living and health, including adequate heating, hot water, cooling, lighting and energy to power appliances. This definition is in line with Article 2(52) of the EED and the Commission recommendations and guidance on energy poverty. The definition builds on Spain's national strategy against energy poverty 2019-2024 that introduced the definition for the first time in Spain, later clarified. The upcoming 2026-2030 national energy against poverty strategy proposes a national composite indicator covering disproportionate expenditure, under-consumption, inability to adequately heat or cool homes and late payments of bills, as well as variables on housing efficiency and health.

The draft NBRP seeks to achieve consistency with the NECP by incorporating structural factors identified in previous strategies and more detailed sections tracking energy poverty over time. The NBRP participatory process involved the NECP energy poverty expert panel to ensure methodological consistency between the two plans. Clear references and consistency with the EED are made in the draft plan. The draft plan also mentions that the social climate plan is being prepared and additional programmes to support vulnerable households in renovating their homes would be part of it.

3.6. France

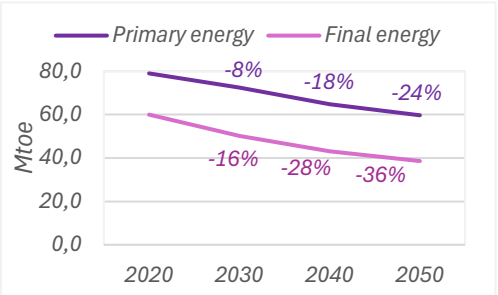
3.6.1. Main indicators

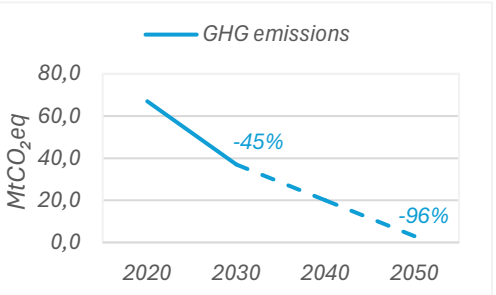
Table 14. Selection of main indicators from France's draft NBRP.

Renovation				
Floor area (Million m^2)	2024 Baseline	2030 Cumulative renovation	2040 Cumulative renovation	2050 Cumulative renovation
Residential	3 364	391.4	792.2	1 193.0
Non-residential	906	520.9	1 388.9	2 228.2
Total	4 270	912.3	2 181.1	3 421.1
Cumulative renovation (%)		21%	51%	80%
Annual renovation rate (%)[56]	**1.00%**	**3.82%**	**3.07%**	**2.99%**
Number of buildings[57]	2024	2030	2040	2050
Total	38 291 000	7 000 000	11 300 000	15 600 00
Cumulative renovation (%)		18%	30%	41%
Energy consumption				
Primary energy (Mtoe)	2020	2030	2040	2050
Residential	58.0	43.9	37.1	33.0
Non-residential	21.0	28.6	27.7	26.7
Total	79.0	72.5	64.8	59.7
Change vs 2020 (%)		**-8%**	**-18%**	**-24%**
Final energy (Mtoe)	2020	2030	2040	2050
Residential	40.0	31.0	25.2	22.1
Non-residential	20.0	19.2	17.9	16.5
Total	60.0	50.2	43.1	38.6
Change vs 2020 (%)		**-16%**	**-28%**	**-36%**
Energy end-uses included	Heating, cooling, hot water, ventilation, lighting, electrical appliances, cooking			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2020	2030	2040	2050
Residential	42	23	-	2
Non-residential	25	14	-	1
Total	67	37	20	3
Change vs 2020 (%)		**-45%**	**-**	**-96%**
GHG emissions in $kgCO_2/m^2$	12	9.3	-	0.72
Change vs 2020 (%)		**23%**		**94%**

[56] The baseline annual renovation rate includes only residential buildings.

[57] The number of buildings (baseline and targets for renovation) includes only residential buildings.





Renewable energy				
Renewable energy in the final energy	2023	2028	2029	2030
Share of renewable energy in buildings' final energy consumption		Not available		
Solar energy technologies in buildings		2030	2040	2050
MW installed		30 800	-	-
Energy poverty				
People affected by energy poverty	2020	2030	2040	2050
Share of people affected	10.1%		No targets	
Trajectory for the progressive renovation of residential buildings				
Not available				
Minimum Energy Performance Standards for non-residential buildings				
Not available				
Primary Energy Factors				
Non-renewable PEF	2023	2030	2040	2050
Electricity	2.30	2.30	2.30	2.30
Natural gas	1.00	1.00	1.00	1.00
District heating	1.00	1.00	1.00	1.00
Investment needs for renovation and funding and financing sources				
Investment needs (billion EUR)		2030	2040	2050
			Cumulative	
Residential		-	-	-
Non-residential		-	-	-
Total		-	-	-
Funding and financing (billion EUR)				
Public		-	-	-
Private		-	-	-
Total		-	-	-

Source: JRC elaboration on Member State reporting

3.6.2. Executive summary

France submitted a partially complete draft of the national building renovation plan (NBRP), including a voluntary spreadsheet presenting the values of the main quantitative indicators.

The overall **level of ambition** of the draft plan seems in line with the goal of a high energy-efficiency and decarbonised building stock by 2050. However, important elements are missing, such as the minimum energy performance standards for non-residential buildings and the renovation trajectory for residential buildings, preventing a complete assessment.

The majority of energy consumption reduction is driven by the residential segment.

France's targets for **primary energy consumption** in the building sector are 72.5 Mtoe by 2030, 64.8 Mtoe by 2040 and 59.7 Mtoe by 2050, representing reductions of 8%, 18% and 24%, respectively, compared with the 2020 level of 79 Mtoe.

France's targets for **final energy consumption** in the building sector are 50.2 Mtoe by 2030, 43.1 Mtoe by 2040, and 38.6 Mtoe by 2050, representing reduction of 16%, 28%, and 36%, respectively, from the 2020 level of 60 Mtoe.

France's targets for total **operational greenhouse (GHG) emissions** in the building sector are 37 Mt CO_2eq in 2030 and 3 Mt CO_2eq in 2050, corresponding to 45% and 96% cuts compared with the 2020 baseline of 67 Mt CO_2eq. France does not provide a 2040 target for this indicator.

It is important to note that the roadmap is based on constant primary energy factors. Therefore, actual reductions in primary energy might be higher if the primary energy factors improve over time due to renewables deployment in energy sources.

At the same time, the draft NBRP is only partially aligned with the ambition, objectives and policies and measures outlined in the final **national energy and climate plan (NECP)** as it shows decreased ambition for operational GHG emission targets for 2030 and no targets for renewable energy in the building sector.

The contribution of France's building sector to the **EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED') is not outlined. In 2020, the building sector accounted for 46.5% of the total final energy in France and it will represent 46.9% in 2030[58].This indicates that the energy savings in the building sector are planned to occur at a similar pace with the overall energy savings. Regarding France's contribution to the **EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED'), the draft plan does not provide specific target for increasing the share of renewables used in buildings.

The decarbonisation objective is also supported by renewable energy deployment with 30,800 MW of solar photovoltaics planned to be installed by 2030.

To achieve these reductions, France aims to **renovate** 1 193 million m^2 of residential buildings floor area by 2050, representing 35% and of the total floor area in 2024 (materialised by annual renovation rates of 2.2% by 2030 and 1.3% afterwards). These targets are aligned with the objective of phasing-out the worst-performing residential buildings. Regarding non-residential buildings, the draft plan indicates a target of 86.8 million m^2 renovated floor area annually (8.7% annual renovation rate); however, this target is not consistent with the baseline[59]. Moreover, this high target is not aligned with the energy trajectory of non-residential buildings, which shows a lower reduction trend (by 2030, primary energy consumption even increases compared to 2020; subsequently, it decreases, but stays above the 2020 baseline until 2050).

[58] The JRC calculates the percentages as follows: In 2020, as a ratio of final energy consumption in buildings to total final energy consumption sourced from Eurostat. In 2030, as a ratio of the draft NBRP target for final energy consumption in buildings to the national energy efficiency target set under Article 4 of the EED, sourced from the final NECP 2024.

[59] It results in a total renovated floor area of 2 228 million m^2 by 2050, much higher than the 2024 baseline of 906 million m^2.

France did not provide **the trajectory for progressive renovation of residential buildings** and the **minimum energy performance standards** (MEPS) for **non-residential buildings** in its draft NBRP mentioning that currently these are being under elaboration.

Worst-performing buildings are not addressed in a systematic way but are discussed under policies and measure with focus on the rental housing stock. The draft plan defines worst-performing residential buildings as those with energy performance certificate (EPC) classes E, F and G. Several policies and measures are directly aimed at these buildings, especially in the rental sector and in social housing. Worst-performing non-residential buildings are not clearly identified (the 16% and 26% of the non-residential buildings stock).

Energy poverty alleviation is only briefly addressed in the draft plan. France indicates that in 2023, 3.1 million households representing 10.1% of the population was affected by energy poverty but does not set target for the reduction of this share. However, it does include several measures aiming at assisting vulnerable households.

Measures addressing **housing affordability** are identified in the draft plan, most focusing on social housing and district and neighbourhood programmes.

The draft NBRP demonstrates a strong and comprehensive framework of **policies and measures** to address building renovation, decarbonisation of heating and cooling systems. This framework is also consistent with other national plans and strategies. However, some missing elements (e.g., quantification of expected impacts, period of implementation worst-performing building targets, MEPS) prevent the assessment of the measures' sufficiency to achieve the targets.

France addresses the **decarbonisation of heating** in a relatively comprehensive way, using a mix of regulatory, financial, and fiscal measures, which are clear and credible. The focus is on boiler replacement by restricting the installation of fossil fuel boilers and developing efficient district heating networks and promoting dwelling connections. However, the draft NBRP does not set out a clear roadmap for phasing out fossil-fuel heating boilers by 2040.

The draft NBRP presents the annual **investments needs** only between 2026 and 2030 and only in an aggregated way. By 2030, EUR 34 and 10 billion per year are planned for residential and non-residential building renovation, respectively. This translated into 290 EUR/m^2 for the floor area that is expected to be between 2025 and 2030[60]. Other financing needs, for instance for energy poverty reduction, are not mentioned. No information on the calculation methodology and assumptions is provided; therefore, it is not possible to assess if the estimate needs are adequate. The budgetary sources for 2030, 2040 and 2050 for both public and private investments and not reported and the mobilisation of private financing is not addressed.

The draft NBRP described that no specific **public consultation** for the NBRP was carried out because France relies on the consultation carried out on other national plans[61] underpinning the NBRP. Although the consultation process appears to be sufficiently broad in terms of time, opportunities, and stakeholder involvement, it is unclear whether the specific NBRP-related

[60] JRC calculation considering the total investment needs between 2026 and 2030, divided by the total floor area expected to be renovated between 2025 and 2030.

[61] Stratégie Nationale Bas Carbone (SNBC 3) and Programmation Pluri-Annuelle de l'Energie (PPE 3)

elements were inclusively addressed, and it is not evident how the feedback from the consultation was integrated into the draft NBRP itself.

The assessment process has identified the following aspects of the draft NBRP as strengths, **innovative measures** and/or examples of **good practice**.

— The French draft NBRP presents a comprehensive and well-designed policy package for building renovation. The draft combines regulatory measures, loans, tax incentives, administrative and technical support, social-housing programmes, district and neighbourhood approaches and non-residential sector obligations.

— The draft NBRP advances a very well-developed household support architecture. MaPrimeRénov', Mon Accompagnateur Rénov' and France Rénov' together provide financial support, mandatory project support for major renovations and local one-stop-shop advice, with quantified coverage and budget information.

— Strong focus on the rental housing stock with MEPS approach to phase out the worst-performing rental buildings (EPC classes E-F-G) by 2034. This measure is complemented by a rent freeze in the private rental stock for residential units with EPC classes F and G.

— The promotion of district and neighbourhood approaches and integrated renovation programmes at district level through the EcoQuartier projects. These projects are comprehensively designed covering aspects beyond individual building renovation, such as better living conditions, housing availability, accessibility for persons with disabilities, adaptation and resilience to climate and social challenges, focus on rural areas, and others.

— The Éco-Énergie Tertiaire scheme is a regulatory measures that sets targets for large non-residential buildings (floor area above 1 000 m^2) with an implementation period 2019-2050. The objective is either relative reduction of final energy consumption compared to a baseline (-40% by 2030, 50% by 2040 and 60% by 2050) or absolute thresholds corresponding to efficient buildings and defined by use type.

— France introduced thresholds for construction-related emissions for new buildings as of 2022) with progressive reductions every three years, to achieve a 35% reduction in GHG emissions related to construction as of 2031.

However, there are several aspects of the draft NBRP that require **completion and improvement,** and which should be addressed in the final version.

— Provide the trajectory for residential building renovation in accordance with Article 9(2) and the MEPS thresholds for non-residential buildings in accordance with Article 9(1), as well as the threshold for new and renovated zero-emission buildings.

— Ensure that the energy and GHG emission targets are aligned with the projected evolution of energy generation in the final NECP, and the primary energy factor and emission factors reflect this evolution. Clarify why the 2030 NBRP GHG emission target for the building sector is less ambitious than the one in the NECP and set the 2040 target for this indicator.

— Provide a national definition for energy poverty in line with Article 2(52) of the EED and ensure that the energy poverty indicator reflects the multidimensionality of energy poverty and include the methodology to calculate the rate.

— Set targets for energy poverty reduction for 2030, 2040 and 2050 aligned with policies, measure and financial needs aiming at energy poverty alleviation.

— Strengthen the link between policies and targets by systematically quantifying expected energy savings, GHG emissions reductions, renovation volumes, budgets and implementation timing for the major policies and measures.

— Provide the quantitative targets for increasing the share of renewable energy in buildings in relation to the RED and complete targets for the deployment of solar technologies in buildings for the years beyond 2030.

— Quantify the contribution to the EU's energy efficiency and renewable energy targets in accordance with the EED and the RED attributable to the building stock renovation.

— Clarify how the reported policies and measures on the **decarbonisation of heating** are effectively setting a pathway to a complete phase-out of fossil fuel boilers by 2040.

— Check and validate the renovation targets for non-residential buildings and ensure consistency with the baseline and the energy and emission targets. Consolidate the renovation targets by including the contribution of worst-performing buildings.

— Provide the complete investment needs for 2040 and 2050 and identify the funding and financing sources, including the mobilisation of private financing, administrative resources, allocations for worst-performing buildings and financing measures contributing to the planned reduction of energy poverty.

— Consolidate the overview of the building stock with the 2020 baseline (number of buildings, floor area), public building data, definition and figures for non-residential worst-performing buildings and current renovation figures for non-residential buildings.

— Clarify how the elements specific to the draft NBRP were addressed in the public consultations that were carried out for other national plans and how the consultation's feedback has been integrated into the draft NBRP.

3.6.3. Ambition of the draft plan

Box 16. Key insights of France's draft NBRP.

- France plans to reach **primary energy use** in the building sector of 72.5 Mtoe by 2030, 64.8 Mtoe by 2040 and 59.7 Mtoe by 2050. This means reductions of 8%, 18% and 24%, respectively, compared with 2020 (79 Mtoe).
- France plans to reach a **final energy use** in the building sector of 50.2 Mtoe by 2030, 43.1 Mtoe by 2040 and 38.6 Mtoe by 2050. This means reductions of 16%, 28% and 36%, respectively, compared with 2020 (60 Mtoe).
- France plans to decrease the **total operational GHG emissions** in the building sector to 37 $MtCO_2eq$ in 2030 and 3 $MtCO_2eq$ in 2050. This means reduction of 45% and 96%, respectively, compared with 2020 (67 $MtCO_2eq$). France does not provide the 2040 target.

Assessment of the overall ambition of the draft NBRP to achieve a highly energy-efficient and decarbonised building stock by 2050

The overall level of ambition of the draft NBRP seems aligned with the goal of a highly energy efficient and decarbonised building stock by 2050 in France. However, important elements are

missing, such as the MEPS for non-residential buildings and the renovation trajectory for residential buildings, preventing a complete assessment.

By 2050, France aims to reduce the primary energy consumption in the building sector by 24% and the final by 36%, compared to 2020 levels. The final-energy reduction pathway is more pronounced than the primary-energy pathway and is therefore more clearly aligned with a highly energy-efficient stock. The majority of energy consumption reduction is driven by the residential segment, whereas the non-residential one achieves reduction only in final energy – its primary energy consumption targets remain above the 2020 baseline. France also aims to reduce the total operational GHG emissions of its building stock by 96% in 2050 compared to 2020.

To achieve these reductions, France aims to renovate 1 193 million m^2 of residential buildings floor area by 2050, representing 35% and of the total floor area in 2020. The targeted annual renovation rates are 2.2% between 2020 and 2030 and 1.3% between 2030 and 2050. These targets seem aligned with the measure aiming at phasing out the worst-performing residential buildings.

Regarding non-residential buildings, the draft plan indicates a target of 86.8 million m^2 renovated floor area annually (8.7% annual renovation rate); however, this target is not consistent with the baseline of 906 million m^2 in 2020[62]. Moreover, this high renovation rate is not aligned with the energy trajectory of non-residential buildings, which show a lower reduction trend (for instance by 2030 both final and primary energy increase compared with the 2020 baseline).

The decarbonisation objective is also supported by renewable energy deployment with 30,800 MW of solar photovoltaics installed by 2030.

The current cost-optimal levels are included in the draft plan (65.2 kWh/(m^2y) for new buildings and 234.6 kWh/(m^2y) for existing buildings). However, it is not clear whether these levels will play a role in establishing requirements for the average primary energy use of the building stock (trajectory for residential building renovation and MEPS thresholds for non-residential buildings).

Assessment of the alignment between the draft NBRP and the national commitments on climate and energy set out in the NECP

The draft NBRP is partially aligned with the national objectives and ambitions set out in the final NECP, showing less ambitious targets for operational GHG emissions of buildings as further described. The below section also addresses how the NBRP ambition compares with the 2020 long-term renovation strategy (LTRS) adopted by France.

Energy efficiency

The draft NBRP sets a target for France to reduce its building sector primary energy consumption by 8% and the final energy consumption by 16% by 2030 compared to 2020.

The NECP does not provide final, or primary energy consumption targets specific to the building sector. The 2020 LTRS set final energy targets relative to year 2015 (-22% by 2030, -29 by 2040 and -41% by 2050), thus not directly comparable with the draft NBRP.

[62] It results in a total renovated floor area of 2 228 million m^2 by 2050, higher than the 2020 baseline of 906 million m^2.

The contribution to the Union's energy efficiency targets in accordance with Article 4 of the EED attributable to the building stock's renovation is not provided. However, in 2020, the building sector accounted for 46.5% of the total final energy in France and, according to the targets, it will represent 46.9% in 2030 (ratio of building sector target to the energy efficiency target). This indicates that the energy savings in the building sector are planned to occur at a similar pace with the overall energy savings.

The draft NBRP provides static primary energy factors, notably a factor of 2.3 for grid electricity and a factor of 1.0 for the other listed energy carriers. The draft NBRP explicitly states[63] that there is no prospective vision yet on primary energy factors in France.

Overall, the draft NBRP energy targets seem sufficient and in line to achieve the national commitment on **energy efficiency** laid down in the NECP.

Decarbonisation

The draft NBRP GHG emission targets in the building sector (37 and 3 $MtCO_2eq$ respectively in 2030 and 2050) are more ambitious than the 2020 LTRS one (45 and 5 $MtCO_2eq$), however the final updated 2024 NECP set a more ambitious target for 2030 of 32 $MtCO_2eq$.

No 2040 GHG emission target has been set in the draft NBRP.

Therefore, the 2030 draft NBRP operational GHG emission target in the building sector is not sufficient and on track to achieve the corresponding NECP decarbonisation target.

Renewable energy

The final NECP reports a target for the share of renewable energy in buildings final energy consumption of 49% in 2030. However, the draft NBRP does not present a target related to the increase in the share of renewable energy use.

The indicative national share for France, provided in the Commission guidance on heating and cooling (C/2025/2238), Annex C is 46.2%.

Expected reduction in the number of people affected by energy poverty

The draft NBRP indicates that in 2023, 3.1 million households or 10.1%[64] of the population was affected by energy poverty. However, it does not set 2030, 2040 and 2050 targets for the reduction of this share, contrary to the 2024 updated NECP.

Furthermore, the draft plan does not provide the dimensions considered nor methodology employed to compute this rate.

Moreover, in the voluntary spreadsheet, it is reported that in 2024, 3.68% of disposable household income was spent on energy and 1 million people lived in inadequate dwelling conditions. However, the draft plan does not provide data on the energy performance of social housing or the use and repurpose of vacant housing, nor does it include quantified progress in terms of units renovated per year or accommodation capacity for the homeless.

[63] In the voluntary spreadsheet, "Feuille de route" tab, cell I127

[64] 10.8% reported in the voluntary spreadsheet

Prioritising renovation of the worst-performing buildings

The French draft plan does neither include specific renovation targets for worst-performing buildings nor the MEPS thresholds for non-residential and the national trajectory. Nonetheless, as further described it describes some measures directly targeted to residential buildings with focus on the rental housing stock.

The draft plan identifies worst-performing residential buildings as those with EPC energy classes E, F and G. In 2024, such buildings represent 1 060 million m^2 or 31% of the total residential floor area. The draft plan does not clearly identify the 43% worst-performing residential buildings.

Non-residential worst-performing buildings are not identified, and their prioritisation is not clear as the MEPS thresholds are not provided (see below). However, the Eco-Energie Tertiaire measure described below targets specifically this segment of the national building stock.

Minimum energy performance standards for non-residential buildings

The draft plan indicates that MEPS for non-residential buildings are under elaboration.

National trajectory for the progressive renovation of the residential buildings

The draft plan indicates that the trajectory for the progressive renovation of residential buildings is under elaboration.

New buildings

The draft plan indicates that the thresholds for zero-emission buildings are under elaboration.

By 2024, new nearly zero-energy buildings accounted for 150 million m^2 of floor area (representing 3.5% from the total floor area in 2024).

3.6.4. Sufficiency of the policies and measures

France provides a comprehensive overview of implemented and planned policies and measures, addressing all mandatory areas listed in Annex II. Each measure is reported in a standard template, allowing a comprehensive and clear overview.

The draft NBRP describes a strong and comprehensive framework addressing building renovation, decarbonisation of heating and cooling systems and cross-cutting measures. However, some mandatory elements describing the policies and measures such as the expected quantified impacts (e.g., energy savings, GHG emission reduction), the planned budget and funding source, as well as the precise implementation period are missing. This makes difficult to assess the sufficiency of the policies and measures to reach the targets set out in the roadmap.

The measures are consistent with other plans and strategies such as the final NECP, comprehensive heating and cooling assessment pursuant to Article 25(1) of the EED . Furthermore, the draft NBRP is the direct declination of a relevant national strategy: the draft revised national low-carbon

strategy (SNBC[65] 3), ahead of its planned adoption in spring 2026 and the related multi-annual energy planning (PPE[66] 3).

Renovation and MEPS for non-residential buildings

The MEPS framework for non-residential has not been included in the draft NBRP, however a sound legal framework for non-residential sector (tertiary) already exists in France. This includes the Éco-Énergie Tertiaire scheme and building automatic and control system (BACS) requirements, thermal regulations for existing buildings (requirements either for overall energy performance or by building element) as well as rooftop renewable-energy obligations.

The Éco-Énergie Tertiaire scheme is a regulatory measure that sets targets for reducing the final energy consumption of non-residential buildings with an implementation period 2019-2050. The measure focuses on large buildings and part of buildings (floor area above 1,000 m^2) currently representing about 996 million m^2 floor area. The objective is either relative reduction of final energy consumption compared to a baseline (-40% by 2030, 50% by 2040 and 60% by 2050) or absolute thresholds corresponding to efficient buildings and defined by building category (these absolute thresholds are not provided in the draft NBRP). Therefore, while MEPS thresholds and framework are not yet defined in the draft NBRP, this scheme could represent a strong basis for it provided that it is extended to buildings below 1 000 m^2.

Renovation of residential buildings

Although the trajectory with milestones for reducing the average primary energy use of residential buildings is not provided in the draft NBRP, France has in place a robust policy framework to support energy efficiency and decarbonisation in this sector. This comprehensive package includes regulatory measures, financial incentives, and technical assistance, with a strong emphasis on phasing out worst-performing rental and support to social housing.

Worst-performing dwellings are addressed especially through the rental “decency” timetable, as follows:

- From January 1st 2023, final energy consumption below 450 kWh/(m^2year);
- From January 1st 2025, at least EPC energy class F;
- From January 1st 2028 at least EPC energy class E;
- From 1 January 2034, at least EPC energy class D.

This means that if a private or social rental dwelling does not comply with the respective energy performance or EPC energy class, it cannot be rented or have the lease contract renewed. Moreover, the tenant has the right to ask the owner for compliance and can bring the case to court.

This measure is complemented by an obligation to carry out an energy audit when worst-performing buildings are sold: energy EPC class F and G as of April 1st 2023, EPC class E as of January 1st 2025 and EPC class D as of January 1st 2034. The energy audit evaluates the state of

[65] Stratégie Nationale Bas Carbone

[66] Programmation Pluri-Annuelle de l’Energie

the building and provides renovation pathways, allowing future owners to anticipate necessary works and costs.

Additionally, the measure on rent freeze in the private rental stock for dwellings forbids rent increases after August 2022 for dwelling with EPC classes F and G.

On financial and funding measure, the draft plan refers to the subsidies distributed through the national housing agency (ANAH) and its main program MaPrimeRenov, but also subsidised loans, energy savings certificates and reduced VAT (5.5%) for energy renovation in housing. Dedicated support schemes are also discussed for social housing: subsidies loans for social landlords, the 'second life scheme' (see energy poverty section) , budgetary aid for renovation to reach at least EPC class C and change of energy carrier focusing on renewable energy.

Building Renovation Passport as a tool to support energy savings and complement MEPS and the trajectory for residential buildings

Building Renovation Passport is not mentioned in the draft plan.

Box 17. Example of policies and measures in France.

- The *Energy Saving Certificates* scheme remains one of the main instruments for energy-demand management and imposes an obligation on energy suppliers to achieve energy savings. The draft NBRP reports a target of 1 050 TWh of discounted cumulative energy savings for 2026–2030, while also noting that the scheme is extra-budgetary and its value varies over time.

- A comprehensive system of *grants and subsidies* provide support for renovation. MaPrimeRénov', financed by the National Housing Agency is organised into a guided pathway for major renovations of single-family houses, major renovations of multi-family buildings and a per-measure scheme for individual renovation measures. By 2025, around 300 000 homes had received funding, including more than 100 000 for major renovations. The Housing Agency expenditure amounted to EUR 3 billion and the state contributed with EUR 2.7 billion.

- *Project assistance* is also addressed. Mon Accompagnateur Rénov' is mandatory for MaPrimeRénov' guided-pathway grant applications and aims to safeguard households' interests and ensure the proper use of public funds. Over 2024–2026, the NBRP reports planned support for 165 600 major renovations of individual dwellings and 246 100 support cases for multi-family buildings, supported by a EUR 300 million from energy savings certificates.

Alleviation of energy poverty and housing affordability

Policies for the alleviation of energy poverty and housing affordability are among the strong parts of the policy stocktaking in the French draft NBRP despite the fact that no targets are set for this dimension as above mentioned. The rental standards and rent freeze target the least efficient rental homes and, MaPrimeRénov' provide higher support for low-income households.

There are several financing schemes aiming at social housing, in particular phasing out worst-performing. Among these, the Éco-prêt Logement Social loan scheme allocates EUR 6 billion from 2023 to 2027 to eliminate energy-inefficient social housing, aiming for a minimum 40% energy saving and improving EPC ratings from D to G to A to D. The 'second life' scheme offers tax benefits for major renovations, improving housing to new-build energy performance standards, with eligibility for an eco-loan of up to EUR 33 000. Regionally, the renewal of the mining basin initiative targets 31 000 homes in Nord and Pas-de-Calais with EUR 100 million funding, achieving EPC

classes B and C and a 50% energy reduction. Moreover, the new national urban renewal plan targets 480 neighbourhoods, focusing on social housing demolition, refurbishment, and regeneration, aiming to demolish 115 000 units, regenerate 146 000 units, reconstruct 87 500 units, and refurbish over 1 000 public facilities.

Measures addressing housing affordability are identified in the draft plan, the majority related to social housing. In addition to phasing out the worst-performing rental and social housing, the plan also emphasises increasing housing availability. For instance, the EcoQuartier, which fosters sustainable district-level projects, aiming to address housing demand while promoting efficient land use through urban renewal and brownfield redevelopments. With 560 projects underway, nearly 286 000 housing units are planned or completed, including 36% social housing.

Nevertheless, as previously mentioned these measures are not linked to quantified energy-poverty reduction targets or a dedicated energy-poverty financing line in the investment table.

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

France Rénov' Advice Centre is the national one-stop shop (OSS) for information, advice and guidance on all matters relating to home improvement and renovation (energy-efficient renovation, energy efficiency, adapting homes for those with reduced mobility, substandard housing, etc.). It is overseen by the ANAH and work in collaboration with local authorities.

Its scope covers owner-occupiers and landlords, co-owners and tenants, with the aim of guiding them towards the most effective renovations in terms of energy savings and decarbonisation of heating systems, whilst tailoring its advice.

Its role is also to strengthen local construction and renovation professional as well as monitoring and mitigating fraudulent practices on the ground.

Its implementation started in 2022 and as of December 2025, 92% of the country's municipalities (Établissement Public de Coopération Intercommunale) were covered by a one-stop shop (France Rénov' Advice Centre service offer). The draft plans aim to increase the share to 100% ; however, the targeted year is not provided.

The draft plan also discusses a program dedicated to developing a OSS targeting small and medium enterprises.

Decarbonisation of heating and cooling and the phasing out of fossil fuels in heating and cooling with a view to a complete phasing out of fossil fuel boilers by 2040

As described further below, France addresses the decarbonisation of heating in a relatively comprehensive way, using a mix of regulatory, financial, and fiscal measures. The focus is on boiler replacement by restricting the installation of fossil fuel boilers, especially those with high GHG emissions, and developing efficient district heating networks and promoting dwelling connections. However, the draft plan does not set out a clear roadmap towards a phasing out fossil-fuel heating boilers by 2040.

An important measure of this dimension is the introduction of maximum GHG emission values for new heating or domestic hot-water equipment installed in buildings. Since January 2022, these systems must comply with a maximum 300 gCO_2eq/kWh PCI (net calorific value) threshold, effectively limiting the installation of high-emission oil and coal systems. The objective is to replace 300 000 oil boilers by 2030.

Moreover, financial incentives for the installation of fossil fuel boilers meeting more than 30% of annual energy needs at building level have been eliminated since January 2025. Additionally, the reduced VAT rate applicable to gas boilers was discontinued.

Another important measure is the development of efficient district heating network. The national heat fund supports renewable and recovered heat and district heating, with the target of connecting 300 000 to 360 000 homes on average per year by 2035 (in 2025 the budget was EUR 800 million).

The NBRP also states that the share of gas and fuel oil in final energy consumption in the residential sector is falling faster than in the SNBC 2 baseline. Thus, the SNBC 3 projects a faster phase-out of fossil fuels by 2030 and a phase-out of oil-fired boilers by 2035 as well as a gradual replacement of the majority of gas-fired boilers, efforts needed to achieve the climate objectives. However, it notes that gas consumption in the non-residential sector is not on the right track and that changes to heating systems are expected to increase as 'Éco-Énergie Tertiaire' deadlines approach.

Overall, the draft NBRP demonstrates clear and credible measures on the decarbonisation of heating and the phasing out of fossil fuels in heating, but it does not provide a comprehensive roadmap towards a complete phase-out by 2040. On this point the draft NBRP also demonstrates consistency with existing policies and strategic plans, such as the final NECP.

Prevention of construction and demolition waste

Construction and demolition waste prevention is addressed through the 'products, equipment, materials and waste' assessment. The measure requires project owners to submit an assessment before demolishing or renovating more than 1 000 m^2 of a building , listing materials generated by the site and possibilities for reuse, recycling and recovery, with a completion report submitted to the government. The measure is relevant for circular economy objectives, but the draft does not quantify the expected waste reduction or recycling outcomes in the roadmap.

Promotion of renewable energy sources

The promotion of renewable energy sources is mainly discussed under decarbonisation of heating (as discussed above) and deployment of renewable energy in buildings (discussed in next section).

Deployment of solar energy installations on buildings

The draft plan notes that France already has in place requirements to install solar energy technologies on certain buildings and currently these requirements are under revision alignment with the thresholds and timeline provided in EPBD, article 10.

The draft NBRP describes obligations to install renewable energy systems or green roofs on certain new buildings, extensions, major renovations and, from 2028, existing buildings above 500 m^2 in specified categories, with a full roll-out from 2027 to 2031. Solar photovoltaics deployment is supported through existing obligations in the Building and Housing Code, progressively strengthened since 2024 and aligned with the EPBD transposition timetable.

The quantified solar target is 30.8 GW by 2030, but the draft does not report the share of residential or non-residential buildings equipped, the GWh generated, or a building-sector renewable-energy share target.

Reduction of whole-life-cycle GHG emissions and the uptake of carbon removals

France has already in place national regulations stipulating that whole-life-cycle GHG emissions in buildings must be calculated and setting maximum emission limit values ahead of the regulatory timeline set out in the EPBD, Article 7.

The reduction of whole-life-cycle GHG emissions is addressed through the Environmental regulations for new buildings 'RE2020'. The regulation is in place since 2022 and applies to new residential buildings, offices, and primary and secondary school buildings.

The regulation introduces an environmental component quantified through two indicators (construction and energy) with the construction one subject to regulatory thresholds (Ic_construction in $kgCO_2eq/m^2$). These thresholds are set by building category (as mentioned above) and are reinforced every 3 years until 2031. More buildings categories are included as of May 2026[67]. For instance, for single-family houses the indicator ranges from 640 $kgCO_2eq/m^2$ between 2022 and 2024 to 415 $kgCO_2eq/m^2$ after 2031. The main objective is to reduce the GHG emissions related to construction (Ic_construction indicator) by around 35%.

Promotion of district and neighbourhood approach and integrated renovation programmes

The district and neighbourhood approach is covered by the national plan and the new national renewal plan (NPNRU) and the ÉcoQuartier initiatives.

The NPNRU targets 480 neighbourhoods and includes social-housing demolition, regeneration, reconstruction, public facilities and public-space redevelopment and has a budget of EUR 12 billion for grants for 2014-2026. Moreover, about 2 900 hectares of public space is under redevelopment with a strong focus on adaptation measures to create more resilient neighbourhoods.

The ÉcoQuartier covers more than 560 projects and supports urban regeneration, quality of life, inclusivity and accessibility. Since 2012, neighbourhoods achieving specific objectives have been awarded the EcoQuartier label, and after three years, those verified for actual use and performance receive the EcoQuartier vivre label. Starting in 2023, project leaders can receive support at the initial stage by obtaining EcoProject status.

These programmes provide a broader urban-renewal approach beyond individual building renovation, and they include expected benefits for living conditions, energy consumption, GHG emissions and energy poverty.

Improvement of buildings owned by public bodies

Buildings owned or used by public bodies are addressed through the national green fund, ACTEE (*Action des Collectivités Territoriales pour l'Efficacité Énergétique*) and non-residential obligations (Eco Tertiaire – see above).

In force since January 2023, the green fund is a government support scheme which offers direct financial assistance for the renovation of local public buildings. The green fund supports local public-building renovation with at least 40% energy-consumption reduction at project level and an expected reduction of at least 45% across supported projects.

[67] Libraries, other educational buildings, universities and building for research, hotels, nurseries, restaurants, commercial buildings, buildings for health, terminals, industrial buildings and sport facilities.

ACTEE provides technical, financial and human-resource support to local authorities for public non-residential buildings funder through energy savings certificates. Currently, more than 15 000 buildings are registered in this programme conventions and more than 5 000 buildings are expected to be renovated in the coming years.

Promotion of smart technologies and infrastructure for sustainable mobility

Smart technologies and sustainable mobility infrastructure are addressed through France's BACS decree, the smart readiness indicator (SRI) pilot project, bicycle parking obligations and electric vehicle (EV) charging provisions. The BACS decree requires automation and control systems in defined commercial buildings, with the objective to equip 395 million m^2 of floor area with BACS by 2030.

France requires the integration of EV charging station in new buildings and during renovation of existing buildings. These requirements are aligned with article 14 of the EPBD and the objective is to achieve 400 000 publicly accessible charging points and 7 million public and private charging points. It also includes regulatory changes for streamlining the installation of charging infrastructure in condominiums. Mandatory requirements for the installation of bicycle spaces are also in place.

The second phase of the SRI scheme in France is undergoing and involves testing 200 buildings with a budget of EUR 2 million. No other information on the first phase is included in the draft NBRP.

Accessibility is addressed specifically for charging points, including minimum accessible spaces in new and existing non-residential buildings. The regulation applies since 2019.

Accessibility for persons with disabilities

Accessibility is not identified as an element in the overview of the building stock. The draft plan does not provide information on the accessible buildings or buildings in need of accessibility renovation, and it cannot be estimated based on available information in the draft plan. Moreover, accessibility is not included among the elements of the buildings identified as targets for renovation.

Building accessibility is identified in measures on social housing renovation. Specifically, 'Second Life' scheme which targets the renovation of social housing to reach levels similar to new buildings must also comply with criteria for building accessibility, beside criteria for energy, safety in use and health.

No specific information on accessibility renovation is provided in estimating the investments needs.

Addressing market barriers, market failures and skill gap

The draft reports large workforce replacement and recruitment needs in the construction sector, with 478 000 expected retirements and a recruitment need of 597 000 construction and public works professionals between 2019 and 2030.

It describes an employment and skills strategy which aims to anticipate changes and needs, train the workforce and assist companies. Moreover, the call for expression of interest 'Skills and Professions of the Future' aims in particular to assess skills and training needs at national or local level.

Another measure is the training of professionals in energy saving in the building sector. The scheme benefits from the financing of energy savings certificates; is operational since 2008 and was renewed in 2022.

Finally, France has in place a scheme which places an 'eco-conditionality' criterion on financial support in certain programmes. This criterion assumes that applicants must use qualified companies recognised as guarantors of the environment[68].

Awareness-raising campaigns and other advisory tools

Awareness-raising and advisory tools are comprehensively covered in the different programmes such as the France Rénov' which includes the OSS network, ACTEE which focuses on support for local authorities for public non-residential buildings, the OSSs for enterprises (Pacte Entreprise), as well as in measure for skills and workforce development.

Promotion of modular and industrialised solutions

The draft NBRP mentions that off-site construction is starting to develop in France despite strong attachment to traditional construction techniques. It mentions that several measures are being put in place to promote industrialisation and prefabrication (such as calls for projects under France 030 plan) but does not offer specific examples.

3.6.5. Sufficiency of financing sources and administrative resources

The draft plan presents the annual **investments needs** only until 2030 and only in an aggregated way, without detailing the calculation methodology. The budgetary sources for 2030, 2040 and 2050 for both public and private investments and not reported. Consequently, it is not possible to assess whether the investment needs are adequate or if the funding and financing sources cover the estimates.

The investments needs for 2030 are estimated at EUR 34 billion yearly for residential buildings and EUR 10 billion yearly for non-residential buildings. These estimates are based on 2024 investments of EUR 15 billion for residential and EUR 2 billion for non-residential buildings and the needs to reach the 2030 targets. The cumulative investment needs between 2026 and 2030 are EUR 264 billion, representing 290 EUR/m^2 of the expected renovated floor area between 2025 and 2030[69].

The **funding and financing sources** are not identified and the draft NBRP does not address how private financing will be mobilised.

Assessment of the adequacy of total investments

It is not possible to assess the adequacy of the total investments as the funding and financing sources are not clearly identified.

Linking investment needs to targets through policies and measures

[68] RGE label.

[69] JRC calculation.

It is not possible to link investment needs to specific targets as there is no clear link among overall investments, policies and measures and targets. While several measures have allocated budgets, these generally correspond to a limited and/or past timeframe.

3.6.6. Inclusiveness of the public consultation

The draft NBRP includes a public-consultation appendix, but the consultation described is the one related the draft update of the national low-carbon strategy (SNBC 3) and the draft revision of the multiannual energy programme (PPE 3), which form the basis of the NBRP. Although the consultation process appears to be sufficiently broad in terms of time, opportunities, and stakeholder involvement, it is unclear whether all elements of the NBRP were inclusively addressed. Moreover, it is not evident how the feedback from the consultation was integrated into the draft NBRP itself.

The draft plan identifies local authorities, associations, chambers of commerce, trade unions, public, semi-public and private organisations among stakeholder-report contributors, but it does not clearly state whether bodies working with vulnerable households or organisations representing persons with disabilities were specifically consulted for the NBRP. France set up a platform (The Make.org) to collect more than 7 500 proposals, reached nearly 50 000 participants and resulted in 1.2 million votes. The France net zero simulator offered everyone the opportunity to design their own trajectory for reducing GHG emissions and generated 2 278 user scenarios and 158 individual scenario submissions. Workshops involved 206 people in 15 groups, and 365 stakeholder positions were submitted by legal entities and individuals.

Among all sector targeted by the consultation, the building one sector received substantial input. Participants supported acceleration of building renovation, a larger budget and simplification of procedures. Other building-related themes included land-use restraint, heating-temperature reductions, water management and eco-design.

3.6.7. Completeness of the draft plan and consistency with other planning or reporting exercises

The draft plan is partially complete with several mandatory indicators missing. The voluntary spreadsheet for data collection is provided with the draft plan. More information is listed in the following table.

Table 15. Indicators checklist for France.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings (number)	Yes	
	Floor area (m^2)	Yes	
	Definition of worst-performing buildings	Partially	Only residential buildings.
	Share of worst-performing buildings (%)	Partially	Only residential buildings.
	Renovated buildings/ floor area (number/ m^2)	Partially	Only residential buildings.
	Renovation rate (%)	Partially	Only residential buildings.
	Primary energy use (ktoe)	Yes	
	Final energy use (ktoe)	Yes	
	Specific primary energy for residential buildings (kWh/m^2y)	No	
	Share of renewable energy (%)	Yes	

Section	Indicator	Yes/No/Partially	Explanatory notes
	Operational GHG emissions (Mt CO_2-eq)	Yes	
	Energy poverty share (%)	Yes	
Roadmap for2030, 2040 and 2050	Renovation targets (floor area or number)	Yes	Floor area for both residential and non-residential, number of buildings only for residential buildings.
	Renovation rate targets (%)	Yes	
	Primary energy targets (ktoe) or reduction (%)	Yes	
	Final energy targets (ktoe) or reduction (%)	Yes	
	Renewable energy targets (%)	No	
	GHG emission targets (Mt CO_2-eq) or reduction (%)	Yes	2040 GHG emission target is missing.
	Energy poverty targets (%)	No	
	Contribution to energy efficiency target	No	
Policies and measures	Scope and type	Yes	
	Quantified objective	Partially	Many measures include quantified objectives, but several measures state that the quantified target is not applicable, or no specific target is set.
	Status and implementation period	Yes	
	Budget and funding source	Partially	Not for all the measures.
Investment needs	Total and/or average investment needs (million EUR), EUR/m^2	Partially	Investment needs only by 2030. Budgetary resources missing.
Residential buildings	Average specific primary energy decreases between 2020 and 2050	No	
	Number of residential buildings/dwellings to be renovated	No	
	Residential floor area to be renovated (m^2)	No	
	Worst-performing buildings contribution (%)	No	
Non-residential buildings	MEPS 16% thresholds for non-residential buildings	No	
	MEPS 26% thresholds for non-residential buildings	No	
	2040 and 2050 thresholds for non-residential buildings	No	
Public consultation		Partially	The draft NBRP is based on the French national low-carbon strategy and the multiannual energy programme, both of which have undergone consultation. However, the draft plan itself appears not to have been subjected to a public consultation process.

Source: JRC elaboration on Member State reporting

Consistency checks have been performed by comparing the data with previous Member State reports such as: the 2024 NECP, 2025 NECPRs and the 2020 LTRS.

Plausibility checks have been performed by comparing the data with other reliable datasets: building stock observatory (BSO) for building stock indicators and Eurostat datasets for final energy consumption.

Box 18. Consistency and plausibility check for France.

The primary energy factors are consistent with the national cost-optimal report, 2023.

The report is consistent with the spreadsheet submitted by the country.

The number of buildings show significant differences compared to the BSO dataset, +119% residential buildings reported in the draft NBRP compared to BSO dataset. The floor area of both residential and non-residential buildings is similar to the BSO dataset.

The final consumption of buildings is plausible based on comparison with the Eurostat dataset.

Energy poverty

A national definition of energy poverty has not reported in the draft NBRP.

However, the draft NBRP provides quantification of three indicators: population affected by energy poverty, households' disposable income and population living in inadequate dwellings.

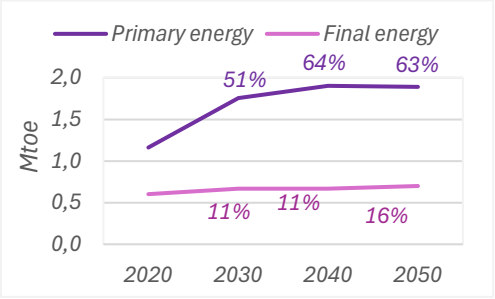
Consistency and alignment with the EED have not been proven, as insufficient information is presented regarding the definition and the methodology to quantify the energy poverty rate. However, the draft NBRP reports the same figures as the final NECP, ensuring consistency. The draft NBRP does not mention the social climate plan.

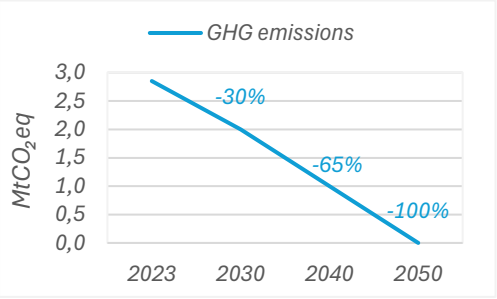
3.7. Cyprus

3.7.1. Main indicators

Table 16. Selection of main indicators from Cyprus's draft NBRP.

Renovation				
Floor area (Million m^2)	2020 Baseline	2030 Cumulative renovation	2040 Cumulative renovation	2050 Cumulative renovation
Residential	89.4	15.1	22.8	29.5
Non-residential	1.9	0.6	1.4	1.9
Total	91.3	15.7	24.2	31.4
Cumulative renovation (%)		17%	26%	34%
Annual renovation rate (%)	**1.24%**	**1.58%**	**0.84%**	**0.72%**
Number of buildings	2020	2030	2040	2050
Total	472 725	80 160	122 910	159 450
Cumulative renovation (%)		17%	26%	34%
Energy consumption				
Primary energy (Mtoe)	2020	2030	2040	2050
Residential	0.63	1.13	1.26	1.23
Non-residential	0.54	0.63	0.64	0.66
Total	1.16	1.76	1.90	1.89
Change vs 2020 (%)		**+51%**	**+64%**	**+63%**
Final energy (Mtoe)	2020	2030	2040	2050
Residential	0.36	0.39	0.37	0.40
Non-residential	0.24	0.28	0.30	0.30
Total	0.60	0.67	0.67	0.70
Change vs 2020 (%)		**+11%**	**+11%**	**+16%**
Energy end-uses included	Heating, cooling, hot water, ventilation, lighting and operation of electrical appliances, cooking			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2023	2030	2040	2050
Residential	1.31	0.83	0.38	0.09
Non-residential	1.54	0.74	0.29	0.05
Total	2.85	2.00	1.00	0.00
Change vs 2023 (%)		**-30%**	**-65%**	**-100%**
GHG emissions in $kgCO_2/m^2$	29.10	15.20	6.20	1.20
Change vs 2023 (%)		**-48%**	**-79%**	**-96%**





Renewable energy				
Renewable energy in the final energy	2023	2028	2029	2030
Share of renewable energy in buildings' final energy consumption	24%	20%	21%	21%
Solar energy technologies in buildings		2030	2040	2050
Share of residential building equipped		92%	95%	97%
Share of non-residential buildings equipped		50%	60%	75%
Energy poverty				
People affected by energy poverty	2023	2030	2040	2050
Share of people in energy poverty	15.1%	-10.0%	-20.0%	-30.0%
Trajectory for the progressive renovation of residential buildings				
Not available				
Minimum energy performance standards for non-residential buildings				
Building categories	EPC energy class			
	2030	2033	2040	2050
One category	G	E	C	B or ZEB
Primary Energy Factors				
Non-renewable PEF	2023	2030	2040	2050
Electricity	-	1.64	1.35	1.42
Natural gas	-	-	-	-
District heating	-	-	-	-
Investment needs for renovation and funding and financing sources				
Investment needs (billion EUR)		2030	2040	2050
			Cumulative	
Residential		0.51	1.00	1.38
Non-residential		0.04	0.03	0.51
Total		0.55	0.13	0.19
Funding and financing (billion EUR)				
Public		0.51	1.00	1.38
Private		0.04	0.03	0.51
Total		0.55	0.13	0.19

Source: JRC elaboration on Member State reporting

3.7.2. Executive summary

Cyprus submitted a complete draft of its national building renovation plan (NBRP) including a voluntary spreadsheet (in annex) presenting the values of the main quantitative indicators.

The **level of ambition** of the draft NBRP is partially in line with the goal of achieving a highly energy-efficient and decarbonised building stock by 2050. Cyprus's 2050 decarbonisation targets for buildings are sufficiently ambitious, although its energy-consumption targets do not seem sufficient to transform the country's building stock into an efficient and de-carbonised stock by 2050. The draft NBRP also describes the wider benefits of implementing the plan, and some of these wider benefits are also quantified. These wider benefits relate to energy poverty reduction, employment and economic impact. The draft NBRP states that the additional NBRP measures will

result in an overall wider economic benefit of EUR 144 million[70] for the period 2024-2030, corresponding to 0.5% of the country's gross domestic product (GDP) in 2025[71].

Cyprus's targets for **primary energy consumption** in the building sector are 1.76 Mtoe by 2030, 1.90 Mtoe by 2040 and 1.89 Mtoe by 2050. This means increases of 51%, 64% and 63% compared with 2020 (1.16 Mtoe).

Cyprus's targets for **final energy consumption** in the building sector are 0.67 Mtoe by 2030, 0.67 Mtoe by 2040 and 0.70 Mtoe by 2050. This means increases of 11%, 11% and 16% compared with 2020 (0.6 Mtoe).

Cyprus's targets for total **operational GHG emissions** in the building sector are 2 $MtCO_2eq$ in 2030, 1 $MtCO_2eq$ in 2040 and 0 $MtCO_2eq$ in 2050. This means reductions of 30%, 65% and 100% compared with 2023 (2.85 $MtCO_2eq$).

As further described in the draft NBRP, Cyprus projects future increases in both final and primary energy consumption mostly due to growth in the country's building stock. However, this increase in final energy consumption is set to be somewhat counteracted by both: (i) a forecast 6% reduction in energy consumed per square metre of floor area; and (ii) a forecast decrease in operational GHG emissions. Nonetheless, the projected increase in primary energy consumption is not consistent with the expected decarbonisation of heating and the greater penetration of renewable energy in the country.

The draft NBRP submitted by Cyprus is aligned with the ambition, objectives, policies and measures outlined in the country's final **national energy and climate plan (NECP)**.

The contribution of Cyprus's building sector to the **EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED') is not clearly outlined in the country's draft NBRP. However, in 2020, the building sector accounted for 38.3% of total final energy use in Cyprus, and the country is now aiming to cut this to 37.1% in 2030. This suggests an expectation that the contribution of the building sector to total final energy consumption will fall slightly and would signal that the energy targets for the building sector are sufficient to deliver on the country's energy-efficiency target by 2030.

On Cyprus's contribution to the **EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED'), the annex of the draft NBPR provides a target for renewable energy in the energy consumption of buildings of 21% by 2030. This target is notably less ambitious than the projections in the 'with additional measures' scenario[72] reported by Cyprus and used to set its targets for energy and greenhouse gas (GHG) emissions. These projections for the 'with additional measures' scenario indicate 47% renewable energy in buildings' energy consumption by 2030 (or 65% if ambient heat is included). It is unclear which of these targets Cyprus intends to pursue.

[70] It corresponds to the sum of cost reductions due to emissions reductions: reduced costs of purchasing Effort Sharing Regulation allowances, reduced costs of purchasing emission trading system 1 and 2 allowances, and reductions in NOx, PM2.5, and SO_2 pollution costs.

[71] GDP at chain linked volumes (2020), source: ESTAT.

[72] From the updated final NECP 2024.

Cyprus's decarbonisation objective is also supported by targets for renewable energy deployment consisting of 97% of residential buildings and 75% of non-residential buildings being equipped with solar installations by 2050[73].

Cyprus aims to **renovate** cumulatively 6 510 non-residential buildings and 152 940 residential buildings between 2020 and 2050, representing about 1.86 million m^2 of non-residential floor area and about 29.5 million m^2 of residential floor area (97% and 33% of the country's reported 2020 floor area[74]). On renovation rates (the percentage of the building stock that will be renovated each year), these are targeted to reach 3.05%, 4.00% and 2.18% for the years 2030, 2040 and 2050 respectively for non-residential buildings and 1.56%, 0.80% and 0.70% for residential buildings. The renovation targets for residential buildings are low compared with both the 2030 baseline and the overall objective of a highly energy efficient building stock.

On **minimum energy performance standards** (MEPS) for **non-residential buildings**, Cyprus's draft NBRP provides thresholds expressed in energy class for 2030 (class G) and 2033 (Class E) not differentiated by building categories or climatic zone (e.g. one threshold for each year covering all non-residential buildings over the entire territory). By 2050, Cyprus aims to bring all **non-residential buildings** to at least energy class B or the even stricter zero-energy-building (ZEB) category.

On **the trajectory for the progressive renovation of residential buildings**, Cyprus expresses the expected reduction in average final energy use but it uses primary energy as a baseline. This is not in line with the requirements of the Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD')[75]. Nonetheless, both primary and final energy values used in the trajectory are consistent with the overall NBRP roadmap and baseline information for residential buildings. Cyprus aims to renovate its residential building stock to reach a final energy use value of 42 kWh/(m^2y) by 2050, representing a reduction of 11% compared with final energy use in 2020[76]. Since the trajectory milestones are not expressed in terms of average primary energy use, it is not possible to verify the alignment between Cyprus's draft NBRP on the one hand and the EPBD requirements of at least a 16% reduction in primary energy use by 2030 and a 20-22% reduction by 2035 on the other.

Overall, the data sources used by Cyprus in its NBRP to set both the trajectory for residential buildings and the MEPS threshold for non-residential buildings are clear, but the calculation methods are unclear. On the trajectory for residential buildings, beyond the aforementioned inconsistency, two scenarios are described in detail in the draft NBRP, but is not clear how these scenarios have been taken into consideration for drawing up the milestones.

Worst-performing buildings are identified in the draft NBRP based on year of construction and prioritised for renovation. These account for 1 076 non-residential (0.31 million m^2) and 216 740 residential (41.6 million m^2) buildings. These corresponded to 16% of the country's non-residential

[73] Data from voluntary spreadsheet, projections based on NECP for the entire building stock.

[74] JRC calculations – it should be noted that the reported 2020 floor area of the NBRP does not seem consistent with other data sources such as the Building Stock Observatory (BSO).

[75] Data in voluntary spreadsheet.

[76] The 2020 average final energy use has been calculated by JRC, based on 2020 final energy consumption of the residential building stock as provided in the draft NBRP (364 ktoe) divided by the total number of floor area in 2020.

buildings and 46% of its residential buildings in 2020. In 2030, 66% of the residential floor area renovated that year is set to belong to worst-performing buildings, 78% in 2040 and 50% in 2050. On non-residential buildings, the draft NBRP indicates that the definition of worst-performing buildings will evolve over time with different thresholds. Almost exclusively, those buildings that are considered worst-performing in a given period will be renovated first as a priority.

Investment needs are included in the draft NBRP. Between 2026 and 2050, these investment needs are estimated at EUR 1.9 billion (representing about EUR 58/m^2 of total expected renovated floor area[77]). However, the methodology used and assumptions made to estimate these needs are not provided in the draft NBRP. In addition, the aggregated volumes result in a very low value per square metre – especially for residential buildings – which seems to reflect the modest targeted depth of renovation. The financing sources have been identified – with detailed breakdowns up to 2050 – and these breakdowns fully cover the required investments (no gap). The budget set out in the draft NBRP is built on existing and planned instruments and funds dedicated to renovation and the decarbonisation of the building sector, with public financing (including f EU and national sources) accounting for 50% of the total. The draft NBRP indicates that private financing will be mobilised with instruments such as public-private partnerships, energy-performance contracting, loans and mortgages.

Cyprus does not address the **decarbonisation of heating** in a sufficiently comprehensive way in its draft NBRP. There are no clear measures contributing towards the objective of **phasing out fossil-fuel (oil) boilers in buildings by 2040.** However, some synergies with other related strategies and plans are mentioned (e.g. local heating and cooling plans). Consistency between the draft NBRP and the NECP cannot be ensured. Even though measures related to renewable energy systems in heating are emphasised in the draft NBRP, there is no clear and detailed roadmap in the draft NBRP for decarbonisation and the phasing out of fossil-fuel boilers.

Energy poverty alleviation has an important place in Cyprus's draft NBRP. The draft NBRP estimated that 15.1% of the Cypriot population is affected by energy poverty. This share most probably corresponds to the year 2023 but this is not clearly indicated. In addition, 3.3% of disposable household income was spent on energy and 125 725 citizens lived in inadequate dwelling conditions. By 2030, the draft NBRP states that the implementation of the draft NBRP will have led to a 10% reduction in energy-poor households compared to the baseline, most probably corresponding to year 2023. The energy poverty rate in the draft NBRP is based on a composite indicator, considering the disposable income of Cypriot households, their expenditure on energy, and the level of energy efficiency of the country's dwellings. However, it is not clear how the methodology used to calculate the energy poverty rate combines these different indicators. Measures to relieve energy poverty set out in the draft NBRP include: (i) financial incentives for renovation targeted at vulnerable groups in combination with integration of renewable energy systems; (ii) a national observatory for energy poverty and local energy hubs; (iii) one-stop shops to assist in renovation; and (iv) technical assistance. More measures will be added thanks to the implementation of the country's social climate plan.

Cyprus is addressing **housing affordability** through the 'new integrated housing policy' measure, which aims to increase the availability of affordable housing units. To achieve this, the draft NBRP

[77] JRC calculation considering the total investment needs between 2026 and 2050, divided by the total floor area expected to be renovated between 2020 and 2050.

states that both: (i) state-owned land will be used in combination with financial support for the renovation of rented properties; and (ii) existing housing plans will be used to revitalise the countryside.

The **overview of implemented and planned policies and measures** is comprehensively addressed in Cyprus's draft NBRP. Most of the mandatory policy areas are addressed. There are 22 existing measures and 11 new measures in the draft NBRP, many of which include details on financing, implementation status, measure type, timeline, responsible entities and expected impact. However, the expected impacts are only loosely described for most of the measures and some policy areas are missing. These missing policy areas include: (i) the decarbonisation of heating and cooling and the phasing out of fossil fuels; (ii) the prevention of construction and demolition waste; (iii) reductions in whole-life GHG emissions; (iv) the uptake of carbon removals; (v) accessibility; (vi) the promotion of district and neighbourhood approaches; (vii) integrated renovation programmes; and (viii) the promotion of modular and industrialised solutions.

The **public consultation** on the draft NBRP allowed broad public participation at different stages of the NBRP's drafting, allocating enough time and opportunities for contributions from various stakeholders, which were considered in the draft.

The assessment process has identified the following elements of the draft NBRP as strengths, **innovative measures** and/or examples of **good practice**.

— The energy-efficiency upgrades are projected to generate wide-ranging benefits: the economic benefit is projected to be EUR 144 million.

— Cyprus aims to use state-owned land and financial support to address housing affordability. In combination with measures to reduce energy poverty (e.g. technical assistance, renovation of temporary refugee houses).

— Cyprus's draft NBRP includes a complete and detailed monitoring mechanism for the implementation of MEPS. It gives an analytical description of the verification system, the exemptions, the required documentation, the trigger points, the notification of users and the application of penalties.

— The inspection scheme for heating systems is discussed thoroughly.

— Many details are provided about the renovation of central government and public sector buildings, including quantified impacts and detailed actions.

— The draft NBRP discusses public instruments to support the financing of energy renovations of buildings, one-stop shops, and technical assistance.

— The draft NBRP contains a good and complete presentation of the public consultation, including detailed feedback from stakeholders.

However, there are several aspects of the draft NBRP that require **completion and improvement,** and which should be addressed in the final version. These aspects are set out below.

— Address or explain why the deployment of renewable energy does not translate into a reduction in primary energy consumption.

— Ensure consistency between the targets for final energy, primary energy, GHG emissions, and renewables and ensure that the evolution of primary energy factors and emission factors, is in line with the NECP.

— Ensure that energy targets in the draft NBRP are aligned with the overall objective of achieving a highly energy-efficient and decarbonised building stock by 2050.

— Provide the residential trajectory milestones in terms of average primary energy use. In addition: (i) ensure consistency between the baseline and the milestones; and (ii) recalculate the contribution made by the renovation of the 43% worst-performing buildings to the decrease in primary energy consumption of residential buildings.

— Quantify the impacts of all the policies and measures for the overall targets (expected energy savings, energy poverty reduction, GHG reductions, number of renovated buildings).

— Specify the primary-energy-use thresholds defining worst-performing buildings as well as the method used to identify worst-performing buildings in practice.

— Provide more details on the method used to determine MEPS thresholds, and provide targets in terms of floor area or the number of buildings to be renovated due to these thresholds.

— Quantify the contribution to the EU's energy efficiency targets in accordance with Article 4 of the EED attributable to the renovation of the country's building stock.

— Clarify the 2030 target for the share of renewable energy in buildings' final energy consumption.

— Provide the methodology, data sources and baseline year for the energy poverty rate. Add data on social housing, and provide an estimation of the investment necessary to alleviate energy poverty.

— Provide credible policies and measures to effectively phase out the use of fossil fuels (and oil boilers in particular) in heating.

— Complete the policies and measures by adding the missing areas:: (i) reducing whole-life cycle GHG emissions and promoting carbon removals; (ii) preventing construction and demolition waste; (iii) promoting the district-and-neighbourhood approach; and (iv) promoting modular and industrialised solutions for renovation and construction.

— Cross-check and validate the baseline building stock data , particularly for non-residential buildings. The figures used in the draft NBRP differ from those reported in the national energy and climate progress reports (NECPRs) and the floor area of public buildings reported in the draft NBRP is higher than the total non-residential floor area reported in the NECPR.

— Provide the evolution of primary energy factors for total, renewable and non-renewable component values, and ensure that the projected evolution is in line with the data presented in the NECP.

3.7.3. Ambition of the draft NBRP

Box 19. Key insights of Cyprus's draft NBRP.

- Cyprus plans to reach a level of **primary energy use** in the building sector of 1.76 Mtoe by 2030, 1.90 Mtoe by 2040 and 1.89 Mtoe by 2050. This means increases of 51%, 64% and 63% compared with 2020 (1.16 Mtoe).
- Cyprus plans to reach a level of **final energy use** in the building sector of 0.67 Mtoe by 2030, 0.67 Mtoe by 2040 and 0.70 Mtoe by 2050. This means increases of 11%, 11% and 16% compared with 2020 (0.6 Mtoe).
- Cyprus plans to decrease the **total operational GHG emissions** in its building sector to 2 $MtCO_2eq$ in 2030, 1 $MtCO_2eq$ in 2040 and 0 $MtCO_2eq$ in 2050. This means reductions of 30%, 65% and 100% compared with 2023 (2.85 $MtCO_2eq$).

Assessment of the overall ambition of the draft NBRP to achieve a highly energy-efficient and decarbonised building stock by 2050

The level of ambition of the draft NBRP is in line with the goal of a decarbonised building stock by 2050, but not in line with the goal of a highly energy-efficient building stock.

The target figures for primary and final energy consumption for 2030, 2040 and 2050 in the draft NBRP are actually projections that are consistent with the NECP additional measures (WAM) scenario, and they do not result in savings in comparison to the baseline. However, these target figures for primary and final energy consumption for 2030, 2040 and 2050 are consistent with the final 2024 NECP.

In comparison to total floor area, Cyprus projects an increase in primary energy consumption per square metre of floor area of 31.2% by 2050 in comparison to 2020, and a decrease in final energy consumption per square metre of floor area (of -6% by 2050 in comparison to 2020)[78]. This is highly inconsistent with the expected increase in renewable energy use described subsequently in the NBRP, which should translate into a *decrease* in primary energy consumption.

Cyprus aims to renovate cumulatively 6 510 non-residential buildings and 152 940 residential buildings from 2020 to 2050[79]. The decarbonisation objective is also supported by targets for renewable energy deployment, consisting of a target of 97% of residential buildings and 75% of non-residential buildings being equipped with solar installations by 2050[80].

Cost-optimal analysis and results are described in the Cypriot draft NBRP, but specific cost-optimal figures are not provided. It is unclear whether cost-optimal levels are used to determine the trajectory for the progressive renovation of residential buildings or to determine the MEPS for non-residential buildings.

[78] JRC calculation.

[79] JRC calculations.

[80] Data from voluntary spreadsheet, projections based on NECP for the entire building stock.

Assessment of the alignment between the draft NBRP and national commitments on climate and energy set out in the NECP

The draft NBRP is aligned with the ambition and objectives in Cyprus's final NECP. The section below also addresses how the NBRP's ambition compares with the 2020 long-term renovation strategy (LTRS) adopted by Cyprus.

Energy efficiency

The draft NBRP projects that Cyprus's building sector will increase its primary energy consumption by 51% and its final energy consumption by 11% by 2030 (compared with 2020).

The country's final 2024 NECP provided final-energy-consumption targets for the building sector equivalent to the ones included in the draft NBRP. Compared with the targets set out in the 2020 LTRS for final energy consumption (640 ktoe in 2030) the final energy consumption targets in the draft NBRP are less ambitious. The final 2024 NECP explained that the targets set in it had been adjusted in comparison to the ones in LTRS to consider more attainable renovation rates.

The contribution to the EU's energy-efficiency targets in accordance with Article 4 of the EED attributable to renovation of the building stock is not provided in Cyprus's draft NBRP. In 2020, the country's building sector accounted for 38.3% of total final energy consumption in Cyprus, and this figure is projected to decrease to 37.1% in 2030. This suggests that the contribution of the building sector to total final energy consumption is forecast to be slightly reduced and would signal that the building sector's energy targets are sufficient to deliver on the energy efficiency target by 2030.

The evolution of primary energy factors (PEFs) is analysed under different scenarios in the draft NBRP. The conclusions stated by Cyprus in the draft NBRP are that if the primary energy factors remain stable, renovation rates should increase at significant levels to comply with the requirements of the EPBD. On the other hand, if the PEFs decrease, the renovation rate could remain stable. The decrease could be justified by the fact that all the projections show a future increase in the use of electricity and in the share of renewables in final energy consumption in all building types. However, there are no comparable data on the evolution of PEFs in the draft NBRP. For instance, Cyprus provides a total PEF for electricity of 2.33 in 2023, while in the roadmap, it provides only the non-renewable component as follows: 1.64 in 2030, 1.35 in 2040 and 1.42 in 2050.

Therefore, the energy targets in Cyprus's draft NBRP seem sufficient to achieve the national commitment on **energy efficiency** laid down in the NECP.

Decarbonisation

Cyprus's draft NBRP aims to reduce the total operational GHG emissions of the country's building sector by 100% to zero emissions by 2050, with an intermediate target of a 30% reduction in 2030 (or 2 $MtCO_2eq$) compared with 2023. The final 2024 NECP and the draft NBRP also included detailed projections under a WAM scenario of a total of 1.57 $MtCO_2eq$ for 2030 (sum of direct and indirect emissions).

Cyprus's draft NBRP aims to reduce its the specific operational GHG emissions of its building sector by 96% by 2050 to a value of 1.2 $kgCO_2eq/m^2$, with intermediate targets of a 48% reduction in 2030 (15.2 $kgCO_2eq/m^2$) and a 77% reduction in 2040 (6.2 $kgCO_2eq/m^2$), compared with 2023 (29.1 $kgCO_2eq/m^2$).

Moreover, Cyprus does not discuss the value or the evolution of CO_2 emission factors in its draft NBRP.

The operational GHG emission targets set out in Cyprus's draft NBRP seem sufficient to achieve the national commitment on **decarbonisation** laid down in the NECP.

Renewable energy

Cyprus's draft NBRP sets targets for the share of renewable energy in the final energy consumption of its building sector, for every year from 2026 (19%) to 2030 (21%). The targets are set in accordance with Article 15a of the RED. On the other hand, the draft NBRP also includes the WAM projections for the share of renewable energy in final energy consumption starting from 43.2% in 2026 to 47.1% in 2030 (or 60.4% in 2026 if ambient energy is included to 65.4% in 2030). It is not clear which target from the above Cyprus intends to pursue.

At the same time, the NECP does not provide a target for the use of renewable energy in the building sector. On the contribution to the EU's renewable energy targets in accordance with the RED attributable to the renovation of the building stock, the draft NBRP mentions the obligatory contribution to the indicative EU target of renewable energy use in buildings of at least 49% in 2030, but it is not clear if this is also officially one of Cyprus's national targets.

Compared with the indicative national shares of renewable energy in the buildings sector provided in Annex C of the Commission guidance on heating and cooling (C/2025/2238) C, Cyprus's draft NBRP target for 2030 is much lower (21% vs 50%). However, the 2030 target seems aligned with the share of renewable energy in Cypriot buildings' energy consumption of 24.85% in 2023, sourced from Eurostat.

Expected reduction in the number of people affected by energy poverty

A composite indicator is used by Cyprus to calculate the country's energy poverty rate. This indicator considers: (i) a household's disposable income; (ii) a household's expenditure on energy needs; and (iii) the level of energy efficiency of the dwelling. According to this indicator, 15.1% of households in Cyprus were affected by energy poverty (50 290 households or 116 324 people). However, the reporting year (probably 2023), the data sources and the methodology used to calculate this indicator are not clear.

Cyprus indicates that the implementation of the NBRP will enable a 10% reduction in households affected by energy poverty by 2030 compared to 2023, consistent with the final 2024 NECP. However, the methodology used to calculate the rate of people affected by energy poverty is not included in the draft NBRP. The reduction targets for 2040 and 2050 are 20% and 30% respectively compared to year 2023.

In addition, the draft NBRP mentions an obligation for 15.1% of the total, national, mandatory, cumulative target for end-use-energy savings to be achieved through energy-efficiency measures applicable to: (i) households affected by energy poverty; (ii) low-income households; (iii) vulnerable customers; and (iv) people living in social housing.

Prioritising renovation of the worst-performing buildings

The draft NBRP seeks to ensure the renovation of the country's worst-performing buildings. The worst-performing buildings in Cyprus are identified by the year of construction if they have not undergone a deep renovation since then.

The model and datasets used are mentioned in the draft NBRP, but the methodology to identify the 43% of the country's building stock that are classified as the worst-performing buildings is not clear.

In 2030, Cyprus plans for 66% of the residential floor area renovated that year to be worst-performing buildings, with 78% of the residential floor area renovated in the year 2040 to be these worst-performing buildings and 50% % of the residential floor area renovated in 2050 to be worst-performing buildings. This indicates that worst-performing buildings are being prioritised for renovation. On non-residential buildings, only the worst-performing buildings will be renovated between 2020 and 2050 (e.g. the worst-performing buildings will always be prioritised for renovation).

Minimum energy performance standards for non-residential buildings

The draft NBRP provides MEPS thresholds in energy classes. It is not totally clear whether the renovation of non-residential buildings due to MEPS is sufficient to contribute to the targets in the draft NBRP on energy consumption and reduction in GHG emissions, including the target on moving towards a highly energy-efficient and decarbonised building stock by 2050.

Table 17. MEPS for non-residential buildings in Cyprus.

Building categories	EPC energy class			
	2030	**2033**	**2040**	**2050**
One category	Class G	Class E	Class C	Class B or ZEB

Source: JRC elaboration on Member State reporting

The number and floor area of buildings to be renovated due to MEPS are not specified in the draft NBRP, although the draft NBRP's roadmap sets a target that 2 340 817 m^2 of non-residential buildings should be renovated between 2020 and 2050.

The data sources used for the specification of primary energy consumption in the draft NBRP are the following: (i) official data from the Cypriot Statistical Service (for the number of enterprises and building permits); (ii) data from government agencies (for schools, hospitals, hotels, police and fire stations and courts); (iii) information from professional associations; and (iv) collection of information from electronic maps (for autonomous commerce and catering buildings). For office buildings, a computational estimate (projection) of the average building permits was made to obtain a reliable number (approximately 3 500 office buildings). There are no details provided about the models used.

The MEPS thresholds are not differentiated based on building category. However, they are consistent with the fact that at least 16% and 26% of the non-residential buildings should not exceed these thresholds in 2030 and 2033 respectively. The draft NBRP reports that more than 26% of non-residential buildings belong to the worst-performing segment in Cyprus (e.g. they were built before 2008).

The base year for ranking non-residential buildings according to their energy performance is 2020, but the baseline situation is not comprehensively described in the draft NBRP. The data reported for setting MEPS is consistent with the information provided in the overview of the building stock and other parts of the draft NBRP (e.g. 6 704 non-residential buildings as a baseline for MEPS, and 6 725 non-residential buildings in the building stock overview).

Exclusions (if applicable) pursuant to Article 9(6) of the EPBD and criteria for exemptions from MEPS

The draft NBRP mentions the following building categories not included in the baseline: (i) officially protected buildings (environmental, architectural or historical value, cultural heritage); (ii) buildings used for worship or religious buildings; (iii) temporary buildings with a period of use of two years or less; (iv) industrial installations; (v) workshops; (vi) rural non-residential buildings with low energy requirements and rural non-residential buildings; (vii) individual buildings with a total useful floor area of less than 50 m^2; and (viii) buildings owned by the armed forces or central public administration and serving national defence purposes.

The total floor area or number of these building categories is not specified in the draft NBRP. Furthermore, the draft NBRP specifies the following exemption criteria in accordance with Article 9: (i) planned demolition with official permission; (ii) conversion to a residential building or change to a military, religious or agricultural purpose; and (iii) inclusion in a list of historical or cultural buildings with protection status. Cyprus indicates that these exemptions are expected to be temporary and require strict documentation.

National trajectory for the progressive renovation of residential buildings

Cyprus provides a trajectory for the progressive renovation of residential buildings in its draft NBRP. However, it uses final energy consumption (ktoe) to calculate the milestones in average energy use (kWh/m^2y) instead of primary energy, even though the 2020 baseline is provided in terms of primary energy. Cyprus refers to the milestones as 'average primary energy' and provides the relative reduction in percentage terms compared with the reported baseline. Therefore, these calculations and figures seem to be unintentional. The reductions in final energy forecast in the draft NBRP seem to be consistent with Cyprus's overall roadmap for residential buildings, and the primary energy baseline (2020) is also consistent with the figures on the building stock. However, changes in the energy mix may affect the overall primary energy reduction and milestones.

The draft NBRP provides clear indicators in terms of floor area and number of residential buildings that need to be renovated each year. To achieve the 2030 target for average final energy use per square metre, 7 801 dwellings/year will need to be renovated or 1 505 589 m^2/year. After 2030, renovation is projected to decrease to under 4 000 dwellings/year, while the floor area is projected to decrease to under 800 000 m^2 renovated per year.

The number and the floor area of the 43% of the total building stock classified as 'worst-performing' to be renovated is provided, including the sub-target of a 55% reduction in primary energy consumed (in GWh) in the worst-performing buildings. However, the contribution of these targets to the overall objectives set by Cyprus in the draft NBRP cannot be assessed due to the inconsistency explained above.

The reduction in PEFs is justified (as explained above) due to expected increases in renewables and electricity sources in the energy mix. However, this is not reflected in the projected evolution of total primary energy consumption reported by Cyprus in its draft NBRP. Two scenarios are analysed in the draft NBRP, before setting the milestones. The first scenario projects stable conversion factors, but requires increased interventions for the achievement of milestones, while the other scenario projects the improvement of conversion factors while keeping the same renovation rates. However, considering the use of final energy, these scenarios have no impact on the milestones provided in the draft NBRP.

The methodology used in the draft NBRP to determine the trajectory relies on several data sources such as the NECP, existing data on the housing stock, results of subsidised interventions, and documented technical assumptions. Use has also been made of the results of the 2021 population

and residential census on the residential building stock by the country's statistical service. For the specification of primary energy consumption, the following data have been used: cost-optimal studies, energy performance certificates (EPCs), data from grant plans, energy saving simulations and NECP projections.

The data on the 2020 residential building stock are robust. The baseline includes the country's whole residential building stock, also taking into consideration vacant and non-permanent housing units.

New buildings

There were 24 532 nearly-zero-energy buildings (NZEB) buildings in Cyprus in 2023, with a floor area of 4 734 583 m^2 and representing about 4.8% of the country's total floor area. The draft NBRP mentions that ZEBs will correspond to energy class A, while the scale of energy classes is going to finalised within 2026.

3.7.4. Sufficiency of the policies and measures

As further described, the overview of implemented and planned policies and measures is partially addressed in Cyprus's draft NBRP. Most of the mandatory indicators/areas of action are addressed but there is nothing in the draft NBRP on: (i) the district-and-neighbourhood approach; (ii) the reduction of whole-life-cycle GHG emissions and the uptake of carbon removals; (iii) the prevention of construction and demolition waste; and (iv) the promotion of modular and industrialised solutions for renovation and construction.

The draft NBRP contains 22 existing measures (from the most recent LTRS[81]) and 11 new measures. For many of these measures, details on financing, implementation status, measure type, timeline, responsible entities and expected impact is provided. Of these existing and new measures, 25 are in force, 4 are already implemented and 4 are under study.

Most of these 33 measures include generic quantified objectives (e.g. for all non-residential buildings to be more efficient than energy class H by 2030). Several measures provide a more precise quantification related to the immediate objective (e.g. the renovation of public buildings must be done in accordance with Article 5 of the EED), while no specific quantified objective is indicated for other measures.

The measures are consistent with other plans (e.g. NECPs, the social climate plan, local heating and cooling plans), which are consistently mentioned throughout the section on policies and measures.

Overall, the expected impacts of these measures are only loosely described in the draft NBRP. However, the measures are devised through a comprehensive, cross-cutting approach that integrates many important action areas, innovative solutions, and expert-group input, suggesting they are sufficient to meet the targets. However, the credibility of these measures would be increased if their impact was quantified in a consistent way in the draft NBRP – for example, by providing estimates of expected energy savings, the amount of floor area to be renovated, and the associated emissions reductions. Furthermore, some policy areas are not sufficiently described in the draft NBRP. These insufficiently described policy areas are: (i) the decarbonisation of heating

[81] The most recent LTRS was annexed to the final NECP of Cyprus in 2024.

and cooling and the phasing out of fossil fuels; (ii) the prevention of construction and demolition waste; (iii) the reduction of whole-life GHG emissions and the uptake of carbon removals; (iv) accessibility; (v) the promotion of the district-and-neighbourhood approach; (vi) integrated renovation programmes; and (vii) the promotion of modular and industrialised solutions.

In other areas, the draft NBRP is rather comprehensive. For example, it is rather comprehensive on: (i) MEPS and the trajectory of residential building renovation; (ii) the integration of renewable energy sources (RES); and (iii) public sector buildings. Among the most innovative measures included in the draft NBRP is a plan to renovate 25 pilot schools to NZEB level and adopt ZEB practices with the use of public-private partnerships.

Renovation and MEPS for non-residential buildings

The framework for MEPS implementation in Cyprus is set and described in the draft NBRP. The main responsible authority is identified (Cyprus Energy Agency).

For MEPS implementation, building owners will have to prove compliance: either through an EPC or by the implementation of 2 energy-efficiency measures by 2030 and 4 measures by 2033 (these measures must be documented). The measures include: (i) the thermal insulation of horizontal building elements; (ii) the thermal insulation of vertical building elements; (iii) low thermal transmittance frames; and (iv) external removable shading. Other measures can address technical systems.

After 2033, the framework for MEPS implementation includes technical assistance and one-stop shops to support renovation, but it will also include the implementation of penalties when needed. The monitoring mechanism is also described in the draft NBRP, and includes the identification of the related buildings and communication with building owners. Other relevant measures to support MEPS renovation include: EPC issuance, plans for grants for energy upgrading of buildings, and the use of other financial incentives (direct public funding, green loans, tax incentives, EPCs, etc.). Furthermore, online tools such as smart metering will also support MEPS implementation in Cyprus.

Because there is not enough information on the quantified impact of these measures, it is not clear whether they are sufficient to trigger the renovation of buildings concerned by MEPS. However, the draft NBRP has a comprehensive approach that addresses the mitigation of barriers to MEPS implementation, and describes in detail both the monitoring mechanism and public/private financing for MEPS implementation.

Renovation of residential buildings

The measures to support the progressive renovation of residential buildings set out in the draft NBRP are comprehensively designed. On quantification of the expected impact, the expected improvement in average primary-energy consumption is presented under two different scenarios[82]. The measures for achieving the trajectory for renovation include: (i) deep renovations; (ii) the integration of RES; and (iii) development of the PEFs. The integration of RES and development of the PEFs will be determined by both the energy mix projected for the residential sector and the level of efficiency of the electricity system (only in the second scenario). On the other hand, the draft NBRP highlights that with both scenarios, the obligation for the 43% worst-performing buildings of the

[82] The scenarios are analysed under 'Ambition of the draft NBRP' section.

total building stock to contribute by at least 55% to the reduction of primary energy by 2030, 2040 and 2050will be ensured according to the requirements of the EPBD. Worst-performing buildings and the problem of people living in energy poverty are addressed across various measures set out in the draft NBRP, including: (i) plans to strengthen the EPC framework (by improving quality control mechanisms, applying stricter penalties for those who violate the relevant legislation and improving the methodology for calculating energy efficiency); (ii) plans to introduce more smart metering; (iii) plans to introduce financial incentives for the renovation of rented apartments; (iv) plans to simplify permitting procedures for renovation; (v) voluntary agreements between owners and tenants to split the costs; and (vi) the certification of renovation companies and renovation workers.

The building renovation passport as a tool to support energy savings, complement MEPS, and assist the trajectory for residential buildings

The building renovation passport is mentioned in the draft NBRP as a planned measure in the context of digital one-stop shops.

Box 20. Example of policies and measures in Cyprus.

- *Renovation of rental buildings and multi-owner buildings* includes adapting and strengthening: (i) the implementation of EPCs; (ii) smart metering; (iii) financial incentives to renovate rental apartments; (iv) the simplification of permitting procedures for renovation; (v) voluntary agreements; and (vi) the certification of renovation companies and renovation installers.
- *Direct public financing, green loans, tax incentives, promotion of EPCs.*
- *Development of the monitoring mechanism, including: (i) the identification of buildings with the obligation to apply MEPS and the creation of a national register that it will be updated by the building owners after the application of interventions; (ii) the provision of reminders to building owners; and (iii) checks, inspections and penalties.*

Alleviation of energy poverty and housing affordability

Cyprus's draft NBRP includes the following measures to address energy poverty and protect vulnerable customers: (i) financial programmes for the renovation of houses in combination with RES installation; (ii) the establishment of a national governance system for energy poverty, which will act as the central unit for policy-making; and (iii) the monitoring and evaluation of relevant actions (carried out by local energy hubs and the soon-to-be-created national observatory for energy poverty). One-stop shops are also mentioned in the draft NBRP as an action that contributes to the alleviation of energy poverty. The measure 'Reconstruction and maintenance of blocks of flats for refugees' also seeks to renovate buildings for vulnerable households. More measures will be added through the implementation of the social climate plan.

There is no information in the draft NBRP on quantified objectives for reducing energy poverty under the measures on energy poverty. The section on energy poverty also does not have any information on the financing of energy-poverty reduction. It is therefore not possible to assess whether these measures are sufficient to reach the relevant objectives. The investment needs for the alleviation of energy poverty are not singled out in the draft NBRP.

The draft NBRP does not provide data on the energy performance of social housing or the use and repurposing of vacant housing. The draft NBRP also does not include quantified progress in terms of units renovated per year or accommodation capacity for the homeless.

The issue of affordability in Cyprus is addressed through the new integrated housing policy measure. This consists of measures like: (i) strengthening the Cyprus Land Development Organisation so that it can produce affordable housing units; (ii) using state-owned land for the production of affordable housing units to rent; (iii) the existing housing plans for the revitalisation of the countryside; and (iv) the grant scheme 'Renovate – Rent'. The total budget for this measure is EUR 13 million and it will be financed from national resources.

The draft NBRP measures on alleviating energy poverty are consistent with the Cypriot NECP, and the draft NBRP also says that these measures will be aligned with the country's future social climate plan.

Overall, due to the lack of data, it is not possible to evaluate the measures and their impact.

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

One-stop shops are discussed in the draft NBRP of Cyprus, mainly through plans to develop a digital one-stop-shop platform. These one-stop shops will be implemented with the aim of providing technical assistance for vulnerable households and will operate through online platforms, also addressing the issue of building renovation passports. The one-stop shops will also aim to provide guidance and simplify procedures for renovation projects. There is no information on the geographical coverage of one-stop shops in the draft NBRP, while information on their physical presence is not provided.

Decarbonisation of heating and cooling and the phasing out of fossil fuels in heating and cooling with a view to a complete phasing out of fossil-fuel boilers by 2040

The draft NBRP does not include specific and concrete measures that directly target the replacement of fossil-fuel heating systems, although it does make reference to some measures supporting the installation of RES and the deployment of heat pumps. Fossil-fuel heating in Cyprus consists mostly in the use of oil boilers for detached houses[83]. Natural gas has a very limited presence in the heating systems of Cyprus's buildings.

The measures related to this area set out in the draft NBRP do not include an effective and credible timeline up to 2040 for the decarbonisation of heating. The consistency of these measures with the NECP or other plans cannot be verified due to a lack of information. The draft NBRP mentions briefly the promotion of heating and cooling plans to be developed by municipalities in the context of the EED but does not add any further concrete details on this.

Prevention of construction and demolition waste

Activities related to construction and demolition waste cannot be identified in the draft NBRP of Cyprus.

The draft NBRP makes reference to limited measures on circularity, such as the training programme 'Circular economy of PV systems: opportunities for repair, reuse or recycling'. The draft NBRP also

[83] Respectively 41% and 27% of detached houses in urban and rural areas are equipped with an oil boiler.

mentioned the promotion of the building-information-modelling methodology in public procurement, and includes a workshop on circularity within the public consultation process.

Promotion of renewable energy sources and deployment of solar energy installations on buildings

On the promotion of RES in buildings, Article 15a of the RED is not mentioned explicitly in the draft NBRP, but there are many relevant measures addressing this in the draft NBRP. Examples include: (i) grants and financial incentives for the installation of renewables in buildings (e.g. PV and solar thermal systems); (ii) financial incentives for renewable installations dedicated to vulnerable households; and (iii) the development of a framework for renewable 'self-consumers'.

Deployment of solar energy installations on buildings

Similarly, Article 10 of the EPBD is not mentioned explicitly in Cyprus's draft NBRP, but the increase of solar energy in buildings (Cyprus has a target that 97% of residential buildings and 75% of non-residential buildings should be equipped with solar installations by 2050) is targeted through many: (i) financial schemes; (ii) individual renovation measures in buildings; and (iii) qualification schemes to promote the installation of renewable energy technologies. Furthermore, the draft NBRP mentions that the most widespread use of solar energy in 2024 in Cyprus was for domestic hot water, as solar thermal systems for the production of hot water have been installed in 91% of homes (according to the calculation of the share of energy from renewables under the RED).

Reduction of whole-life-cycle GHG emissions and the uptake of carbon removals

On this area, the draft NBRP is not very detailed and merely mentions that a new energy certification system will include the assessment of bioclimatic design and the calculation of carbon dioxide emissions throughout a building's life cycle (Global Warming Index - GWP).

Promotion of the district-and-neighbourhood approach and integrated renovation programmes

The district-and-neighbourhood approach is not particularly addressed in the draft NBRP. What could be relevant for this topic is that the draft NBRP makes reference to a legal framework for the operation of renewable energy communities, adopted in 2024.

Improvement of buildings owned by public bodies

Cyprus addresses thoroughly the improvement of buildings owned by public bodies in its draft NBRP. The draft NBRP includes measures on the improvement of public buildings that are aligned with Articles 5, 6 and 7 of the EED and it also refers to national obligations under these Articles. Specifically, the measures setting out certain obligations for the renovation of public buildings are a combination of: (i) targeted financing from Cohesion Policy funds; (ii) individual measures for the renovation and maintenance of buildings; and (iii) behavioural and information measures. Measures to promote the renovation of public buildings are also aligned with MEPS.

Promotion of smart technologies and infrastructure for sustainable mobility

The draft NBRP includes measures to promote smart technologies, such as: (i) the promotion of digitalisation and digital technologies in buildings (e.g. building information modelling); (ii) the development of integrated information systems for building permits; and (iii) other online platforms and databases facilitating people's access to building data. However, the draft NBRP also highlights

the challenges related to the digitalisation of building controls and the application of smart technologies in buildings (e.g. the lack of skilled workers able to assist in this work in Cyprus).

Cyprus also mentions the 'Smart Readiness Indicator' as one of its measures in this area and describes its participation in the pilot testing phase organised by the European Commission.

Sustainable mobility is also addressed, and the measures in this area in the Cypriot draft NBRP focus on the legal framework and the financing of electromobility. More specifically, the Cypriot legal framework sets specific standards on recharging points for electric vehicles based on building type and provides financial incentives for the installation of these recharging points. Furthermore, Cyprus plans to apply continuous checks to verify compliance with the requirements. Fire-safety issues related to recharging points are not addressed in the draft NBRP of Cyprus.

Accessibility for people with disabilities

The draft NBRP does not identify accessibility as an element in the overview of the Cypriot building stock. The draft NBRP also does not provide information on any list of accessible buildings or buildings in need of accessibility renovation in the country, and the number of such buildings cannot be estimated based on available information in the draft NBRP. Moreover, accessibility is not included as a characteristic that will be required in future of the buildings identified as targets for renovation. It is not possible to estimate what percentage of the country's targeted building renovation will include accessibility renovations. Accessibility for persons with disabilities is not addressed under the policies and measures of Cyprus to promote building renovation. No specific information on accessibility renovation is provided in estimating investment needs.

Addressing market barriers, market failures and skills gaps

Market barriers are discussed in the draft NBRP. These barriers include complex certification procedures, the cost of obtaining qualifications, the absence of mandatory training, and administrative barriers for self-employed workers. Training and qualification programmes are thoroughly addressed in the policies and measures set out in Cyprus's draft NBRP. However, the development of zoning or permitting regulations is not identified among the measures being pursued by Cyprus. Supply-chain issues are also not identified.

Awareness-raising campaigns and other advisory tools

Measures such as awareness-raising campaigns and advisory tools are part of the draft NBRP. The Cypriot draft NBRP identifies information campaigns, online platforms, and the use of TV, radio and social media as tools for raising awareness. Informative measures play an important role in promoting the renovation of public buildings. Moreover, the draft NBRP plans to address the issue of one-stop shops in a way that is consistent with other advisory tools.

Promotion of modular and industrialised solutions

It is important to note that measures to promote modular and industrialised solutions have not been identified in the draft NBRP of Cyprus.

3.7.5. Sufficiency of financing sources and administrative resources

As described earlier in this report, the draft NBRP includes an analysis of the investment needs and financing sources up to 2050. Investment needs are disaggregated into residential and non-residential buildings, while financing sources are disaggregated into public and private sources. The draft NBRP provides a detailed description of the financial and administrative resources that will be

mobilised to meet the 2030-2050 renovation targets. Considering the estimated investment needs reported in the draft NBRP, the allocation of both budgetary and administrative resources appears sufficient in the short-to-medium-term (2026-2030). For the longer term (up to 2050), the draft NBRP seems to be based on a solid foundation, but it contains no information about input parameters and no sensitivity analysis on key variables of the investment needs.

According to the draft NBRP of Cyprus, the total **investment needs** for building renovation in the period 2026-2050 are equal to EUR 1 887 billion, corresponding to 58 EUR/m^2 of total expected renovated floor area[84]. Out of these total needs, EUR 1 381 billion[85] is earmarked for residential buildings and EUR 505 million for non-residential. This translates into 45 EUR/m^2 for residential buildings, which seems to reflect the modest targeted depth of renovation. For non-residential buildings, Cyprus indicates that 100 EUR/m^2 is necessary to comply with the MEPS requirement between now and 2033. In parallel, data presented in the draft NBRP suggest that EUR 263/m^2 is needed by 2050[86] to bring non-residential buildings to the standards indicated as the MEPS threshold (class B or ZEB).

Due to the lack of information in the draft NBRP and concerns about the baseline data described earlier in this assessment, it is not possible to assess whether these figures are based on a robust analysis.

The **financing sources** in the draft NBRP have been identified and broken down into public and private sources. Many details are described in the financing section about the administrative resources needed to implement the financial plan, including one-stop shops, technical assistance schemes and training programmes. The amount provided under financing sources to cover the investment needs seems equal to the reported investment needs. Consequently, and based on the reported investment needs, it seems that there is no investment gap in Cyprus. For many policies and measures, the available budget and the sources of financing are identified in the draft NBRP. However, the implementation period differs, and other sectors or actions were not included in these figures. For this reason, an aggregated figure cannot be produced. The available financing and the estimated mobilised investments are also listed for the existing and continued LTRS measures.

On energy poverty, the draft NBRP includes references to financial incentives to support vulnerable households. Some of these are also references to the total budget available for addressing vulnerable households, but the implementation period for this budget may also cover the years prior to 2026. The total investment needs for the alleviation of energy poverty are not singled out in the draft NBRP. The social climate plan is mentioned in the draft NBRP as a future complement to the actions against energy poverty but with no further details.

The **public funding** and the relevant instruments to finance building renovation are mentioned under policies and measures descriptions, including the Recovery and Resilience Facility, Cohesion Policy, European Regional Development Fund, and the social climate plan. According to the draft NBRP, EUR 377 million of public funding will come from national funds, corresponding to 40% of total available public funding. The remainder will be covered by EU funds.

[84] JRC calculation considering the total investment needs between 2026 and 2050, divided by the total floor area expected to be renovated between 2020 and 2050.

[85] Out of which 76% - EUR 1.259 billion for the 43% worst-performing residential buildings.

[86] JRC calculation.

Private financing is also addressed in Cyprus's draft NBRP. The leverage factors are not mentioned but the amount of investment expected to be mobilised is reported for some measures. Among the tools for mobilising private funding referenced in the draft NBRP, public-private partnerships are mentioned under policies and measures, especially for the renovation of school buildings. Moreover, the application of mortgages, loans and energy performance contracting is also mentioned briefly.

On the disaggregation of private investments: (i) EUR 613 million is expected to come from 'own financing' (e.g. private funds paid for by the householders whose homes are being renovated – 65% of total private investments for the period 2026-2030); (ii) EUR 283 million is expected to come from mortgages (30%); and (iii) EUR 47 million is expected to come from public-private partnerships or EPCs (5%).

Assessment of the adequacy of total investments

For every year or period (2026, 2027, 2028, 2029, 2030, 2031-2033, 2034-2035, 2036-2040, 2041-2045, 2046-2050) the funding available, as set out in the draft NBRP, is equal to the estimated investment needs (100% coverage). And the share of public investment is 50% for each period, while the remaining 50% is private investment (mortgages, unsecured loans, energy performance contracting and others).

Linking investment needs to targets through policies and measures

Most of the policies and measures listed in the draft NBRP include data about the available budget and the funding sources. However, these figures may also cover different time-periods and other sectors. Consequently, an aggregated figure cannot be provided.

3.7.6. Inclusiveness of the public consultation

The public consultation allowed the public to participate at different stages of the NBRP's drafting, allocating enough time and opportunities to all those interested in participating in the drawing up of the draft.

Cyprus organised a series of conferences, workshops, questionnaires, meetings, expert panel presentations, and discussions with the public and with different stakeholder categories from May 2023 to May 2024. The draft NBRP was also posted for online public consultation from December 2025 to January 2026. The results of the public consultation, including questionnaires and minutes from conferences, are listed in the draft NBRP annexes. The stakeholders that participated in the public consultation included universities, ministries, municipalities, the Cyprus Institute (a non-profit research and educational institution), the national statistical service, banks, and renewable energy associations. The recommendations of the stakeholders are included in the draft NBRP along with the relevant answers from Cyprus's Energy Agency. It appears that the feedback from the stakeholders has been integrated into the draft NBRP, as some parts of the draft NBRP state that they had been modified following the consultations with stakeholders.

It is not clear whether the civil society organisations representing persons with disabilities were consulted, and whether accessibility was raised during the consultations.

3.7.7. Completeness of the draft NBRP and consistency with other planning or reporting exercises

Almost all mandatory indicators are included in the draft NBRP. The voluntary spreadsheet for data collection was submitted by Cyprus as an annex to the draft NBRP. More information is listed in the following table.

Table 18. Indicators checklist for Cyprus.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings (number)	Yes	The number of buildings and floor area of social housing are missing. The floor area of public buildings seems higher than the total floor area of non-residential buildings.
	Floor area (m^2)	Yes	
	Definition of worst-performing buildings	Yes	
	Share of worst-performing buildings (%)	Yes	Data only in the voluntary spreadsheet.
	Renovated buildings/ floor area (number/ m^2)	Yes	Data only in the voluntary spreadsheet.
	Renovation rate (%)	Yes	Data only in the voluntary spreadsheet.
	Primary energy use (ktoe)	Yes	Data only in the voluntary spreadsheet, data not disaggregated by end-use.
	Final energy use (ktoe)	Yes	
	Specific primary energy for residential buildings (kWh/m^2y)	Partially	This can be calculated based on available data.
	Specific primary/final energy for non-residential buildings (kWh/m^2y)	Yes	
	Share of renewable energy (%)	Yes	
	Operational GHG emissions (Mt CO_2-eq)	Yes	
	Energy poverty share (%)	Yes	
Roadmap for2030, 2040 and 2050	Renovation targets (floor area or number)	Yes	The aggregated ones are provided only in the voluntary spreadsheet.
	Renovation rate targets (%)	Yes	Data only in the voluntary spreadsheet.
	Primary energy targets (ktoe) or reduction (%)	Yes	Targets should be clarified because targets for 2040 and 2050 seem less ambitious than both the 2030 target and the baseline. They are also not disaggregated by end-use.
	Final energy targets (ktoe) or reduction (%)	Yes	Targets should be clarified because the targets for 2040 and 2050 seem less ambitious than both the 2030 target and the baseline.
	Renewable energy targets (%)	Yes	
	GHG emission targets (Mt CO_2-eq) or reduction (%)	Yes	Targets for 2040 and 2050 only in the voluntary spreadsheet.
	Energy poverty targets (%)	Yes	Targets for 2040 and 2050 only in the voluntary spreadsheet.
	Contribution to energy-efficiency target	No	
Policies and measures	Scope and type	Partially	Some policy areas are missing.
	Quantified objective	Partially	For some measures only.
	Status and implementation period	Yes	

Section	Indicator	Yes/No/Partially	Explanatory notes
	Budget and funding source	Partially	Not for all the measures.
Investment needs	Total and/or average investment needs (million EUR), EUR/m^2	Yes	Data only in the voluntary spreadsheet.
Residential buildings	Average specific primary energy decreases between 2020 and 2050	Partially	Milestones seem to be provided average final energy use.
	Number of residential buildings/dwellings to be renovated	Yes	Data only in the voluntary spreadsheet.
	Residential floor area to be renovated (m^2)	Yes	Data only in the voluntary spreadsheet.
	Worst-performing buildings contribution (%)	Yes	Data only in the voluntary spreadsheet.
Non-residential buildings	MEPS 16% threshold	Partially	Energy class thresholds.
	MEPS 26% threshold	Partially	Energy class thresholds.
	2040 and 2050 MEPS thresholds	Partially	Energy class thresholds.
Summary of the public consultation		Yes	

Source: JRC elaboration on Member State reporting

Consistency checks have been performed by comparing the data with previous Member State reporting: the 2024 national energy and climate plan, the 2025 national energy and climate progress reports (NECPRs) 2025 and the long-term renovation strategy (LTRS), 2024.

Plausibility checks have been performed by comparing the data with other reliable datasets, such as the BSO for building stock indicators and Eurostat datasets for final energy consumption.

Box 21. Consistency and plausibility check for Cyprus.

The number and floor area of buildings is not consistent with previous reporting in NECPR 2025 for non-residential buildings (the number of non-residential buildings in the NBRP is 82% smaller than in the NECPR and the floor area of non-residential buildings in the NBRP is 81% smaller than in the NECPR). This discrepancy suggests that the non-residential sector may be under-represented in the NBRP inventory.

PEFs set out in the NBRP are consistent with previous reporting in the national cost-optimal report, 2023.

The spreadsheet was submitted as an integrated annex to the draft NBRP. The report is consistent with the spreadsheet submitted by Cyprus for most of the indicators. For this assessment, a combination of the report and the integrated annex spreadsheet were considered.

The number and floor area of non-residential buildings are not fully plausible based on comparison with the BSO dataset.

The final energy consumption is plausible based on comparison with the ESTAT dataset.

Energy poverty

The definition of energy poverty in the draft NBRP refers to a household's lack of access to essential energy services necessary to maintain basic levels of living and health, including adequate heating, hot water, cooling, lighting, and energy to power appliances, due to a combination of factors (such as insufficient disposable income, high levels of energy expenses, and the low energy performance of buildings). This definition is in line with Article 2(52) of the EED and the Commission recommendations and guidance on energy poverty.

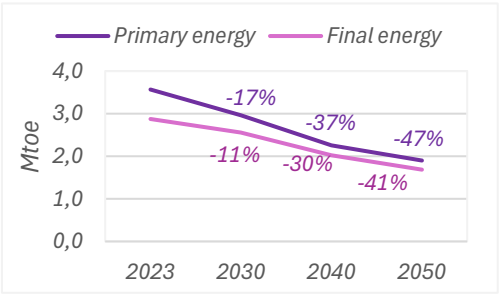
On consistency with the NECP, the draft NBRP refers to the NECP when making mention of policies and measures for combating energy poverty. Also, the draft NBRP is consistent with the NECP as regards baseline data, targets and definition. Clear references and consistency with the EED are identified in the draft NBRP. References to Commission Recommendation (EU) 2023/2407 are not included in the draft NBRP but it seems consistent with this Recommendation overall. Moreover, the draft NBRP mentions that Cyprus's social climate plan will include additional programmes supporting renovation of homes lived in by vulnerable households.

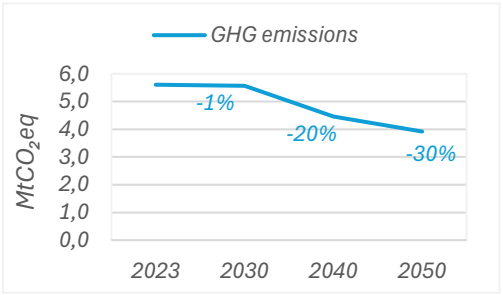
3.8. Croatia

3.8.1. Main indicators

Table 19. Selection of main indicators from Croatia's draft NBRP.

Renovation				
Floor area (Million m²)	2023	2030	2040	2050
	Baseline	Cumulative renovation		
Residential	134.8	19.1	21.2	69.1
Non-residential	41.1	3.6	28.9	34.9
Total	175.9	22.8	53.0	104.0
Cumulative renovation (%)		13%	30%	59%
Annual renovation rate (%)	**0.36%**	**1.29%**	**1.72%**	**2.90%**
Number of buildings	2023	2030	2040	2050
Total	1 014 060	-	-	-
Energy consumption				
Primary energy (Mtoe)	2023	2030	2040	2050
Residential	2.65	2.10	1.52	1.23
Non-residential	0.92	0.86	0.73	0.67
Total	3.57	2.96	2.25	1.90
Change vs 2023 (%)		**-17%**	**-37%**	**-47%**
Final energy (Mtoe)	2023	2030	2040	2050
Residential	2.22	1.90	1.44	1.14
Non-residential	0.65	0.66	0.58	0.54
Total	2.87	2.56	2.02	1.69
Change vs 2023 (%)		**-11%**	**-30%**	**-41%**
Energy end-uses included	Heating, cooling, hot water, ventilation, lighting, electrical appliances, cooking			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2023	2030	2040	2050
Residential	3.81	3.72	2.91	2.50
Non-residential	1.80	1.85	1.55	1.41
Total	5.61	5.57	4.46	3.92
Change vs 2023 (%)		**-1%**	**-20%**	**-30%**
GHG emissions in $kgCO_2/m^2$	31.9	27.7	20.9	17.4
Change vs 2023 (%)		**-13%**	**-35%**	**-46%**

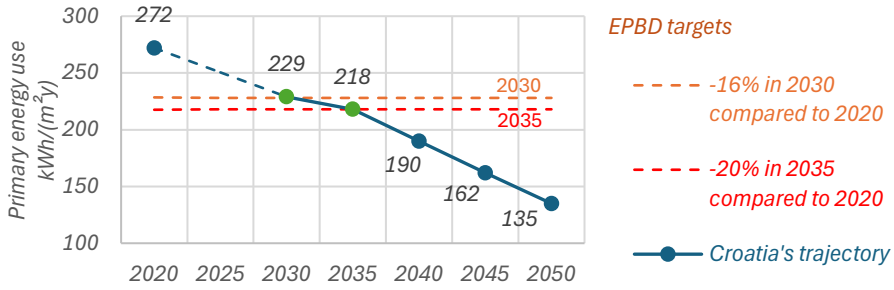




Renewable energy				
Renewable energy in the final energy	2023	2028	2029	2030
Share of renewable energy in buildings' final energy consumption	68%	62%	64%	65%
Solar energy technologies in buildings		2030	2040	2050
Share of residential building equipped		10%	20%	49%
Share of non-residential buildings equipped		34%	56%	64%

Energy poverty				
People affected by energy poverty	2023	2030	2040	2050
Share of households affected	12.4%	11%	9%	7%

Trajectory for the progressive renovation of residential buildings



Minimum Energy Performance Standards for non-residential buildings				
Building categories	Primary energy kWh/(m²year)			
	2030	2033	2040	2050
Offices	225	225	165	100
Educational	300	265	125	50
Hospitals	590	495	345	252
Hotels and restaurants	340	240	190	190
Sport facilities	830	795	480	90
Commercial	510	495	475	195
Other	280	280	150	75

Primary Energy Factors				
Non-renewable PEF	2023	2030	2040	2050
Electricity	1.61	1.58	1.58	1.58
Natural gas	1.10	1.15	1.15	1.15
District heating	1.49	1.49	1.49	1.49

Investment needs for renovation and funding and financing sources			
Investment needs (billion EUR)	2030	2040	2050
		Cumulative	
Residential	5.65	17.76	42.76
Non-residential	1.09	9.02	19.48
Total	7.04	27.78	62.24
Funding and financing (billion EUR)			
Public	1.2	-	-
Private	-	-	-
Total	1.2	-	-

Source: JRC elaboration on Member State reporting

3.8.2. Executive summary

Croatia submitted a comprehensive and almost complete draft of the national building renovation plan (NBRP), including a voluntary spreadsheet showing the values of the main quantitative indicators.

The **level of ambition** of the draft NBRP is partially in line with achieving the goal of a highly energy-efficient and decarbonised building stock by 2050. Croatia's 2050 energy consumption targets in buildings are of sufficient ambition. However, the decarbonisation targets do not seem sufficient to bring all buildings to a zero-emission level by 2050. Wider benefits of implementing the plan are described but not quantified. They relate to reducing energy poverty, improving air

quality, reducing healthcare costs, improving fire safety and building resilience, increasing accessibility, bringing about fiscal and economic benefits, and increasing energy security.

Croatia's targets for **primary energy consumption** in the building sector are 3.0 Mtoe by 2030, 2.3 Mtoe by 2040 and 1.9 Mtoe by 2050, which correspond to reductions of about 17%, 37% and 47%, respectively, compared with the 2023 level of 3.6 Mtoe.

Croatia's targets for **final energy consumption** in the building sector are 2.6 Mtoe by 2030, 2.0 Mtoe by 2040 and 1.7 Mtoe by 2050, representing reductions of 11%, 30% and 41%, respectively, from the 2023 level of 2.9 Mtoe.

Croatia's targets for total **operational greenhouse gas (GHG) emissions** in the building sector are 5.57 Mt CO_2eq in 2030, 4.5 Mt CO_2eq in 2040 and 3.9 Mt CO_2eq in 2050, corresponding to reductions of 0.6%, 20%, and 30%, respectively, compared with the 2023 baseline of 5.61 Mt CO_2eq.

Overall, the draft NBRP seems aligned with the targets, policies and measures outlined in the final national energy and climate plan (NECP). However, the use of different indicators and missing information prevent full comparability.

The contribution of Croatia's building sector to the **EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED') is not clearly outlined. However, in 2020, the building sector accounted for 45.1% of total final energy use in Croatia and it is aiming for 43.5% in 2030. This indicates that energy savings in the building sector are planned to occur at a slightly higher pace than energy savings across all sectors. It suggests that the energy targets for the building sector are sufficient to deliver on the expected overall energy savings by 2030. Regarding Croatia's contribution to the **EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED'), the target is for renewable energy to account for 65.1% of the energy consumption of buildings by 2030.

The decarbonisation objective is also supported by the deployment of renewable energy, with 49% of residential buildings and 64% of non-residential buildings to be equipped with solar installations by 2050.

To achieve these targets, Croatia aims to **renovate** about 34.9 million m^2 of non-residential buildings and 69.1 million m^2 of residential buildings by 2050 (85% and 51%, respectively, compared to the 2023 floor area). The draft NBRP only provides targets for the floor area to be renovated and not the number of buildings. The **annual renovation rates** can be derived from the available data: they amount to 1.3%, 1.7% and 2.9% of the 2023 total floor area for the years 2030, 2040 and 2050, respectively. It is important to note that Croatia's targets for the level of primary energy use in 2050, to be met through renovation, are less ambitious than the 2023 cost-optimal values for some of the building categories. This raises questions as to whether this ambition can effectively contribute to the energy and decarbonisation targets for buildings set in the draft NBRP.

On the **trajectory for the progressive renovation of residential buildings**, Croatia aims to bring the residential building stock to a level of 135 kWh/(m^2y) by 2050, which is less ambitious than the 2023 cost-optimal level for residential buildings. The milestones for 2030 and 2035 are set at -16% and -20% average primary energy use compared to the 2020 baseline. They are thus

in line with the requirements under Article 9(2) of the Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD'.

On the **minimum energy performance standards** (MEPS) for **non-residential buildings**, 2030 and 2033 thresholds have been set for seven building categories, ensuring that 16% and 26% of the non-residential worst-performing buildings are renovated by 2030 and 2033, respectively. They take into account the ranking of the non-residential floor area, from worst to best in terms of primary energy use, in 2020. Croatia has set energy consumption thresholds for 2030 and 2033, ranging from 225 to 830 kWh/(m^2y), and from 225 to 795 kWh/(m^2y), respectively. By 2050, Croatia aims to limit primary energy use to between 50 kWh/(m^2y) (educational buildings) and 252 kWh/(m^2y) (hospitals). Some of these 2050 targets are less ambitious than the levels identified as cost-optimal in the most recent calculation (e.g for offices, hospitals, trade and retail).

Overall, the calculation methods and the data sources used to set the trajectory for residential buildings and MEPS thresholds for non-residential buildings are clear and robust. The floor area to be renovated is provided although the number of buildings is missing (both residential and non-residential).

Worst-performing buildings are identified based on the year of construction. They number 15 258 non-residential (13.2 million m^2) and 360 652 residential (50.3 million m^2) buildings. This corresponded to 32% of non-residential buildings and 37% of residential buildings in 2023. By 2030, 21% of the worst-performing floor area of 2023 is expected to be renovated. This share will increase to 63% in 2050, indicating that the worst-performing buildings are prioritised for renovation.

Alleviating **energy poverty** plays a significant role in Croatia's draft NBRP. The share of the population in energy poverty was estimated at 12.2% in 2022[87]. Implementing the plan will allow a 15% reduction in energy-poor households by 2030, followed by reductions of 31% and 47% in 2040 and 2050, respectively. However, is not clear how the methodology for calculating the energy poverty rate is drawn up and whether the indicator used actually reflects the percentage of households in energy poverty rather than those at risk of energy poverty. It is important to note that these figures are indicative projections based on historical trends and the final targets are yet to be set. Measures in this area include financial incentives for vulnerable groups, informative measures, technical assistance and planning actions. The amount of available financing for these measures is more than EUR 3.5 billion[8889] for the 2025-2030 period.

[87] The indicator 'population at risk of energy poverty' is also used in the voluntary spreadsheet and is equal to 12.4% in 2023. It should be clarified that this indicator cannot be used to calculate the energy poverty rate as it does not reflect the percentage of households in energy poverty.

[88] This figure includes the available budget for the energy poverty measures: 'Implementation of the programme for combating energy poverty in residential buildings in assisted areas and areas of special State care' (EUR 88.32 million; sources: Recovery and Resilience Facility, State budget (solidarity fee), energy efficiency obligation scheme obliged entities, Environmental Protection and Energy Efficiency Fund (EPEEF), EU funds); 'Drafting and implementing the social climate plan' (EUR 1.68 billion; sources: Social Climate Fund, revenues from the sale of EU ETS2 allowances) and 'National housing policy plan 2030 and action plan 2025-2027' (2025-2030: EUR 2.03 billion; sources: State budget, EU funds, Urban Development Fund, Revolving Fund from 2028).

[89] It should be clarified whether the amount reported under the Social Climate Fund (EUR 1.68 billion) is totally dedicated to energy poverty actions, or if it will also cover other actions (e.g. transport poverty).

Croatia is addressing **housing affordability** through the 2030 national housing policy plan and the 2025-2027 action plan that it has adopted. These include financial, tax, land and environmental energy instruments to increase housing availability, stabilise the market and ensure social fairness. Croatia also aims to adopt the Affordable Housing Act, setting a legal framework to encourage renovation with a focus on vacant housing.

The **overview of implemented and planned policies and measures** is comprehensively addressed in Croatia's draft NBRP. Most of the mandatory policy areas are addressed. More specifically, 23 measures are included in the draft NBRP, 19 of them with several subsets of measures. The expected impacts are described for most of the measures, and there is also information about their available budget, timeline, financing sources, responsible entities and implementation period. Among the most ambitious measures in terms of expected energy savings are the national public renovation programmes for multi-family, single-family, public and cultural buildings. The expected ambition of the policies and measures is consistent with the NECP. The most innovative measures include implementing the energy efficiency first principle and the renewable energy communities. There are some gaps in the plan, such as specific measures targeting the renovation of the worst-performing buildings, management of construction waste and aspects relating to the circular economy.

Croatia only partially addresses the **decarbonisation of heating**. The reported measures are not described in sufficient detail, and concrete timelines are not provided. Their synergies and consistencies with other related strategies and plans are not sufficiently explained. This undermines their credibility in effectively contributing to the objective of phasing out fossil fuel boilers in buildings by 2040.

Investment needs are included in the draft NBRP. Between 2026 and 2050, they are estimated at EUR 64 billion, representing about EUR 617/m^2 for the floor area that is expected to be renovated[90]. The construction costs per square metre, including annual growth projections, are mentioned, and the calculation approach considered renovation standards to reach MEPS thresholds, taking into account market barriers, indicating that the estimation is accurate and sufficient to achieve the targets. Sources of funding and financing are identified only up to 2030 and amount to EUR 1.2 billion for 2026-2030. They are exclusively public sources and do not appear to cover the investment needs of EUR 7 billion for the same period. The draft NBRP mentions that private financing is to be mobilised through energy service companies, but the further details given are insufficient.

The **public consultation** took place through one open dialogue, held in December 2025, but it is not clear what types of stakeholders were consulted. This consultation included surveys, presentations and an interactive discussion, but the description of how the feedback was used for the draft NBRP is not sufficient. It is also not clear if the format and timing of the public consultation were sufficient to ensure that all types of stakeholders were included.

The assessment process has identified the following aspects of the draft NBRP as strengths, innovative measures and/or examples of good practice.

[90] JRC calculation considering the total investment needs between 2026 and 2050, divided by the total floor area expected to be renovated between 2020 and 2050.

— Overall consistency with other national plans and strategies, except for the fossil fuel phase-out.

— Clear presentation of policies and measures with many quantified objectives.

— Robust modelling, including a combination of Energy Performance Certificate (EPC) and modelled data. MEPS are represented through a cumulative distribution of non-residential buildings ranked by primary energy use, explicitly linking renovation targets with the renovated floor area, thus ensuring transparency.

— Quantitative analysis of the workforce needed by 2030 allowing to develop targeted training programmes for upskilling and reskilling.

— Public instruments to support the financing of energy renovations of buildings, one-stop shops, technical assistance.

However, there are several aspects of the draft NBRP that require **completion and improvement,** and which should be addressed in the final version.

— Ensure consistency between the targets (final energy, primary energy, total and per floor area GHG emissions) and ensure that targets for operational GHG emissions are aligned with the overall objective of achieving a decarbonised building stock by 2050.

— Use forward-looking primary energy factors in line with the projected electricity grid, district heat and gas grid decarbonisation in the final NECP, and with the corresponding trend in the primary energy factors.

— Add the number of buildings to be renovated under the roadmap for 2030, 2040 and 2050 and under MEPS and residential trajectories. Clarify the exclusion criteria for both residential and non-residential buildings. Include energy performance thresholds to identify the worst-performing segment.

— Quantify the expected impact towards the renovation objectives and the financing of all the policies and measures.

— Quantify the contribution to the EU energy efficiency target (Article 4, EED).

— Provide clear and consistent targets for annual renovation rates for the years 2030, 2040 and 2050 in the final version of the plan and set more ambitious renovation rates for deep renovation. Clarify if the reported targets for floor area are cumulative (2020-2050) or by decade (e.g. 2030-2040 and 2040-2050). Explain the renovation rate target values included in the voluntary spreadsheet.

— Describe the methodology and the data sources used to calculate the energy poverty rate. Clarify if the main energy poverty indicator used in the draft NBRP actually reflects the percentage of households in energy poverty (not at risk of energy poverty). Complement the actions on energy poverty with targets and quantified objectives, clarifying also their implementation status.

— Add information about social housing data, such as specifying the number of buildings and floor area, and the renovation targets for social housing. Information on vacant housing could also be included. Provide definition for social housing.

— Bring together all the important aspects under policies and measures. These include renovating the worst-performing buildings, MEPS, the district-neighbourhood approach, preventing construction and demolition waste, accessibility and promoting modular and industrialised solutions.

— Provide a clear timeline and a pathway for achieving the complete phasing-out of fossil fuel boilers by 2040, with a clear aim to decarbonise heating and cooling. Set out clear and credible measures to replace the fossil fuels that boilers combust. Ensure consistency of the planned decarbonisation of heating in the building sector with other existing strategic plans, notably the NECP, network development plans and, heating and cooling plans.

— Complete the financing sources by adding private sources, including those beyond 2030, and clarify the investment gap for 2026-2030 and how it will be covered. Perform a sensitivity analysis on key variables and introduce performance indicators linked to targets.

— Provide a quantitative description of wider benefits.

— Include information that is missing on the public consultation, such as the type of stakeholders that participated and whether the input has been integrated into the final plan.

3.8.3. Ambition of the draft NBRP

Box 22. Key insights of Croatia's draft NBRP.

- Croatia plans to reach a level of **primary energy use** in the building sector of 3.0 Mtoe by 2030, 2.3 Mtoe by 2040 and 1.9 Mtoe by 2050. This means reductions of 17%, 37% and 47%, respectively, compared with 2023 (3.6 Mtoe).
- Croatia plans to reach a level of **final energy use** in the building sector of 2.6 Mtoe by 2030, 2.0 Mtoe by 2040 and 1.7 Mtoe by 2050. This means reductions of 11%, 30% and 41%, respectively, compared with 2023 (2.9 Mtoe).
- Croatia plans to decrease the **total operational GHG emissions** in the building sector to 5.57 $MtCO_2eq$ in 2030, 4.5 $MtCO_2eq$ in 2040 and 3.9 $MtCO_2eq$ in 2050. This means reductions of 0.6%, 20% and 30%, respectively, compared with 2023 (5.6 $MtCO_2eq$).

Assessment of the overall ambition of the draft NBRP to achieve a highly energy-efficient and decarbonised building stock by 2050

The level of ambition of the draft NBRP is partially in line with the goal of achieving a highly energy-efficient and decarbonised building stock by 2050.

The final energy reduction target seems plausible as it requires an average 1.5% reduction per year from the current levels until 2050. Regarding the end-uses, most emphasis is to be given to reducing the energy demand for space heating. Space heating requires a decrease of 74% compared to the 2023 NBRP levels in order to reach the 2050 target. This is quite a significant reduction and it remains uncertain whether this ambitious reduction will be achieved.

However, Croatia's 2050 decarbonisation target does not seem aligned with the objective of a decarbonised building stock by 2050 since it aims to reduce total operational GHG emissions by 30%, while the 2030 target is set at only a 0.6% reduction compared to 2023. Moreover, these

targets do not seem aligned with the targets set for the reduction of GHG emissions per floor area (-13% by 2030 and -45% by 2050 compared to 2023).

To achieve these targets, Croatia aims to renovate about 34.9 million m^2 of non-residential buildings and 69.1 million m^2 of residential buildings by 2050. The decarbonisation objective is also to be supported by the use of renewable energy, with 49% of residential buildings and 64% of non-residential buildings to be equipped with solar installations (photovoltaics and solar thermal) by 2050. Targets are also provided for 2030 and 2040. Targets are set for the share of renewable energy in the final energy consumption of buildings for every year from 2026 to 2030 (e.g. 59.5% share by 2026, 65% share by 2030).

The latest cost-optimal levels of energy performance (2023) are reported in the draft NBRP. While these levels are noted, they do not appear to directly influence the targets for primary energy use in the building stock.

Assessment of the alignment between the draft NBRP and the national commitments on climate and energy set out in the NECP

The draft NBRP seems aligned with the targets outlined in the final NECP. However, the use of different indicators and missing information prevent full comparability, as described below. The section below also discusses how the NBRP ambition compares with the 2020 long-term renovation strategy (LTRS) submitted by Croatia.

Energy efficiency

The draft NBRP targets can be compared with the 2020 LTRS or NECP to a limited extent.

— The target for final energy consumption in the draft NBRP is more ambitious than the 2020 LTRS as it aims for a reduction of 12% by 2030 compared to 2020.

— The LTRS also includes projections for the period 2017-2050. The reduction in 2030 compared to the baseline is 2.2%, significantly lower than the reduction set out in the draft NBRP.

— The final NECP sets out projections for final energy consumption by sector for the period 2021-2030. A reduction of approximately 19% is projected from 2023 to 2030[91].

On the other hand, the draft NBRP mentions the 2030 targets for final energy consumption and primary energy consumption in the NECP (5.88 Mtoe and 8.05 Mtoe, respectively) and the contribution of building renovation measures to end-use energy savings (57% for 2030). This corresponds to a greater ambition than the NECP, where 25% of the cumulative target was expected to be generated by building measures[92].

In 2020, the building sector accounted for 45.1% of total final energy in Croatia. In 2023, it accounted for 40.4% of total final energy. In 2030, final energy consumption in the building sector

[91] These projections will result in a reduction of approximately 19% from 2023 to 2030. Only the graphs are provided so it is not possible to extract the exact figures.

[92] However, the total amount of end-use savings target mentioned in the draft NBRP (3 000 GWh) seems different to the NECP.

will account for 43.5% of total final energy consumption. This indicates that energy savings in the building sector are projected to decline at a faster rate than overall energy use.

Forward-looking primary energy factors (PEFs) are not considered in Croatia's draft NBRP. PEFs were revised in 2022, and these values are used to calculate the targets, however projections for the years 2030, 2040 and 2050 are not provided. The non-renewable PEF for electricity decreased from 1.614 in 2017 to 1.583 in 2022, e.g. the values considered for the years 2030, 2040 and 2050, while the non-renewable PEF for natural gas increased slightly from 1.095 to 1.149 (for the same period). At the same time, the non-renewable PEF for district heating stayed constant at 1.494.

Overall, the energy targets are sufficient and in line with the national commitment on energy efficiency laid down in the NECP[93].

Decarbonisation

The NECP does not provide operational GHG emission targets for the building sector. The 2030 targets previously set in the 2020 LTRS include only direct emissions, so they cannot be compared with draft NBRP targets, which are expressed as total operational GHG emissions.

Overall, the operational GHG emission targets are not sufficient and not on track to achieve the national commitment on decarbonisation laid down in the NECP.

Renewable energy

Croatia sets targets for the share of renewable energy in final energy consumption in the building sector for every year from 2026 (59.5%) to 2030 (65.1%), but it does not disaggregate into on-site, nearby and the share of renewable energy in the electricity mix. The targets are set in accordance with Article 15a of the RED.

These targets are in line with the final NECP. Croatia's contribution to the EU's renewable energy targets in accordance with the RED will be a 42.5% share of energy from renewable sources in gross final consumption, based on the draft NBRP, in line with the final NECP.

Compared with the indicative national shares provided in the Commission guidance on heating and cooling (C/2025/2238), Annex C, the Croatian draft NBRP target for 2030 is lower (65.1% vs 72.2% shares of energy from renewable sources in the buildings sector). The 2030 target is also higher than the renewable energy share in heating and cooling energy consumption of 36.17% in 2023, sourced from Eurostat.

Expected reduction in the number of people affected by energy poverty

Energy poverty is partially addressed in the draft NBRP both in terms of the current situation and the targets set. The baseline percentage of people affected by energy poverty is provided in the

[93] The projected share of final energy consumption of buildings compared to the total 2030 target for final energy consumption seems at similar levels to 2020 and 2023. This shows that the ambition of the final energy consumption target for buildings is similar to the total target and, consequently, is sufficient and on track.

draft NBRP (12.2% in 2022). However, there are no further details on the methodology for calculating this rate.

Moreover, the draft NBRP states that the following indicators were used to express energy poverty levels in Croatia: (i) inability to keep home adequately warm and/or cool; (ii) presence of visible mould and constant draughts; (iii) outstanding commitments on utility bills; and (iv) the at-risk-of-poverty rate. However, the indicators that can be identified with numerical values in the draft NBRP are the following: (i) risk of poverty or social exclusion (%); (ii) population living in inadequate housing conditions (%) (housing units with humidity or structural damage); (iii) energy costs as a share of household income (%); and energy poverty rate (%).

It is not clear if the indicator 'people at risk of energy poverty', added by Croatia to the voluntary spreadsheet, actually corresponds to the energy poverty rate indicator.

The data sources for these indicators include Eurostat and the Energy Poverty Advisory hub. In addition, the report includes the following indicators: share of households (%) with debts on utility bills and share of households with energy costs accounting for a high share of total revenue.

The draft NBRP does not include data on the geographic distribution of energy poverty; on the energy performance of the social housing stock, e.g. the segment where people in energy poverty live; or on the use or repurposing of vacant buildings, including quantified progress (e.g. number of units renovated per year, capacity to house the homeless).

Projections on energy poverty are included in terms of reducing the energy poverty rate and the share of households in energy poverty for the years 2030, 2040 and 2050. It is projected that 11% of people will be in energy poverty in 2030 (15% reduction compared to current levels), 9% in 2040 (31% reduction) and 7% in 2050 (47% reduction). It is important to note that these figures are only indicative projections and not established targets.

Prioritising renovation of the worst-performing buildings

Worst-performing buildings are defined as those constructed before 1970[94]. The draft NBRP does not provide a corresponding energy performance threshold, but it reports that the specific primary energy use for these buildings averaged 414 kWh/(m^2y) in 2020. In 2023, 37% of residential buildings and 32% of non-residential buildings were considered as worst-performing buildings.

The model and datasets used are mentioned, and the methodology for identifying the 43% worst-performing buildings is briefly described.

Minimum energy performance standards for non-residential buildings

Croatia has set thresholds for seven categories of non-residential buildings: offices, educational buildings, hospitals, hotels and restaurants, sports halls, buildings for trade, retail and wholesale, and other non-residential buildings (Table 25). The categories are consistent with those identified in Annex I, point 6. The thresholds are set so that at least 16% and 26% of the non-residential buildings should not exceed the thresholds in 2030 and 2033, respectively. Beyond 2033, thresholds are set for 2040 and 2050.

[94] Buildings before 1970 were constructed according to worse energy performance standards.

However, the 2050 thresholds are less ambitious than 2023 cost-optimal levels for some of the building categories (offices, hospitals, and trade and retail), while they are more or equally ambitious for the others (hotels and restaurants, education and sports). Thresholds for non-residential buildings are set in primary energy use per square metre of floor area (kWh/(m²y)).

Table 20. MEPS for non-residential buildings in Croatia.

Building categories	**Primary energy use** kWh/(m²y)			
	2030	**2033**	**2040**	**2050**
Offices	225	225	165	100
Educational	300	265	125	50
Hospitals	590	495	345	252
Hotels and restaurants	340	240	190	190
Sports	830	795	480	90
Trade, retail and wholesale	510	495	475	195
Other	280	280	150	75

Source: JRC elaboration on Member State reporting

The number of non-residential buildings to be renovated is not provided. As regards the floor area, around 35 million m² of non-residential buildings are expected to be renovated. This represents around 85% of this segment.

The base year is 2020, and the baseline is visually represented in Annex 1 and 2 to the draft NBRP with a clear, cumulative distribution of the non-residential floor area (overall and by building category), ranked by primary energy use.

Moreover, the 2023 cost-optimal levels and the current energy performance requirements are reported by building category.

The data sources underpinning the calculation of the MEPS thresholds are the Energy Performance Certificates Information System, modelled for buildings without an EPC, and a study[95].

The attribution of energy performance to building categories is therefore based on a combination of EPC data and an energy model. Overall, the calculation methods and the data sources used to set the MEPS threshold for non-residential buildings are clear and robust.

Exclusions (if applicable) pursuant to Article 9(6) of the EPBD and criteria for exemptions from MEPS

The exemptions and exclusions criteria are indicatively mentioned in the draft NBRP, which specifies that they will be finalised when the EPBD is transposed. They apply to: (i) buildings without the obligation to provide an EPC, (ii) buildings expected to change use or to be classified as protected buildings, (iii) buildings to be demolished, (iv) buildings belonging to owners with poor liquidity, (v) religious buildings, (vi) temporary buildings, (vii) buildings smaller than 50 m², (viii) defence and armed forces buildings, and (ix) buildings used for less than four months of the year. Not all the categories identified for exclusions are in line with Article 9(6).

[95] Establishing minimum energy performance requirements for single-family, multi-apartment, office (commercial) and other non-residential buildings for continental and coastal Croatia: existing and nearly zero-energy buildings', EIHP, MPGI 2023.

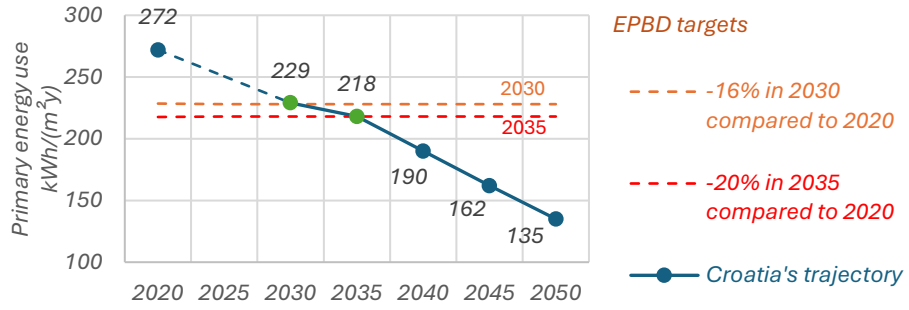
The data on the number and floor area of these exempted or excluded buildings are insufficient to assess if they represent a significant share of the stock. Only some quantitative data on cultural buildings are included (6% of the non-residential building stock and about 17.6% of residential buildings).

National trajectory for the progressive renovation of residential buildings

The trajectory for the progressive renovation of Croatia's residential building stock is shown in Figure 5. The primary energy use of residential buildings is set to be below 135 kWh/(m^{2}y) in 2050, corresponding to a reduction of 50% compared to the 2020 baseline (272 kWh/(m^{2}y)). This milestone is less ambitious than the 2023 cost-optimal values. More specifically, the cost-optimal primary energy value varies by building type and climate zone. It ranges from 85 kWh/(m^{2}y) for a multi-family building in a coastal climate zone to 125 kWh/(m^{2}y) for a single-family building in a continental climate zone.

The average primary energy use milestones for residential buildings in 2030 and 2035 are 229 kWh/(m^{2}y) and 218 kWh/(m^{2}y), respectively. Compared to 2020, these values are 16% and 20% lower, in line with the requirements. The reductions for 2040 (190 kWh/(m^{2}y)) and 2045 (162 kWh/(m^{2}y)) are -30% and -41%, respectively, which is a progressive decrease that does not seem aligned with the objective of transforming the residential building stock into a zero-emission building stock by 2050.

Figure 5. Trajectory for the progressive renovation of residential buildings in Croatia.



Source: JRC elaboration on Member State reporting

To reach these milestones, the draft NBRP provides indicators in terms of the floor area of residential buildings that need to be renovated. However, it is not entirely clear if these are cumulative for the entire period (2020-2050) or by decade (e.g. 2030-2040). Moreover, the number of buildings indicator is missing.

The floor area of the 43% worst-performing buildings and homes to be renovated is provided. The expected reduction in primary energy (in GWh) in the worst-performing residential buildings is indicated as capturing the fact that at least 55 % of the decrease in the average primary energy use is achieved through the renovation of the 43 % worst-performing residential buildings.

In the calculation of primary energy use (2022 update), the non-renewable primary energy factors are only slightly modified compared to 2017 values (used as the baseline). Therefore, they do not meaningfully contribute to reducing the average primary energy use of residential buildings.

The data sources underpinning the residential trajectory are clearly identified: IEC data and modelled data for buildings without an energy certificate.

The 2020 residential building stock data (m^2) is robust and consistent across the different parts of the draft NBRP and the voluntary spreadsheet. Specific primary consumption is not reported in the overview for 2020. It is reported for 2023 instead. Therefore, it is not possible to assess the consistency of the baseline in the different parts of the draft NBRP.

No specific exclusions have been identified for residential buildings. The modelled data used to design the renovation trajectories for residential buildings apply a lower primary energy reduction for buildings with the status of 'cultural heritage'. This is due to limitations being expected in the protection of cultural heritage, and reduced scope for applying energy renovation measures. However, residential buildings protected under the cultural heritage framework would benefit from a specific national renovation programme that is described among the NBRP policies and measures. Moreover, it is not clear if social housing is included in the baseline; the draft NBRP mentions that there is no uniform definition and no monitoring of social housing.

New buildings

There were 6 764 nearly zero energy buildings (NZEBs) in 2023 with a floor area of 3 705 110 m^2, representing about 2.1% of the total floor area.

Croatia provides the thresholds for new and renovated zero-emission buildings (ZEBs) in terms of primary energy and operational GHG emissions. It indicates that the primary energy demand values are reduced by 10% compared to NZEB requirements (equal to the 2023 cost-optimal levels). The operational CO_2 emission values allowed for these primary energy values are obtained by multiplying direct energy by the emission factor of the energy source.

3.8.4. Sufficiency of the policies and measures

There are 23 measures in the draft NBRP, 19 of them including full descriptions and details. Of the measures for which an implementation status has been provided, 14 are marked as under implementation, while a further 5 are either planned, not implemented or adopted. The most significant and ambitious measures are the national renovation programmes targeting residential, public and cultural buildings. Non-residential buildings will be dealt with mainly through the MEPS requirement in accordance with Article 9(2) of the EPBD. The following measures have been considered as the most innovative: promoting decarbonisation and applying the principle of energy efficiency first in buildings; energy sharing and energy communities; and adopting and implementing the programme to combat energy poverty.

The quantified impacts in terms of renovation, emissions and energy savings are only provided for a handful of the measures described.

— In terms of energy savings, the measures for which information is available (6 measures) will generate cumulative savings of 47.09 PJ or 13 080 GWh or 1 124.7 ktoe until 2030, corresponding to 26% of the cumulative target reported in the final NECP.

— In terms of renewable energy sources, the measure for which information is available (measure UET 10 – 'Implementation of the programme for combating energy poverty in residential buildings in assisted areas and areas of special State care') will generate electricity from renewable energy sources equal to 4 360 MWh/year.

— In terms of renovated floor area, the measures for which information is available (3 measures) sum up to 2 400 000 m^2 of floor area expected to be renovated per year until 2030, more or less consistent with the reported 2030 target of 2 276 187 m^2. In terms of CO_2 emissions, the cumulative savings expected up to 2030 from the measures for which information is available are 3.96 $MtCO_2$.

The expected ambition of the draft NBRP policies and measures for which information is available is totally consistent with the national energy and climate progress report 2025 (NECPR) in terms of cumulative savings up to 2030.

Renovation and MEPS for non-residential buildings

To ensure the application of and compliance with MEPS in non-residential buildings, the competent authority is designated as the Ministry of Physical Planning, Construction and State Assets (MPGI). It will rely on the Technical regulation on rational energy use and thermal protection in buildings. The details on how the buildings concerned will be identified and on interaction with the owners are described in the implementation framework. A system of one-stop shops will be used. The development of the legal framework is outlined, but the monitoring methodology is yet to be determined. It appears that some of the aspects mentioned above are still in progress.

Beyond applying MEPS in non-residential buildings, the policies and measures included do not specifically target the worst-performing buildings. The draft NBRP acknowledges this and mentions that a stronger focus is needed in these areas.

Renovation of residential buildings

From the measures related to renovating residential buildings for which information is available, it appears that 2 050 000 m^2 of floor area per year is expected to be renovated in 2030. This seems sufficient to achieve the trajectory milestone of 1 913 522 m^2 in annual renovated floor area of residential buildings in 2030.

However, some details of the trajectory for residential buildings are missing, such as the competent authorities, as well as information on monitoring and enabling framework. It is not clear what proportion of financing for residential buildings will be attributed to the worst-performing buildings. There are mitigation/support measures in place especially as regards vulnerable households and people in energy poverty.

The building renovation passport as a tool to support energy savings, complement MEPS and assist the trajectory for residential buildings

The building renovation passport is mentioned only briefly in the Croatian draft NBRP.

Box 23. Example of policies and measures in Croatia.

- Four national renovation programmes based on public subsidies would be considered as a measure for the renovation of residential buildings, public buildings and cultural buildings. Details on available budget, funding sources and investment costs are provided. However, the worst-performing buildings in these programmes have not yet been differentiated.

Alleviation of energy poverty and housing affordability

Croatia includes in the draft NBRP measures to alleviate energy poverty, empower vulnerable people and increase the affordability of housing.

More specifically, there are four ambitious measures of different types included, which target vulnerable households. These are the following: UET-9 'Adoption and implementation of the programme to combat energy poverty'; measure UET-10 'Implementation of the programme for combating energy poverty in residential buildings in assisted areas and areas of special State care including information and financing tools'; measure MS-15 'Drafting and implementing the social climate plan'; and measure NPSP 'National housing policy plan 2030 and action plan 2025-2027'. However, the first measure is marked as not implemented, with 2021 as a starting date, while the second has an implementation period of 2022-2025. Vulnerable households are also covered through one-stop shops and technical assistance to alleviate energy poverty. It should be clarified whether these measures will be extended beyond their current implementation period.

Moreover, Croatia tackles housing affordability. The measure 'National housing policy plan 2030 and action plan 2025-2027' is a strategic measure addressing sustainable and affordable housing through the use of financial and fiscal incentives, and through the re-use of vacant housing. As mentioned in the draft NBRP, it targets, among others, younger people and it aims to alleviate energy poverty by stabilising markets and improving social fairness. Key actions: (i) support for young people to buy their first home, (ii) housing schemes in rural and peri-urban areas, (iii) energy renovation, (iv) affordable rental schemes, (v) mobilisation of vacant housing and (vi) conversion of public buildings into homes and of industrial areas into residential areas.

While specific quantified objectives for reducing energy poverty are not included in these measures, the measures appear to be comprehensively designed to achieve the projected reductions in the energy poverty rate (-15% by 2030 and -47% by 2050 compared to the current situation).

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

One-stop shops (OSSs) are extensively analysed in the Croatian draft NBRP, not as a separate measure but under the section on information and raising awareness. They are also described as part of ambitious measures and as a significant aspect of MEPS implementation. OSSs seem to cover all households but focus on those affected by earthquakes. As regards their geographical coverage, the draft NBRP mentions that the contact points are mainly located close to areas affected by earthquakes. This is not sufficient to assess whether the geographical coverage complies with one of the EPBD requirements in that matter.

In Croatia, OSSs will also provide technical support for the implementation of MEPS. They act as virtual contact points. The need for further developments at local and national level is mentioned. Measures aiming to engage with building owners concerned by Article 19(13) of the EPBD and invite them to OSSs are not identified.

Decarbonisation of heating and cooling and the phasing out of fossil fuels in heating and cooling with a view to a complete phasing out of fossil fuel boilers by 2040

As described further below, Croatia partially addresses the decarbonisation of heating. The reported measures are not sufficiently described, and concrete timelines and their synergies and consistencies with other related strategies and plans are not sufficiently explained. This undermines their credibility in being able to effectively contribute to the objective of phasing out fossil fuel boilers in buildings by 2040.

Specifically, measure OIE-5 'Use of renewable energy for heating purposes', measure ENU-15 'Improving the efficiency of heat systems' and measure OIE-6 'Use of renewable energy in district and closed heat systems' of Croatia's draft NBRP aim to replace fossil fuel boilers.

These measures also include financial incentives and regulations for heat pumps. Financial incentives for using renewable energy in buildings, and consequently for heating and cooling, are also included under the national building renovation programmes ENU-3, 4, 5 and 6 with an emphasis on photovoltaics. It is not clear if these measures are sufficient to help completely phase out fossil fuel boilers, as their quantified objective is not provided. Croatia's aim is to replace natural gas with biomethane and hydrogen after 2040 in grid energy supply systems for heating. However, it remains unclear to what extent decarbonisation of the gas grid is to contribute to the decarbonisation of buildings overall, taking into consideration developments across all energy vectors, infrastructure, and the decarbonisation plans and pathways of end-use sectors other than buildings. It also remains unclear whether other measures are necessary to achieve the phase-out of fossil fuels in boilers by 2040 and what these measures are.

Moreover, these measures do not ensure an effective and credible timeline up to 2040 for an effective decarbonisation of heating and cooling. The 2030 target for heating and cooling included in the draft NBRP (47.1% share of renewable energy in heating and cooling in 2030) is in line with the NECP target. The draft NBRP refers to a comprehensive heating and cooling assessment and to the final NECP for heating and cooling but does not provide further details.

Prevention of construction and demolition waste

On the prevention of construction and demolition waste (CDW), national programmes and laws are mentioned, which partially cover these aspects. However, the draft NBRP acknowledges that a stronger focus should be given to these areas. There is also a relevant pilot project targeting cultural buildings. There is legislation covering waste management in Croatia, including rules for re-using construction materials. These aspects are regulated by the Waste Management Act and the Rules on Waste Management. However, there are no specific measures aiming to increase these practices. The same also applies to preparing CDW for re-use and high-quality recycling.

Promotion of renewable energy sources and deployment of solar energy installations on buildings

As regards promoting renewable energy sources in buildings, Article 15a of the RED is not explicitly mentioned among the policies and measures, but there are many relevant measures covering this subject in the draft NBRP.

Similarly, Article 10 of the EPBD is not mentioned explicitly, but increasing solar energy in buildings is targeted through some of the measures and national programmes listed.

Reduction of whole-life cycle GHG emissions and the uptake of carbon removals

The draft NBRP mentions that the methodology for calculating and reducing whole-life cycle GHG emissions and for the uptake of carbon removals will be prepared at a future stage.

Promotion of the district and neighbourhood approach and integrated renovation programmes

The district and neighbourhood approach is not particularly covered in the draft NBRP. It mentions that there is a gap as regards the link between renovation and local programmes at neighbourhood level.

Improvement of buildings owned by public bodies

On the obligation to improve public buildings, the measure ENU-5 'Energy renovation programme for public buildings' will be the main measure addressing the obligation under Article 5 of the EED. There are also two additional measures in the draft NBRP targeting the public sector through energy management and green public procurement (ENU-7 and ENU-9). Public buildings are part of the baseline and MEPS and are counted separately.

Promotion of smart technologies and infrastructure for sustainable mobility

The methodology for calculating the smart readiness indicator (SRI) is still being developed. Smart technologies are addressed under the measure ENU-2 'Promoting decarbonisation and applying the energy efficiency first principle in buildings'. It is suggested that more information about developing this indicator will be added to the final plan. Croatia does not mention if it has undertaken a non-committal test phase of the SRI. The draft NBRP states that 'the methodology for calculating the smart readiness rating of a building will be prepared in accordance with the adoption of a delegated act by the EC Sustainable Mobility Infrastructure'.

Croatia covers sustainable mobility in the draft NBRP. Sustainable mobility infrastructure in buildings will be addressed by the national programmes for buildings renovation (measures ENU-3, ENU-4, ENU-5 and ENU-6, corresponding to the renovation of multi-family apartments, single-family houses, public buildings and cultural buildings).

A measure is also listed focusing exclusively on sustainable mobility (MS-6 'Improving the sustainability of urban environments'). However, unrelated details on the design of new buildings are provided. Charging points are addressed in general by the measures ENU-3, ENU-4, ENU-5 and ENU-6. The measure ENU-3 targets multi-family buildings.

The measures ENU-3, ENU-4, ENU-5 and ENU-6 consider also the fire safety of buildings. Furthermore, accessibility of buildings for persons with disabilities are among the objectives of these national building renovation programmes.

Accessibility for people with disabilities

The overview section of the draft NBRP does not estimate the current (2023) number of buildings which are accessible or need renovation to make them accessible.

The accessibility aspect is described among the objectives of some specific measures (especially the national renovation programmes) and among the wider benefits. It is not possible to understand the percentage of buildings targeted for renovation that will include accessibility-related renovations.

The accessibility-related measures are part of national renovation programmes. The buildings targeted for accessibility improvements are public buildings and multi-family buildings. In general, the draft NBRP clearly mentions the intention of addressing accessibility when renovating for energy efficiency. The legal framework for adapting buildings for accessibility is not mentioned, and relevant standards and commitments are not included. It seems that the costs of accessibility renovations will be covered mainly through the financial programmes for buildings renovation. The aspect of checking/monitoring compliance as regards accessibility is not mentioned. The draft NBRP analyses public information measures, activities to raise awareness about accessibility and whether technical consultation is accessible. However, a particular reference to persons with disabilities is not included in these programmes.

The funding allocated for the national building renovation programmes includes actions dedicated to accessibility. However, the amounts dedicated to accessibility actions are not mentioned explicitly, nor whether this aspect has been considered for estimating the investment needs.

Addressing market barriers, market failures and skills gaps

Market barriers are thoroughly analysed and described in the draft NBRP. However, the solutions for addressing them are not explicitly mentioned. For example, the development of zoning or permitting regulations is not identified among the measures. The possibility of fragmenting actions is also not identified. Supply chain issues are not identified. On the other hand, measure ENU-12 'Developing a framework to ensure adequate skills' includes solutions to develop green jobs and other skills needed for building renovation. In relation to this, the draft NBRP includes quantitative information about the workforce needed by 2030.

Awareness-raising campaigns and other advisory tools

The draft NBRP includes specific measures on awareness-raising campaigns and advisory tools. Examples are the development of OSSs, providing support and guidance for renovation process. Furthermore, the measures ENU-2 (promotion of decarbonisation and energy efficiency first) and ENU-11 (information on energy efficiency) aim to provide information and advice on renovation in a systematic way.

Promotion of modular and industrialised solutions

Measures for the promotion of modular and industrialised solutions have not yet been set out. The relevant objectives are addressed through other measures (e.g. sustainability of urban environments (MS-6), national energy renovation programmes). The draft NBRP acknowledges this and aims to develop such solutions in the future.

3.8.5. Sufficiency of financing sources and administrative resources

The draft NBRP provides a detailed description of investment needs but not of the financial and administrative resources that will be mobilised to meet the 2030-2050 renovation targets. The allocation of both budgetary and administrative resources appears sufficient for the short- to medium-term horizon (2026-2030) based on budgetary information under policies and measures. For the longer term, the investment plan has a solid basis, but further adjustments would improve confidence that the resources will remain adequate as the plan is implemented.

Investment needs are included in the draft NBRP, estimated at EUR 64.237 billion between 2026 and 2050. This represents about EUR 617/m^2 for the expected floor area to be renovated [96].

The draft NBRP presents the construction costs per square metre and their annual growth up to 2024, considering market barriers such as the low purchasing power of people and insufficient budgetary capacity of many local self-government units. Moreover, the draft NBRP mentions that the estimation considers the MEPS for the non-residential and residential renovation trajectory, as well as the need to renovate the 43% worst-performing buildings. This approach suggests that the

[96] JRC calculation considering the total investment needs between 2026 and 2050, divided by the total floor area expected to be renovated between 2020 and 2050.

estimation of investment needs is accurate and sufficient to achieve the targets. However, the draft NBRP does not mention a sensitivity analysis. The necessary administrative resources to implement the financial plan, including OSSs, technical assistance schemes and training programmes are extensively discussed.

Sources of funding and financing have been identified only up to 2030. They are exclusively public sources (EU and national funds) and amount to EUR 1.2 billion for the period 2026-2030. This does not appear to cover the investment needs of EUR 7.042 million for the same period. The draft NBRP does not discuss the investment gap or mention any private funding sources.

Public funding up to 2030 includes the Environmental Protection and Energy Efficiency Fund, as well as funding under the 2021-2027 programme for competitiveness and cohesion and the social climate plan.

Private funding sources are not explicitly specified, and the leverage factors are not mentioned. The expected mobilisation of private financing (such as for instance with energy service companies, and OSSs) is only briefly mentioned, with no specific details, undermining the credibility of the draft NBRP in being able to mobilise them.

On the other hand, the financing sources, available budget, investment cost and timeline up to 2030 are provided for most of the measures, especially for the national renovation programmes.

In relation to energy poverty, the draft NBRP clearly mentions funding measures and sources allocated or earmarked to support vulnerable households. The total amount is equal to around EUR 3.8[97] billion for the entire period. The sources include the Social Climate Fund, the State budget, the Recovery and Resilience Facility, revenues from Emissions Trading System allowances, other EU funds, etc. In this context, there is also a specific energy poverty measure dedicated to implementing the social climate plan (measure MS15 'Drafting and implementing the social climate plan').

Assessment of the adequacy of total investments

As regards the comparison between the investment needs and the financing sources, according to the information provided by the Member State, the total investment needs for the period 2026-2030 are EUR 7.042 billion. The sum of the financing sources reported to be available under the policies and measures is EUR 12.745 billion. However, these amounts are not totally comparable because the second amount concerns the period from 2021 to 2030 and the amounts could include other actions as well, or there could be overlaps between them.

Linking investment needs to targets through policies and measures

[97] Based on information on the energy poverty measures reported by Croatia: 'Implementation of the programme for combating energy poverty in residential buildings in assisted areas and areas of special State care' (EUR 88.32 million; sources: Recovery and Resilience Facility, State budget (solidarity fee), energy efficiency obligation scheme obliged entities, EPEEF, EU funds), 'Drafting and implementing the social climate plan' (EUR 1.68 billion; sources: Social Climate Fund, revenues from the sale of EU ETS2 allowances), 'National housing policy plan 2030 and action plan 2025-2027' (2025-2030: EUR 2.03 billion; sources: State budget, EU funds, Urban Development Fund, Revolving Fund from 2028), in total, EUR 3.798 billion.

Most of the policies and measures listed in the draft NBRP include data about their quantified objective, the type of measure, the planned budget, the funding sources, the responsible entities, the expected impact and the implementation period.

3.8.6. Inclusiveness of the public consultation

The public consultation allowed stakeholders to participate in open dialogues about the draft NBRP, including surveys, expert panel presentations and interactive discussions. The draft NBRP provides the results of this process, but it does not provide details about the time allocated, the stakeholders who participated and how the results were integrated into the draft NBRP. The results are presented with many details, and it appears that a general agreement on barriers and needs emerged from this consultation.

Croatia does not mention if the recommendations of the expert panels are included in the draft NBRP. A list of stakeholders relevant to the renovation plan are identified in the main document. They include energy certifiers, designers and engineers, construction companies, small and medium-sized enterprises, skilled workers, energy service companies, OSSs and energy communities. However, their role in the public consultation is not described. In addition, it is not clear if local and regional authorities, other socio-economic partners, the general public and bodies working with vulnerable households are among the stakeholders consulted. It is also not clear if the consultation included stakeholders representing persons with disabilities and whether accessibility for persons with disabilities was identified as an issue in the public consultation. It is mentioned that the activities related to the public consultation will be continued during 2026, and that they will be taken into consideration when developing the final plan.

3.8.7. Completeness of the draft NBRP and consistency with other planning or reporting exercises

Almost all essential mandatory indicators are filled in at least partially and the draft NBRP can be assessed. The voluntary spreadsheet for data collection is provided with the draft NBRP. A main indicator missing is the number of buildings to be renovated in the coming years. More information is listed in the table below.

Table 21. Indicators checklist for Croatia.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings (number)	Yes	The number of buildings and the floor area for social housing are missing. The draft NBRP explains that in Croatia there is no definition of social housing; consequently, the indicator is not monitored.
	Floor area (m^2)	Yes	
	Definition of worst-performing buildings	Yes	
	Share of worst-performing buildings (%)	Yes	
	Renovated buildings / floor area (number/ m^2)	Partially	Deep renovation rates and floor area, light renovation rates of non-residential buildings and floor area not available.
	Renovation rate (%)	Yes	
	Primary energy use (ktoe)	Yes	Ventilation and lighting end-uses are not provided separately but included under 'other'.
	Final energy use (ktoe)	Yes	

Section	Indicator	Yes/No/Partially	Explanatory notes
	Specific primary energy for residential buildings (kWh/m²y)	Yes	
	Share of renewable energy (%)	Yes	
	Operational GHG emissions (Mt CO_2-eq)	Yes	
	Energy poverty share (%)	Yes	
Roadmap for2030, 2040 and 2050	Renovation targets (floor area or number)	Partially	Targets for the number of buildings to be renovated are missing.
	Renovation rate targets (%)	Partially	Targets can be derived from the available data on floor area to be renovated.
	Primary energy targets (ktoe) or reduction (%)	Yes	Ventilation and lighting end-uses are not provided separately but included under 'other'.
	Final energy targets (ktoe) or reduction (%)	Yes	
	Renewable energy targets (%)	Yes	
	GHG emission targets (Mt CO_2-eq) or reduction (%)	Yes	
	Energy poverty targets (%)	Partially	Energy poverty projections for 2030, 2040 and 2050 are included, but not yet established as official targets.
	Contribution to energy efficiency target	Yes	
Policies and measures	Scope and type	Yes	
	Quantified objective	Partially	Quantified objectives are missing for some measures.
	Status and implementation period	Yes	
	Budget and funding source	Partially	Planned budget is missing for some measures.
Investment needs	Total and/or average investment needs (million EUR), EUR/m²	Yes	
Residential buildings	Average specific primary energy decreases between 2020 and 2050	Yes	
	Number of residential buildings/homes to be renovated	No	
	Residential floor area to be renovated (m²)	Yes	
	Worst-performing buildings contribution (%)	Yes	
Non-residential buildings	MEPS 16% threshold	Yes	
	MEPS 26% threshold	Yes	
	2040 and 2050 MEPS thresholds	Yes	
Summary of the public consultation		Yes	

Source: JRC elaboration on Member State reporting

Consistency checks have been performed by comparing the data with previous Member State reports such as: the 2024 NECP, the 2025 NECPR, the 2020 LTRS and the 2023 national cost-optimal report.

Plausibility checks have been performed by comparing the data with other reliable datasets: the building stock observatory (BSO) for building stock indicators and Eurostat datasets for final energy consumption.

Box 24. Consistency and plausibility check for Croatia.

The number and floor area of buildings by building type, the number of NZEBs and GHG emissions are consistent with previous reporting in NECPR 2025.

The renovation rates are not comparable with previous reporting in 2025 NECPR.

The primary energy factors are consistent with the national cost-optimal report, 2023.

The report is not fully consistent with the spreadsheet submitted by the country. The differences observed concern mainly the following indicators: total investment needs by year, specific GHG emissions by floor area and building type targets.

There are differences in the number of buildings compared to the BSO dataset.

The final consumption of buildings is plausible based on comparison with the Eurostat dataset.

Energy poverty

The national definition of energy poverty is part of Croatia's Energy Efficiency Act. The draft NBRP includes the following definition: *'Households that do not have access to essential energy services that provide adequate living conditions are considered to be energy poor. In the national context, such a situation is caused by a number of factors, including unaffordability, insufficient disposable income, high energy expenditure, poor energy performance of buildings and poor energy efficiency of homes'*.

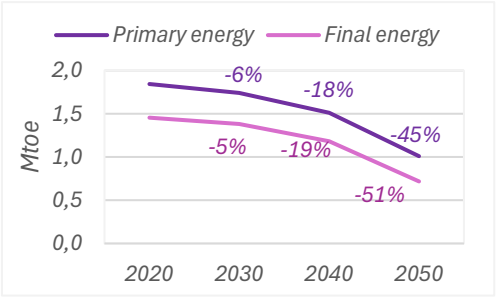
The definition seems consistent with the NECP although no specific energy poverty targets are included in the NECP. Moreover, the EED is referred to in the energy poverty section. At the time of submitting the draft NBRP, Croatia's social climate plan had not been submitted, but reference is made to it as a planned measure (MS 15).

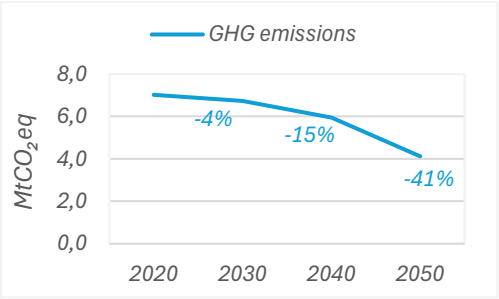
3.9. Lithuania

3.9.1. Main indicators

Table 22. Selection of main indicators from Lithuania's draft NBRP.

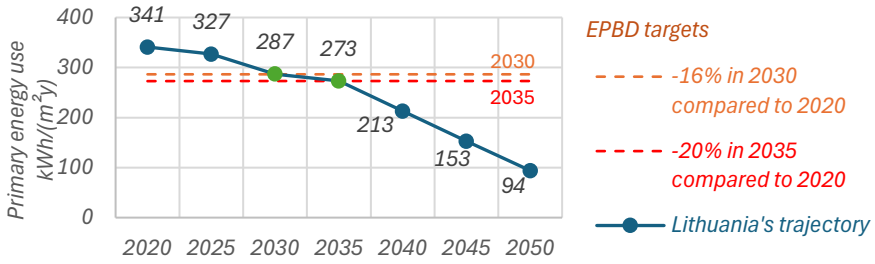
Renovation				
Floor area (Million m²)	2020	2030	2040	2050
	Baseline	Cumulative renovation		
Residential	124.0	12.8	40.8	102.7
Non-residential	60.4	3.6	17.8	52.2
Total	184.5	16.4	58.6	154.9
Cumulative renovation (%)		9%	32%	84%
Annual renovation rate (%)	-	**0.89%**	**2.29%**	**5.22%**
Number of buildings	2020	2030	2040	2050
Total	576 802	25 784	161 678	501 542
Cumulative renovation (%)		4%	28%	87%
Energy consumption				
Primary energy (Mtoe)	2020	2030	2040	2050
Residential	1.27	1.18	1.03	0.71
Non-residential	0.57	0.56	0.49	0.30
Total	1.85	1.74	1.51	1.01
Change vs 2020 (%)		**-6%**	**-18%**	**-45%**
Final energy (Mtoe)	2020	2030	2040	2050
Residential	0.99	0.92	0.79	0.48
Non-residential	0.48	0.46	0.40	0.24
Total	1.46	1.38	1.18	0.72
Change vs 2020 (%)		**-5%**	**-19%**	**-51%**
Energy end-uses included	Heating, cooling, hot water, ventilation, built-in lighting			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2020	2030	2040	2050
Residential	4.44	4.20	3.71	2.63
Non-residential	2.58	2.53	2.23	1.49
Total	7.02	6.73	5.94	4.12
Change vs 2020 (%)		**-4%**	**-15%**	**-41%**
GHG emissions in $kgCO_2/m^2$	38.00	-	-	22.30
Change vs 2020 (%)		**-**	**-**	**-41%**





Renewable energy				
Renewable energy in the final energy	2026	2030	2040	2050
Share of renewable energy in buildings' final energy consumption	53%	90%	95%	100%
Share of buildings equipped with solar technologies		2030	2040	2050
	Not available			
Energy poverty				
People affected by energy poverty	2023	2030	2040	2050
Share of population unable to keep homes adequately warm	18.0%	8.6%	4.3%	0.0%

Trajectory for the progressive renovation of residential buildings



Minimum Energy Performance Standards for non-residential buildings				
Building categories	Primary energy kWh/(m²year)			
	2030	2033	2040	2050
One category	733	595	369	78

Primary Energy Factors				
Non-renewable PEF	2023	2030	2040	2050
Electricity	2.30	-	-	-
Natural gas	1.10	-	-	-
District heating	-	-	-	-

Investment needs for renovation and funding and financing sources			
Investment needs (billion EUR)	2030	2040	2050
		Cumulative	
Residential	3.3	15.3	43.7
Non-residential	1.2	7.4	22.3
Total	4.5	22.7	66.0
Funding and financing (billion EUR)			
Public	-	-	11.8
Private	-	-	54.2
Total	-	-	66.0

Source: JRC elaboration on Member State reporting

3.9.2. Executive Summary

Lithuania submitted a comprehensive and complete draft of the national building renovation plan (NBRP).

The **level of ambition** of the draft plan is moderate and the expected decarbonisation of the building stock by 2050 relies heavily on investment in renewable energy. By 2050, Lithuania aims to bring residential and non-residential buildings to nearly zero-energy level derived from cost-optimal levels. The country is also targeting a 41% cut in operational greenhouse gas (GHG) emissions from the building stock between 2020 and 2050. Some wider benefits are also described and quantified in Lithuania's plan: (i) a reduction in energy poverty; (ii) saving money for households; (iii) promoting access to sustainable mobility infrastructures; and (iv) urban renovation.

Lithuania's targets for **primary energy consumption** in the building sector are 1.7 Mtoe by 2030, 1.5 Mtoe by 2040 and 1.0 Mtoe by 2050, which correspond to reductions of about 6%, 18% and 45% compared with the 2020 level of 1.8 Mtoe.

Lithuania's targets for **final energy consumption** in the building sector are 1.4 Mtoe by 2030, 1.2 Mtoe by 2040, and 0.7 Mtoe by 2050, representing 5%, 19%, and 51% reductions, respectively, from the 2020 level of 1.5 Mtoe.

Lithuania's targets for total **operational GHG emissions** in the building sector are 6.7 $MtCO_2eq$ in 2030, 6.0 $MtCO_2eq$ in 2040, and 4.1 $MtCO_2eq$ in 2050, corresponding to 4%, 16%, and 41% reductions, respectively, compared with the 2020 baseline of 7.03 $MtCO_2eq$.

The country's draft NBRP does not clearly explain why the primary and final energy consumptions decrease faster than operational GHG emissions despite a significant increase in the use of renewable energy in – and for – buildings.

The draft NBRP is not aligned with the ambition outlined in Lithuania's final updated **national energy and climate plan** (NECP). Firstly, the draft NBRP targets only a 41% reduction in GHG emissions from buildings between 2020 and 2050, while the NECP targets full decarbonisation of the building sector by 2050. In addition, Lithuania's NECP has a target of reducing primary energy consumption in buildings by 60% between 2020 and 2050, whereas the draft NBRP targets only a reduction of 45% over the same period.

Lithuania's draft NBRP does not clearly outline the contribution made by its building sector to the **EU's energy-efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED'). However, in 2020, the building sector accounted for 27.4% of total final energy use in Lithuania and is expected to account for 31.5% of final energy use in 2030[98]. This indicates that the energy savings in the **building sector are planned to occur more slowly** than energy savings in other sectors in the economy. On Lithuania's contribution to the **EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED'), the draft NBRP will contribute to Lithuania achieving its target of renewable energy accounting for 90% of gross final energy consumption in the building sector by 2030. However, the interaction between the uptake of renewables, efficiency gains, and emission reductions at the building level is not always fully quantified.

The decarbonisation objective for the Lithuanian building sector is also supported by targets for the use of solar energy in buildings, such as the target that 30% of households should be active 'prosumers' (e.g. both producing and consuming their own electricity) by 2030. Targets for 2040 and 2050 for this indicator are not set in the draft NBRP.

To achieve these targets, Lithuania aims to **renovate** cumulatively 452 012 residential buildings and 49 529 non-residential buildings between 2020 and 2050, representing 83% and 86% of the 2020 respective floor area of buildings in the country. This would imply a significant increase

[98] The JRC calculates the percentages as follows: In 2020, as a ratio of final energy consumption in buildings to total final energy consumption sourced from Eurostat. In 2030, as a ratio of the draft NBRP target for final energy consumption in buildings to the national energy efficiency target set under Article 4 of the EED, sourced from the final NECP 2024.

compared with the current volume of renovations reported per year in the overview part of the draft NBRP, especially for non-residential buildings, for which the increase in renovations is most probably driven by the MEPS thresholds reported below.

On the **trajectory for the progressive renovation of residential buildings**, the milestones for 2030 and 2035 are set at a 16% and 20% reduction respectively in average primary energy use compared with the 2020 baseline. These milestones are therefore in line with the Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD') requirements. Furthermore, Lithuania aims to bring the country's residential building stock to a cost-optimal level of 94 kWh/(m^2y) by 2050.

On **minimum energy performance standards** (MEPS) for **non-residential buildings**, Lithuania has set a 2030 threshold of 733 kWh/(m^2y) and a 2033 threshold at 595 kWh/(m^2y). By 2050, Lithuania aims to bring all **non-residential** buildings below the average cost-optimal level of 78 kWh/(m^2y), established de facto as the 2050 maximum thresholds. Based on the current data available, the 2050 maximum thresholds set by Lithuania mean that 91% of non-residential buildings would need to be renovated to reach this level, a percentage that is not totally in line with Lithuania's own target reported in its draft NBRP to renovate only 86% of non-residential buildings by this date.

Overall, the calculation models used to set both the trajectory for energy savings in residential buildings and the MEPS threshold for non-residential buildings are robust. These models are clear and based on transparent assumptions, and Lithuania's description of its national building stock is comprehensive and consistent across the draft plan.

Worst-performing buildings are defined as those with an energy performance certificate (EPC) of class D or lower. According to this categorisation, 80% and 85% of residential and non-residential buildings respectively in Lithuania in 2020 were worst-performing buildings. The 43% worst-performing residential buildings according to Article 9 of the EPBD account for 382 755 units (53 million m^2), representing 40% of the total floor area of residential buildings in the country. By 2030, only 3% of the 43% worst-performing residential buildings are projected to be renovated, but in 2050 all worst-performing buildings are projected to have been renovated. While the 2030 target is very modest, the 2050 target is ambitious, and Lithuania's NBRP lacks a better explanation of how the country can achieve such a sharp increase in renovation rates post-2030. Furthermore, there are some inconsistencies in the total units and floor area reported in the draft NBRP for both residential buildings and worst-performing buildings that need to be clarified.

Energy poverty is explicitly addressed in the Lithuanian draft plan. The energy poverty rate is defined and measured with the indicator *Inability to keep home adequately warm*. The share of the population in this category already declined from 27.9% in 2018 to 18% in 2024 and is targeted in the draft NBRP to fall to 8.6% by 2030 and to zero by 2050. Policies and measures to alleviate energy poverty set out in Lithuania's draft NBRP include: (i) financial incentives for vulnerable groups (subsidies, tax deductions, aid for pilot projects in vulnerable households); (ii) technical assistance (one-stop shops with services for vulnerable households, although fully developed by 2030 only); (iii) capacity building; and (iv) awareness-raising programmes.

Lithuania is briefly addressing **housing affordability**. On that aspect, Lithuania discusses the housing demand and supply differences across regions as a barrier to renovation. In municipalities with low housing demand, renovation costs can equal the property's low market value, reducing motivation to renovate. The draft plan mentions the new district renovation approach is enhancing

the aesthetic appearance and quality of life, therefore increasing property values and providing incentives for homeowners to support renovations.

The **overview of implemented and planned policies and measures** is comprehensively addressed in Lithuania's draft plan, covering regulatory, financial, informational and training instruments. All mandatory policy areas are addressed, as are most of the optional policy areas. Most measures include quantified objectives, budgets and implementation periods, and are consistent with other national strategies.

Lithuania's draft plan addresses the **decarbonisation of heating** in a comprehensive way. Overall, the planned measures are expected to contribute effectively to the decarbonisation of the heating sector. They support the gradual phase-out of fossil fuels in buildings (with the objective of fully eliminating fossil-fuel boilers by 2040) and work in synergy with other related strategies and plans.

Investment needs are included in the draft plan. For the period 2026-2050, total investment needs are estimated at EUR 66 billion (representing about EUR 440/m^2 of the floor area expected to be renovated during this period[99]). The renovation investment needs are assessed separately for the short term (between 2026 and 2030), medium term (2031-2040) and long term (2041-2050), reflecting the planned renovation trajectory and building segments to be addressed in each period. The quantified volumes of investment appear sufficient to deliver the planned levels of renovation in the short and medium term. Depending on the 'subsidy intensity' of the scenario applied, public funding from the Lithuanian government is expected to cover between 14% and 30% of total investment needs between 2026 and 2050, with the remaining share a combination of public EU funds and private financing. Thus, in the short and medium term, financing relies primarily on existing and programmed instruments, while in the long term it will depend on the sustained mobilisation of public and private resources. Private funding is planned to be mobilised through collaboration with financial institutions giving favourable loan conditions including through public guarantee lines.

The **public consultation** allowed broad participation of the Lithuanian public at different stages of the NBRP's drafting. This consultation allocated enough time and opportunities for contributions from various stakeholders, which were considered in the draft.

The assessment process has identified the following elements of the draft NBRP as strengths, **innovative measures** and/or **examples of good practice**:

- Ambitious trajectory for renewable energy sources (RES) in electricity, heating and cooling (with a target of 'up to 100%' RES in these uses by 2050) and an expected contribution of 90% of renewable energy to buildings' final energy consumption by 2030.
- Comprehensive package of policies and measures (regulatory, financial, information and training), with many measures providing quantified objectives, budgets and implementation periods.

[99] JRC calculation considering the total investment needs between 2026 and 2050, divided by the total floor area expected to be renovated between 2020 and 2050.

— The planned building renovation passport system, with the objective of an interoperable database and digital tool by the end of May 2026, supporting step-by-step renovation roadmaps.

— Detailed quantification of investment needs to 2050 and explicit discussion of instruments needed to mobilise private financing (e.g. soft loans/guarantees and ESCO (energy services companies) models).

— Strong focus on vulnerable households, including targeted renovation support and links to the forthcoming social climate plan and Social Climate Fund.

However, there are several aspects of the draft NBRP that require **completion and improvement,** and which should be addressed in the final version. These aspects are set out below.

— Cross check and validate estimated targets for reductions in operational GHG emissions and better explain how it will fully decarbonise the building stock, considering that the targeted reductions are modest and are not fully aligned with the targets set out in its NECP.

— Ensure that the projections related to primary energy consumptions and GHG emissions towards 2050 are aligned with the evolution of power and heat generation from NECP. Specifically, the final version of the plan would benefit from the inclusion of the future values of primary energy factors and emission factors.

— Clarify which specific policies and measures will effectively support the sharp renovation increase expected after 2035.

— Clarify the minor difference between the 2050 renovation target related to non-residential buildings (86%) and the one derived from MEPS (91%).

— Quantify the contribution to the EU's energy-efficiency targets in accordance with Article 4 of the EED that are attributable to the renovation of the country's building stock.

— Clarify how the indicators and the energy poverty rate reported in the draft NBRP align with the multidimensional definition under the EED.

— Address the inconsistencies identified between the figures on residential buildings in terms of units (and floor area).

— Address the identified barriers to renovation that are the result of differences in housing supply and housing demand across the country's different regions and indicate how the proposed measures will contribute to reduce housing deprivation and energy poverty and increase the availability of affordable housing.

3.9.3. Ambition of the draft plan

Box 25. Key insights of Lithuania's draft NBRP.

- Lithuania plans to reach a level of **primary energy use** in the building sector of 1.7 Mtoe by 2030, 1.5 Mtoe by 2040 and 1.0 Mtoe by 2050. This means reductions of 6%, 18% and 45% compared with 2020 (1.8 Mtoe).
- Lithuania plans to reach a level of **final energy use** in the building sector of 1.4 Mtoe by 2030, 1.2 Mtoe by 2040 and 0.7 Mtoe by 2050. This means reductions of 5%, 19% and 51% compared with 2020 (1.5 Mtoe).
- Lithuania plans to decrease the **total operational GHG emissions** in its building sector to 6.7 $MtCO_2eq$ in 2030, 6.0 $MtCO_2eq$ in 2040 and 4 $MtCO_2eq$ in 2050. This means reductions of 4%, 16% and 41% compared with 2020 (7 $MtCO_2eq$).

Assessment of the overall ambition of the draft plan to achieve a highly energy-efficient and decarbonised building stock by 2050

The ambition to achieve a highly energy-efficient and decarbonised building stock in the Lithuanian draft plan is moderate, and mostly aligned with current requirements for new buildings and building renovation. By 2050, Lithuania aims to have a nearly zero-energy building (NZEB) stock, in which residential buildings will have an average primary energy use of 94 kWh/(m^2y), while non-residential buildings will have a primary energy use below 78.2 kWh/(m^2y). Both these targets are derived from cost-optimal levels.

To reach such values, it will be necessary to reduce the primary energy consumption of the building sector by 45% and its final energy consumption by 51%, compared with 2020 levels (baseline). By 2050, Lithuania also aims to reduce the total operational GHG emissions of its building sector by 41% compared with 2020, namely from 7.03 $MtCO_2eq$ to 4.12 $MtCO_2eq$. To achieve these targets, Lithuania aims to renovate 452 012 residential buildings (approximately 86% of residential buildings) and 49 529 non-residential buildings (close to 91% of non-residential buildings) by 2050.

By 2050, Lithuania plans to transition fully to renewable energy in final energy consumption in the electricity, heating and cooling sectors.

However, despite the high level of ambition on renewable energy and renovation, the draft NBRP envisages only a 41% reduction in GHG emissions by 2050 compared with 2020 and does not clearly explain this apparent misalignment.

The cost-optimal levels of energy performance play an important role in setting the targets for the country's building stock set out in the draft NBRP.

Assessment of the alignment between the draft NBRP and national commitments on climate and energy set out in the NECP

Lithuania's draft NBRP is not aligned with the ambition outlined in the country's NECP. Firstly, and in terms of GHG emissions from the building sector, the draft NBRP targets only a reduction of 41% between 2020 and 2050 while the NECP targets full decarbonisation of the building sector by 2050. There is also a misalignment between the two plans in terms of primary energy consumption reductions between 2020 and 2050, with Lithuania aiming at a 60% reduction in the NECP but only a 45% reduction in the NBRP.

The section below also addresses how the ambition of the draft NBRP compares with the 2020 long-term renovation strategy (LTRS) adopted by Lithuania.

Energy efficiency

Compared with the building-sector targets for primary energy consumption set out in the NECP (which aims for a 60% reduction by 2050), the targets in Lithuania's draft NBRP are less ambitious (a 45% reduction). Moreover, considering the country's 2020 LTRS targets for primary energy consumption by 2030 (e.g. a 15% reduction compared with 2020), the targets set out in the draft NBRP are also less ambitious in the short term (a 6% reduction). In terms of the number of buildings to be renovated in the building sector between 2020 and 2050, the NECP and the NBRP are broadly aligned (440 000 and 452 012 residential buildings respectively).

The contribution to the EU's energy-efficiency targets in accordance with Article 4 of the EED that are attributable to the renovation of the building stock is not clearly set out in the draft plan. The draft NBRP states that, according to the NECP, between 5 TWh and 6 TWh of energy savings are planned to be achieved in the residential sector between 2020 and 2030[100]. In 2020, the building sector accounted for 27.4% of total final energy consumption in Lithuania, whereas the target for 2030 is 31.5% (e.g. the building sector is projected to *increase* its relative share of final energy consumption). The comparison between the 2020 value and the 2030 projected value shows that the energy savings in the building sector are planned to occur at a slower pace than energy savings across all other sectors in the Lithuanian economy.

Finally, current values for primary energy factors are reported in the draft NBRP and are aligned with the cost-optimal report. However, projections of primary energy factors are not reported in the draft plan.

The energy targets set out in the draft NBRP are not fully in line with the national commitment on **energy efficiency** laid down in the NECP.

Decarbonisation

Both Lithuania's NECP and its 2020 LTRS targets envision a reduction in operational GHG emissions of 24% by 2030, 60% by 2040 and 100% by 2050 (compared with 2020). However, the draft NBRP targets for operational GHG emissions are much less ambitious than the ones reported in the NECP and the 2020 LTRS (-4% by 2030, -16% by 2040 and -41% by 2050 compared with 2020).

The draft NBRP and the targets for operational GHG emissions it contains are not fully in line to achieve the national commitment on **decarbonisation** laid down in the NECP.

Renewable energy

Lithuania sets ambitious targets for the future share of renewable energy in gross final energy consumption in building sector: 90% by 2030, 95% by 2045 and 100% by 2050. Moreover, the targets for the future share of renewable energy in final energy consumption in the electricity sector are: 52.2% (2025), 100% (2030), 100% (2050). And the targets for the future share of renewable energy in heating and cooling are 63% (2025), 80% (2030), and 100% (2050), of which

[100] However, it is not clear whether this represents the contribution to energy-efficiency targets or the energy savings obligation set for the building sector.

the target shares for renewables in district heating are 81% (2025), 90% (2030), and 100% (2050). However, based on the draft NBRP, it is unclear how Lithuania plans to move from a 52% share of renewable energy in the electricity sector in 2025 to 100% in 2030, or how it plans to move from a 63% share of renewables in heating and cooling in 2025 to 80% in 2030. Finally, it is unclear how it plans to move from an 81% share for renewables in district heating in 2025 to a 90% share in 2030.

Lithuania's NECP does not provide targets for the use of renewable energy in the building sector.

Compared with the indicative national shares provided in Annex C of the Commission guidance on heating and cooling (C/2025/2238), the share targeted for renewable energy in final energy consumption in 2030 by Lithuania's buildings sector is about 22 percentage points higher (the Commission guidance projects a share of 67.9% whereas Lithuania's draft NBRP projects a 90% share)[101].

The renewable energy targets related to the building sector declared by Lithuania are assessed as ambitious and in line with the requirement of the RED (this Directive requires at least 49% of gross final energy consumption used in the buildings sector by 2030 to be provided by renewables).

Expected reduction in the number of people affected by energy poverty

The draft NBRP gives information on energy poverty with data on several indicators as explained below but selects *Inability to keep home adequately warm (%)* as its main indicator/proxy for energy poverty in Lithuania.

Accordingly, the draft NBRP reports that in 2024, 18% of the Lithuanian population lived in households unable to afford sufficient heating. The draft NBRP sets targets for reducing the share of population unable to keep their homes sufficiently warm to 8.6% by 2030 (10.9% in 2020), 4.3% by 2040 and 0% by 2050. The measurement of this indicator at present is based on Eurostat data.

Three out of the four indicators for energy poverty presented in the draft NBRP are related to socio-economic and living conditions, while one is linked to facilities/housing (this last indicator is therefore a proxy for housing quality). The first indicator presented in the plan is defined as *Inability to keep home adequately warm (%)*. This first indicator reflects affordability e.g. the ability of a household to pay to keep the home adequately warm. A second indicator is *Population at risk of poverty or social exclusion* (which was 25.8% in 2024). This second indicator captures poverty in general. A third indicator sourced from national statistics is *Disposable income spent on housing maintenance (%)*, which covers the share of household income devoted to rent, electricity, gas, heating, water, other utilities, and mortgage interest. A fourth indicator reported in the draft plan is *Total population living in a dwelling with a leaking roof, damp walls, floors or foundations, or rot in window frames or floor (%)*, which refers to the consequences of both poor construction practices for dwellings and humid indoor conditions. The draft NBRP shows that Lithuanian households below the poverty line spend almost one third of their income on housing maintenance (27.7% on average), while households living above the poverty line spend around one tenth (9.3% on average).

[101] Percentage. In 2023, renewable energy accounted for 35.4% of buildings' energy consumption according to Eurostat.

The draft plan does not include a methodology to combine the different described indicators. The draft NBRP therefore does not offer a full description of energy-poor citizens and vulnerable households in Lithuania.

The draft NBRP provides some data on the geographic distribution of energy poverty at county level, showing territorial differences across Lithuania's regions. However, it does not provide data on the energy performance of social housing or on the use and repurposing of vacant housing, nor does it include quantified progress in terms of units renovated per year or accommodation capacity for the homeless.

Prioritising the renovation of the worst-performing buildings

Worst-performing buildings are defined as buildings with an EPC rating of class D or lower. In Lithuania, these buildings constitute most of the building stock, accounting for around 80% of residential buildings and 85% of non-residential buildings.

The Lithuanian draft NBRP prioritises the renovation of the 43% worst-performing residential buildings defined in terms of primary energy consumption in EPC classes D to G. Most of the worst-performing buildings are single-family houses. On the renovation targets for the worst-performing buildings in Lithuania, the draft NBRP sets a target of ensuring that 3% of these 43% worst-performing residential buildings will be renovated by 2030, a share that increases to 100% by 2050.

The renovation of the worst-performing non-residential buildings is addressed by identifying and prioritising the 16% and 26% of these buildings to comply with MEPS thresholds by 2030 and 2033, respectively.

Minimum energy performance standards for non-residential buildings

The draft NBRP sets MEPS for non-residential buildings, expressed as primary-energy-consumption thresholds. Several building categories are analysed in the draft plan, such as administrative, educational, medical, trade, service, recreational, hotels, catering, sports, cultural, transport and communicational, production, and storage buildings. However, the NBRP does not set MEPS thresholds for different categories of non-residential buildings. Instead it sets overall thresholds, as reported in the table below.

Table 23. MEPS for non-residential buildings in Lithuania.

Building categories	**Primary energy use** kWh/(m^{2}y)					
	2030	**2033**	**2045**	**2040**	**2045**	**2050**
One category	733	595	519	369	217	78

Source: JRC elaboration on Member State reporting

The data sources used to calculate MEPS thresholds are: (i) national databases (the EPC register managed by the Construction Sector Development Agency and the Real Estate Register); (ii) official statistics on energy consumption; and (iii) other studies. The energy consumption projections are based on: (i) the national EPC register by extrapolating the valid EPC values to the country's entire building stock; and (ii) harmonisation and segmentation of the building stock dataset in the Real Estate Register. The obtained theoretical consumption was then calibrated with 2023 energy consumption. The distribution of the non-residential buildings to be renovated is made by county, construction year and heating source. EPC classes for non-certified buildings are attributed based on construction and renovation year, which is the methodological approach chosen in the Lithuanian LTRS and the national cost-optimal report.

Based on the current situation, setting a maximum threshold of 78.2 kWh/(m²y) in 2050 would mean that 91% of Lithuania's non-residential buildings need to be renovated to reach this level. The threshold set for MEPS for non-residential buildings are aligned with the energy and GHG emission targets of the building stock roadmap and can be considered sufficient to deliver on Lithuania's target of renovating all buildings to the cost-optimal level (energy class B). The data reported for MEPS setting in Lithuania's draft NBRP is consistent with the information provided in the overview of the building stock and other parts of the draft plan.

Exclusions (if applicable) pursuant to Article 9(6) of the EPBD and criteria for exemptions

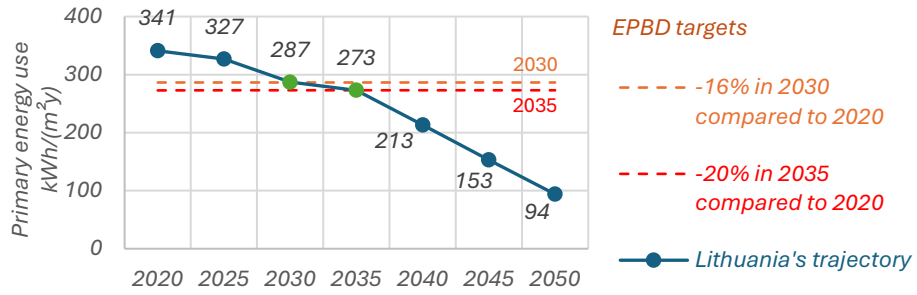
The draft plan also reports on buildings excluded based on Article 9(6) and which are removed from the MEPS baseline. Among such buildings, the draft plan identifies 1 799 religious buildings. These buildings count for 0.067% of all buildings in the country and a floor area of 0.25% of Lithuania's building stock.

National trajectory for the progressive renovation of residential buildings

The trajectory for the progressive renovation of Lithuania's residential building stock is shown in Figure 6. In general, the residential building targets consider the broad scope of: (i) a decarbonised and highly energy-efficient building stock in the Lithuanian context; (ii) current NZEB levels; and (iii) cost-optimal levels.

Lithuania is targeting average primary energy use in residential buildings in 2030 of 287 kWh/(m²y) and in 2035 of 273 kWh/ (m²y), representing 16% and 20% reductions compared with the 2020 baseline respectively. This is in line with the EPBD requirements. For 2040, the draft NBRP sets a target of 213 kWh/(m²y) and for 2050, 94 kWh/(m²y), representing reductions of 38% and 72% compared with 2020, respectively.

Figure 6. Trajectory for the progressive renovation of residential buildings in Lithuania.



Source: JRC elaboration on Member State reporting

The draft NBRP provides clear indicators in terms of the number and floor area of residential buildings that need to be renovated (on an annual and cumulative basis, and by renovation depth), with specific targets set for every 1-to-4-year period from 2030 to 2050 derived from this trajectory.

Specifically, by 2050, 87% of the country's entire residential building stock needs to be renovated, a percentage that is reflected adequately in the renovation target. Moreover, the number and floor area of the 43% worst-performing buildings and dwellings to be renovated is expected to be 100% by 2050. The sub-target of a 55% reduction in primary energy consumption in worst-performing residential buildings is mentioned but not quantified in energy savings.

Both the data on the 2020 residential building stock and the calculations for total primary energy consumption are robust and consistent across the different parts of the draft NBRP. The data sources are: (i) national databases (e.g. EPC register managed by the Construction Sector Development Agency and the Real Estate Register); (ii) official statistics on energy consumption; and (iii) other studies (e.g. the national cost-optimal report). The methodology used in the draft NBRP to estimate primary and final energy use relies on extrapolating EPCs to the residential building stock, and a correction is applied considering the real consumption between 2021 and 2024 (sourced from national statistics, like Eurostat datasets).

In the overview of the building stock set out in the draft NBRP, the 2020 average primary energy consumption in the average residential buildings is stated as 341 kWh/(m^2y).

New buildings

All new buildings built after 2020 are NZEB, in compliance with the EPBD. In the building stock database for Lithuania, there are 8 169 NZEBs built after 2020 with a floor area of 3 421 131 m^2, representing about 0.3% of the total number of buildings and 1.4% of the total floor area.

The current NZEB thresholds (energy class A++) are reported in primary energy demand (based on cost-optimal report) and indicative ZEB thresholds for new buildings are calculated as 10% lower than the current threshold, resulting in wide ranges (e.g. single and double family houses between 54 and 142 kWh/(m^2y)).

For existing buildings, which will be renovated to ZEB level, this will be set to achieve at least a cost-optimal energy performance level (energy class B). The thresholds are reported (e.g. thresholds for single and double family houses to be set between 104 and 205 kWh/(m^2y)).

3.9.4. Sufficiency of the policies and measures

The overview of implemented and planned policies and measures is comprehensively addressed in Lithuania's draft NBRP. All mandatory policy areas are addressed, as well as optional ones (Annex II to the EPBD). The measures set out in the draft NBRP are divided into financial, legal, information and training measures according to the logic and nature of the intervention.

Most building renovation measures include quantified targets (e.g. the share of buildings renovated a year must increase by at least 20% by 2030 compared with 2020; 5 042 multi-apartment buildings must be renovated by 2030; 5 000 household boilers must be renewed each year starting from 2021).

The measures set out in Lithuania's draft NBRP are consistent with other plans (e.g. the NECP, the social climate plan, and local heating and cooling plans), which are mentioned throughout the section on policies and measures.

Overall, the expected impacts of the planned policies and measures are well described in the draft NBRP. The measures in the draft NBRP are also presented through a comprehensive, cross-cutting approach that integrates all relevant action areas, innovative solutions, and expert-group input, suggesting they are sufficient to meet the targets. The credibility and sufficiency of several measures is increased by quantifying the impact of the measures, and by providing estimates of the expected number of apartments refurbished, energy savings made, and the amount of electricity generated from renewables.

Renovation and MEPS for non-residential buildings

Lithuania has a specific law[102] laying down the MEPS requirements for buildings and the process for certifying energy performance.

The authority setting the framework for MEPS implementation in Lithuania is the Ministry of the Environment. A regulatory measure, effective from May 2026, lays down the MEPS framework in relevant national legislation for non-residential and residential buildings. This regulatory measure has a target for the share of buildings renovated annually to increase by at least 20% by 2030. Moreover, from November 2016, all new and renovated buildings in Lithuania have been required to have a valid EPC. The draft NBRP reports a third regulatory measure laying down a compliance-monitoring scheme to check that MEPS requirements are met, using EPCs for verification and penalties for non-compliance. However, the draft NBRP indicates that this measure is not being applied yet, and there is no clear indication of when it will start. In general, the elements described in the draft NBRP are sufficient to trigger the renovation of the building stock in Lithuania in a way that is consistent with the implementation of the MEPS.

Renovation of residential buildings

The measures described in Lithuania's draft NBRP to support the progressive renovation of residential buildings are comprehensively designed. The renovation of worst-performing residential buildings is promoted through a financial support scheme in order to reduce energy consumption and GHG emissions.

The building renovation passport as a tool to support energy savings, complement MEPS, and assist the trajectory for residential buildings

Among the planned policies and measures, Lithuania's draft NBRP considers the introduction of the building renovation passport, as regulated under Article 12 of the EPBD. This instrument is seen as an important tool in promoting deep renovation including staged deep renovations. Lithuania's national law still needs to include the concept of a renovation passport. Once operative, the renovation passport will be linked to the EPC scheme (and MEPS), and will include all information related to the step-by-step renovation roadmap. The objective is to ensure a functional renovation passport system by the end of May 2026 with an interoperable database and digital tool. The draft plan recognises that the renovation passport can empower owners to renovate in several steps, allowing also for partial renovations, starting with those investments that have the shortest pay-back and the highest energy performance.

[102] No I-1240 Construction Law of the Republic of Lithuania, esp. Articles 11 and 51

Box 26. Example of policies and measures in Lithuania.

- *Renovation (modernisation) of multi-apartment buildings*. This measure aims to improve the energy efficiency of multi-apartment buildings to reduce energy consumption and GHG emissions, while improving the living conditions of residents. The measure aims to ensure the renovation of 5 042 multi-apartment buildings by 2030. The draft NBRP estimates that EUR 3.004 billion will be needed for this measure. The expected energy savings from the measures are 0.03 TWh. The measure is currently ongoing, and the entities responsible are Lithuania's Environmental Project Management Agency and Ministry of Energy.

- *Developing a plan to reduce energy costs in the event of an energy supply disruption or a sudden spike in electricity prices in the market*. This measure, referred to in the draft NBRP, is also part of Lithuania's national climate-adaptation plan for 2024-2030, and it requires each municipality in the country to draw up at least one plan for responding to an energy supply disruption or spike in electricity prices. Municipalities are responsible for the funding of this measure. The measure is ongoing, and the implementation period is up to 2029.

- *Ensuring demand for energy-sector professionals (heat, electricity, renewable energy, etc.) and the promotion of the energy profession in Lithuania.* Under this measure, Lithuania plans to: (i) draw up and communicate lists of new professions in the energy sector; (ii) create a rolling programme to promote energy studies; and (iii) update energy-oriented study programmes and make them more attractive. The entity responsible for this is the Ministry of the Environment. The measure is ongoing, and the implementation period is up to 2030.

Alleviation of energy poverty and housing affordability

Lithuania's draft NBRP set out the comprehensive measures it is taking to alleviate energy poverty and empower vulnerable citizens. The draft NBRP also briefly discusses housing affordability, but there is no clear explanation of how renovation can increase the availability of affordable housing.

The measures targeting energy poverty in the draft NBRP are consistent with the ones in the NECP. Although the targets to reduce the share of people unable to keep their homes adequately warm are ambitious (to 8.6% by 2030, 4.3% by 2040 and 0% by 2050 from 10.9% in 2020), they are grounded in concrete policies and measures.

The draft NBRP prioritises the renovation of worst-performing residential buildings occupied by energy-poor and socially vulnerable households, with a particular focus on multi-apartment buildings. The renovation measures aim to deliver deep improvements in energy efficiency, thereby reducing heating needs and lowering residents' energy expenditure. To ensure the effective participation of vulnerable households, the draft NBRP provides financial support mechanisms, including subsidies and accessible co-financing measures. For example, the draft NBRP discusses a financial measure to reimburse with public funds the heating costs of low-income residents. Another measure included in the draft plan encourages people in poverty to purchase solar power panels and/or replace fossil-fuel heat installations.

The draft NBRP discusses financial support such as low-interest rate loans, subsidies for renewable energy, and publicly supported payment schemes targeting vulnerable households. Municipalities and local entities play an important role in the implementation of such measures. For example, one of the measures aims to create energy communities within municipalities that would allocate a portion of the output from the power plants built to energy-poor households, using a grant scheme that covers up to 50% of the costs. The measure is ongoing up to 2029 and EUR 206 million in public funds are devoted to it. The draft NBRP also discussed another measure: the renovation subsidy. This subsidy targets vulnerable people and seeks to prevent them falling into energy

poverty. The subsidy is expected to fully cover the renovation of municipal housing (social and rental housing) and the renovation of municipal or central government public buildings. Currently, non-refundable subsidy measures are in place to help fund the renovation of multi-apartment buildings and individual houses. Finally, the draft NBRP discusses other potential financial instruments, which are not yet implemented. Some of these instruments address critical issues in terms of funding, social acceptability, and inequality. For example, one of the potential instruments discussed in the draft NBRP would fund the relocation of people living in damaged and low-energy-performance buildings to social housing; while another would fund a scheme to differentiate heating compensation (for example, owners of renovated energy-efficient buildings who are entitled to heating compensation according to their income level would receive full compensation, while those living in an unrenovated building would see their compensation reduced). And yet another instrument discussed in the draft NBRP would fund a tax-differentiation scheme according to which property tax would be higher for low-efficiency buildings and lower for more energy-efficient buildings.

The section in the draft NBRP on strengthening and protecting the rights of vulnerable consumers and alleviating energy poverty was designed in accordance with Article 24 of the EED targeting households at risk of energy poverty.

Lithuania briefly addresses housing affordability in its draft NBRP. In this area, the draft NBRP discusses differences between housing demand and supply across regions as a barrier to renovation. In municipalities with low housing demand, renovation costs can equal the property's already-low market value, reducing incentives to renovate. The draft NBRP explains that the new district renovation approach is enhancing the aesthetic appearance and quality of life, therefore increasing property values and providing incentives for homeowners to support renovations.

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

One-stop shops (OSSs) are discussed in the Lithuanian draft NBRP. According to Article 18 of the Directive, by May 2026 a network of offices and services accessible throughout the national territory must be set up to provide comprehensive advice and support covering all steps of building renovation to members of the public, homeowners' communities, and small and medium enterprises.

The goal for Lithuania is to set up a network of OSSs by 2030, especially in: (i) areas with older building stock; (ii) regions with planned integrated neighbourhood-renovation programmes; and (iii) within a 90-minute travel radius of people's home, depending on local transport options.

Currently, Lithuania's OSSs are only in their start-up phase. The Municipality of Vilnius started a pilot project called *Renew the City* to implement projects for the refurbishment of apartment blocks. The draft NBRP stresses that it will be important to coordinate at the national and local level to draw up a strategy to attract qualified professionals, monitor renovation rates and provide support, in particular in areas with the worst-performing buildings. In addition, data collection and analysis to evaluate the effectiveness of implemented measures in this area are still missing in Lithuania.

For these reasons, the network of OSSs is still under development in Lithuania. The policy for setting up OSSs expects that there will be 10 bodies able to give refurbishment advice in the country by 2030.

Decarbonisation of heating and cooling and the phasing out of fossil fuels in heating and cooling with a view to the complete phasing out of fossil-fuel boilers by 2040

Lithuania addresses the decarbonisation of heating in a comprehensive way in its draft NBRP. Overall, the planned measures set out in its draft NBRP are expected to contribute effectively to the decarbonisation of the heating. They support the gradual phase-out of fossil fuels, with the objective of fully eliminating fossil-fuel boilers by 2040. They also work in synergy with other related strategies and plans.

The draft plan includes several measures to reduce the use of fossil fuels for heating and cooling and ensure the complete phase-out of fossil-fuel boilers by 2040. The measures are linked to: (i) Lithuania's comprehensive national heating and cooling assessment; (ii) the local heating and cooling plans; and (iii) an assessment of the potential in Lithuania to use renewable energy and waste heat, ensuring consistency with the EU's energy and climate objectives and the strategy to end Russian gas imports. The measures planned for phasing out fossil fuels in heating include the replacement of fossil-fuel boilers with more efficient technologies, with a target of replacing 50 000 boilers by 2030 and installing 11 305 heat pumps between 2025 and 2030. However, it is not clear what share of the country's installed capacity of boilers this will represent and what will replace the boilers that are not replaced by heat pumps.

Furthermore, there are additional measures in the draft NBRP focusing on the refurbishment of pipelines in district-heating systems' heat-transmission networks by replacing outdated infrastructure, with a target of upgrading 1 000 km of pipelines and increasing the share of renewable energy in district heating systems. These measures are already being implemented and are scheduled to continue until 2030. The draft NBRP specifies the allocated budget and the expected energy savings associated with each measure.

Prevention of construction and demolition waste

The draft NBRP outlines comprehensive measures to address construction and demolition waste (CDW) and advance circular-economy objectives. It aims to reduce CDW by both strengthening the oversight of separate waste collection and enforcing liability measures for violations related to municipal waste management. The draft plan also sets out ambitions to: (i) promote the renovation of waste infrastructure; (ii) promote and finance the development of a small business engaged in the sale and repair of second-hand goods; (iii) incentivise the use of materials with high reusability and recyclability; and (iv) carry out publicity campaigns to increase awareness of waste management issues. The draft NBRP includes measures to encourage strategic planning for circularity, such as the state waste management plan for 2021-2027, which aims to: (i) increase circularity; (ii) introduce environmental sustainability criteria in the building sector; and (iii) promote education and public campaigns on waste management.

Promotion of renewable energy sources in line with: RED, Article 15(a)

The promotion of renewable energy sources in buildings is an important part of Lithuania's draft NBRP and contributes effectively to Lithuania's ambitious target to have renewable energy account for 90% of final energy use by 2030.

Measures to promote renewables set out in the draft NBRP consist of: (i) updates to the regulatory framework for the use of renewable energy in new and existing buildings; (ii) measures to promote the production of electricity from renewable sources; and (iii) updates of measures to boost infrastructure; (iv) measures to promote new technologies; and (v) measures to encourage both the creation of renewable energy communities and 'prosumers' (including financial support and dissemination of information). The measures to promote renewable energy (such as financial support to prosumers and to promote the use of renewables in residential and non-residential

buildings), are all already ongoing, and the draft plan reports related quantitative targets, planned budgets and sources of funding.

Deployment of solar energy installations on buildings

The planned measures in this area refer to updates of the regulatory framework by introducing requirements stemming from Article 10 of the EPBD. These measures include the mandatory installation of solar power plants in: (i) new public and commercial buildings, as well as in existing public buildings with a floor area greater than 2 000 m^2, 750 m^2 or 250 m^2; and (ii) new residential buildings, covered car parks and refurbished non-residential buildings. Moreover, measures also support the construction of onshore renewable plants and individual storage facilities as stated in the Next Generation Lithuania plan.

These measures would ensure a greater share of renewable energy in the building sector, lower energy costs and a significant reduction in CO_2 emissions.

Reduction of whole-life-cycle GHG emissions and the uptake of carbon removals

The draft NBRP directly implements the requirement in Article 7(5) of the EPBD that from 2030 all new buildings should not exceed the set national limit values, thereby reducing GHG emissions from the construction sector.

The reduction of whole-life-cycle GHG emissions is addressed through several regulatory measures: (i) the implementation and validation of the methodology for life-cycle modelling; (ii) setting limit values and targets for the total life-cycle global warming potential (GWP) of new buildings as of 2030; (iii) adapting certification systems for building energy performance considering the GWP limit values.

Promotion of the district and neighbourhood approach and integrated renovation programmes

The draft NBRP is aligned with Lithuania's NECP on this policy area and addresses comprehensively the promotion of sustainable districts and neighbourhoods mainly based on funding at the municipal level.

Measures set out in the NBRP in this area cover technical, social and regulatory aspects. They include plans for public education on clean transport to encourage more sustainable mobility habits among Lithuanians. They also include plans to develop charging infrastructure for electric vehicles, and make new, less-polluting transport solutions accessible to Lithuanians. The draft NBRP sets out plans to implement sustainable mobility plans, develop cycle paths, and make public transport more attractive. It also integrates these measures into plans to renovate neighbourhoods by simultaneously setting out plans to reduce the use of cars, improve the quality of the environment and create a more convenient mobility system. The development of an integrated district-renovation model, set out in the draft NBRP, provides the basis for cities to plan long-term renovation programmes, while the establishment of OSSs ensures that residents can receive advice and assistance in planning and implementing renovation projects. One municipality (Klaipeda) has already launched a pilot project on district approaches.

Improvement of buildings owned by public bodies

Lithuania's draft NBRP sets out measures to improve public buildings aligned with Articles 5, 6 and 7 of the EED. The measures include energy-efficiency improvements and climate-adaptation solutions.

One measure focuses on the renovation of buildings owned by the State and municipalities, with the objective of renovating 367 000 m² of central government buildings and 86 220 m² of municipal buildings over 2021-2028. Another measure emphasises the importance of climate-change adaptation: in addition to energy-saving technologies, cooling technologies such as air-conditioning systems, cool roofs or double facades are being deployed in newly renovated public buildings, providing comfort and resilience to extreme weather events.

Promotion of smart technologies and infrastructure for sustainable mobility

The use of smart technologies in buildings is being developed and promoted in Lithuania. Almost 14% of residents in multi-apartment buildings have the possibility to individually regulate the indoor temperature in their apartments. In 2018, all building inlet heat points in Lithuania (29 943) were equipped with metering devices, of which almost 55% are equipped with remote-reading systems, while large cities such as Kaunas and Vilnius make even more widespread use of remote-reading heat meters (installation rates in apartment buildings of 97% and 89% respectively). Lithuania's electricity distribution operator has installed smart electricity meters for many of its customers. For gas, there are no plans yet to roll out smart meters, but this is a tool that could be implemented by the gas supply operator. The smart readiness indicators (SRI) scheme as regulated in the EPBD is not included in the Lithuanian legislation. However, the draft NBRP states that an assessment of a voluntary SRI scheme will begin in 2026 through a feasibility study and a test phase for the deployment of smart readiness indicators.

The draft NBRP also includes a dedicated set of policies and measures related to sustainable mobility in and around buildings, particularly in relation to electric vehicle (EV) infrastructure.

The NBRP sets out planned measures for the installation of recharging points in both new and existing buildings, in line with the requirements of the recast EPBD. The measures will cover different building categories, including residential and non-residential, emphasising the integration of EV-ready infrastructure at the design stage of new buildings. For instance, one measure proposed in the NBRP is to install at least one recharging point in every new or renovated building that has more than five parking spaces. In addition, the plan addresses fire-safety considerations in car parks. Overall, sustainable mobility measures are clearly articulated and form a coherent part of the building renovation and modernisation framework.

Accessibility for persons with disabilities

Adaptation to the basic accessibility needs of people with disabilities has been compulsory in Lithuania for all new and existing buildings undergoing major renovation since 2010. In addition, the draft NBRP makes reference to improving accessibility in existing buildings under specific measures or activities that are ongoing at the time of the preparation of the draft plan. In its section 'Accessibility of buildings', the draft NBRP provides for aspects such as: (i) parking spaces for persons with disabilities (specifications for width, marking, and distances to the entrance); (ii) paths to buildings (specifications for slope, width, and absence of obstacles); (iii) gradients/slips (specifications for gradient percentages, handrails, pitches, edge protectors); (iv) entrances to buildings (specifications for alternatives to stairways, door widths, and threshold heights); and (v) horizontal and vertical movements (specifications for corridors, staircases, lift accessibility, etc.).

Addressing market barriers, market failures and skills gaps

Barriers and market failures are comprehensively addressed in the Lithuanian draft NBRP. Measures in the NBRP highlight the importance of: (i) technical advice (OSSs); and (ii) simplifying administrative procedures for planning and carrying out renovation (e.g. fast-track procedures).

Measures such as these can ensure efficiency, transparency and accessibility in building renovation and construction projects for all participants. The draft NBRP also addresses the promotion of education, targeted training, and upskilling in both the construction sector and the renewable energy/energy efficiency sector. In particular, planned measures refer to: (i) improvements and updates of university degrees to promote energy studies; and (ii) the promotion of vocational training on renewable energy technologies.

Awareness-raising campaigns and other advisory tools

Measures to implement awareness-raising campaigns and build advisory tools are part of the draft NBRP. Plans to promote education campaigns to change consumer behaviour are also included. The draft NBRP states that, by 2026, 119 395 people whose homes are in need of renovation should have received clear information, have access to advice, and have been reached by awareness-raising campaigns. In addition to plans for the future creation of OSSs, the draft NBRP includes plans to create an information hub on renovation by 2030. The hub will provide information on available funding opportunities, renewable energy communities, energy efficiency, building renovation and energy savings.

Moreover, the draft NBRP includes a plan to extend Lithuania's existing integrated building renovation map so the country can monitor, analyse and forecast the renovation processes of all buildings at national level. The objective is to ensure efficient data collection, analysis, and planning of measures. This measure covers data aggregation, system integration, geographical information systems and implementation of a reporting module. In addition, the draft NBRP addresses OSSs consistently with other advisory tools.

Promotion of modular and industrialised solutions

Measures to promote modular and industrialised solutions for construction and renovation are included in Lithuania's draft plan. These include plans to promote plant-based construction and renovation, as a continuation of the measure financed between 2023 and 2025. The second part of this measure, over 2026-2030, consists of support to deploy production capacity in Lithuania for standardised modular structures using plant-based materials needed to achieve the objectives of the LTRS and NBRP. Another measure aims to achieve a 20% increase in the use of modular technology between 2026 and 2030 supplementing the regulatory base of Lithuania's Construction Act on modular and industrialised construction.

3.9.5. Sufficiency of financing sources and administrative resources

Investment needs are included in the draft NBRP by building type (residential and non-residential) and category (single-family house, multifamily house, administrative, educational etc.). The draft NBRP provides a detailed description of the financial and administrative resources that will be mobilised to meet the 2030-2050 renovation targets. The allocation of both budgetary and administrative resources set out in the draft NBRP appears sufficient for the short-term horizon (2026-2030).

The total **investment needs** between 2026 and 2050 amount to EUR 66 billion (representing about EUR 440/m^2 of the expected renovated floor area[103]).

The **funding and financing sources** for this have been identified up to 2050 in the draft NBRP, and these sources match the necessary investment needs, so no funding gap is identified. The budget has been estimated based on existing and planned instruments as well as funds for renovation and building-sector decarbonisation. The draft NBRP also identifies subsidies from public entities to incentivise the renovation of residential buildings and non-residential of a non-commercial status, which are commonly owned by public authorities. These subsidies vary between 20% and 30% of the estimated renovation cost, depending on the measures, the activities supported and the nature of the investment. The draft NBRP presents scenarios for renovation for 2026-2050 alongside average annual subsidy needs. Under the 20% subsidy scenario (which applies to residential buildings and non-commercial non-residential buildings), EUR 9.47 billion would be provided through public subsidies, corresponding to approximately 14% of total investment needs, while the remaining 86% would be financed through private funds.

The draft NBRP identifies a planned budget and funding source for all measures. The financial measures to address energy poverty that are set out in the draft NBRP are mainly direct subsidies, differentiated tax incentives and specific aid for vulnerable households. The draft NBRP estimates a total budget of EUR 1.7 billion up to 2030 to cover these schemes (some of them already ongoing). Various support programmes for low-income households, micro-enterprises and transport users are detailed in Lithuania's social climate plan[104] (EUR 885 million from EU and national public funds).

Public funding estimates are made based on currently implemented programmes and programmes planned for the future. The budget will come from various sources with contributions from both local and regional administrations (the combined local and regional funding will account for 55% of total public funding[105]). The public financial instruments to finance building renovation are extensively discussed in the draft NBRP, where the focus is on: (i) the expansion and consolidation of public revolving funds and public guarantee funds; and (ii) the integration of grant schemes with direct aid lines and tax deductions.

Private financing is also addressed in Lithuania's draft NBRP. Collaboration with financial institutions is envisioned in the plan to further cover for loans, including risky loans. The draft NBRP discusses advantageous conditions – for the borrower – for this private financing, such as reduced interest rates, long repayment terms, zero-coupon loans and others. The draft NBRP also sets out plans to promote the inclusion of these loans in 'green portfolios' of banks and credit unions. Moreover, boosting mortgage lending to facilitate access to deep renovation is also planned. Under the interest-compensation model, public support would cover the interest payments on renovation loans, while building owners would repay the principal. By lowering borrowing costs and spreading payments over time, this can mobilise higher levels of private investment and support renovation uptake without relying exclusively on direct non-refundable grants.

[103] JRC calculation.

[104] Accessible at https://employment-social-affairs.ec.europa.eu/policies-and-activities/funding/social-climate-fund/social-climate-fund-national-plans/lithuanias-social-climate-plan_en .

[105] JRC calculation.

Innovative private and public/private financing instruments are described in Lithuania's draft NBRP as measures to 'empower' owners to renovate. The 'empowerment' mainly comprises: (i) access to finance; (ii) full or partial subsidies for renovation works; (iii) financial engineering instruments; (iv) interest compensation for loans; and (v) the provision of loan guarantees. There is also discussion in the draft NBRP of a measure incentivising an 'ESCO' model, where an energy service company (ESCO) invests in measures to improve the energy performance of a building by concluding an energy performance contract with the owner or manager of the building, and recovers most of the investment over the lifetime of the contract from future energy savings. As of 2020, for projects using the ESCO model, financing was offered by Lithuania in the form of a repayable subsidy of up to 80% and a loan of up to 20% of the investment.

Overall, the measures to leverage private funding set out in Lithuania's draft NBRP seem plausible, especially as they are based on previously or currently implemented programmes.

Assessment of the adequacy of total investments

For every time period (2026-2030, 2031-2035, 2036-2040, 2041-2045, 2046-2050), the draft NBRP assumes that total funding provided will fully cover the estimated investment needs (100% coverage). The share of public investment varies depending on the subsidy-intensity scenario (20%, 25%, 30%), while the corresponding private investment shares amount to 86%, 78%, and 72.5% of the total investment need, respectively[106].

In the draft plan, it is stated that under the proposed subsidy-intensity scenarios, the annual subsidy requirement will range between EUR 378 million and EUR 568 million, highlighting a potential funding gap compared with current financing volumes. However, the draft plan identifies several potential sources to address this potential gap. These include allocations from the State budget, municipal budgets and climate-related programmes from outside Lithuania (primarily from the EU). Additional revenues could be generated through taxes linked to the building sector or climate-mitigation objectives (such as property taxes, fuel excise duties and vehicle taxes). Lithuania also envisages the preparation of five- or seven-year implementation plans, to be regularly updated in line with available funding sources.

Linking investment needs to targets through policies and measures

The draft NBRP explains how the private and the public budget will finance different policy areas. The draft plan attributes most of both public expenditure and mobilised private investment to renovation measures overall, such as energy-efficiency upgrades of residential and public buildings. Public funds are also designed to contribute further to energy poverty alleviation, and other initiatives, such as: (i) urban regeneration; (ii) sustainable mobility; (iii) training; and (iv) awareness-raising campaigns.

[106] JRC calculation of public-private share based on available data in the draft NBRP. The draft NBRP considers as eligible for subsidies only residential buildings and non-residential buildings with a non-commercial status that are commonly owned by public authorities. Therefore, the share of public investments in the total investment needs will be lower than the subsidy scheme in all three cases.

3.9.6. Inclusiveness of the public consultation

The public consultation allowed the public to participate at different stages of the NBRP's drafting, allocating enough time and opportunities to all those interested in participating in drawing up the draft.

The public consultation was opened on 14 November 2025. The consultation involved a total of 200 participants representing local and regional authorities (e.g. the Lithuanian Energy Agency, the Lithuanian Disability Organisations Forum, municipalities, and private sector bodies such as business confederations, banks, etc.). Other socio-economic partners also participated in the consultation, including civil society groups and bodies working with vulnerable households (the draft NBRP sets out a full list of stakeholders who participated in the consultation). During the public presentation/consultation, participants were able to submit their suggestions and comments. Given the large size of the draft plan, the large amount of information and the interest/involvement of participants, the deadline for the submission of proposals and buildings was 10 days, e.g. up to and including 28 November 2025. The interested parties submitted their proposals and comments in several ways:

— orally, after the remote presentation of the Lithuanian NBRP;

— in writing, leaving a comment on the remote meeting platform;

— in writing, by sending an email to the project promoters;

— in writing, leaving comments in the working-project document shared by the project promoters.

The recommendations of the participants, when included (fully or partially), are clearly traceable in the draft NBRP and linked with the corresponding upgraded policy measures.

3.9.7. Completeness of the draft plan and consistency with other planning or reporting exercises

Almost all mandatory indicators are included in the draft plan. More information is listed in the table below.

Table 24. Indicators checklist for Lithuania.

Section	Indicator	Yes/No/Partially	Explanatory Notes
Overview of the national building stock	Number of buildings (number)	Yes	Number of social housing buildings and floor area not available.
	Floor area (m^2)	Yes	
	Definition of worst-performing buildings	Yes	
	Share of worst-performing buildings (%)	Yes	
	Renovated buildings / floor area (number/ m^2)	Yes	
	Renovation rate (%)	Yes	
	Primary energy use (ktoe)	Yes	
	Final energy use (ktoe)	Yes	
	Specific primary energy for residential buildings (kWh/m^2y)	Yes	
	Share of renewable energy (%)	Yes	

Section	Indicator	Yes/No/Partially	Explanatory Notes
	Operational GHG emissions (Mt CO_2-eq)	Yes	
	Energy poverty share (%)	Yes	Value of indicators provided, but not in a composite indicator.
Roadmap for2030, 2040 and 2050	Renovation targets (floor area or number)	Yes	
	Renovation rate targets (%)	Yes	
	Primary energy targets (ktoe) or reduction (%)	Yes	
	Final energy targets (ktoe) or reduction (%)	Yes	
	Renewable energy targets (%)	Yes	
	GHG emission targets (Mt CO_2-eq) or reduction (%)	Yes	
	Energy poverty targets (%)	Yes	Energy poverty rate indicator is based only on one indicator.
	Contribution to energy-efficiency target	Yes	
Policies and measures	Scope and type	Yes	
	Quantified objective	Partially	Sometimes this information is missing for some policies.
	Status and implementation period	Yes	
	Budget and funding source	Yes	
Investment needs	Total and/or average investment needs (million EUR), EUR/m^2	Yes	
Residential buildings	Average specific primary energy decreases between 2020 and 2050	Yes	
	Number of residential buildings/dwellings to be renovated	Yes	
	Residential floor area to be renovated (m^2)	Yes	
	Worst-performing buildings contribution (%)	Yes	
Non-residential buildings	MEPS 16% threshold	Yes	
	MEPS 26% threshold	Yes	
	2040 and 2050 MEPS thresholds	Yes	
Summary of the public consultation		Yes	

Source: JRC elaboration on Member State reporting

Consistency checks were carried out by comparing the data with previous Member State reporting: the 2024 NECP, the 2025 national energy and climate progress reports (NECPR), the 2023 national cost-optimal report and the 2020 LTRS.

Plausibility checks were carried out by comparing the data with other reliable datasets: the Building Stock Observatory (BSO) for building stock indicators and Eurostat datasets for final energy consumption.

Box 27. Consistency and plausibility check for Lithuania.

Primary energy factors set out in Lithuania's draft NBRP are consistent with previous reporting in the 2023 national cost-optimal report.

The number and floor area of residential buildings detailed in Lithuania's draft NBRP are plausible based on comparison with the BSO dataset.

The final energy consumption data set out in Lithuania's draft NBRP are plausible based on comparison with the Eurostat dataset.

Energy poverty

Lithuania included the concept of energy poverty in its national law and defined it 'as households' lack of access on energy services that provide a standard of comfort, a standard of living, and a standard of health, including the supply of cooling, lighting, adequate energy for heating, hot water and household appliances'[107]. The indicators for energy poverty used in Lithuania's draft NBRP are drawn from the official statistics portal of the Lithuanian national statistics agency and Eurostat.

The draft NBRP explicitly refers to Article 2(52) of the EED and to Commission Recommendation (EU) 2023/2407, demonstrating awareness of the revised EU framework on energy poverty. The definition used in the draft NBRP's overview and in other parts of the draft NBRP reflects the core elements of Article 2(52), covering the lack of access to essential energy services (adequate heating, hot water, cooling, lighting and energy for household appliances). Furthermore, Lithuania's draft NBRP recognises the need, in line with the Recommendation, to: (i) distinguish between 'energy poverty' and 'vulnerable energy consumers'; and (ii) address energy poverty through a combination of energy efficiency and social policies. However, the assessment of energy poverty contained in Lithuania's draft NBRP presents some limitations. This is mainly because, after presenting multiple indicators, the energy poverty rate used in the draft NBRP is then proxied by only one indicator. Current policies and measures described in the draft NBRP rely mainly on income-based criteria. The methodology used in the overview of the draft NBRP does not clearly translate the legal definition of energy poverty into operational criteria for identifying energy-poor households (e.g. explicitly combining climate, facility/housing, mobility and socio-economic aspects). The approach presented in the draft NBRP, therefore, does not fully reflect the multidimensional implementation encouraged by Commission Recommendation (EU) 2023/2407 and its guidance document (SWD/2023/647).

Lithuania's draft NBRP applies the same core operational indicators used in the country's NECP, namely the inability to keep a home adequately warm (%). The targets for reducing energy poverty are explicitly stated as being derived from – and aligned with – the NECP objectives, ensuring coherence between reporting frameworks. Moreover, the draft NBRP explicitly refers to the preparation of a social climate plan and the establishment of the Social Climate Fund for the period 2026-2032. It states that the social climate plan will include further measures targeting vulnerable groups (see policy and measures).

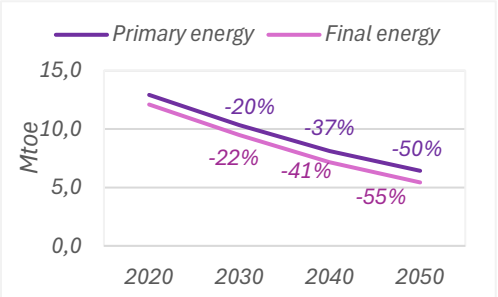
[107] To address energy poverty holistically, Lithuania's final updated national energy and climate plan for the period 2021-2030 (Ministry of Energy) also highlights key existing and planned measures to provide effective assistance in reducing the share of households that are forecast to spend a significant share of their income on energy expenditure by 2030.

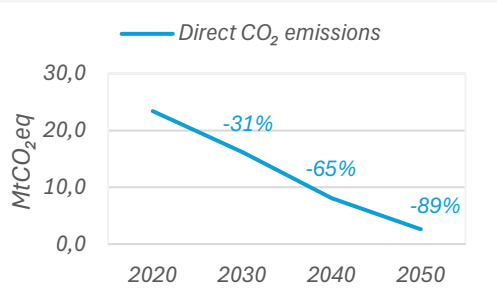
3.10. The Netherlands

3.10.1. Main indicators

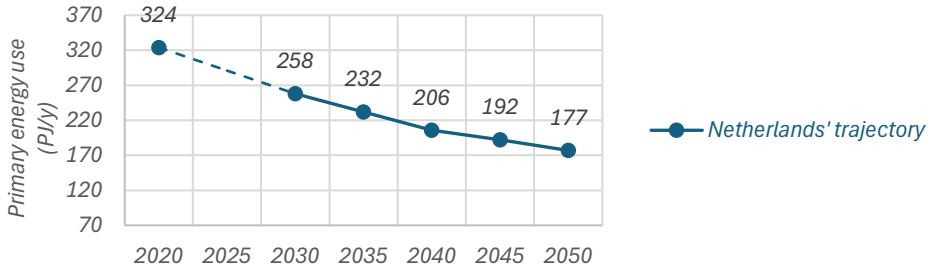
Table 25. Selection of main indicators from the Netherlands' draft NBRP.

Renovation				
Floor area (Million m^2)	2020	2030	2040	2050
	Baseline	Cumulative renovation		
Residential	938.0	-	-	-
Non-residential	145.0	50.0	102.0	145.0
Total	1 083.0	-	-	-
Cumulative renovation (%)	-	-	-	-
Number of buildings	2020	2030	2040	2050
Total	8 228 429	1 300 000	4 200 000	7 800 000
Cumulative renovation (%)		16%	51%	95%
Annual renovation rate (%)		**1.58%**	**3.52%**	**4.38%**
	2020	2030	2040	2050
Energy consumption				
Primary energy (Mtoe)	2020	2030	2040	2050
Residential	7.7	6.1	4.9	4.2
Non-residential	5.2	4.2	3.2	2.2
Total	12.9	10.3	8.1	6.4
Change vs 2020 (%)		**-20%**	**-37%**	**-50%**
Final energy (Mtoe)	2020	2030	2040	2050
Residential	7.6	5.9	4.5	3.7
Non-residential	4.5	3.6	2.7	1.7
Total	12.1	9.5	7.2	5.4
Change vs 2020 (%)		**-22%**	**-41%**	**-55%**
Energy end-uses included	Heating, cooling, hot water and ventilation in non-residential, plus cooking and technical building systems in residential buildings			
GHG emissions				
Direct CO_2 emissions ($MtCO_2$)	2020	2030	2040	2050
Residential	16.9	11.7	5.8	2.3
Non-residential	6.6	4.5	2.4	0.3
Total	23.4	16.2	8.1	2.6
Change vs 2020 (%)		**-31%**	**-65%**	**-89%**
Total CO_2 emissions ($MtCO_2$)	30.0	23.5	17.2	12.6
Change vs 2020 (%)		**-22%**	**-43%**	**-58%**





Renewable energy				
Not available				
Solar energy technologies in buildings		2030	2040	2050
Share of residential building equipped		55%	77%	98%
Share of non-residential buildings equipped		80%	83%	85%
Energy poverty				
People affected by energy poverty	2020	2030	2040	2050
Share of households in energy poverty based on low income and low building quality	3.2%	1.6%	0.3%	0.0%
Trajectory for the progressive renovation of residential buildings				



Minimum energy performance standards for non-residential buildings				
Not available				
Primary energy factors				
Non-renewable PEF	2023	2030	2040	2050
Electricity	1.45	1.45	1.45	1.45
Natural gas	1.00	1.00	1.00	1.00
District heating	0.90	0.90	0.90	0.90
Investment needs for renovation and funding and financing sources				
Investment needs (billion EUR)		2030	2040 Cumulative	2050
Residential		15.0	60.4	93.6
Non-residential		11.6	37.1	60.2
Total		26.6	97.5	153.8
Funding and financing (billion EUR)				
Public		6.4	6.4	6.4
Private		20.2	91.1	147.4
Total		26.6	97.5	153.8

Source: JRC elaboration on Member State reporting

3.10.2. Executive summary

The Netherlands has submitted a comprehensive and almost complete draft of its national building renovation plan (NBRP).

The level of ambition of the draft plan is in line with the goal of achieving a highly energy-efficient and decarbonised building stock by 2050. It also describes the wider benefits of energy efficiency in buildings, such as health and improved indoor comfort.

The Netherlands' targets for **primary energy consumption** in the building sector are 10.3 Mtoe by 2030, 8.1 Mtoe by 2040 and 6.4 Mtoe by 2050. This corresponds to reductions of 20%, 37% and 50%, compared with the 2020 level of 12.9 Mtoe.

The Netherlands' targets for **final energy consumption** in the building sector are 9.5 Mtoe by 2030, 7.2. Mtoe by 2040 and 5.4 Mtoe by 2050. This represents reductions 22%, 41% and 55% reductions, respectively, from the 2020 level of 12.1 Mtoe.

The Netherlands' targets for direct **operational CO_2 emissions** in the building sector are 16.2 Mt CO_2 by 2030, 8.1 Mt CO_2 by 2040, and 2.6 Mt CO_2 by 2050, corresponding to reductions of 31%, 65% and 89% compared with the 2020 baseline of 23.4 Mt CO_2.

The draft NBRP submitted by the Netherlands is aligned with the ambition, objectives and policies and measures outlined in its final **national energy and climate plan** (NECP), although the targets are not fully comparable.

The draft plan provides the contribution that the Netherlands' building sector will make to the **EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED'). The energy savings in final energy from 2020 to 2030 due to building renovations represent approximately 63% of the total energy savings needed to achieve the energy efficiency target[108]. This indicates the major contribution that the building sector is expected to make in achieving the energy efficiency target by 2030. The draft plan does not specify the contribution to the **EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED') as the Netherlands does not provide a specific target for increasing the share of renewables used in buildings.

To meet the decarbonisation objective, the Netherlands has also set targets to roll out renewable energy by equipping 98% of residential buildings and 85% of non-residential buildings with solar photovoltaics installations by 2050. It also sets a provisional target of 60 TWh of electricity generated from these installations by 2050.

To achieve these energy savings, the Netherlands aims to **renovate** 7 500 000 residential buildings and 300 000 non-residential buildings by 2050. This represents 95% and 91% of the 2020 baseline figures. This means that all buildings identified as in need of any renovation level in 2020 are planned to be renovated by 2050 with staged renovation of the worst-performing buildings. The resulting final and primary energy consumptions mentioned above are calculated and set as targets.

Regarding **the trajectory for progressive renovation of residential buildings**, the Netherlands sets milestones to reduce total primary energy use against the average with the aim to bring the residential building stock to a level of 4.2 Mtoe/y by 2050. The milestones for 2030 and 2035 are to reduce primary energy use by 20% and 28% against the 2020 baseline. Without information on the expected floor area of residential buildings in 2030, it is not possible to compare the ambition with the Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD' requirements to reduce average primary energy use by at least 16% and 20-22% by 2030 and 2035, respectively. However, it is likely these targets are aligned with, and potentially exceed, the EPBD's requirements. The Netherlands plans to bring in a residential MEPS scheme that aims to phase out rented homes with an energy performance

[108] 110 PJ energy savings between 2020 and 2030 due to building renovation against the 176 PJ needed to reach the energy efficiency target by 2030. However, the energy consumed by new buildings built between 2020 and 2030 is not included.

certificate (EPC) class E and below by 2029. This should help the Netherlands achieve the trajectory by triggering renovation work.

The draft NBRP does not provide the **minimum energy performance standard** (MEPS) thresholds for **non-residential buildings.** It plans to do so by 2027 at the latest, after the EPBD transposition deadline of May 2026. Nevertheless, since 2023, all office buildings in the Netherlands must have at least an energy label C.

The assumptions and data sources underlying the trajectory of residential buildings are clear. However, the building stock description does not seem consistent with the roadmap (floor area and number of buildings to be renovated), and the trajectory does not factor in the addition of new buildings. The draft plan does not specify the methodology for MEPS as the Netherlands will set MEPS at a later stage.

The draft plan partially identifies the **worst-performing buildings,** which are prioritised for renovation. The worst-performing residential buildings are identified through calculated primary energy consumption but the draft plan does not specify the threshold above which a residential building is considered as worst-performing. For non-residential buildings, a building with an EPC class D (from 2030) and C (from 2033) or below is considered as worst-performing. The draft NBRP does not provide consolidated figures on the share, number or floor area of the worst-performing buildings.

Alleviating **energy poverty** is an important goal in the Netherlands' draft plan. The Netherlands does not yet have a legally codified national definition of energy poverty, but the national NECP recognises the EED definition. In 2024, it is estimated that 267 000 households (3.2% of all households) were in energy poverty, based on an indicator combining low income and low-energy-quality buildings. The draft NBRP aims to reduce this indicator by 50% by 2030 (to 1.6% of all households), by 90% by 2040 (to 0.3% of all households) and by 100% by 2050, zero households in energy poverty. The plan highlights that this number is expected to decrease due to progress in phasing out lowest energy labels in the rental sector. The methodology to calculate the rate is not provided. Measures include financial incentives through the National Insulation Programme and zero-interest loans from the National Heat Fund specifically for individual homes and vulnerable neighbourhoods. Although the draft plan does not make a clear connection between these measures and the targets to reduce energy poverty, they seem adequate to achieve the targets.

The Netherlands tackles the goal of **housing affordability** through measures to reduce housing costs and improve housing supply. It uses a housing valuation scheme that sets a maximum rent based building characteristics and energy performance such as floor area and EPC class, with the aim that these rent caps are incentives for owners to renovate inefficient houses. The Netherlands now caps energy performance fees (which are fees that landlords can legally apply to the rent of highly energy-efficient housing) to ensure that housing costs are not increased for tenants. To boost housing supply and speed up new construction, it plans to build 50% of new housing using industrialised methods by 2030.

Overall, the Netherlands has a solid framework in place to support the decarbonisation of the building stock. Its draft plan gives a comprehensive **overview of implemented and planned policies and measures** covering all mandatory policy areas. Most measures include most of the mandatory descriptive elements but several lack a quantified objective, detailed funding sources or expected impact. Although the draft plan demonstrates extensive policy activity across all key areas, these gaps make it difficult to assess whether the measures are sufficient to implement the

plan. In several cases the draft plan explicitly states that further measures and regulatory instruments will be brought in in 2026 or later.

The Netherlands takes a relatively comprehensive approach to the goal to **decarbonise heating**. It aims to phase out natural gas in heating by developing low-carbon district heating networks and by phasing out individual natural gas boilers, supported by regulations and financial incentives. District heating operators are required to achieve zero carbon emissions by 2050, with subsidies to promote new connections and renewable energy. For individual heating, the target is to install 1 million hybrid heat pumps by 2030, facilitated by subsidies and loans, along with a shift from natural gas to green gas. However, the draft NBRP stops short of specifying a target date for phasing out fossil-fuel boilers and of presenting a coherent roadmap to achieve this (the target seems to be 'natural gas free housing stock by 2050').

The **investment needs** are estimated in the draft plan. Between 2026 and 2050, the needs are estimated at EUR 154 billion[109]. The calculation methodology to estimate these needs is described, ensuring the credibility of the approach. However, the projections lack a sensitivity analysis of the key variables of the investment needs. It identifies the financing sources and they fully cover the required investments (no financial gap). Public funding is estimated based on the funding available for selected programmes. Private financing is comprised of own financing and loans/mortgages but the plan does not detail sufficiently how it will be mobilised.

The **public consultation** involved an evaluation of the preliminary draft plan by an expert committee and an online public consultation scheduled for spring 2026. This process offers the public multiple opportunities to engage at various stages of drafting the NBRP, ensuring enough time for interested parties to provide feedback. However, the draft plan does not clearly indicate how feedback from the initial consultation on the preliminary draft plan was incorporated or addressed.

The assessment process has identified the following elements of the draft NBRP as examples of particular strengths, **innovative measures** and/or **good practice** to highlight.

- The Netherlands has initiated a programme to expand the housing stock with the aim of building 50% of new housing using industrial methods (prefabricated elements) by 2030. The programme also focuses on digitalisation in housing, research and innovation to overcome barriers, and promoting the social impact of the measures (to meet community needs).
- The Netherlands has adopted a regulatory measure to phase out the worst-performing houses (EPC classes E-F-G) from the rental stock by 2028. It also aims to extend the measure to 2040 to a mandatory EPC class D for the entire rental housing stock.
- The Netherlands aims to reduce average heating demand in the rental housing stock from 108 kWh/(m^2y) in 2024 to 94 kWh/(m^2y) in 2030 and 87 kWh/(m^2y) in 2034 and to simultaneously phase out gas heating in 450 000 homes between 2030 and 2034.
- 1 million hybrid heat pumps installed in existing buildings by 2030, focusing on cases where district heating network is not feasible. The measure is supported by an action plan to expand production and installation capacity.

[109] The investment needs per floor cannot be estimated as the floor area renovation targets are not provided.

— The housing valuation system – a mandatory scheme as of 2024 – sets a cap on maximum rents based on the building characteristics and energy performance (floor area, EPC class) with the aim to encourage private owners to renovate.

— Relief programmes for non-residential building owners include EUR 50 million in funding to assist small and medium enterprises. They provide guidance and technical advice on adopting energy efficiency measures and on the obligations stemming from the recast EPBD.

— Since 1 January 2023, all offices in the Netherlands are required to have at least an EPC class C rating, otherwise they cannot function as offices. Exemptions apply, and municipalities are responsible for enforcing the requirements.

— The Netherlands has put in place a tax benefit for investing in sustainable buildings if the construction materials used meet at least one of these criteria: 50% renewable raw materials, 25% reused construction products or 50% demountable construction products.

— Simplified permit procedures (also for tenants) to install charging points, e.g. notification is sufficient, provided that a number of conditions are met.

However, the following aspects of the draft NBRP need to be **completed and improved** and they should be addressed in the final version. These aspects are set out below.

— Set MEPS in final or primary energy covering all EPBD energy uses for non-residential buildings to trigger the renovation of 16% and 26% of the worst-performing non-residential buildings (2020 data) by 2030 and 2033 and set thresholds for 2040 and 2050.

— Complete the trajectory for the progressive renovation of residential buildings by providing milestones for average primary energy use in kWh/(m^2y) and specify the contribution expected from renovating the worst-performing buildings after 2030.

— Ensure that the national renovation roadmap is aligned with the projected figures for energy generation in the final NECP, and that the NBRP figures for primary energy factors and emission factors reflect this.

— Provide more information on the methodology for the calculation of the energy poverty reduction as well as financing needs to achieve the set targets.

— Quantify the impacts of policies and measures clearly linking them to the national targets for energy and GHG emission reduction targets and renovated floor area, the renovation trajectory for residential buildings and MEPS for non-residential buildings

— Clarify whether hybrid heat pumps are intended as a transitional or a long-term technology. In the former case, it would be necessary to clarify how the Netherlands plans this transition and to what technologies (whether it covers all-electric heat pumps and district heating too, for example).

— Consolidate the data on GHG emissions (baseline) by including indirect GHG emissions associated with the production of electricity, heat or steam used in buildings and include all GHG, not only CO_2.

— Clarify the target of phasing out boilers by 2040, include a roadmap setting quantitative targets for the fossil-fuel boiler phase-out by 2040 and provide an estimate the expected share of the boiler fleet that will combust fossil-fuel gas in 2040.

— Complete the renovation roadmap, particularly for residential buildings, by providing the floor area to be renovated and ensure consistency with the trajectory for the progressive renovation of residential buildings.

— Set and specify in the final NBRP quantitative targets for increasing the share of renewable energy in buildings. Quantify the contribution to the EU's energy efficiency and renewable energy targets in accordance with the EED and the RED attributable to the building stock renovation.

— Introduce a clear definition of the worst-performing residential buildings, for example by providing numerical thresholds to identify this segment and by including baseline data (number and floor area).

— Include a discussion on the available and planned private financing schemes, including how they are expected to be mobilised.

— Perform sensitivity analysis on key variables of the investment needs between 2026 and 2050.

— Demonstrate that the final version of the NBRP takes account of the feedback received from stakeholders during the public consultation.

3.10.3. Ambition of the draft plan

Box 28. Key insights of the Netherlands' draft NBRP.

- The Netherlands plans to reduce **primary** energy use in the building sector to 10.3 Mtoe by 2030, 8.1 Mtoe by 2040 and 6.4 Mtoe by 2050. This means reductions of 20%, 37% and 50% compared with the level of primary energy use in 2020 (12.9 Mtoe).
- The Netherlands plans to reduce **final** energy use in the building sector 9.5 Mtoe by 2030, 7.2 Mtoe by 2040 and 5.4 Mtoe by 2050. This means reductions of 22%, 41% and 55% compared with the level of final energy use in 2020 (12.1 Mtoe).
- The Netherlands plans to reduce **direct operational CO_2 emissions** in the building sector to 16.2 $MtCO_2$ in 2030, 8.1 $MtCO_2$ in 2040 and 2.6 $MtCO_2$ in 2050. This means reductions of 31%, 65% and 89% compared with 2020 emissions (23.4 $MtCO_2$).
- The Netherlands plans to reduce the **total operational CO_2 emissions** in the building sector to 23.5 $MtCO_2$ in 2030, 17.2 $MtCO_2$ in 2040, and 12.6 $MtCO_2$ in 2050. This means reductions of 22%, 43%, and 58% compared with 2020 emissions (30 $MtCO_2$)[110].

Assessment of the overall ambition of the draft plan to achieve a highly energy-efficient and decarbonised building stock by 2050

The level of ambition of the draft NBRP is in line with the goal of reaching a highly energy-efficient and decarbonised building stock in the Netherlands by 2050.

[110] However, it is noted that the baseline for the total operational emissions (including indirect emissions) will be consolidated.

By 2050, the Netherlands aims to reduce the primary energy consumption by 50% and the final energy consumption by 55% in the entire buildings stock, compared with 2020 levels. The end-uses covered are heating, domestic hot water, cooling, ventilation in non-residential buildings and in addition, cooking and other building systems in residential buildings.

Simultaneously, the Netherlands aims to reduce direct operational CO_2 emissions generated by the sector by 89% by 2050 compared with 2020 levels, and by 58% the total operational CO_2 emissions. This is not close to zero at present. However, the draft NBRP has used current, constant CO_2 emission factors and it expects that emission factors will decrease as the use of renewables increases. This is not yet reflected in the emission targets, which could be lower.

To achieve this goal, the Netherlands aims to renovate 7 500 000 residential buildings and about 300 000 non-residential buildings by 2050. The renovation works are categorised: light, medium and deep levels of renovation. For residential buildings, the plan is for mainly medium-level renovation across all years of 50% of buildings, while deep renovation is planned for 5-10% of buildings. For non-residential buildings, the plan between 2020 and 2040 is to carry out mainly deep renovation of 55%-80% of buildings. After 2040, only medium and light renovations will be carried out in this sector. The renovation targets and depths are estimated based on the number of renovation measures needed at the building level, ranging from one to over four measures. The resulting final and primary energy are set as targets.

The Netherlands pursues the goal of decarbonisation with targets for rolling out solar energy in buildings. It plans to equip 98% of residential buildings with solar technologies by 2050 and 85% of non-residential buildings. It also sets a provisional target of 60 TWh of electricity generated from these installations by 2050 (of which 36.5 TWh from residential and 23.5 TWh from non-residential buildings). The targets include only solar photovoltaics (PV).

Cost-optimal levels are briefly mentioned in the draft plan, and they will form the basis for the zero-emission building performance levels. It is unclear whether the 2023 values have been used to set the trajectory for the progressive renovation of residential buildings or to define the MEPS for non-residential buildings.

Assessment of the alignment between the draft NBRP and national commitments on climate and energy set out in the NECP

The draft NBRP seems aligned with the ambition and objectives in the Netherlands' final NECP, although the targets are not fully comparable, as described below. The section below also assesses how the draft NBRP's ambition compares with the 2020 long-term renovation strategy (LTRS) adopted by the Netherlands.

Energy efficiency

The draft NBRP sets a target for the Netherlands to reduce its building sector primary energy consumption by 20% and final energy consumption by 22% by 2030 compared with 2020 levels.

The NECP does not provide final or primary energy consumption targets specific to the buildings sector. The 2020 LTRS aimed for 12 Mtoe final energy consumption of electricity and natural gas in buildings by 2030, which is higher than the draft NBRP target for 2030 of 8.7 Mtoe electricity and natural gas, indicating more ambitious NBRP targets than the 2020 LTRS targets.

The draft NBRP specifies the contribution to the EU's energy efficiency targets in accordance with Article 4 of the EED attributable to action to renovate its building stock. This is estimated at 110 PJ of final energy saved between 2020 and 2030, representing about 63% from total energy savings

to reach the energy efficiency target by 2030. Moreover, in 2020, the building sector generated 27.6% of the total final energy in the Netherlands, projected to decrease to 24.7% in 2030. This indicates that savings in the buildings sector are planned to come in at a faster rate than overall energy savings.

Currently, the draft plan uses constant primary energy factors (PEF) to estimate the primary energy projections. The draft NBRP states that the PEF for electricity might decrease as decarbonisation progresses, indicating that primary energy might be lower than the current targets. The draft NBRP emphasises that the values are indicative and under development as part of the work to define zero-emission buildings.

Therefore, the draft NBRP energy targets seem sufficient and in line with the national commitment on **energy efficiency** laid down in the NECP.

Decarbonisation

The draft NBRP sets a target to reduce **direct operational CO_2 emissions** by 31% in 2030, compared with 2020 emissions. The draft NBRP also provides targets for indirect CO_2 emissions (scope 2 – purchased electricity and heat) of -22% by 2030 compared to 2020. However, the draft NBRP focuses on direct emissions and only the CO_2 emissions generated by natural gas. It estimates that other GHG emissions generated by the built environment contribute approximately 2% of emissions. The draft plan notes that consolidated values for indirect emissions are expected to be added in the overview of the building stock, in the final version of the plan.

Constant emission factors were used to calculate these targets, and the draft plan notes that these factors will decrease due to renewable energy, including green gas.

The final NECP sets a target to reach 13.2 $MtCO_2eq$ direct operational GHG emissions for the building sector. This target is more ambitious than the 2020 LTRS targets of 15.3 $MtCO_2eq$ direct operational GHG emissions in the building sector by 2030. The target for direct CO_2 emissions in the building sector set in the draft NBRP, to reach 16.2 $MtCO_2$ by 2030, appears less ambitious than the two previous targets (NECP and LTRS) but they are within the projected range of 12-18 $MtCO_2eq$. It is not clear whether the targets are fully comparable; the NECP covers all GHG emissions, while the draft NBRP refers to CO_2 emissions.

The draft NBRP operational GHG emission targets seem sufficient and in line with the national commitment on **decarbonisation** laid down in the NECP.

Renewable energy

The Netherlands has not yet set targets for the share of renewable energy in final energy consumption in the building sector under Article 15a of the RED.

The NECP sets the projected share of renewable energy in buildings' final energy consumption at 41-49%. This is higher than the indicative national shares provided in the Commission guidance on heating and cooling (C/2025/2238), Annex C, Netherlands' NECP projections for 2030 (41-49%% vs 31.6%).

Expected reduction in the number of people affected by energy poverty

The draft NBRP explains that the Netherlands uses four indicators to track energy poverty: 1) low income combined with high-energy expenditure and/or a low energy efficiency home); 2) low-

income, high-energy expenditure; 3) low income, low-energy-quality buildings and 4) low-energy-quality buildings, limited scope for investment.

To set targets to reduce energy poverty, the draft NBRP refers to indicator 3: low-income and low-energy-quality buildings, as it is deemed more representative for the purpose of the NBRP. In 2024, the Netherlands estimates that 267 000 households (3.2% of all households) were in energy poverty. The draft NBRP aims to reduce this share by 50% by 2030 (to 133 500 households or 1.6% of all households), by 90% by 2040 (to 26 700 or 0.3% of all households) and by 100% by 2050, no households in energy poverty. The draft plan does not provide the methodology used to calculate the rate. Monitoring of the target is likely to be carried out as part of the energy poverty observatory reports.

Other indicators are also used to describe the issue of energy poverty in the Netherlands. The indicator on low income combined with high-energy expenditure and/or low energy quality dwelling), is the overarching indicator used in the reporting and communication on the number of energy-poor households. It is estimated that in 2024, 510 000 households (6.1% of all households) were in energy poverty considering this indicator. The NBRP provides estimates for 2020-2024. The indicators in 2022 and 2023 were lower due to the offsetting of high energy prices in the energy crisis. The data are collected by the National Energy Poverty Observatory, which publishes a regular energy poverty monitoring report. The draft plan does not provide data on the energy performance of social housing or the use and repurposing of vacant housing, nor does it include quantified progress in terms of units renovated per year or accommodation capacity for the homeless.

Prioritising renovation of the worst-performing buildings

The Dutch NBRP has partially identified the worst-performing buildings and prioritise their renovation.

The worst-performing residential buildings are identified by calculating their primary energy consumption, but the threshold used to do this is not provided. The draft NBRP also notes that the target can be monitored through final energy consumption or by extrapolating the registered EPC to the housing stock.

The worst-performing non-residential buildings are identified through EPC classes. For non-residential buildings, buildings with an EPC class D (from 2030) and C (from 2033) or below are considered as worst-performing. The draft NBRP does not provide consolidated figures on the share, number or floor area of the worst-performing buildings.

Minimum energy performance standards for non-residential buildings

In 2023, the Netherlands brought in minimum energy performance requirements for office buildings stipulating that all existing office buildings must have at least an energy label C, which corresponds to a maximum non-renewable primary energy consumption of 225 kWh/(m^2y). Exemptions apply to office buildings with a usable floor area below 100 m^2, monuments and buildings where office space comprises less than 50%.

To comply with Article 9 (1) EPBD requirements, the Netherlands indicates the need to set maximum thresholds to ensure renovation of 16% and 26% of the identified 2020 worst-performing non-residential buildings. This is planned by 2027 at the latest, which is after the EPBD transposition deadline of May 2026. The Netherlands also indicates that there will be one threshold applicable to the whole non-residential building stock, mentioning EPC class D in 2030 and EPC class C in 2033 (the current requirements for offices).

Since the thresholds are not set, the draft plan does not set renovation targets in terms of floor area or the number of buildings to be renovated for MEPS compliance.

Exclusions (if applicable) pursuant to Article 9(6) of the EPBD and criteria for exemptions

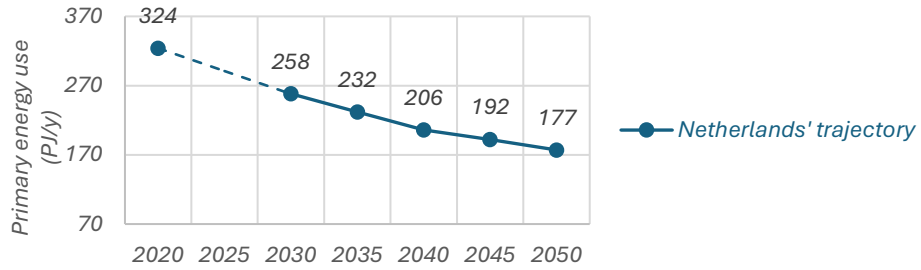
The Netherlands proposes certain exclusions from MEPS including defence buildings, places of worship and non-residential buildings classified as monuments. The draft plan mentions that buildings used for industrial purposes are to be included, provided they are heated or cooled for the comfort of occupants. It does not bring in other criteria for exemptions and does not quantify the energy savings to be achieved in other parts of the non-residential building stock.

National trajectory for the progressive renovation of the residential buildings

The Netherlands has set the trajectory for the progressive renovation of residential buildings (Figure 7). However, it set the milestones in total primary energy use in PJ/y instead of average primary energy use in kWh/(m^{2}y).

The targeted total primary energy consumption of residential buildings in 2030 is 258 PJ/y, and 232 PJ/y in 2035. Compared with 2020 (324 PJ/y), these values are 20% and 28% lower. However, without the expected floor area of residential buildings in 2030, it is not possible to compare the level of ambition in the draft NBRP with the EPBD requirements to reduce average primary energy consumption by at least 16% and 20-22% by 2030 and 2035 respectively. By 2050, it aims to reach 177 PJ/y, a reduction of 45% compared with 2020, while by 2040 the milestone is 192 PJ/y, a reduction of 41% compared with 2020 levels.

Figure 7. Trajectory for the progressive renovation of residential buildings in the Netherlands.



Source: JRC elaboration on Member State reporting

The draft plan details the number and floor area of residential buildings to be renovated annually, including the estimated contribution of the worst-performing residential buildings for 2030. It only provides a sub-target for 2030, to reach a 55% reduction in primary energy (in PJ/y) for the worst-performing residential buildings at 30 PJ/year. This represents 45% of the total target by 2030 (66 PJ/year or a 20% reduction from 2020 levels), but 57% compared with the 52 PJ/y needed to achieve at least 16% reduction by 2030 from 2020 levels. However, the sub-target of a 55% reduction in worst-performing buildings must be expressed as a decrease in the average primary energy use in kWh/(m^{2}y), not total primary energy (in PJ/y).

The draft plan sets the baseline of primary energy consumption using the sample of 4 500 buildings from a housing survey, extrapolated to the whole residential building stock. The sample has been updated with additional data, e.g. on insulation or heat pump sales. The 2020 residential building stock data and total primary energy consumption are consistent across different parts of

the draft NBRP. However, the building stock is described in terms of residential units rather than buildings, which renders cross-comparison challenging.

In calculating primary energy, the draft plan does not take account of changes to primary energy factors (electricity, natural gas, heat) as future values are still analysed. The trajectory only covers existing buildings, whereas it should cover the entire residential building stock to calculate the reduction in primary energy use. The draft plan mentions that if new buildings are included in the calculation, the total primary energy use increases, but the average (per square metre) decreases. Other exclusions are not mentioned.

New buildings

In the Netherlands, the zero-emission building (ZEB) requirements for new buildings will be set at a later stage. The draft NBRP states that the definition will be based on the next cost-optimal study to be developed in 2028. The thresholds will be set for both the maximum annual primary energy consumption in kWh/(m^2y) and the maximum permissible CO_2 emissions in kg CO_2/(m^2y). The thresholds will be differentiated by building type.

In 2024, 172 000 residential buildings (with a floor area of 17 000 000 m^2) were renovated to meet nearly zero-emission buildings (NZEB) standards, and 110 000 new residential buildings (with a floor area of 11 000 000 m^2) to meet the standard for new NZEB. Moreover, 9 300 non-residential buildings (with a floor area of 13 600 000 m^2) were renovated to NZEB level and 2 200 new non-residential buildings (with a floor area of 5 300 000 m^2) to meet the standard for new NZEB.

3.10.4. Sufficiency of the policies and measures

An overview of the implemented and planned policies and measures is included in the Netherlands' draft NBRP, addressing all mandatory areas listed in Annex II. Most measures cover most mandatory descriptive elements though some measures lack a quantified objective, funding sources or expected impact.

Overall, the Netherlands has a solid framework in place to support the decarbonisation of the building stock. The draft plan demonstrates extensive policy activity (e.g. a wide range of measures covering regulatory, financial and fiscal, information activities) across all key thematic areas of the EPBD. It includes measures to renovate residential and non-residential buildings, reduce energy poverty, set up one-stop shops, decarbonise heating systems, promote circularity in construction, provide modular renovation solutions and ensure public-sector building compliance. The Netherlands also presents several advanced or innovative initiatives, such as municipal heat transition plans or performance requirements for rental housing.

Overall, the measures are consistent with the final national energy and climate plan. However, some gaps remain, particularly due to incomplete regulatory frameworks (e.g. MEPS thresholds for non-residential buildings, ZEB requirements, building renovation passports and smart readiness indicator deployment), missing monitoring and enforcement systems, the lack of quantified impacts and unclear connections between measures and the national renovation and decarbonisation trajectory. In several cases, the draft plan explicitly states that further measures and regulatory instruments will be introduced in 2026 or later, which means that a comprehensive assessment cannot be made at this stage.

Renovation and MEPS for non-residential buildings

MEPS thresholds have not yet been set for non-residential buildings. Nevertheless, since 2023, and as described above, some MEPS requirements have been set for office buildings. Similarly, mandatory ZEB standards for the non-residential sector have not yet been set but voluntary standards apply and are prioritised in schemes providing financial support.

The draft NBRP provides a combination of subsidies and other support schemes, standardisation of voluntary agreements and information measures to trigger the renovation of non-residential buildings. It focuses on buildings owned by small and medium enterprises, public-sector buildings and social real estate, including a knowledge platform, information and financial support schemes. Public-sector roadmaps set out pathways for various types ('sectors') of public buildings. Similarly, companies can achieve energy performance across their portfolio of buildings.

At present, the Netherlands only has monitoring and enforcement schemes for office buildings subject to by MEPS requirements, with compliance monitored by municipalities. According to this scheme, offices must reach EPC class C since January 2023.

While these elements might be sufficient to trigger MEPS implementation, a full overview is needed once the MEPS thresholds are set.

Renovation of residential buildings

To achieve the renovation targets and reduce primary energy consumption in residential buildings, the Netherlands draws on a mix of policies and measures. Its draft NBRP outlines over 30 policies and measures covering individual owners, homeowner associations and rental properties. They include a mix of regulatory, financial and information measures. For owner associations, the draft NBRP includes a number of organisational measures to reduce the burden of decision-making (e.g. voting and information) as well as subsidy schemes.

The draft NBRP is strong on supporting improvements in energy performance in rental properties with an MEPS approach in place for rental housing. Landlords will be required to phase out rental properties with EPC energy classes E-F-G by January 2029. To this end, minimum energy performance requirements for rental properties will be included in the national building code. Exceptions will apply, e.g. to listed buildings or detached houses with less than 50 m^2 of floor area. The regulation will enter into force on 1 January 2029. This approach is expected to be extended to 2040; after this date, rental properties must be at least energy label B.

The draft plan also contains specific measures targeting the worst-performing buildings. For instance, there is the National Insulation Programme, under which municipalities can provide support to homes with the lowest EPC classes. It is expected that about 750 000 homes will be renovated in total between 2022 and 2030. Similarly, support for homeowner associations also partially targets homes with lower energy labels.

The building renovation passport as a tool to support energy savings, complement MEPS and assist the trajectory for residential buildings

The draft NBRP does not explicitly mention building renovation passports.

Box 29. Example of policies and measures in the Netherlands.

- *Buildings of energy classes E-F-G are planned to be phased out of the rental market by 2029 (EFG-energielabels uitfaseren bij huurwoningen per 2029*). The regulation will aim to phase out worst-performing rental properties from 2029. If the building is EPC class E, F or G, the owner is obliged to improve the energy performance to reduce energy demand to at least EPC class D by 2029.

- *The National Insulation Programme (Nationaal Isolatieprogramma)* takes a local approach to provide municipalities with the means to improve the worst energy-performing buildings. They submit two to three-year plans with the local approach aligned with the national goals. It is expected to lead to 750 000 homes being insulated between 2022 and 2030.

- *The National Performance Agreements (Nationale Prestatieafspraken)* are agreements between the ministry and (social) housing associations that aim to achieve a natural gas-free housing stock by 2050. By 2034 (adjusted from 2030), 450 000 buildings should be natural-gas free. The agreement also sets out an annual heat demand reduction path, with interim targets of 94 kWh/(m^2y) in 2030 and 87 kWh/(m^2y) in 2034 from 108 kWh/(m^2y) in 2024.

Alleviation of energy poverty and housing affordability

The draft NBRP outlines several measures to support vulnerable households and tackle energy poverty. The National Insulation Programme provides financial incentives for individual homes and vulnerable neighbourhoods. Municipalities with the highest share of low-income homeowners in poorly insulated dwellings and dwellings located in a focus area receive on average the highest amount per dwelling. The National Heat Fund offers zero-interest loans to over 500 000 households, including to people who may not qualify for conventional bank loans. Municipalities also receive special-purpose grants to tackle energy poverty, though not necessarily focused on building envelope improvements.

A wide array of initiatives aims to improve conditions for vulnerable groups, particularly for people in social rental housing, where 66% of low-income households live (based on 2023 figures). These initiatives include the above-mentioned minimum energy performance requirements for rental properties and capacity-building activities such as the Knowledge and Innovation Platform for the Sustainability of Social Real Estate. Milieu Centraal, a Dutch organisation providing information and advice to citizens on energy and sustainability topics, has developed the 'Energy assistance from trusted circles for tenants in energy poverty' programme to support all target groups, including hard-to-reach groups.

The national programme on liveability and safety seeks to improve living conditions in selected areas by addressing substandard housing and promoting mixed neighbourhoods. This programme plans to construct about 15 000 homes, improve 1 400 vulnerable homes (including the worst-performing buildings) and assist 30 000 to 40 000 households.

The draft NBRP also mentions the Social Climate Fund, which channels funds to existing programmes for vulnerable households and microenterprises, ensuring access to finance, grants or subsidies, information on funding and technical assistance. A temporary emergency fund has been set up to help low-income households with high energy bills, offering sustainable solutions alongside immediate relief. These integrated measures reflect a comprehensive approach to improving living conditions and addressing energy poverty.

Regarding housing affordability, several measures contribute to energy efficiency and to making housing costs more affordable. For instance, the Affordable Rent Act introduced in 2024 makes the housing valuation scheme mandatory, which prescribes maximum rent based on a score that rates the quality of a house (floor area, EPC class). The purpose is to keep rent lower for energy-inefficient housing and at the same time encourage owners to renovate. The Netherlands has revised the Energy Performance Rent Compensation Decree, which allows landlords to charge an energy performance fee to cap the fee, ensuring that tenants maintain the same housing costs.

Although it is not possible to make a clear connection between the energy poverty target and the measures (and their impacts), the measures are comprehensive and seem sufficient to achieve the targeted reduction in energy-poor households (a 50% reduction by 2030, a 90% reduction by 2050 and a 100% reduction by 2050 compared with the current situation).

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

The Netherlands has implemented Article 18 of the EPBD and created 'Energy Houses'. These are one-stop shops where households, SMEs and other users can obtain technical assistance and advice on energy performance in buildings. This service is provided either on-site or via 'mobile' one-stop shop (OSS)[111]. The OSS system builds on existing facilities such as municipal energy desks or the Verbeterjehuis.nl website.

To reach vulnerable households more specifically, the Energy Houses connect with existing local networks such as citizen-led initiatives, local energy cooperatives and informal networks. In terms of coverage, the draft plan mentions that almost all municipalities have such services.

Decarbonisation of heating and cooling and the phasing out of fossil fuels in heating and cooling with a view to a complete phasing out of fossil-fuel boilers by 2040

As described further below, the Netherlands tackles the goal to decarbonise heating in a relatively comprehensive way. The country aims to phase out natural gas by developing low-carbon district heating networks, phasing out individual natural gas boilers, promoting hybrid heat pumps and increasing green gas production. The reported measures cover regulatory, planning, financial and information aspects to progress towards the objective of phasing out natural gas heating. However, the draft plan does not provide a clear and credible roadmap to effectively phase out fossil-fuel heating boilers by 2040.

The district heating act (*Wet Collectieve Warmte*) provides the regulatory framework to improve district heating solutions, including public ownership of networks, tariff structures and the strategic role of municipalities. District heating operators also have to gradually transition to zero CO_2-equivalent emissions by 2050. Municipalities are required to draw up 10-year heat plans[112], and through the Municipal Heat Transition Act (*Wet gemeentelijke instrumenten warmtetransitie*), they can also designate future fossil-free areas.

[111] Either through door-to-door staff visits, temporary use of a community house or the use of facilities such as libraries as mini energy houses to get closer to the target group in neighbourhoods or villages.

[112] It is not clear whether these plans are linked to the EED local heating and cooling plans in large municipalities.

The Netherlands offers a range of financial instruments to support the district heating transition. A subsidy scheme (*Warmtenetten Investeringssubsidie*) aims to connect 200 000 new buildings to district heating networks by 2030 and the *Nieuwe Warmte Nu!* programme supports district heating systems using renewable energy and waste heat. The Incentive Scheme for Natural Gas-Free Rental Homes supports the phase-out of natural gas and the connection to district heating systems by the rental housing sector and owner associations.

For individual heating that cannot be connected to district heating, the Netherlands has set an objective to install 1 million hybrid heat pumps in existing buildings by 2030. By 2050, two thirds of houses will be heated by heat pumps, either to fully electric or hybrid systems. An action plan for hybrid heat pumps aims to scale up installer and manufacturer capacities with direct investment subsidies and soft loans (at no or low interest rates) for citizens with low incomes, with support from the National Heat Fund. Hybrid heat pumps are also part of the energy-saving obligations scheme. The measures include information campaigns. The draft plan mentions that as of 2023, around 560 000 heat pumps have been sold, most of them fully electric. To achieve the goal of 1 million hybrid heat pumps by 2030, the rate of installing this type of heat pump will have to accelerate.

It remains to be clarified whether hybrid heat pumps are intended as a transitional or as a long-term technology. If transitional, it would be necessary to clarify how the transition is planned and to what technologies (all-electric heat pumps, district heating). In the latter case, it is important to ensure consistency with the goal to decarbonise the gas grid to the extent it will be used for heating in buildings, taking into consideration the expected demand for green gases in other sectors, their availability and cost.

Natural gas is expected to be gradually replaced by 'green' gas, with several programmes underway, though the draft plan lacks sufficient detail on this front. It mentions that production of green gas should grow exponentially from around 0.3 billion m^3 in 2022 to the policy target of 2 billion m^3. Some measures such as the green gas programme, the blending obligation for green gas and subsidy schemes are expected to contribute to achieving this goal. The draft plan also mentions that the availability of green gas for buildings is limited. This raises a question about the extent to which hybrid heat pumps will result in the phasing out of fossil fuels for heating.

The draft NBRP is aligned with the heating and cooling provisions in the 2024 NECP. Overall, the draft NBRP demonstrates clear and credible measures for decarbonising heating and phasing out fossil fuels in heating, but falls short of specifying a target date for phasing out fossil-fuel boilers and for presenting a coherent roadmap to achieve this. However, the National Performance Agreement (covering also the rental housing stock) sets a deadline to phase out natural gas in housing by 2050.

It is not possible to verify whether the measures in the draft plan are consistent with other national and local plans, such as the comprehensive national heating and cooling assessment and the local heating and cooling plans in municipalities as the draft plan lacks details.

Prevention of construction and demolition waste

The Dutch draft NBRP highlights that the construction sector uses large volumes of raw materials and generates considerable waste and CO_2 emissions. To meet the goals of the national circular economy programme (to achieve a 50% reduction in primary abiotic raw materials by 2030 and full circularity by 2050), it is essential to make greater reuse of building elements and secondary materials. This reduces environmental pressure and lowers dependence on imported resources.

Work is underway with sector partners on an approach that promotes both the supply of and demand for secondary construction materials. This includes strengthening and formalising circular demolition practices, the Circular Demolition Verification Scheme, and developing a best available practice system to periodically update these requirements.

Further projects include initiatives to standardise data exchange for secondary materials (DigiGo, Insert), a national knowledge programme on circular demolition, and initial research into best available practices. Lessons are also being drawn from regional initiatives, such as the Circular Deal for Secondary Construction Materials in North Holland.

Promoting renewable energy sources in line with Article 15a of the RED

To promote renewable energy sources in buildings in line with Article 15a of the RED, the Netherlands has included measures promoting the use of solar photovoltaics (PV) on roofs and facades (of both residential and non-residential buildings), the switch to heat pumps (though it puts a strong emphasis on hybrid systems) and promoting green gas.

Deployment of solar energy installations on buildings

The draft NBRP covers the roll-out of solar energy installations in buildings. The Netherlands aims to roll out solar energy installations on different building categories, where technically and economically feasible.

Preference is given to installing solar on roofs and facades before built-up area and agricultural land. The Netherlands has a programme to instal solar on government building roofs, under which it aims to instal PV on 80% of suitable government roofs.

The Netherlands also aims to implement a gradual requirement to instal PV on the roofs of all buildings (non-residential, public and new residential). It will end the net metering scheme as of 2027. This scheme allowed consumers to offset the electricity they generated with the electricity they consumed. When the scheme closes, consumers will receive a fee for any renewable electricity they feed back into the grid. This change aims to encourage self-consumption and a more efficient use of electricity.

Reducing whole-life-cycle GHG emissions and the uptake of carbon removals

The Netherlands aims to reduce whole-life-cycle GHG emissions in the built environment through several measures. This includes the clean and zero-emission construction programme (Schoon en Emissieloos Bouwen Programma) that aims to reduce NOx emissions by 60% compared with 2018 levels, a 0.4 Mt CO2 emission reduction compared with 2019 levels and climate-neutral and circular national infrastructure projects in 2030. Various instruments provide over EUR 700 million to support clean and zero-emission construction.

Tax deductions are also available if the materials used for construction are either at least 50% renewable raw materials, or 25% reused materials or 50% demountable construction products. The goal of the National Approach to Bio-based Construction (Nationale Aanpak Biobased Bouwen) is to stimulate the transition to sustainable (bio-based) construction practices, with funds and a subsidy scheme made available to initiate the market. The priority is also to reuse demolition waste (e.g. to use 50% less primary abiotic raw materials by 2030 and to achieve 100% circularity in 2050). The draft plan does not provide any further information on the uptake of carbon removal measures.

Promoting the district and neighbourhood approach and integrated renovation programmes

The draft NBRP addresses the goal to promote sustainable neighbourhoods and integrated renovation programmes mainly through strategic planning on (district) heating at municipal level and by promoting green cities and affordable, safe, 'liveable' neighbourhoods.

Municipalities are required to draw up 10-year heat plans. Under the Municipal Heat Transition Act (*Wet gemeentelijke instrumenten warmtetransitie*), they can also designate future fossil-free areas. The National Programme for Local Heat Transition then supports the municipalities through knowledge sharing, guidelines and webinars, while also monitoring progress with the local heat transition.

The Netherlands also offers guidance to increase green areas in cities. The national programme on liveability and safety improves liveability and safety in selected areas, with the goals being to improve substandard housing and create more mixed neighbourhoods.

Improving buildings owned by public bodies

The draft NBRP addresses the requirement under the EED on policies and measures to improve buildings owned by public bodies, specifically Articles 5, 6 and 7. It does so by combining subsidies, support programmes, financing instruments, regulatory standards and sector-driven planning.

The draft NBRP includes targeted measures for public buildings such as the DUMAVA subsidy for social real estate, which explicitly supports renovations aligned with the EED's Article 6 obligation, annual sectoral roadmaps for public real estate sectors, and the portfolio approach that requires participating organisations to exceed statutory energy-saving requirements. It requires public authorities to reduce energy consumption and renovate 3% of their floor area annually into NZEB or ZEB.

The draft plan explores synergies between measures to renovate the worst-performing non-residential buildings through the renovation standard (A++/A+++), the upcoming ZEB limit values for existing buildings, and tighter minimum performance requirements such as the obligation to bring offices to a minimum EPC class C.

Promoting smart technologies and infrastructure for sustainable mobility

The Netherlands has set requirements applicable to charging infrastructure in or near buildings, both for residential and non-residential buildings (new and major renovations). The updates from the recast EPBD are expected to come into force as of transposition. For multi-apartment buildings, the streamlining regulations currently prepared should make it easier for owners to install charging points.

Other support measures include subsidy schemes for charging points and information provisions (e.g. through the website www.vveladen.nl). Similarly, for non-residential buildings, there is a subsidy scheme for both technical assistance and installation of charging points.

The draft NBRP does not contain information on the Smart Readiness Indicator.

Accessibility for people with disabilities

Accessibility is not included in the overview of the building stock. The draft plan does not provide information on the accessible buildings or buildings in need of renovation for accessibility, and it cannot be estimated based on available information in the draft plan. Accessibility is not included in the criteria for the buildings identified as targets for renovation. Improving accessibility in existing buildings is not included under policies and measures nor is any specific information on accessibility

renovation provided in the estimated need for investment. The draft NBRP does not assess accessibility needs related to charging infrastructure.

Tackling market barriers and market failures and skill gaps

The draft NBRP partially addresses barriers and market failures. The focus is mainly on addressing the main labour market shortages for professions in the building energy transition.

The green and digital jobs action plan, launched in 2023, aims to increase enrolment in STEM sectors (science, technology engineering and mathematics), boost labour productivity growth and strengthen governance. To complement this plan, the employers' association presented a 10-year technology action plan outlining measures to address labour shortages, including initiatives to promote diversity and inclusion. In addition, the 'People Make the Transition' ('*Mensen Maken de Transitie'*) concept aims to achieve a sustainable built environment through collaboration, knowledge sharing and innovation.

Awareness-raising campaigns and other advisory tools

The Netherlands has launched several communication campaigns on sustainable energy use. The campaign 'Turn the switch too' ('*Zet ook de knop om'*), launched in 2023, addresses sustainable behaviour and actions in a broad sense. More specifically, the multi-year campaign on the advantages of insulation ran from 2024 to January 2026, with a campaign website (*Verbeterjehuis.nl*) offering targeted advice and guidance on energy-saving measures for households. Additionally, information for professionals is available on a dedicated website (*volkshuisvestingnederland.nl*) with tools, guidelines and support materials. The current one-stop shops (Energy Houses) build on the support provided on this website (among others).

Promoting modular and industrialised solutions

The draft NBRP promotes modular and industrialised solutions and provides measures supporting both large tenders and homeowners to achieve the ambitious goals that by 2030 50% of new housing is prefabricated construction and to promote digitalisation in construction (e.g. digital permitting).

The measures include accelerating industrialised renovation flows through the Renovation Flows Program (*Verbouwstromen*), which comprises two grant schemes.

1) The first supports frontrunners in large-scale renovation projects. One objective is the use of a standardised and industrially manufactured package of measures with the potential to scale up to at least 50 000 houses, while achieving a minimum reduction of 50% in carbon emissions per house, including both operational and embodied emissions.

2) The second provides support to homeowners to sustainably renovate their buildings by scaling up standardised and sustainable renovation packages.

The draft NBRP also aims to strengthen R&D and innovation (TKI Urban Energy and TKI Construction and Technology, Energy and Climate Innovation Demonstration (DEI+) or the Mission-driven research, development and innovation (MOOI) scheme for the Built Environment). These schemes support the development of new techniques, digital tools and natural-gas-free solutions. The draft NBRP also aims to improve the regulatory and digital framework by putting in place digital permitting and the Digital System for the Built Environment.

3.10.5. Sufficiency of financing sources and administrative resources

As described, the draft NBRP includes an estimate of the investment needs to meet the 2030-2050 renovation targets. It details the budgetary sources for selected public programmes and allocates budgetary sources, which appear to be sufficient for the entire period. The draft plan does not describe mechanisms for private financing schemes. More information is needed to evaluate the accuracy of investment needs (such as the methodology, including the underlying assumptions) and the adequacy of planned budget.

The Netherlands estimates the **investment needs** in the draft NBRP for residential and non-residential buildings and by period covering 2026 to 2050. Between 2026 and 2030, the total investment need is estimated at EUR 5.3 billion per year (EUR 3 billion for residential buildings and 2.3 billion for non-residential). From 2026 to 2050, the total investment need is estimated at EUR 154 billion[113].

The investment needs are calculated to include the need for thermal insulation and heating system installation as identified in the roadmap, using the average renovation costs per square metre (by building type and ownership). Therefore, the cost captures the expenses needed to improve the energy performance of the building stock but seems to exclude expenses related administrative resources. It also lacks the specific investment needs for reducing energy poverty, setting up OSSs and for installing solar energy and infrastructure for smart mobility.

The draft plan identifies the **funding and financing sources** considering the expected public funding available (local, regional, and national) by 2030. The funding sources match the required investments (no gaps are identified). No other details are provided. The draft NBRP indicates a potential shortage of public investment after 2030, stressing that a decision is still pending on the availability of public funds after 2030. The Netherlands may use EU funding under the Social Climate Fund, but the plan for the Netherlands had not been approved at the time of this assessment. Private-sector financing consists of mortgages/loans and own financing and is mainly based on the estimated number of annual mortgages and their size. However, the estimated investment needs lack a sensitivity analysis.

The draft NBRP provides an estimate of th**e public funding needed**. National funds are expected to provide the highest share of public funding, about 85%, followed by local funds representing 14%, and 1% from regional funds.

The estimated total need for **private financing** is provided in the draft NBRP with a breakdown by own financing and loans/mortgages. The highest share is for own financing (e.g. 65%-80%). Other private financing instruments (such as non-secured loans and energy performance contracts) are not detailed in the draft NBRP due to uncertainty. However, the draft plan notes that this detail will be provided in the final NBRP. Therefore, it is not clear at this stage how private financing will be mobilised towards implementation of the plan.

Assessment of the adequacy of total investments

For every period (2026-2030, 2031-2035, 2036-2040, 2041-2045, 2046-2050), the funding planned covers the estimated investment needs (100% coverage). In the period from 2026 to 2030,

[113] The renovation cost per floor cannot be estimated as the floor area renovation targets are not provided.

the share of private funding is expected to fall from 27% to 17%. In the period from 2031 to 2050, only private funding is expected for now due to uncertainty about the level of public funding after 2030.

Linking investment needs to targets through policies and measures

It is not possible to link investment needs to specific targets as there is no clear link among investments, policies, measures and targets.

3.10.6. Inclusiveness of the public consultation

At the time the draft NBPR was submitted, the public consultation had not been finalised. Once complete, the consultation process is expected to have enabled the public to participate at different stages of the NBRP's drafting. The Netherlands has allocated enough time and opportunities to all those interested in participating in the process to draw up the draft plan.

The preliminary draft NBRP was submitted to the Steering Committee of the Built Environment Implementation Council for an initial assessment. This Committee includes representatives of the government, regional authorities, municipalities and professional organisations.

The NBRP summarises the key comments from this platform but does not specify whether or how they have been or will be incorporated in the final NBRP.

The Netherlands also plans to run a formal online public consultation in spring 2026 (https://www.internetconsultatie.nl). It is not clear whether other forms of consultations will be carried out or which organisations will be involved.

The draft NBRP does not specify whether or to what extent civil society organisations representing people with disabilities were included in the consultation process or whether accessibility for people with disabilities was raised as an issue in public consultation.

3.10.7. Completeness of the draft plan and consistency with other planning or reporting exercises

Almost all mandatory indicators are provided in the draft plan. More information is listed in the following table.

Table 26. Indicators checklist for the Netherlands.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings (number)	Yes	The number of social housing number of buildings and floor area is missing.
	Floor area (m^2)	Yes	
	Definition of worst-performing buildings	No	
	Share of worst-performing buildings (%)	Partially	Only residential buildings under the trajectory for progressive renovation.
	Renovated buildings/ floor area (number/ m^2)	Partially	Not aggregated figures.
	Renovation rate (%)	No	
	Primary energy use (ktoe)	Yes	
	Final energy use (ktoe)	Yes	
	Specific primary energy for residential buildings (kWh/m^2y)	Yes	

Section	Indicator	Yes/No/Partially	Explanatory notes
	Share of renewable energy (%)	Yes	
	Operational GHG emissions (Mt CO_2-eq)	Partially	Only direct. Indirect emissions will be included in the final version of the plan.
	Energy poverty share (%)	Yes	
Roadmap for2030, 2040 and 2050	Renovation targets (floor area or number)	Yes	Floor area targets not included.
	Renovation rate targets (%)	Partially	Calculated based on the annual renovation works.
	Primary energy targets (ktoe) or reduction (%)	Yes	
	Final energy targets (ktoe) or reduction (%)	Yes	
	Renewable energy targets (%)	No	
	GHG emission targets (Mt CO_2-eq) or reduction (%)	Yes	The figures are broken down by direct and indirect emissions and only cover CO_2 emissions.
	Energy poverty targets (%)	Yes	The methodology to calculate the targets is not provided.
	Contribution to energy efficiency target	Yes	
Policies and measures	Scope and type	Yes	
	Quantified objective	Partially	For some measures only.
	Status and implementation period	Yes	
	Budget and funding source	Partially	Not for all the measures.
Investment needs	Total and/or average investment needs (million EUR), EUR/m^2	Yes	
Residential buildings	Average specific primary energy decreases between 2020 and 2050	Partially	The milestones are set in total primary energy (PJ).
	Number of residential buildings/dwellings to be renovated	Yes	
	Residential floor area to be renovated (m^2)	Yes	
	Worst-performing buildings contribution (%)	Partially	Only by 2030 in terms of energy savings.
Non-residential buildings	MEPS 16% threshold	No	EPC class thresholds, indicative.
	MEPS 26% threshold	No	EPC class thresholds, indicative.
	2040 and 2050 thresholds	No	
Public consultation		Yes	Preliminary consultation. A formal and broad consultation is planned for 2026.

Source: JRC elaboration on Member State reporting

Consistency checks were carried out by comparing the data with previous Member State reporting: the 2024 NECP, the 2025 national energy and climate progress reports, the 2023 national cost-optimal report and the 2020 LTRS.

Plausibility checks were carried out by comparing data with other reliable datasets such as the Building Stock Observatory (BSO) for building stock indicators and Eurostat datasets for final energy consumption.

Box 30. Consistency and plausibility check for the Netherlands.

Primary energy factors are consistent with previous reporting in the 2023 national cost-optimal report.

The number and floor area of residential buildings is plausible based on a comparison with the BSO dataset. The number of non-residential buildings differs from the BSO dataset.

The final energy consumption is plausible based on comparison with the Eurostat dataset.

Energy poverty

The draft NBRP uses the definition of energy poverty provided in the Article 2(52) of the EED, e.g. 'household's lack of access to essential energy services, where such services provide basic levels and decent standards of living and health, including adequate heating, hot water, cooling, lighting, and energy to power appliances, in the relevant national context, existing national social policy and other relevant national policies, caused by a combination of factors, including at least non-affordability, insufficient disposable income, high-energy expenditure and poor energy efficiency of homes'.

The definition references the EED, ensuring consistency and it uses four main indicators to monitor energy poverty: combinations of low-income, high-energy expenditure, low energy quality of a dwelling and limited investment opportunities.

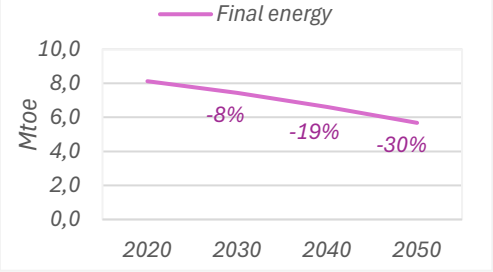
The draft NBR provides a definition of energy poverty, a quantification of the issue and policies and measures to alleviate energy poverty that are consistent with the NECP. The draft NBRP also directly refers to the draft social climate plan, indicating that consistency between the two can be expected.

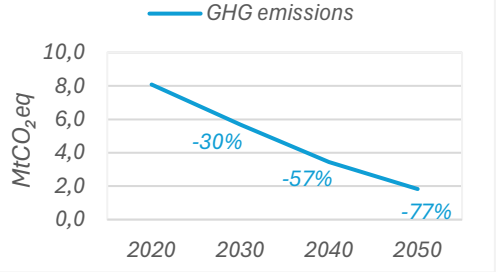
3.11. Austria

3.11.1. Main indicators

Table 27. Selection of main indicators from Austria's draft NBRP.

Renovation				
Floor area (Million m^2)	2020	2030	2040	2050
	Baseline	Cumulative renovation		
Residential	512.8	52.1	-	-
Non-residential	325.4	-	-	-
Total	838.2	-	-	-
Cumulative renovation (%)		10%	-	-
Annual renovation rate (%)	**3.3% light**			
	1.6% deep	**8% over a decade**		**-**
Number of buildings	2020	2030	2040	2050
Total	2 349 022	-	-	-
Cumulative renovation (%)		-	-	-
Energy consumption				
Primary energy (Mtoe)	2020	2030	2040	2050
Residential	-	-	-	-
Non-residential	-	-	-	-
Total	-	-	-	-
Change vs 2020 (%)		**-**	**-**	**-**
Final energy (Mtoe)	2020	2030	2040	2050
Residential	5.8	5.2	4.5	3.7
Non-residential	2.3	2.2	2.2	2.0
Total	8.1	7.4	6.6	5.7
Change vs 2020 (%)		**-8%**	**-19%**	**-30%**
Energy end-uses included	Heating and hot water in residential buildings; Indoor climatisation and hot water in non-residential buildings			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2020	2030	2040	2050
Residential	6.8	4.9	3.4	1.8
Non-residential	1.3	0.8	0.1	0.0
Total	8.1	5.7	3.5	1.8
Change vs 2020 (%)		**-30%**	**-57%**	**-77%**
GHG emissions in $kgCO_2/m^2$	7.8	7.6	4.9	2.8
Change vs 2020 (%)		**-3%**	**-37%**	**-63%**





Renewable energy				
Renewable energy in the final energy	2020	2028	2029	2030
Share of renewable energy in buildings' final energy consumption	62%	-	-	69%
Solar energy technologies in buildings		2030	2040	2050
MW installed in new buildings		-	-	300
Energy poverty				
People affected by energy poverty	2020	2030	2040	2050
Share of population	12.1%	-	-	-
Trajectory for the progressive renovation of residential buildings				
Not available				
Minimum energy performance standards for non-residential buildings				
Equations	Heating energy demand kWh/(m^{2}year)			
	2030	2033	2040	2050
First formula	73 × (1 + 2.0/ℓc)	66 × (1 + 2.0/ℓc)	-	-
Second formula	60 × (1 + 2.0/ℓc)	54 × (1 + 2.0/ℓc)		
	ℓc is the building shape factor			
Primary energy factors				
Total PEF	2023	2030	2040	2050
Electricity	1.43	-	-	-
Natural gas	1.10	-	-	-
District heating	0.71	-	-	-
Investment needs for renovation and funding and financing sources				
Investments needs (billion EUR)		2030	2040	2050
			Cumulative	
Residential		21.0	-	-
Non-residential		33.0	-	-
Total		54.0	-	-
Funding and financing (billion EUR)				
Public		-	-	-
Private		-	-	-
Total		-	-	-

Source: JRC elaboration on Member State reporting

3.11.2. Executive summary

Austria submitted a partially complete draft of the national building renovation plan (NBRP), which exhibits some internal inconsistencies, as further explained.

The **level of ambition** of the draft plan for achieving a highly energy-efficient and decarbonised building stock by 2050 is not clearly demonstrated. While the targets for greenhouse gas (GHG) emissions and renewable energy integration are in line with expectations, important elements such as primary energy consumption (baseline and target), renovation targets, the prioritisation of worst-performing buildings for renovation and the trajectory for progressive renovation of residential buildings are missing. These gaps undermine the overall credibility of the plan and raise questions about the feasibility of achieving the stated final energy consumption and GHG emission targets.

Austria's targets for **final energy consumption** in the building sector are provided in the form of energy savings relative to the 2020 baseline. They amount to 679 ktoe by 2030, 1 519 ktoe by 2040 and 2 447 ktoe by 2050, which corresponds to reductions of 8%, 19% and 30%, respectively,

from the 2020 baseline of 8 122 ktoe[114]. Austria **does not provide targets for primary energy consumption** in the building sector.

Austria's targets for total **operational GHG emissions** in the building sector are 5.7 Mt CO_2eq in 2030, 3.4 Mt CO_2eq in 2040 and 1.8 MtCO_2eq in 2050, respectively. This corresponds to cuts of 30%, 57% and 77%, respectively, compared to the 2020 baseline of 8.1 Mt CO_2eq.

The draft NBRP is partially aligned with the objectives, policies and measures outlined in the final **national energy and climate plan** (NECP). It displays the same level of ambition for decarbonisation and a higher level of ambition for renewable energy. However, the energy efficiency targets are not stated clearly in the draft NBRP.

The draft NBRP mentions that the contribution of Austria's building stock renovation to the **EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED') will amount to total savings of 2 447 ktoe in final energy use by 2050. In 2020, the buildings sector accounted for 33% of total final energy use in Austria, and if the targets are met, it will account for 34% in 2030[115]. This indicates that the energy savings in the buildings sector are expected to be achieved at a slightly slower pace than overall energy savings. Regarding Austria's contribution to the **EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED'), the draft plan projects that by 2030 energy from renewable sources will make up 68.5% of buildings' final energy consumption, higher than the indicative NECP target of minimum 57%.

The decarbonisation objective is also supported by a requirement to deploy solar installations on new buildings, which are expected to deliver a total of 300-400 GWh/year by 2050.

To achieve these targets, Austria presents a scenario that assumes a **renovation rate of 8%** over 10 years. It does not, however, indicate clear renovation targets in terms of the number of buildings or the floor area to be renovated, nor an average annual renovation rate. The planned renovation rate is based on (i) the current annual rates of 3.3% for light renovation and 1.6% for deep renovation[116], (ii) the remaining floor area to be renovated, and (iii) related potential for energy savings. The rate also factors in an expected reduction in renovation activity due to the construction of new buildings. The planned rate seems to be calibrated to deliver the targeted savings in final energy use.

Austria does not set out a **trajectory for the progressive renovation of residential buildings** with milestones for 2030 and 2035. Austria explains that this will be done once the planned modelling exercises and public consultations have been completed. However, the roadmap assumes

[114] The percentual reductions compared to 2020 have been calculated by the JRC based on the available data in the draft NBRP. The targeted final energy consumption in 2030, 2040 and 2050 should be confirmed in the final version of the NBRP.

[115] The JRC calculates the percentages as follows: In 2020, as a ratio of final energy consumption in buildings to total final energy consumption sourced from Eurostat. In 2030, as a ratio of the draft NBRP target for final energy consumption in buildings to the national energy efficiency target set under Article 4 of the EED, sourced from the final NECP 2024.

[116] 'Größere Renovierung' in the draft NBRP.

reductions of 16% and 20% in primary energy use by 2030 and 2035, respectively, for residential buildings.

As regards **minimum energy performance standards** (MEPS) for **non-residential buildings**, Austria provides heating demand thresholds for 2030 and 2033[117] in kWh/(m^2y), thus not covering all energy end-uses listed in the Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD'). These thresholds are not provided as numerical values, but as a formula based on building shape. As a result, the numerical values vary by building. No thresholds beyond 2033 are provided. As discussed further in this assessment, many aspects of the definition of these thresholds are unclear.

Worst-performing buildings are identified on the basis of their Energy Performance Certificate (EPC) class. The 43% worst-performing residential buildings are those in energy class E and below. The worst-performing non-residential buildings are those in energy classes F and G. However, the draft NBRP does not set out clearly how they are prioritised for renovation.

The draft NBRP defines **energy poverty** and describes the baseline values comprehensively, using different indicators. In 2023 the overall energy poverty rate stood at 12.1% on the basis of (i) high energy cost, (ii) low income, (iii) inability to keep the home adequately warm, (iv) arrears on utility bills, and (v) the condition of the dwelling (e.g. leaky roof or damp). Although the draft plan does not set a target for the reduction of energy poverty, it does describe several measures for addressing it. These include energy advice, tenant protection, subsidies for heating energy, support for heating replacement, and other forms of financial assistance focused on reducing energy consumption in households at risk of or in energy poverty.

Austria's draft NBRP lists measures for addressing **housing affordability** taken in several provinces. For instance, financial aid may be granted for the acquisition or construction of dwellings to meet the challenge of redensification, to build apartments in underdeveloped areas, or for the construction of buildings for vulnerable people, including older people, people with disabilities and students.

The Austrian draft NBRP includes a comprehensive **overview of implemented and planned policies and measures** at different governance levels (federal, provincial (*Land*) and local). All mandatory policy areas are addressed. However, they are not described in a systematic manner, and essential details, such as quantified objectives or expected impacts, are often missing. It is therefore unclear whether these measures are sufficient to achieve the objectives set out in the draft NBRP.

Austria addresses the **decarbonisation of heating** in a relatively comprehensive way. The aim is to completely phase out fossil fuel heating by 2040, supported by clear and credible measures, such as building code provisions, district heating development and the promotion of new connections, and grants for fuel replacement. However, national implementation is uneven, and while the technology and phase-out directions are well defined, the draft plan lacks a clear decarbonisation roadmap and does not specify the expected share of fossil fuel boilers in 2040.

[117] It is not clear whether the thresholds cover only space heating or also domestic hot water. The EPBD covers space heating, space cooling, domestic hot water, ventilation, lighting and other technical building systems.

Investment needs are only discussed briefly in the draft NBRP. Based on current investments in building renovation and related energy savings, the draft plan estimates that investments totalling EUR 4.2 billion and EUR 5.5 billion per year will be needed for residential buildings and non-residential buildings, respectively. For residential buildings, this amounts to 800 EUR/m^2, based on the floor area of residential buildings expected to be renovated annually[118]. The draft plan presents the private and public investment needs and estimates that private investments of EUR 15.6 billion per year will be needed. This figure exceeds the estimated investment needs, suggesting an inconsistency. Moreover, the draft plan does not provide a breakdown of investment needs for 2030, 2040 and 2050. The budgetary resources are estimated at EUR 3.2 billion per year, which suggests a gap compared to the investment needs outlined above. However, it is not clear what this figure includes. The missing information and the inconsistencies make it impossible to assess whether the estimated investment needs cover the targeted renovation or whether the allocation of budgetary resources is sufficient.

The **public consultation** allowed for broad public participation at different stages of the preparation of the draft NBRP, allowing sufficient time and opportunities for various stakeholders to submit contributions. However, the draft plan states that not all comments received have yet been taken into account.

The assessment process has identified the following aspects of the draft NBRP as strengths, **innovative measures** and/or examples of **good practice**.

— The draft NBRP provides a detailed and well-structured overview of the Austrian building stock, with long time series for building numbers, floor area, final energy consumption, renewable energy shares and GHG emissions (1990-2023).

— The definition of zero-emission building thresholds is particularly well developed. Representative operational GHG emissions and primary energy values are provided for new and renovated zero-emission buildings based on a cost-optimal envelope and future solar energy requirements.

— The draft NBRP also has a broad policy scope, including advisory services, heating decarbonisation, reduction of life-cycle GHG emissions, training and awareness-raising, and funding at several levels.

— Austria provides a clear definition and analysis of energy poverty. At the federal level, the Coordination Centre for Combating Energy Poverty has been established as a central point of contact and centre of expertise on the issue of energy poverty in Austria.

— The draft NBRP includes financial and regulatory measures to create or expand the number of charging points for electric vehicles and to promote sustainable mobility in social housing.

— The consultation process was broad and involved national, regional and sectoral stakeholders.

However, there are several aspects of the draft NBRP that need to be **completed and improved** and which should be addressed in the final version.

[118] JRC calculation.

— Set targets for primary energy consumption and reduction compared to the baseline and provide the final energy consumption targets for 2030, 2040 and 2050.

— Ensure that the roadmap is aligned with the trend in energy generation projected in the final NECP, and the primary energy factor and emission factors reflect this evolution.

— Ensure that the energy targets (both final and primary) include all energy uses listed in the EPBD (space heating and cooling, domestic hot water, ventilation, built-in lighting and other technical building systems).

— Provide the trajectory for residential building renovation, including the five-year milestones for the decrease in the average primary energy use , the methodology used and the quantified contribution of worst-performing buildings to at least 55 % of such decrease.

— Provide more information on the methodology used to set MEPS for non-residential buildings. The final NBRP must (i) explain the equations, (ii) set out how the building shape factor will be defined, (iii) include all EPBD energy uses in the thresholds, (iv) clarify whether the thresholds relate to final or primary energy use, (v) set thresholds for 2040 and 2050, and (vi) demonstrate that the thresholds for 2030 and 2033 have been set to trigger improvements in the energy performance of non-residential buildings to ensure that their energy use is below the maximum threshold set for the 16% and 26% worst-performing non-residential buildings.

— Provide renovation targets for the number of buildings and the total floor area to be renovated, along with annual renovation rates for both residential and non-residential buildings, including the worst-performing buildings.

— Quantify more clearly the contribution of building renovation to the EU's energy efficiency target, especially for 2030.

— Strengthen and consolidate the policies and measures by means of systematic provision of quantified objectives, expected impacts, budgets, names of bodies responsible and implementation periods.

— Provide a more complete long-term financing plan for investment needs as well as available public and private finance, ensure consistent alignment between investment needs and available resources, clearly distinguishing energy efficiency measures from non-energy-related renovation works, and explain how the funding gap is expected to be covered.

— Quantify energy poverty reduction targets for 2030 and beyond and link them more clearly to specific measures and financing.

— Incorporate the feedback from all stakeholders consulted.

3.11.3. Ambition of the draft plan

Box 31. Key insights of Austria's draft NBRP.

- Austria plans to reduce **final energy use** in the buildings sector to 7.4 Mtoe by 2030, 6.6 Mtoe by 2040 and 5.7 Mtoe by 2050. This amounts to reductions of 8%, 19% and 30%, respectively, compared to 2020 (8.1 Mtoe) .
- Austria plans to cut **total operational GHG emissions** in the buildings sector to 5.7 MtCO2eq by 2030, 3.4 MtCO2eq by 2040 and 1.8 MtCO2eq by 2050. This amounts to reductions of 30%, 57% and 77%, respectively, compared to 2023 (8.1 MtCO2eq).

Assessment of the overall ambition of the draft plan to achieve a highly energy-efficient and decarbonised building stock by 2050

As discussed in more detail below, the level of the draft plan's ambition to achieve a highly energy-efficient and decarbonised building stock by 2050 is not clearly demonstrated. While the targets for reducing GHG emissions are broadly in line with expectations, important elements – including (i) primary energy consumption, factors and reduction, (ii) the prioritisation of worst-performing buildings for renovation and (iii) the trajectory for the progressive renovation of residential buildings – are missing. These omissions undermine the overall credibility of the draft plan and call into question the feasibility of achieving the stated final targets for energy consumption and GHG emissions. By contrast, the draft plan does demonstrate a high level of ambition when it comes to heat decarbonisation, integration of renewables and regulatory thresholds for new and renovated zero-emission buildings.

By 2050, Austria aims to achieve cumulative final energy savings of 2 447 ktoe, equivalent to a reduction of 30% compared to the 2020 baseline. Moreover, Austria aims to cut the total operational GHG emissions of the buildings sector by 77% by 2050, compared to the 2020 baseline. The draft NBRP does not set targets for primary energy use and explicitly relies on end-use (final) energy consumption to avoid dynamic primary energy factors.

To achieve these targets, Austria presents a scenario that assumes a renovation rate of 8% over a period of 10 years but does not clearly state renovation targets for the number of buildings or floor area to be renovated, nor an annual renovation rate. The planned renovation rate is based on (i) the current annual rates of 3.3% for light renovation and 1.6% for deep renovation[119], (ii) the remaining floor area to be renovated, and (iii) the related potential for energy savings. It also takes into account a decrease in renovation activity due to the construction of new buildings. The planned rate seems to be calibrated to deliver the targeted savings in final energy use.

The decarbonisation objective is also supported by targets for renewable energy use in buildings. Austria targets a non-fossil energy share of 68.5% in the final energy consumption of buildings by 2030 and expects the mandatory solar installations on new buildings to deliver an additional 300-400 GWh/year by 2050.

[119] 'Größere Renovierung' in the draft NBRP.

Cost-optimal levels are discussed in the context of defining zero-emission levels for new and renovated buildings. It is unclear if these are also used to define the trajectory for the progressive renovation of residential buildings or the MEPS for non-residential buildings.

Assessment of the alignment between the draft NBRP and national commitments on climate and energy set out in the NECP

The draft NBRP is partially aligned with the ambition and objectives in the final NECP. It displays the same level of ambition for decarbonisation and a higher level of ambition for renewable energy. However, since the draft NBRP does not set clear energy efficiency targets, the comparison is not straightforward. The following section also addresses how the NBRP ambition compares with Austria's 2020 long-term renovation strategy (LTRS).

Energy efficiency

The draft NBRP sets a target for Austria to reduce the final energy consumption of its buildings sector by 9% by 2030, compared to 2020.

The contribution of Austria's building stock renovation to the EU's energy efficiency targets (Article 4 of the EED) is expressed as total savings of 2 447 ktoe in final energy use by 2050. In 2020, the buildings sector accounted for 33% of Austria's total final energy use, and its share is expected to increase to 34% in 2030 (ratio of buildings sector target compared to the energy efficiency target). This indicates that the energy savings in the buildings sector are expected to happen at a slightly slower pace than total energy savings across all sectors, which suggests that the buildings targets are not very ambitious.

The draft NBRP lists static primary energy factors (and emission factors) for several energy sources (fossil fuels, electricity, district heating, waste heat). They are complemented by factors for the displacement of fuels in the electricity generation mix and a best value for district heating from combined heat and power (CHP) waste. The draft plan explains that the factors have been revised, with a switch from an ex post to an ex ante logic (OIB - Österreichisches Institut für Bautechnik, Guideline 6, September 2025 edition). The factors seem to be set for the period 2026-2035, but no projections of these factors are included. This appears to be the reason why the draft plan focuses on final energy and does not address primary energy.

Against this background, it is unclear whether the energy targets in the draft NBRP are sufficient and likely to achieve the national commitment on **energy efficiency** set out in the NECP.

Decarbonisation

Austria's NECP sets the following specific operational GHG emission targets for the buildings sector: 5.6 Mt $MtCO_2eq$ by 2030, 3.9 $MtCO_2eq$ by 2040 and 2.6 $MtCO_2eq$ by 2040. These NECP targets are also reported in the 2020 LTRS.

Compared to the NECP targets, the targets in the draft NBRP indicate the same level of ambition in the short term (e.g. by 2030) and a higher level of ambition in the long term, aiming for 1.8 $MtCO_2eq$ by 2050 (compared to the NECP target of 2.6 $MtCO_2eq$ by 2050).

Therefore, the operational GHG emission targets in the draft NBRP seem sufficient and likely to achieve the national commitment on **decarbonisation** set out in the NECP.

Renewable energy

Austria's draft NBRP does not set out clear targets for increasing the share of renewable energy use in accordance with Article 15a of the RED. However, the draft plan contains a scenario graph which projects a share of non-fossil energy in the final energy consumption of buildings of 68.5% by 2030. The draft NBRP defines non-fossil energy sources as biogenic, renewables, district heating and electricity.

The NECP states that Austria aims to raise the national target from 46-50% (in the 2019 NECP) to at least 57% by 2030 to align it with the new EU targets on renewable energy. The draft NBRP projection is more ambitious than the NECP target; however, it is not clear that the two values are comparable.

The draft NBRP target for the share of renewable energy in buildings is lower than the indicative national share set out in Annex C to the Commission guidance note on heating and cooling (C/2025/2238): 68.5% in draft NBRP, as opposed to 74.1% in the guidance note.

Expected reduction in the number of people affected by energy poverty

The draft NBRP presents several calculations of the percentage of people affected by energy poverty, referring to data from Statistics Austria.

Based on two indicators – (i) energy-poor households with high energy costs and low incomes, and (ii) households which, according to their own statements, are unable to keep their homes adequately warm – figures from Statistics Austria for 2023 indicate that 7.9% of the population is affected by energy poverty. If a third indicator – households that have arrears in ancillary housing costs for financial reasons – is added, this proportion rises to 8.5%. If the condition of the building is also taken into account and a fourth indicator – households that are at risk of poverty and simultaneously live with a leaky roof, damp or rot – is added, the proportion of the population in energy poverty rises still further, to 12.1%. Figures are also provided on the proportion of disposable household income spent on energy and on the share of the population living in inadequate housing conditions (e.g. leaky roof) or under inadequate thermal comfort conditions.

The Austrian draft NBRP does not include targets for energy poverty reduction.

Prioritising the renovation of the worst-performing buildings

The Austian draft NBRP identifies the worst-performing buildings, but does not demonstrate clearly how they are prioritised for renovation.

Worst-performing buildings are identified on the basis of the EPC energy classes. The draft plan states that, based on heating demand, it can be assumed for the residential buildings sector that approximately 9% of buildings fall into class G, 8% into class F and 34% into class E. The 43% worst-performing residential buildings are therefore in energy class E and below.

For non-residential buildings, the draft plan identifies buildings in energy classes F and G as the worst-performing (corresponding to 16% and 26%, respectively above the maximum energy performance threshold identified), based on domestic hot water and heating energy demand only.

The draft plan also does not include baseline data for the worst-performing buildings or targets for floor area and number of buildings to be renovated by 2030, 2040 and 2050, respectively.

Minimum energy performance standards for non-residential buildings

Austria provides MEPS thresholds for non-residential buildings expressed in heating demand[120]. They may therefore not be aligned with EPBD requirements but rather with Austria's approach to setting nearly zero energy building (NZEB) requirements for new buildings and major renovations. The thresholds do not seem to be set by building category; however, they are sensitive to the geometrical parameters of the buildings to which they apply, as explained below.

The thresholds are not set as a value but provided as a formula that varies depending on the building shape factor (Table 28). The 16% threshold, above which non-residential buildings have to improve their energy performance and meet the MEPS obligation by 2030, corresponds to the 84th percentile heating demand. It is expressed in kWh/m^{2}y and calculated using the formula 73 × (1 + 2.0 / ℓc), where ℓc is the building shape factor[121]. However, the draft NBRP does not provide the possible values of the building shape factor at building or building category level. The draft plan also mentions that a second formula – 60 × (1 + 2.0 / ℓc) – is 'to follow', but the implications of using one or the other formula are not made clear.

The 26% threshold, above which non-residential buildings have to improve their energy performance and meet the MEPS obligation by 2033, corresponds to the 74% quantile heating demand and is expressed in kWh/m^{2}y and calculated using the formula 66 × (1 + 2.0 / ℓc), where ℓc is the building shape factor. As for the 16% thresholds, the draft plan also provides a second formula for the 26% threshold (54 × (1 + 2.0 / ℓc)) without, however, explaining its purpose.

Table 28. MEPS for non-residential buildings in Austria.

Categories	**Heating demand** kWh/(m^{2}y)			
	2030	**2033**	**2040**	**2050**
First formula	73 × (1 + 2.0 / ℓ c)	66 × (1 + 2.0 / ℓ c)	-	-
Second formula	60 × (1 + 2.0 / ℓ c)	54 × (1 + 2.0 / ℓ c)	-	-

Source: JRC elaboration on Member State reporting

No further thresholds beyond 2033 are provided in the draft plan's section on MEPS. Austria's draft NBRP does not state if the thresholds in kWh/(m^{2}y) are set for primary or final energy use, but refers to the OIB Guideline 6, September 2025 edition that establishes maximum energy performance thresholds in accordance with Article 9(1) of the EPBD.

The data sources used to calculate these thresholds are not clearly stated, but they seem to be Austrian national statistics and EPC data sets. The identification of the 16% and 26% worst-performing non-residential buildings is provided in the roadmap for building stock renovation, where the distribution of the non-residential buildings across EPC classes is provided together with the thresholds for energy consumption for indoor climatisation and hot water. This distribution seems coherent. However, it is not clear how these energy consumption thresholds relate to the formulae provided for MEPS setting (see above), which appear to relate only to heating demand. Also, the MEPS formulae are not clearly explained. The draft plan is not consistent, and more information is needed to determine whether the analysis underpinning the definition of the MEPS is robust and coherent.

[120] It is unclear if heating demand also includes domestic hot water heating or only space heating.

[121] Also known as 'compactness ratio'.

Exclusions (if applicable) pursuant to Article 9(6) of the EPBD and criteria for exemptions

The draft NBRP mentions exclusions under Article 9(6) of the EPBD. It also mentions that buildings used for worship and religious purposes are exempted. These buildings number approximately 10 000 (equivalent to about 3.7% of the total non-residential building stock in Austria). Moreover, regarding the exemption criteria under Article 9(1), the draft plan refers to the national building code (OIB, 2025) and notes that the vast majority of buildings with statutory protection are likely to date from before 1900 (according to Statistics Austria, before 1919) or from the interwar period (up to 1945) or the early post-war years. However, it is unclear if such buildings are exempted – and if so, how many – and the corresponding energy savings to be achieved in other part of the non-residential building stock are not quantified.

National trajectory for the progressive renovation of residential buildings

The draft NBRP does not set out the national trajectory for the progressive renovation of the residential building stock, including the milestones for 2030 and 2035, but explains that it will be finalised once the public consultation on this topic has been completed.

However, under the roadmap, when calculating the targets for final energy use in the residential building stock the draft plan discusses scenarios for achieving the 16% and 20% reductions in average energy use by 2030 and 2035, respectively. It also identifies the specific heating energy use in kWh/(m^2y) for residential buildings between 2020 and 2050.

New buildings

In principle, new buildings in Austria may only use biogenic fuels, district heating scheduled to be fully decarbonised by 2050, heat pumps or, where applicable, components of directly electrically powered solutions. The draft NBRP states that, as a result, on-site operational GHG emissions for these buildings are effectively zero.

The draft NBRP provides a comprehensive overview of the threshold values for the annual final energy consumption of new zero-emission buildings and for the annual final energy consumption of renovated zero-emission buildings.

3.11.4. Sufficiency of the policies and measures

The draft NBRP includes a comprehensive overview of implemented and planned policies and measures that addresses all mandatory areas listed in Annex II of the EPBD.

The draft plan lists a broad set of measures that are implemented by the Austrian provinces. Each measure is described using a standard template, which helps provide a clear overview. However, for several measures some mandatory descriptive elements, such as quantified objectives, funding sources or expected impact, are missing. Where impacts are quantified, the metrics vary: number of supported installations, number of advisory services, funding volumes, qualitative expected CO_2 reductions or, in some cases, renovation depth or energy savings. While the comprehensive overview of measures is a clear strength of the draft plan, the related overall energy savings cannot be quantified.

The measures are consistent with other plans and strategies, such as the final NECP, comprehensive heating and cooling assessments pursuant to Article 25(1) of the EED and local heating and cooling plans (Vienna's Wärmeplan 2040, for example).

Overall, Austria has in place a proven regulatory framework to support the implementation of the NBRP. However, missing quantifications and inconsistencies in the setting of targets make it impossible to assess whether the measures are sufficient to achieve the targets.

Renovation and MEPS for non-residential buildings

The framework for MEPS implementation in Austria is described in OIB Guideline 6, September 2025 edition, which lists the maximum thresholds for non-residential renovated buildings. However, the draft plan merely refers to these guidelines without providing further detail.

The draft plan does not clearly identify a single competent authority for the purposes of MEPS implementation. The institutional setting appears to rest on the OIB framework and the application of the building code at provincial level. Buildings concerned by MEPS are identified implicitly on the basis of the EPC framework and the threshold methodology, but the draft plan does not provide a clear operational description of how owners will be identified and informed and their compliance ensured. The draft plan does not describe in detail any specific mechanism for monitoring and verification.

No renovation trigger points, such as sale, rental agreement or donation, are mentioned. The draft plan does, however, include examples of construction-related trigger points in the relevant building legislation. One such example would be the requirements linked to additions, alterations or repairs that affect at least 25% of the building envelope, which is one of the criteria in the definition of major renovation in the EPBD.

Renovation of residential buildings

Although the draft NBRP does not set out the trajectory, it does include measures to reduce the average primary energy use of the residential building stock, including the renovation of worst-performing residential buildings. The main instruments are the national building codes, various subsidy schemes and a comprehensive set of measures taken at provincial level to promote staged renovations. However, in the absence of a clearly defined trajectory, the sufficiency of the measures cannot be fully assessed at this point.

Austria's draft NBRP contains a significant number of mitigating and support measures for vulnerable households reported by seven provinces and the federal government. These include housing benefit, heating cost support and support for certain fuel replacement projects targeted at low-income households. At the federal level, the Austrian Coordination Centre for Combating Energy Poverty (kea) has been established as a central contact point and centre of expertise on the issue.

The building renovation passport as a tool to support energy savings, complement MEPS and assist the trajectory for residential buildings

While the draft NBRP does discuss medium and deep renovation support, it does not include a specific building renovation passport scheme in accordance with Article 12 of the EPBD.

Box 32. Example of policies and measures in Austria.

— **Carinthia** uses various **funding schemes** to support private individuals, non-profit developers and local authorities in the renovation of residential buildings. Specific measures supported include energy efficiency upgrades of the building envelope and the installation of energy-efficient technical systems (e.g. replacement of heating systems with non-fossil fuel alternatives), as well as various measures to improve accessibility in existing buildings. These measures are available individually or as a 'comprehensive refurbishment' package with increased funding rates. The funding is provided in the form of non-repayable one-off grants or grants spread over 10 years. It may also take the form of subsidised loans.

— In **Burgenland**, renovation of residential buildings is supported by **housing subsidy loans** from the provincial government. Under current terms, such loans are subject to a fixed interest rate of 0.9% per year over 30 years and are to be repaid in 60 equal half-yearly instalments. The amount of the subsidy loan depends on the scope of the renovation measures. Measures aimed at increasing the energy efficiency of the building envelope and the heat distribution system (in parallel with the replacement of the existing heating system with an innovative alternative, such as district heating, a biomass heater or a heat pump) may be eligible for a special refurbishment loan of up to EUR 100 000, with a 100% subsidy rate.

— In **Vienna**, funds from the **housing subsidy scheme** are used to support comprehensive residential building renovations, such as thermal upgrades of the building envelope or the conversion of existing heating systems to renewable energy sources. Funding totalling EUR 50-200 million is disbursed annually for renovation projects.

Alleviation of energy poverty and housing affordability

Although the draft plan does not include a target for energy poverty alleviation, it does mention a wide range of initiatives in social and housing policy aimed at improving conditions for vulnerable groups. Policy measures are reported by seven provinces and the federal government.

These include advice on energy use, tenant protection, subsidies during the heating period, heating replacement support and other forms of financial assistance under programmes such as the Styria housing support scheme to strengthen and support vulnerable households. The Tyrolian 'DoppelPlus' initiative, which has been in place in Tyrol since 2016, will be continued in the coming years ('DoppelPlus 2.0'), and it is expected to be established as a long-term regional programme. The initiative focuses on reducing energy consumption and associated GHG emissions of private households at risk of or in energy poverty.

At federal level, the Coordination Office for Combating Energy Poverty is in charge of providing information and overseeing measures to combat energy poverty.

Several measures are identified in the draft NBRP, including funding schemes and information campaigns to promote behavioural changes. These measures are in line with Article 24 of the EED.

The draft plan identifies measures to address housing affordability. Financial aid may be granted for the acquisition or construction of dwellings under certain conditions, including, for example, the construction of dwellings for redensification purposes or the construction of apartments in underdeveloped areas. Moreover, support is provided for the construction of subsidised rental apartments and dormitories, the latter being non-repayable. Another example is the Viennese housing allowance, which provides support to low-income households (in accordance with a guideline rate) in the form of an allowance or a rent cap to help them cope with rents and high housing costs.

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

The draft NBRP addresses the issue of one-stop shops (OSS) in Austria by presenting the various mechanisms put in place across the provinces. They are very diverse in terms of services offered, geographical coverage and targeted beneficiaries. A number of examples are provided below.

Burgenland's energy consulting service provides advice to citizens, supports public authorities and manages the planning and distribution of heating solutions. Carinthia offers on-site energy consultations for households, while Salzburg provides energy consulting for households, communities and institutions, on-site or by telephone. Styria's energy consulting service delivers information and assistance, develops energy efficiency measures and provides advice on funding and sustainability measures. The Tyrol energy agency supports households at risk of poverty through consultations, on-site or by telephone. In Vorarlberg, an OSS is currently being set up in accordance with Article 18, while in Vienna, HAUSKUNFT offers free and independent services for all owners, property managers and planners in the city.

Finally, the previously mentioned Coordination Centre for Combating Energy Poverty was established in 2023 as a central contact point and centre of expertise on energy poverty in Austria. The centre is a bridge-building institution that brings together a wide range of expertise and stakeholders in the fields of energy, climate protection, housing and social affairs. It cooperates with various organisations, including social services and aid organisations, public administrations at federal, provincial and local levels, and energy companies and energy advisory services.

Decarbonisation of heating and cooling and the phasing out of fossil fuels in heating and cooling with a view to a complete phasing out of fossil fuel boilers by 2040

As described in more detail below, Austria addresses decarbonisation of heating in a relatively comprehensive way. The draft NBRP states that Austria aims for a complete phase-out of fossil fuel heating by 2040 and provides clear and credible measures to achieve this objective. Several measures at provincial level address both paths specified in Commission guidance note C/2025/6438 on phasing out fossil fuel boilers, i.e. (i) fuel replacement (decarbonisation of the grid) and (ii) boiler replacement.

Six provinces report measures that support this goal, including (i) building code provisions, (ii) district heating development and the promotion of new connections to district heating, and (iii) grant schemes for fossil fuel replacement. However, national implementation appears to be inconsistent across the different provinces. While the draft plan outlines clear technology and phase-out directions, it does not provide a detailed decarbonisation roadmap or specify the expected share of boilers that will still be burning fossil fuels in 2040.

Measures include the Vorarlberg scheme to support decarbonised heating and cooling, including the *2025 Energy Promotion Guidelines*. Under the scheme, any household that replaces a fossil fuel-powered heating system with a heating system using renewable energy sources is eligible for a bonus in addition to the basic subsidy (e.g. total subsidy for a detached house: EUR 4 000). The subsidy can be combined with the federal government's 'Out of oil and gas' scheme, but it is income-independent. Furthermore, the 'Clean heating for all' scheme offers subsidy rates of up to 100% of eligible costs when replacing fossil fuel-powered heating systems with systems using renewable energy sources. Another example of a comprehensive scheme is the Viennese 'Get out of gas' scheme. Vienna aims to become a model city for climate action by 2040. District heating or solutions based on renewables are needed to heat around 600 000 households and operate around

260 000 cooking appliances currently running on gas, which together account for almost 90% of current carbon emissions in Vienna's buildings sector. Moreover, the Renewable Heat Act, which prohibits the expansion of fossil fuels plants, has set an objective of having at least 80% of district heating supplied from renewable energy such as waste heat and high efficiency cogeneration plants.

Overall, the draft NBRP demonstrates clear and credible measures on the decarbonisation of heating and cooling and the phasing-out of fossil fuels in heating. The draft plan is also consistent with existing policies and strategic plans, such as the final NECP and several regional and local heating and cooling plans.

Prevention of construction and demolition waste

The draft NBRP mentions measures to prevent construction and demolition waste in five provinces.

These measures concern (i) the implementation of the national regulation on recycling building materials, which is intended to support the reuse and recovery of high-value construction materials; (ii) the creation of facilities for collection and subsequent production and reuse of recycled building materials (Burgenland); (iii) workshops and data collection and analysis of the potential offered by the circular economy (Tyrol); and (iv) anchoring circularity in urban planning in the city of Vienna (reducing the material footprint, conserving resources and applying the principles of a circular economy).

Promotion of renewable energy sources in line with Article 15a of the RED

In line with Article 15a(1) of the RED, the Austrian draft NBRP includes a substantial set of measures to promote renewable energy in buildings, especially through support for alternative heating systems (biomass boilers, heat pumps, efficient district heating), grant schemes and building code provisions. These measures are consistent with the overall target of 68.5% renewable energy use in the buildings sector by 2030. However, it is not clear if the promotion of biofuels for heating takes into account indoor climate and cost-effectiveness aspects and if it fulfils the sustainability and GHG emission saving criteria set out in the RED.

Deployment of solar energy installations on buildings

The draft plan lists a number of concrete solar-related provisions, including obligations to prepare buildings for the deployment of solar installations and, in some cases, minimum photovoltaic (PV) capacity requirements. Carinthia, for example, grants EUR 34 million annually in support for new installations and extensions of solar power systems, covering 5 000 PV installations and 1 500 m^2 of solar thermal installations. The Austrian draft NBRP therefore does not focus exclusively on PVs, even though PV receives the strongest emphasis.

Reduction of whole-life-cycle GHG emissions and the uptake of carbon removals

Several provinces have set up programmes that use the OI3 index[122] (e.g. Burgenland, Carinthia, Lower Austria, Styria, Vorarlberg), ecological material criteria and recycled material to reduce whole-life-cycle GHG emissions. Measures also include guidelines and indirect building regulations

[122] The Ökoindex OI3 assesses the ecological quality of all materials on the basis of the environmental indicators 'global warming potential', 'acidification potential' and 'the need for non-renewable primary energy'.

(Tyrol) or financial incentives to reduce life-cycle GHG emissions in connection with the funding of both new constructions and renovations.

Measures to ensure the uptake of carbon removal are only addressed in part. Although the draft plan mentions the possible introduction of additional incentives for CO_2 storage in materials, it does not provide a fully developed carbon removal strategy for the buildings sector.

Promotion of a district and neighbourhood approach and integrated renovation programmes

The draft NBRP addresses the promotion of sustainable neighbourhoods and integrated renovation programmes. It discusses various programmes at municipal and provincial level.

One example is Styria's call for proposals, 'Vibrant town and city centres' (EUR 15 million in EU funding, EUR 3.75 million in national funding). This programme aims to address existing shortcomings in town and city centres by supporting the participatory development of an integrated spatial development strategy and related flagship projects. The main objective is to adapt public (open) spaces into places for living, socialising and recreation, with particular consideration given to the challenges posed by climate change.

Moreover, some municipalities such as Innsbruck have implemented comprehensive initiatives to mitigate heat island effects and improve the overall climate quality in the city. Cool spaces, an underground waste collection system, a heat warning system, water stations, and information campaigns are among the initiatives listed.

Improvement of buildings owned by public bodies

The draft NBRP reports that, statistically, public buildings (service buildings) number around 36 000, of which 27 000 were built before 1990, and are recorded in the Building and Housing Register of Statistics Austria with a gross floor area of approximately 75 million m^2. This represents approximately 27% of all non-residential buildings.

Examples of measures addressing public bodies' buildings include (i) in Burgenland, the transitioning of state properties away from natural gas, along with more structured planning and awareness-raising efforts; (ii) targeted funds, such as the Tyrolian energy fund, which allocates EUR 3 million annually from 2024 to 2028 to achieve the targets in the EED); (iii) in Salzburg, non-repayable building improvement grants; (iv) in Styria, comprehensive measures to improve energy efficiency in public buildings and the deployment of building-based photovoltaic systems under the European Local Energy Assistance (ELENA) project (targeting a 50% reduction in energy and a 87% reduction in GHG emissions, compared to the baseline); (v) in Vienna, a school rehabilitation programme, with EUR 700 million in funding to renovate 50 schools; (vi) in Vienna, a sports facility renovation programme with a budget of approximately EUR 92 million; and (vii) also in Vienna, a programme for renovating office buildings, funded to the tune of EUR 50 million per year.

Promotion of smart technologies and infrastructure for sustainable mobility

The draft NBRP includes measures relating to smart technologies in a broad sense, especially in connection with charging infrastructure, load management and regulatory adaptation.

In terms of charging infrastructure and the deployment of ducting, pre-cabling and recharging points, the draft NBRP mentions several financial and regulatory measures to (i) increase the number of charging points for electric vehicles, (ii) promote sustainable mobility in social housing,

(iii) deploy multi-apartment charging infrastructure, and (iv) introduce mandatory requirements to install charging stations in parking facilities in proportion to the number of parking places and depending on the type of building (public or private).

Policies or test phases relating to the smart readiness indicator are not set out clearly in the draft NBRP.

Accessibility for persons with disabilities

Accessibility is not identified as a separate element in the overview of the building stock. The draft plan does not provide information on accessible buildings or buildings in need of accessibility renovation, and the needs cannot be estimated on the basis of the information provided in the draft plan. Moreover, accessibility is not included among the elements of the buildings identified as targets for renovation.

Building accessibility is identified in several measures at provincial level as an additional aspect that can be addressed during building renovation. For instance, in Styria the renovation of residential buildings is promoted in a comprehensive way, including with the aim of improving building accessibility. Moreover, in Styria, Carinthia and Tyrol, training on the OIB guidelines is provided to construction experts (architects, civil engineers, other construction professionals), including on building accessibility. However, the section on financing in the draft NBRP does not clearly identify costs or budgetary resources related to accessibility.

Addressing market barriers, market failures and skills gaps

The draft NBRP mentions a national strategy for addressing barriers and market failures. It states that this strategy is being implemented continuously through various funding programmes, legislative measures and support programmes, e.g. funding to assess the structural integrity of roofs prior to installing PV systems (removal of the market barrier 'the structure might not be able to withstand the load'). Barriers related to skills, in particular, are clearly addressed, including through labour market and qualification strategies and references to OIB rules covering accessibility, fire safety and hygiene.

Awareness-raising campaigns and other advisory tools

Awareness-raising campaigns and advisory tools are described in a comprehensive manner. One example is the 'e5 State Programme for Energy Efficient Municipalities' that supports municipalities in carrying out structural and sustainable energy and climate protection work. This programme has been designed to provide continuous improvement by offering participating municipalities practical long-term support, including regular meetings and recommendations tailored to the specific challenges which they face. The result of the evaluation is expressed in 'e's (the highest rating is five 'e's). The number of 'e's thus serves as a comparable indicator of the municipality's current status in the areas of climate protection, energy and sustainability.

Promotion of modular and industrialised solutions

The promotion of modular and industrialised solutions is addressed in the NBRP, but mainly in the form of research and support schemes. One example is the 'Südsan' project in Vorarlberg. Buildings comprising 5 or 10 residential units that are representative of the market segment of smaller multi-family buildings from the 1920s to the 1960s (13% of residential buildings in Austria) underwent high-quality refurbishment to improve their energy efficiency. The refurbishment was monitored by a project consortium that included universities, and it yielded valuable insights for further modular refurbishments.

3.11.5. Sufficiency of financing sources and administrative resources

As The draft plan includes estimates of annual investment needs based on investments made over the 2021-2027 period. It does not, however, present a fully harmonised breakdown of investment needs for 2030, 2040 and 2050. The budgetary resources are estimated on an annual basis by building type, but the funding and financing sources are not identified. As a result of these gaps and inconsistencies, it is not possible to assess whether the investment needs cover the targeted renovations, nor whether the budgetary allocations are sufficient.

The draft NBRP states that the financing part is still a work in progress, awaiting, notably, the completion of the public consultation.

The plan presents **investment needs** based on current investments in building renovation and related energy savings, including an estimated investment of EUR 4.2 billion per year in thermal renovation of residential buildings in order to reduce heating energy use by square meters of floor area by 16% by 2030. This amounts to about EUR 800/m^2, based on the floor area of residential buildings expected to be renovated every year[123]. The draft plan estimates that this amount could decrease after 2035. For non-residential buildings investment needs averaging EUR 5.5 billion per year are estimated for 2021-2027 (plus EUR 6.1 billion for additional work not related to energy efficiency upgrades)[124]. The draft NBRP does not yet present a fully harmonised breakdown of investment needs by building category by 2030, 2040 and 2050, respectively.

The draft plan also lists investment needs by source (public or private). It estimates investment needs of about EUR 15.6 billion per year, of which EUR 10.7 billion are for residential buildings and EUR 4.9 billion for non-residential buildings. These figures seem to be based on current investments in building renovation works not specifically aimed at improving energy efficiency.

The **funding and financing sources** are not identified, but the budgetary resources are estimated at EUR 3.2 billion per year. The public and private funding and financing sources and mechanisms are not identified.

Assessment of the adequacy of total investments

It is not possible to assess the adequacy of the estimated investments, as these have not been clearly identified.

Linking investment needs to targets through policies and measures

It is not possible to link investment needs to specific targets, as there is no clear link between investments, policies, measures and targets.

3.11.6. Inclusiveness of the public consultation

The draft NBRP describes a broad consultation process that provided sufficient time and opportunities for all stakeholders to provide feedback. It states that the main consultation round ran from 26 May to 30 September 2025, followed by a stakeholder workshop on 15 October 2025. A

[123] JRC calculation.

[124] The renovation cost by floor area cannot be estimated, as the floor area renovation targets for non-residential buildings are not provided.

total of 238 submissions and contributions were received. The list of invited and consulted parties is broad and includes provincial representatives, federal authorities, businesses and professional associations, cities and municipalities, environmental stakeholders and organisations working with vulnerable households.

An additional public hearing was held from 18 November to 8 December 2025, involving civil society partners, local and regional authorities and organisations working with vulnerable households. The hearing yielded a further eight submissions. Organisations representing persons with disabilities were also invited, including the Austrian Disability Council and the Vienna Monitoring Office for the Rights of Persons with Disabilities.

The draft plan notes that not all comments received have yet been taken into account, so the final version of the plan can be expected to state more explicitly if and how the feedback received during the consultation has been integrated.

3.11.7. Completeness of the draft plan and consistency with other planning or reporting exercises

Not all mandatory indicators are provided in the draft plan. The baseline and targets for primary energy use, the targets for renovated floor area, the energy poverty targets, the worst-performing building targets, and the trajectory for the progressive renovation of residential buildings are all missing. The draft plan provides several optional indicators. More information is listed in the following table.

Table 29. Indicators checklist for Austria.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings (number)	Yes	Number of social housing buildings is not available.
	Floor area (m2)	Yes	Social housing floor area is not available.
	Definition of worst-performing buildings	Yes	
	Share of worst-performing buildings (%)	Partially	Not clearly identified.
	Renovated buildings/ floor area (number/ m2)	Partially	
	Renovation rate (%)	Yes	
	Primary energy use (ktoe)	No	
	Final energy use (ktoe)	Yes	Heating and hot water in residential buildings; indoor climatisation and hot water in non-residential buildings.
	Specific primary energy for residential buildings (kWh/m2y)	Yes	Heating and hot water.
	Share of renewable energy (%)	Yes	
	Operational GHG emissions (Mt CO2-eq)	Yes	
	Energy poverty share (%)	Yes	
Roadmap for 2030, 2040 and 2050	Renovation targets (floor area or number)	No	Projections of m2/capita linked with reduction in space heating are included.
	Renovation rate targets (%)	Partially	One value is provided.
	Primary energy targets (ktoe) or reduction (%)	No	
	Final energy targets (ktoe) or reduction (%)	Partially	Scenarios are included, but the targets are not presented in a consolidated framework for the building stock.

Section	Indicator	Yes/No/Partially	Explanatory notes
	Renewable energy targets (%)	Yes	
	GHG emission targets (Mt CO2-eq) or reduction (%)	Yes	
	Energy poverty targets (%)	No	
	Contribution to energy efficiency target	Yes	
Policies and measures	Scope and type	Yes	
	Quantified objective	Partially	In several cases is rather generic and the expected impact is descriptive.
	Status and implementation period	Yes	
	Budget and funding source	Partially	The budget is not available for all measures.
Investment needs	Total and/or average investment needs (million EUR), EUR/m^2	Partially	Estimations only for 2021-2027.
Residential buildings	Average specific primary energy decreases between 2020 and 2050	No	It is reported that this section will be finalised after the public consultation.
	Number of residential buildings/dwellings to be renovated	No	
	Residential floor area to be renovated (m2)	No	
	Worst-performing buildings contribution (%)	No	
Non-residential buildings	MEPS 16% threshold	Partially	Only heating demand included.
	MEPS 26% threshold	Partially	Only heating demand included.
	2040 and 2050 thresholds	No	
Summary of the public consultation		Yes	

Source: JRC elaboration on Member State reporting

Consistency checks have been performed by comparing the data with previous Member State reporting: the 2024 NECP, the 2025 national energy and climate progress report (NECPR), the 2023 national cost-optimal report and the 2020 LTRS.

Plausibility checks have been performed by comparing the data with other reliable data sets: the Building Stock Observatory (BSO) for building stock indicators and Eurostat data sets for final energy consumption.

Box 33. Consistency and plausibility check for Austria.

Primary energy factors in the draft NBRP are reported as being from 2025, whereas in the previous national cost-optimal report they are from 2023. Consequently, a direct comparison is not possible, but the values appear consistent.

The number of residential buildings is plausible compared to the BSO data set, while the number of non-residential buildings and the floor area of both residential and non-residential buildings show differences compared to the BSO data set.

The final energy consumption is plausible based on comparison with the Eurostat data set.

Energy poverty

The draft NBRP provides a definition of energy poverty. Households are considered to be in energy poverty if they are unable, or able only to a limited extent, to cover the necessary expenditure on household energy (electricity, heating, hot water, cooling, cooking, lighting and the operation of household appliances) required to maintain a basic and adequate standard of living and health.

Austria's definition of energy-poor households is aligned with Article 2(52) of the EED with the indicator 'ability to cover the necessary expenditure on household energy' given the strongest weighting.

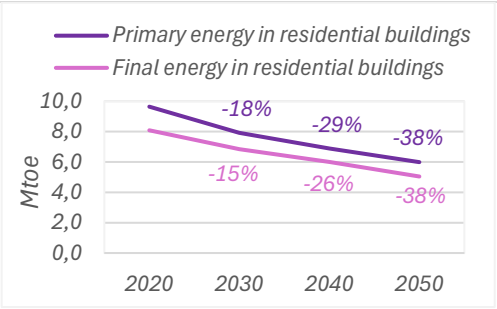
The definition and quantification of energy poverty and the policies and measures are consistent with the NECP. The draft NBRP contains the same definition and figures as the final NECP. Consistency with the social climate plan cannot be verified, as the draft NBRP provides little or no information on it.

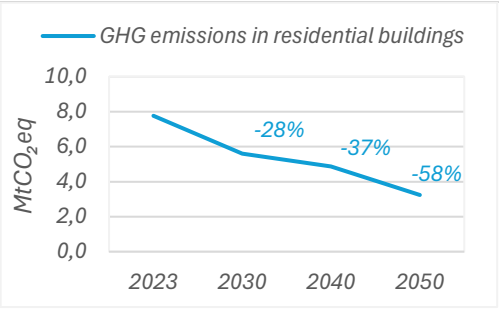
3.12. Portugal

3.12.1. Main indicators

Table 30. Selection of main indicators from Portugal's draft NBRP.

Renovation				
Floor area (Million m^2)	2020	2030	2040	2050
	Baseline	Cumulative renovation		
Residential	640.8	208.6	343.2	536.6
Non-residential	1 131.8	-	-	-
Total	1 772.6	-	-	-
Cumulative renovation (%)		33%	54%	84%
Annual renovation rate (%)[125]	**1.76%**	**3.23%**	**2.10%**	**4.45%**
Number of buildings[126]	2020	2030	2040	2050
Total	7 098 199	2 035 390	3 351 180	5 876 400
Cumulative renovation (%)		**29%**	**47%**	**98%**
Energy consumption				
Primary energy (Mtoe)	2020	2030	2040	2050
Residential	9.6	7.9	6.9	6.0
Non-residential	-	-	-	-
Total	9.6	-	-	-
Change vs 2020 (%)		**-18%**	**-29%**	**-38%**
Final energy (Mtoe)	2020	2030	2040	2050
Residential	8.1	6.8	6.0	5.0
Non-residential	-	-	-	-
Total	8.1	-	-	-
Change vs 2020 (%)		**-15%**	**-26%**	**-38%**
Energy end-uses included	Heating, cooling, hot water and ventilation			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2023	2030	2040	2050
Residential	7.8	5.6	4.9	3.2
Non-residential	-	-	-	-
Total	7.8	-	-	-
Change vs 2023 (%)		**-28%**	**-37%**	**-58%**
GHG emissions in $kgCO_2/m^2$	12.1	8.7	7.6	5.0
Change vs 2023 (%)		**-28%**	**-37%**	**-58%**

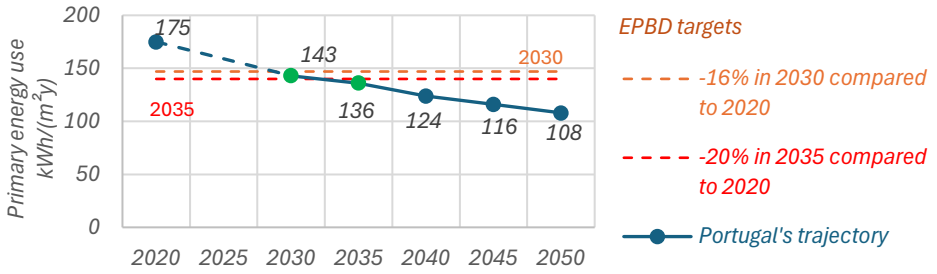




[125] The annual renovation rates include only residential buildings.

[126] The number of buildings (baseline and targets) includes only residential buildings.

Renewable energy				
Renewable energy in the final energy	2023	2028	2029	2030
Share of renewable energy in buildings' final energy consumption	73%	83%	85%	87%
Solar energy technologies in buildings		2030	2040	2050
MW installed solar thermal		1 200	1 200	1 200
MW installed photovoltaics		4 500	5 200	6 800
Energy poverty				
People affected by energy poverty	2020	2030	2040	2050
Population living in inadequate dwelling conditions	29.0%	20.0%	10.0%	5.0%
Trajectory for the progressive renovation of residential buildings				



Minimum energy performance standards for non-residential buildings				
	2030	2033	2040	2050
Not available				
Primary energy factors				
Non-renewable PEF	2023	2030	2040	2050
Electricity	0.30	0.30	0.00	0.00
Natural gas	0.90	0.90	0.60	0.10
District heating	-	-	-	-
Investment needs for renovation and funding and financing sources				
Investment needs (billion EUR)		2030	2040 Cumulative	2050
Residential		-	-	-
Non-residential		-	-	-
Total		-	-	-
Funding and financing (billion EUR)				
Public		-	-	-
Private		-	-	-
Total		-	-	-

Source: JRC elaboration on Member State reporting

3.12.2. Executive summary

Portugal has submitted a partially complete draft of its national building renovation plan (NBRP), including a voluntary spreadsheet that details the results of the main quantitative indicators.

Portugal has set a goal for its residential building stock to reach an average primary energy use similar to that of zero-emission buildings (ZEBs) as defined in the draft NBRP. However non-

residential buildings, which represent 16% of the total building stock[127], are not captured in the roadmap as further described. Therefore, it is not possible to determine the overall **level of ambition** of the draft NBRP to achieve a highly energy-efficient and decarbonised building stock by 2050.

Overall, the draft NBRP appears aligned with the ambition and objectives of the final national energy and climate plan (NECP). However, the use of different baselines and the omission of non-residential buildings in the draft NBRP prevents full comparability.

Portugal's targets for **primary energy consumption** in the residential building sector are 7.9 Mtoe by 2030, 6.9 Mtoe by 2040 and 6.0 Mtoe by 2050, which corresponds to reductions of 18%, 29% and 39% respectively from the 2020 baseline of 9.6 Mtoe.

Portugal's targets for **final energy consumption** in the residential building sector are 6.8 Mtoe by 2030, 6.0 Mtoe by 2040 and 5.0 Mtoe by 2050, which correspond to reductions of 15%, 26% and 38% respectively compared to the 2020 baseline of 8.1 Mtoe.

Portugal's targets for total **operational greenhouse gas (GHG) emissions** in the residential building sector are 5.6 $MtCO_2eq$ in 2030, 4.9 $MtCO_2eq$ in 2040 and 3.2 $MtCO_2eq$ in 2050, which correspond to reductions of 28%, 37% and 58%, respectively compared to the 2023 baseline of 7.8 $MtCO_2eq$.

The contribution of Portugal's building sector to the **EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED') is not provided in the draft NBRP. However, in 2020 the residential building sector accounted for 54% of total final energy use in Portugal. Based on the residential building sector and energy efficiency targets, Portugal aims to reduce this share to 47% by 2030[128]. This indicates that the energy consumption in the residential sector is projected to decline at a faster rate than overall energy use.

Regarding Portugal's contribution to the **EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED'), the draft NBRP sets the target of 87% share of renewable energy in the final energy consumption of the building sector by 2030. This target is more ambitious than the targets set in the NECP of 68% share of renewable energy in building' energy consumption by 2030.

Portugal provides targets for the deployment of solar energy use in buildings, aiming for 8 000 MW of installed capacity by 2050. This includes both solar thermal and photovoltaic installations. Targets are also provided for 2030 and 2040.

To meet the energy and GHG emission reduction targets in the residential sector, Portugal aims to **renovate** approximately 536 million m^2 of residential floor area between 2020 and 2050, representing 84% of the 2020 baseline. The targets for the average annual renovation rates are 3.2% between 2020 and 2030, 2.1% between 2030 and 2040 and 4.45% between 2040 and

[127] Number of buildings in 2023.

[128] The JRC calculates the percentages as follows: In 2020, as a ratio of final energy consumption in buildings to total final energy consumption sourced from Eurostat. In 2030, as a ratio of the draft NBRP target for final energy consumption in buildings to the national energy efficiency target set under Article 4 of the EED, sourced from the final NECP 2024.

2050. This represents a significant increase from the 1.8% rate registered in 2023. These targets have been set to transform the residential buildings stock into zero-emission buildings and deliver the trajectory for the progressive renovation of residential buildings.

Worst-performing residential buildings are quantified (both in terms of the number of buildings and floor area) but without a clear definition. By contrast, non-residential worst-performing buildings are not identified. Portugal prioritises the renovation of worst-performing residential buildings, as evidenced by a higher renovation rate in this segment compared to the annual renovation rates across the residential building stock. Worst-performing residential building will also benefit from accelerated renovation in the early phases: 6.0% between 2020 and 2030, 3.5% between 2030 and 2040 and 0.6% between 2040 and 2050. As a result, by 2050 all worst-performing residential buildings are planned to be renovated.

Portugal's draft NBRP sets out a trajectory for the **progressive renovation of residential buildings**, with the aim of reducing average primary energy use by 38% by 2050, compared to 2020 levels, and reaching 108 kWh/(m^2y) by that year. This target is aligned with the threshold set for zero-emission residential buildings located in the country's climatic zone 3[129]. The milestones set for 2030 and 2035 – with reductions of 18% and 22%, respectively compared to 2020 levels - are aligned with the requirements of Article 9(2) of the Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD') to reduce the average primary energy use of the entire national residential building stock. The contribution of the 43% worst-performing buildings to the trajectory for the renovation of the residential building stock is provided. The data sources are identified, the methodology is clear, and the data remain consistent across the different parts of the draft NBRP.

The draft NBRP does not provide the **minimum energy performance standards** (MEPS) thresholds for **non-residential buildings**. However, it states that these thresholds are under development and will be expressed in primary energy use.

Portugal's draft NBRP only partially addresses **energy poverty**. It provides a clear definition and sets targets using four key indicators related to the buildings' energy efficiency, disposable income and energy expenditures. However, no composite indicator is provided, even though it sets targets for all four indicators for 2030, 2040, and 2050, which are aligned with the Portuguese national long-term energy poverty mitigation strategy 2023-2050. Yet, calculation details are not provided. Moreover, the draft plan provides limited details on policies and measures for alleviating energy poverty. It mentions a national action plan on combating energy poverty (2030-2050), which is expected to include concrete measures, but the draft plan remains vague. While several measures in the draft might contribute to alleviating energy poverty, their direct connection to the targets is unclear, and they mostly lack quantified impacts.

The draft NBRP outlines several measures that contribute to enhancing **housing affordability**. These include: i) tax benefits for landlords who maintain rents at levels affordable relative to tenants' incomes, ii) financial support for building renovations targeted at individuals living in substandard housing, iii) an affordable public housing scheme promoting low-cost rentals for vulnerable households and iv) a conditional income scheme that sets maximum rents for subsidised

[129] Portugal sets thresholds for zero-emission residential buildings according to three climatic zones, zone 3 corresponds to 110 kWh/(m^2y). The climatic zones are not explained/defined.

housing projects. However, the issue of vacant housing and how it can be brought back to the market thanks to renovation is not addressed even though Portugal faces a high rate of vacant dwellings including in high-demand areas.

The **overview of implemented and planned policies and measures** is partially addressed in Portugal's draft NBRP. It includes over 30 policies and measures, offering brief descriptions, timelines, and identifying responsible entities. However, it lacks key mandatory indicators such as expected impacts, quantified objectives, and budgetary funding sources. While the overview introduces innovative approaches (like indoor environmental quality criteria, the energy-water nexus, and synergies between buildings, vehicles, and storage), several important policy areas are not sufficiently addressed. These include i) MEPS implementation, ii) alleviation of energy poverty, iii) prioritisation of worst-performing buildings and iv) decarbonisation of heating. Additional information is needed to evaluate the adequacy of policies and measures to achieve the NBRP targets.

Portugal does not provide clear and credible measures for the **decarbonisation of heating.** It neither specifies the 2040 phase out target for fossil fuel boilers nor provides an estimate of the expected share of the boiler fleet that will combust fossil fuel gas in 2040. While the draft includes measures that contribute to heating decarbonisation, such as promoting renewable energy technologies like heat pumps and biofuels, and raising public awareness, it fails to provide further details. It remains unclear to what extent the replacement of natural gas by biomethane and hydrogen after 2040 in the grid for buildings has been assessed in conjunction with the decarbonisation plans of all other end-use sectors beyond buildings.

Investment needs and financing sources are not included in the draft NBRP, which notes that these elements are still being developed.

The **public consultation** process offered sufficient time for interested parties to submit feedback, yet it remains uncertain if citizens and stakeholders were properly informed about this opportunity, leading to concerns about the effectiveness of the outreach and the adequacy of the opportunity.

The assessment process has identified the following key aspects of the draft NBRP as strengths, **innovative measures** and/or examples of **good practice**.

— Ambitious targets for increasing the share of renewable energy in the buildings sector (87% by 2030) and for the installation of solar technologies in buildings encompassing both solar thermal and photovoltaics.

— Strong focus on indoor environmental quality criteria in building renovation underpinned by legislative measures to set indicators, alongside national awareness raising campaigns on the co-benefits of building renovation to improve indoor conditions.

— Digitalisation of permitting and planning processes, which will enable the submission of applications through building information modelling tools, allowing interoperability with other building-related systems.

— A comprehensive set of measures addressing housing affordability, including: i) tax incentives for landlords, ii) financial support for renovating buildings intended for vulnerable occupants, iii) an affordable public housing scheme offering rentals at below-market rates for vulnerable households, iv) a conditional income scheme setting maximum rent limits for housing built by the State or other entities.

— The establishment of a national platform for monitoring the building stock progress towards zero emissions featuring geo-referenced buildings data, interoperable with other relevant building databases.

— A holistic measure aimed at maximising energy and water savings (water-energy nexus), focusing on i) identification of water efficiency indicators, ii) training of professional and awareness raising and iii) encouraging the use of digital solutions for integrated energy and water consumption management and monitoring.

— Development of demand-side flexibility pilot projects to test and scale up bidirectional charging solutions. These solutions allow vehicles to operate as mobile energy storage units, supplying energy back to the grid while optimizing charging based on renewable energy availability and dynamic tariffs.

However, there are several aspects of the draft NBRP that need to be **completed and improved** and which should be addressed in the final version:

— Complete the overall targets for both final and primary energy consumption, and GHG emissions, by including the non-residential building stock.

— Define the MEPS thresholds for non-residential buildings in accordance with Article 9(1) of the EPBD.

— Provide the floor area, number of buildings and annual renovation rate for non-residential buildings to be renovated, in line with the overall targets and the defined MEPS thresholds.

— Ensure that the targets for operational GHG emissions in the building sector are sufficiently ambitious to meet the national commitment on decarbonisation laid down in the NECP and in line with the objective of a fully decarbonised building stock by 2050. Clarify how the targets for GHG emissions reduction take into account the changes in emission factors referenced in the draft NBRP.

— Consolidate the overview of the implemented and planned policies and measures by providing all mandatory description elements (name, description, type, planned budget and funding sources, expected impact, quantified objective, status and implementation period, and entity responsible) and clearly link them to national targets.

— Provide the missing policies and measures related to the renovation of worst-performing and public buildings, energy poverty alleviation, decarbonisation of heating and deployment of renewable energy technologies in buildings.

— Clarify how the reported policies and measures on the decarbonisation of heating set effectively a pathway to a complete phase-out of fossil fuel boilers by 2040 and provide an estimate of the expected share of the boiler fleet that will combust fossil fuel gas in 2040. Ensure the consistency of the measures with other relevant plans and strategies, including the NECP.

— Provide measures on energy poverty alleviation and consider how building renovation can help mobilising in the market the vacant buildings in areas with high housing demand. Identify financing sources aligned with the targets set for the reduction of energy poverty. Provide more details on how the calculation of energy poverty reduction targets were calculated and set.

— Provide the investment needs for the implementation of the NRBP and identify the funding and financing sources, including the mobilisation of private financing, administrative resources, allocations for worst-performing buildings and financing measures contributing to the planned reduction of energy poverty.

— Quantify the contribution to the EU's targets for energy efficiency in accordance with the EED attributable to the building stock renovation.

— Consolidate the overview of the building stock with the number and floor area of public buildings and the definition and number of non-residential worst-performing buildings.

— Provide the thresholds for new and renovated non-residential zero-emission buildings (primary energy use and operational GHG emissions).

3.12.3. Ambition of the draft plan

Box 34. Key insights of Portugal's draft NBRP.

- Portugal plans to reach **primary energy** use in the **residential building sector** of 7.9 Mtoe by 2030, 6.9 Mtoe by 2040 and 6.0 Mtoe by 2050. This means reductions of 18%, 29% and 39%, respectively, compared to 2020 (9.6 Mtoe).
- Portugal plans to reach **final energy** use in the **residential building sector** of 6.8 Mtoe by 2030, 6.0 Mtoe by 2040 and 5.0 Mtoe by 2050. This means reductions of 15%, 26% and 38%, respectively, compared to 2020 (8.1 Mtoe).
- Portugal plans to decrease **total operational GHG emissions** in the **residential building sector** to 5.6 $MtCO_2eq$ in 2030, 4.9 $MtCO_2eq$ by 2040 and 3.2 $MtCO_2eq$ by 2050. This means reductions of 28%, 37% and 58%, respectively, compared to 2023 (7.8 $MtCO_2eq$).

Assessment of the overall ambition of the draft NBRP to achieve a highly energy-efficient and decarbonised building stock by 2050

In the Portuguese draft NBRP, the level of ambition to achieve a highly energy-efficient and decarbonised building stock cannot be assessed, as the roadmap does not cover the non-residential building stock.

By 2050, Portugal aims to ensure all existing residential buildings meet an average primary energy use of 108 $kWh/(m^2y)$. This implies a 38% reduction in both final and primary energy consumption in the residential building sector compared to 2020 levels. At the same time, Portugal aims to reduce total operational GHG emissions in the residential sector by 58% compared to 2020 to reach a target of 3.2 $MtCO_2eq$.

To achieve the energy and emission targets in the residential sector, Portugal aims to renovate 536 million m^2 of residential floor area, equivalent to 84% of the 2020 baseline, between 2020 and 2050. The targets for the average annual renovation rates are set at 3.2% between 2020 and 2030, 2.1% between 2030 and 2040 and 4.45% between 2040 and 2050, representing a significant increase from the 2023 rate of 1.8%. These targets have been calculated to transform the residential building stock into zero-emission buildings and support the progressive renovation trajectory of residential buildings.

The decarbonisation objective is underpinned by a share of 87% of renewable energy in buildings' final energy consumption by 2030 as well as targets for solar energy use in buildings, i.e, 8,000 MW of installed capacity by 2050, including both solar thermal and photovoltaic installations. Targets are also provided for 2030 and 2040.

The cost-optimal levels for the specific primary energy use of non-residential buildings are included in the draft NBRP. However, it remains unclear whether these are used to set the trajectory for the residential building renovation.

Assessment of the alignment between the draft NBRP and national commitments on climate and energy set out in the NECP

The draft NBRP seems aligned with the ambition and objectives of the final NECP. However, the use of different baselines and the omission of non-residential buildings in the draft NBRP prevents full comparability. The section below also addresses how the NBRP ambition compares with the 2020 long-term renovation strategy (LTRS) adopted by Portugal.

Energy efficiency

The NECP provides building sector targets for the relative reduction of primary energy in residential buildings compared to 2018 level: -15% by 2030, -37% by 2040 and -40% by 2050, (which are similar to the 2020 LTRS targets). Although the draft NBRP targets appear more ambitious, the differing baseline years make direct comparison difficult.

The draft NBRP does not address the contribution of building stock renovation to the EU's energy efficiency targets as set out in Article 4 of the EED. However, in 2020 the residential building sector accounted for 54% of Portugal's total final energy use. Based on the residential building sector and energy efficiency targets, Portugal aims to reduce this share to 47% by 2030. This indicates that the energy consumption in the residential sector is projected to decline at a faster rate than in overall energy use.

Forward-looking primary energy factors are considered in Portugal's draft NBRP. These are set to reflect the expected evolution of electricity and gas network decarbonisation according to the national policies, including the NECP.

It cannot be assessed if the energy targets in the draft NBRP are sufficient and aligned with the national commitment on **energy efficiency** laid down in the NECP, given the absence of non-residential building sector from the targets.

Decarbonisation

The NECP sets building sector targets for reducing the operational GHG emissions in the residential building sector: -16% by 2030, -56% by 2040 and -85% by 2050 compared to 2018, which are similar to the 2020 LTRS targets. By contrast, the decarbonisation ambition in the draft NBRP seems higher for 2030 and lower for 2040 and 2050.

Notwithstanding, the baseline years differ and therefore targets are not fully comparable.

It cannot be assessed whether the operational GHG emission targets in the draft NBRP are sufficient and on track to achieve the national commitment on **decarbonisation** laid down in the NECP, as the non-residential building sector is excluded from the targets.

Renewable energy

Portugal sets targets for the share of renewable energy in the final energy consumption of the building sector in its draft NBRP, in accordance with Article 15a of the RED. The targets range from 79% in 2026 to 87% in 2030.

In contrast, the NECP provides a target of 68% of total renewable energy in buildings' energy consumption by 2030. Although the draft NBRP sets a more ambitious target, it remains unclear whether these targets are fully comparable.

Compared with the indicative national shares provided in Annex C of the Commission´s guidance on heating and cooling (C/2025/2238), the share targeted for renewable energy in the final energy consumption of the building sector in 2030 is about 11 percentage points higher (the Commission's guidance projects a share of 76.3% whereas Portugal's draft NBRP targets an 87% share).

Expected reduction in the number of people affected by energy poverty

The draft NBRP describes energy poverty using a series of indicators established in Portugal's long-term strategy to combat energy poverty for 2030-2050. These indicators are: 1) population unable to keep homes adequately warm (20.8% in 2023), 2) population living in homes not comfortably cool in summer (38.5% in 2023), 3) population living in dwellings with problems of moisture, leaks or infiltration (29% in 2023) and 4) households whose energy expenditure accounts for more than 10 % of total income (698, 786 in 2023).

The indicators are sourced from the EU survey on living conditions and income (EU-SILC) and the household budget survey (HBS).

The draft NBRP does not include a composite energy poverty rate. Based on the four indicators, it is estimated that in Portugal there are between 1.8 and 3 million people in energy poverty, out of which between 609 000 and 660 000 in severe energy poverty.

Portugal sets targets for the reduction of energy poverty based on the four main indicators used to measure energy poverty. It aims to reduce 1) the share of the population unable to keep homes adequately warm to 10% in 2030, 5% in 2040 and below 1% in 2050, 2) the share of the population living in dwellings not comfortably cool in summer to 20% in 2030, 10% in 2040 and below 5% in 2050, 3) the share of the population living in dwellings with problems of moisture, leaks or infiltration to 20% in 2030, 10% in 2040 and below 5% in 2050, and 4) the number of households whose energy expenditure accounts for more than 10% of total income to 700, 000 in 2030, 250, 000 in 2040 and 0 in 2050. The targets are consistent with the targets reported in the NECP and in the Portuguese national long-term energy poverty mitigation strategy. However, the draft NBRP does not provide details on how these targets were calculated and set.

The draft NBRP does not provide data on the energy performance of social housing or the use and repurposing of vacant housing, nor does it include quantified progress in terms of units of social housing renovated per year or accommodation capacity for the homeless.

Prioritising renovation of the worst-performing buildings

Worst-performing residential buildings are quantified (in terms of number of buildings and floor area) but without providing a clear definition. Non-residential worst-performing buildings are not identified.

Portugal prioritises the renovation of worst-performing residential buildings, as evidenced by a higher renovation rate in this segment compared to the annual renovation rates across the residential building stock. Worst-performing building will also benefit from faster renovation at the

start: 6.0% between 2020 and 2030, 3.5% between 2030 and 2040 and 0.6% between 2040 and 2050. As a result, by 2050 all worst-performing residential buildings are planned to be renovated.

Minimum energy performance standards for non-residential buildings

The draft NBRP does not provide the MEPS thresholds for non-residential buildings. However, it states that these thresholds are under development and will be expressed in primary energy use.

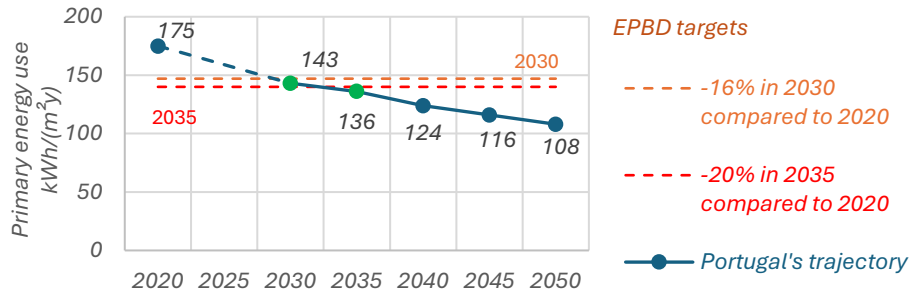
Exclusions (if applicable) pursuant to Article 9(6) of EPBD and criteria for exemptions

Portugal plans to exempt from MEPS requirements the following categories of non-residential buildings: a) building officially protected, b) buildings used as places of worship, c) industrial facilities with low energy use and d) buildings owned or occupied by the armed forces. No further details are included.

National trajectory for the progressive renovation of residential building stock

The draft NBRP states that the renovation trajectory is both technically robust and realistically implementable, with more moderate reductions initially, followed by an acceleration after 2035 and a deceleration after 2045. For 2030 and 2035, the daft NBRP was designed to meet the EPBD requirements for reducing the average primary energy use of the residential building stock compared to 2020 (at least 16% reduction by 2030, and a reduction of at least 20–22% by 2035). It then sets out an acceleration of the reduction between 2035 and 2045, and a relative deceleration in the last period (2045 to 2050). The trajectory is represented in Figure 8.

Figure 8. Trajectory for the progressive renovation of residential buildings in Portugal.



Source: JRC elaboration on Member State reporting

The targeted average primary energy use in residential buildings by 2030 and 2035 is 143 kWh/(m^{2}y) and 136 kWh/(m^{2}y), respectively. This represents a decrease of 18% and 22%, respectively compared with 2020 levels. This means that the 2030 milestone is more ambitious than the EPBD requirement set out in Article 9(2), while the 2035 milestone is aligned with it. The milestones for 2040 and 2050 are 124 kWh/(m^{2}y) and 108 kWh/(m^{2}y), representing reductions of 29% and 38%, respectively, compared with 2020. Importantly, the 2050 milestone (set across the entire residential building stock) is equal to the ZEB threshold for residential buildings in climatic zone 3 (110 kWh/(m^{2}y), though higher than the ZEB threshold for zone 1 and 2 (70-75 and 85-90 kWh/(m^{2}y, respectively).

The draft plan estimates the number of buildings and the floor area to be renovated annually in order to meet these targets, as well as the renovation rates broken down by depth. It also specifies the total number and floor area of the 43% of the residential building stock classified as worst-

performing to be renovated, including the sub-target of a 55% reduction in average primary energy use (in GWh) for these buildings between 2020 and 2050.

The draft NBRP identifies its data sources and the 2020 baseline data on residential building stock and total primary energy consumption are robust and consistent across the different parts of the draft NBRP.

The following categories of residential buildings are excluded from the baseline, a) buildings officially protected and b) single-family residential buildings with a floor area of less than 50 m^2.

New buildings

Portugal provides the (ZEB) thresholds in specific primary energy and operational GHG emission for residential buildings by type (single-family buildings and multi-family buildings) and by climatic zone (three climatic zones, though these zones remain undefined and unexplained). The thresholds for non-residential ZEB buildings are still under elaboration.

3.12.4. Sufficiency of the policies and measures

The draft NBRP outlines over 30 policies and measures. While the overview provides mainly brief descriptions, timelines, and identifies responsible entities, it omits critical mandatory descriptors such as expected impact, quantified objectives, and budget funding sources.

The measures are comprehensively designed to address most mandatory areas and extend beyond them, including innovative approaches such as indoor environmental quality criteria, the energy-water nexus, and synergies between buildings, vehicles, and storage.

However, additional information is necessary to assess the adequacy of these measures in delivering the implementation of the NBRP. This is particularly important for areas such as: i) the implementation of MEPS for non-residential buildings, ii) alleviation of energy poverty, iii) decarbonisation of heating, iv) prioritisation of the worst-performing buildings, and v) deployment of solar technologies in buildings.

Renovation and MEPS for non-residential buildings

Portugal's draft NBRP does not specify the thresholds for MEPS, but it does address their implementation through a regulatory measure. Details such as quantified objectives, budget, and expected impact are not provided, but the framework establishes that the Energy Performance Certificate (EPC) will be used to identify buildings for MEPS compliance. Additionally, the renovation passport will serve as a tool to track the implementation of MEPS. The implementation process will be monitored by ADENE, the Portuguese energy agency, and the national Directorate-General for Energy and Geology.

Several other measures for building renovation cover non-residential buildings but fail to explicitly link them with MEPS implementation. As currently drafted, the MEPS framework is largely incomplete to ensure an effective MEPS implementation.

Renovation of residential buildings

The draft NBRP includes measures of various types (regulatory, awareness raising, financial and fiscal, technical assistance, monitoring) to support the progressive renovation of residential buildings. Portugal plans to adopt a legal framework that support homeowners' associations in the renovation planning with the purpose to facilitate the decision-making process. In addition, it also

aims to create a digital guide for building renovation, with technical, architectural and constructive solutions for building renovation for citizens as well as a catalogue to provide technical support to professionals. Additionally, the draft NBRP introduces digital tools that could facilitate energy performance assessment, global warming potential and estimation of investment needs.

Additionally, Portugal proposes a regulatory framework to incentivise building renovation through the introduction of tax benefits, such as reduction in personal income tax, value added tax, or municipal property tax (for renovation projects achieving NZEB and ZEB standards).

The building renovation passport as a tool to support energy savings, complement MEPS and assist the trajectory for residential buildings

The building renovation passport will be an important tool for MEPS implementation as well as for monitoring the renovation to ZEB levels of the building stock. However, despite the inclusion in the draft NBRP of a measure on the building renovation passport, most details are missing.

Box 35. Example of policies and measures in Portugal.

- Creation of a digital guide for building renovation with technical, architectural and constructive solutions that take into account the heterogeneity of the national building stock. The proposed measure is set to be compatible with requirements for building renovation financial support criteria. The guide is addressed to citizens.
- Introduction of indicators for indoor environmental quality in buildings, based on temperature, humidity, and air quality is to be considered in building renovation programmes. These indicators should be monitored at national level alongside building renovation.
- Implementation of a digital platform that provides any user with reliable, clear, updated and systematic information on building renovation, regarding the process (technical, legal and administrative steps), success cases and the associated environmental, economic and social benefits.

Alleviation of energy poverty and housing affordability

The policies and measures to alleviate energy poverty are only very briefly outlined in the Portuguese draft NBRP. A measure focuses on establishing local financing lines with specific focus on vulnerable households but without providing concrete actions.

An important policy mentioned in the draft NBRP is the national action plan on combating energy poverty (2030-2050), which besides providing the baseline and setting the targets, includes concrete measures on reducing energy poverty. However, these measures are not detailed.

In general, it is not clear how the draft NBRP's measures contribute to alleviating energy poverty. Moreover, the energy poverty targets are not explicitly linked to specific measures, and most of these measures do not have quantified impacts.

The draft NBRP lists several measures that contribute to housing affordability: 1) tax benefits for landlords who maintain rents compatible with tenants' income; 2) financial support for the renovation of buildings intended for renting to individuals living in inadequate housing conditions and lacking financial capacity to afford access to suitable housing, 3) the affordable public housing scheme, which encourages renting at costs affordable and compatible with the income of the least advantaged households, for houses that have been built or renovated, 4) the conditional income scheme, which sets a maximum rent applicable to real estate built for housing purposes by the

State, public institutes, local authorities, charitable organisations, welfare institutions, housing and construction corporations, or residents' associations that have received financing subsidies (it applies for 20 years at a fixed rate) and 5) a programme designed to support young people aged 18 to 35 in renting housing for permanent residence, providing a percentage of the rent as a monthly subsidy.

However, the issue of vacant housing in high demand areas and measures to renovate them are not included in the draft NBRP.

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

One-stop shops (OSSs) are briefly addressed in the Portuguese draft NBRP, with a focus on a measure on adaptating and consolidating the current OSS network in Portugal. The objective of the measure is to ensure that the current OSSs in Portugal are enhanced to meet the criteria in Article 18 of the EPBD, including the geographical coverage. The implementation period is set for 2027 to 2030 and the objective is that the criteria are meet by 100%.

The draft NBRP highlights the prioritisation of OSS's support towards vulnerable areas but without listing concrete measures.

Decarbonisation of heating and the phasing out of fossil fuels with a view to a complete phasing out of fossil fuel boilers by 2040

The draft NBRP lacks clear and credible measures specifically targeted at the decarbonisation of heating systems and does not mention the objective to phase out fossil fuel boilers by 2040. While the draft includes measures that contribute to heating decarbonisation, such as promoting renewable energy technologies like heat pumps and biofuels, and enhancing public awareness, it fails to provide further details. Consequently, the draft plan does not demonstrate the phasing out of fossil fuel boilers by 2040. It remains unclear to what extent the replacement of natural gas by biomethane and hydrogen beyond 2040 in the grid for buildings has been assessed in conjunction with the decarbonisation plans of all other end-use sectors beyond buildings.

Prevention of construction and demolition waste

The draft NBRP highlights the creation of national network of construction and demolition waste (CDW) banks. The measure aims to provide a framework for reusing and reintroducing in the market recovered construction materials, such as wood, steel, brick, ceramic and others. The objective is the creation of 29 CDW banks, on in each district in Portugal and in each island in the autonomous regions between 2030 and 2035.

Another measure aims at mainstreaming and fostering the principles of circular economy and sustainable materials management throughout the life cycle of buildings. The main actions are the promotion of circular design (eco-design), encouraging the use of recycled, bio-based and endogenous materials in line with the European Bauhaus circular vision, the implementation of digital tools for traceability, the recourse to national benchmarks in the area of circularity, and support to research and innovation in circular technologies and processes. However, the quantified objectives are yet to be defined.

Moreover, the draft NBRP includes a measure on carbon recovery and circularity, which aims to create methodologies to certify and trade carbon credits resulting from the incorporation of biomaterials and the reuse of materials in renovation and construction. The methodologies should

allow the calculation of embedded carbon in a consistent way with the GWP determination methods. The implementation period is between 2026 and 2030 and no quantified objective are available yet.

Promotion of renewable energy sources in line with Article 15a of the RED

The draft NBRP includes a legislative measure promoting the installation of systems using renewable energy sources in existing buildings, including solar systems, heat pumps and biofuel systems. The implementation period starts in 2027, and no other information is provided. Portugal should clarify if the promotion of biofuels is compatible with the phasing out of boilers using fossil fuels.

Deployment of solar energy installations on buildings

The deployment of solar energy installations in buildings is briefly addressed under policies and measures. The measure on promoting the installation of renewable energy systems (described above) mentions solar energy technologies, including the promotion of self-consumption, collective production in condominiums and neighbourhoods, but without providing further details. Portugal provides targets for the deployment of solar energy use in buildings, i.e, 8 000 MW installed by 2050, including both solar thermal and photovoltaic installations. Targets are also provided for 2030 and 2040.

Reduction of whole-life-cycle GHG emissions and the uptake of carbon removals

The reduction of whole-life-cycle GHG emissions is briefly addressed. The draft NBRP mentions that the methodology for the life-cycle global warming potential should be developed and published at national level and that a technical publication covering conventional values of embedded emissions for the various life-cycle stages of buildings should also be developed. At the same time, assessing the possibility of developing and adopting a carbon methodology on the incorporation of biomaterials in construction, should also be explored.

However, the commitment to publish such methodology and technical documentation and adopt related legislation remains unclear in the draft NBRP.

In addition, the measures focusing on the systemic integration of water and energy efficiencies help to reduce the life-cycle GWP of buildings by contributing to reducing GHG emissions from energy consumption for water treatment and heating.

Promotion of a district and neighbourhood approach and integrated renovation programmes

The draft NBRP addresses the implementation of pilot projects and the creation of district-wide integrated renovation. Portugal aims to deploy pilot projects in 9 cities, with at least one in each autonomous region. The pilot projects will likely focus on areas with worst-performing buildings and the measures will go beyond building renovation including, for instance, the creation of zero-emission zones or tree planting to reduce urban heat island effect. No further information is provided.

Improvement of buildings owned by public bodies

The draft NBRP does not include any specific measures aimed at renovating or improving public buildings.

Promotion of smart technologies and infrastructure for sustainable mobility

Portugal's draft NBRP includes several measures focused on smart technologies. It mentions the promotion of building automation and control systems, which encompass energy production and consumption management, optimisation of energy use, and monitoring of technical building systems. Additionally, it covers the development of a smart readiness rating using a smart readiness indicator.

Another measure supporting smart technologies is the digitalisation of permitting and planning processes, which will enable the submission of applications through building information modelling tools, allowing interoperability with other building-related systems. Furthermore, the plan includes the development and implementation of a digital building notebook, intended to centralise information related to the building and monitor its evolution.

The plan also addresses the installation of charging points for electric vehicles. It proposes revising the regulatory framework for electrical infrastructure and parking in buildings to create the technical and regulatory conditions necessary for electric mobility and to transform parking areas into active energy infrastructure.

An innovative measure aims at promoting integrated bidirectional charging and self-consumption solutions by installing smart charging infrastructure for electric vehicles in renovated buildings, integrating energy storage systems. The measure includes nine pilot projects to test and scale up these solutions where vehicles operate as mobile energy storage and supply units.

However, the plan does not provide clear details on the concrete impact or quantified objectives of these measures.

Accessibility for persons with disabilities

Accessibility is not identified as an element in the overview of the building stock. The draft plan does not provide information on accessible buildings or buildings in need of accessibility renovation, and their number cannot be estimated based on available information in the draft plan. Moreover, accessibility is not included among the elements of the buildings identified as targets for renovation. It is not possible to estimate what percentage of the targeted building renovation will include accessibility renovations.

Regarding policies and measures, the combination of energy efficiency upgrades with the promotion of accessibility conditions for persons with disabilities is mentioned under the measure for the establishment of financing programmes for building renovation. Moreover, improved accessibility for persons with disabilities is mentioned as a wider benefit of energy efficiency upgrades but no details are provided.

No specific information on accessibility renovation is provided in the estimation of the investments needs.

Addressing market barriers, market failures and skill gaps

The draft NBRP of Portugal examines market barriers and proposes solutions to address them. Split incentives are identified as a significant barrier, given that approximately 18% of housing in Portugal is rented. To tackle this issue, the plan suggests several solutions, including tax benefits for landlords, renovation programmes for buildings intended to house vulnerable people at affordable rents, among other measures. It also emphasises the need to strengthen these solutions.

Another barrier is the capacity within the construction sector, which is highlighted by the rising costs of materials and labour in recent years. In response, the draft NBRP outlines financial programmes specifically aimed at supporting building renovation, particularly for vulnerable households.

Administrative obstacles are also discussed, with recommendations for reforming and simplifying permits in urban planning by eliminating redundant authorisations. Additionally, the plan notes the need to simplify procedures for applications for financial support, both in terms of submission and analysis. The creation of OSSs, supported by digital platforms, is proposed as a solution to assist in this process.

The shortage of skilled workforce is addressed, with an estimated shortage of approximately 80 000 professionals, a figure expected to rise in the coming years. To tackle this issue, the plan includes a measure focused on training and qualification for construction and energy professionals. It proposes the creation or reinforcement of certified training courses - short, medium, and long-term - developed in collaboration with training institutes, professional bodies, and higher education entities. The draft plan does not include the expected impact of the measure.

Awareness-raising campaigns and other advisory tools

Awareness-raising and training are key components of the draft NBRP. The draft plan includes initiatives to create national communication campaigns featuring simple messages and educational content tailored by age group, profile, and region, with the goal of mobilising and empowering the population to actively engage in energy renovation and decarbonisation of buildings.

Additionally, several other measures are designed to enhance awareness, such as the development of a building renovation guide for citizens and catalogues for building renovation professionals. The draft plan also includes an awareness campaign on indoor environmental quality in buildings. Furthermore, the implementation of a renovation support platform - a digital tool for guidance and dissemination- is proposed. This platform will offer citizens, companies, municipalities, and management bodies, both public and private, reliable, clear, up-to-date, and systematic information on energy renovation of buildings, covering the technical, legal, and administrative processes, showcasing success stories, and highlighting the associated environmental, economic, and social benefits.

Promotion of modular and industrialised solutions

The Portuguese draft NBRP includes initiatives for promoting modular and industrialised solutions for construction and renovation. It aims at creating at least 9 voluntary pilot buildings (one in each autonomous region) with financial support mechanisms and alignment with the scientific community to experiment with solutions that promote energy-efficient renovation of buildings and the use of building resources.

3.12.5. Sufficiency of financing sources and administrative resources

The draft NBRP of Portugal of Portugal does not specify the investment needs, budgetary sources, or administrative resources required for its implementation. It notes that these elements are still being developed.

3.12.6. Inclusiveness of the public consultation

The draft NBRP includes an annex summarising the results of the public consultation. This consultation was conducted through the Portuguese Participa portal, which allowed interested

parties to review the plan and provide feedback. The consultation period ran from 5 to 20 February 2026, during which a total of 21 submissions were received.

The draft plan includes the comments from various stakeholders and responses to these comments, linking them to specific areas within the draft NBRP and areas under development.

While the consultation process offered sufficient time for interested parties to submit feedback, it is unclear whether citizens and stakeholders were adequately informed about this opportunity, raising questions about the effectiveness of the outreach and whether the opportunity was sufficiently publicised.

3.12.7. Completeness of the draft plan and consistency with other planning or reporting exercises

Almost all mandatory indicators are included in the draft plan at least partially. The main missing elements are the targets for the non-residential building stock, including the MEPS, the investments needs and funding sources. These are marked as under development. The voluntary spreadsheet for data collection is submitted with the draft plan. More information is provided in the following table.

Table 31. Indicators checklist for Portugal.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings (number)	Yes	Public buildings number missing.
	Floor area (m^2)	Yes	Public buildings floor area missing.
	Definition of worst-performing buildings	No	
	Share of worst-performing buildings (%)	Partially	Non-residential buildings not included.
	Renovated buildings/ floor area (number/ m^2)	Yes	Including the renovation depth.
	Renovation rate (%)	Yes	
	Primary energy use (ktoe)	Partially	Non-residential buildings not included.
	Final energy use (ktoe)	Partially	Non-residential buildings not included.
	Specific primary energy for residential buildings (kWh/m^2y)	Yes	
	Share of renewable energy (%)	Yes	
	Operational GHG emissions (Mt CO_2-eq)	Partially	Non-residential buildings not included.
	Energy poverty share (%)	Yes	Consistent with EED.
Roadmap for2030, 2040 and 2050	Renovation targets (floor area or number)	Partially	Non-residential buildings not included.
	Renovation rate targets (%)	Partially	
	Primary energy targets (ktoe) or reduction (%)	Partially	
	Final energy targets (ktoe) or reduction (%)	Partially	
	Renewable energy targets (%)	Yes	Every year from 2026 to 2030.
	GHG emission targets (Mt CO_2-eq) or reduction (%)	Partially	Non-residential buildings not included.
	Energy poverty targets (%)	Yes	
	Contribution to energy efficiency target	No	
	Scope and type	Yes	

Section	Indicator	Yes/No/Partially	Explanatory notes
Policies and measures	Quantified objective	Partially	Marked as to be defined or not applicable in some cases.
	Status and implementation period	Yes	
	Budget and funding source	Partially	Budget missing in most cases, the funding sources missing in several cases.
Investment needs	Total and/or average investment needs (million EUR), EUR/m^2	No	Marked as under development.
Residential buildings	Average specific primary energy decreases between 2020 and 2050	Yes	
	Number of residential buildings/dwellings to be renovated	Yes	
	Residential floor area to be renovated (m^2)	Yes	
	Worst-performing buildings contribution (%)	Yes	
Non-residential buildings	MEPS 16% threshold	No	Marked as under development.
	MEPS 26% threshold	No	
	2040 and 2050 thresholds	No	
Public consultation		Yes	

Source: JRC elaboration on Member State reporting

Consistency checks have been performed by comparing the data with previous reporting by Portugal such as: 2024 NECP, the national cost-optimal report, 2023 and 2020 LTRS.

Plausibility checks have been performed by comparing the data with other reliable datasets: building stock observatory (BSO) for building stock indicators and Eurostat datasets for final energy consumption.

Box 36. Consistency and plausibility check for Portugal.

The primary energy factors are consistent with those reported under the 2023 cost-optimal report.

The report is consistent with the spreadsheet submitted by the country.

The number of building units by type are plausible when compared to the BSO dataset. The floor area of non-residential buildings shows differences.

The final energy consumption is plausible when compared to the Eurostat dataset.

Energy poverty

The definition of energy poverty in the draft NBRP is reported from the Portugal's long-term strategy to combat energy poverty 2030-2050 and is fully aligned with the EED defining '*lack of access of a household to essential energy services, when such services provide basic and decent living and health levels, including adequate heating, hot water, cooling and lighting, and the energy needed for household appliances, taking into account the national context, social policy and other relevant national policies, caused by a combination of factors, including at least a lack of affordability, insufficient disposable income, high energy expenditure and poor energy efficiency of housing*'.

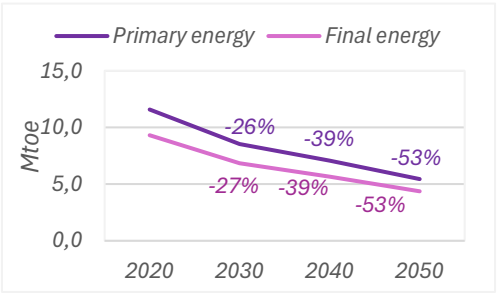
The draft NBRP does not reference the social climate plan of Portugal.

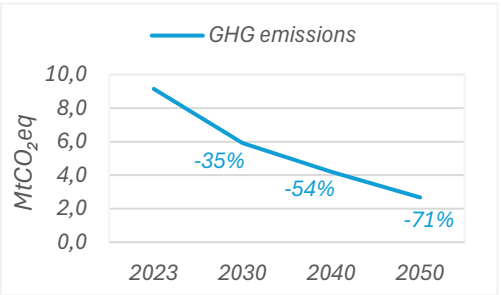
3.13. Romania

3.13.1. Main indicators

Table 32. Selection of main indicators from Romania's draft NBRP.

Renovation				
Floor area (Million m^2)	2020	2030	2040	2050
	Baseline	Cumulative renovation		
Residential	657.0	180.6	330.6	459.1
Non-residential	62.0	23.3	38.8	49.2
Total	719.0	204.9	371.6	508.3
Cumulative renovation (%)		28%	52%	71%
Annual renovation rate (%)		**2.85%**	**2.33%**	**1.89%**
Number of buildings	2020	2030	2040	2050
Total	5 052 567	-	-	-
Cumulative renovation (%)		-	-	-
Energy consumption				
Primary energy (Mtoe)	2020	2030	2040	2050
Residential	9.5	7.5	6.2	4.6
Non-residential	2.1	1.1	0.9	0.8
Total	11.6	8.6	7.1	5.4
Change vs 2020 (%)		**-26%**	**-39%**	**-53%**
Final energy (Mtoe)	2020	2030	2040	2050
Residential	7.5	5.9	4.9	3.7
Non-residential	1.8	0.9	0.8	0.7
Total	9.3	6.8	5.7	4.4
Change vs 2020 (%)		**-27%**	**-39%**	**-53%**
Energy end-uses included	Heating, cooling, hot water, ventilation, lighting and aux. energy			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2023	2030	2040	2050
Residential	6.9	4.5	3.1	1.9
Non-residential	2.3	1.4	1.1	0.8
Total	9.1	5.9	4.2	2.7
Change vs 2020 (%)		**-35%**	**-54%**	**-71%**
GHG emissions in $kgCO_2/m^2$	11.3	8.3	5.8	3.7
Change vs 2020 (%)		**-27%**	**-48%**	**-67%**

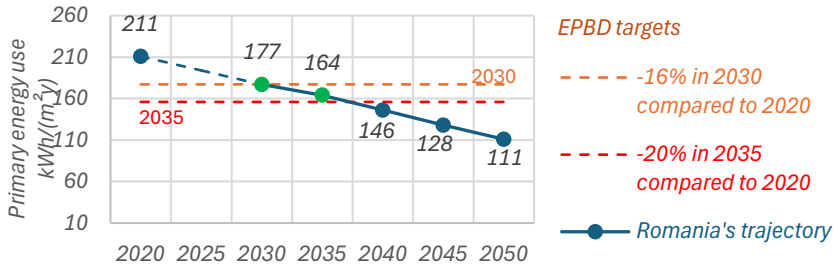




Renewable energy			
Not available			
Solar energy technologies in buildings	2030	2040	2050
Share of residential building equipped	8%	14%	15%
Share of non-residential buildings equipped	7%	16%	20%

Energy poverty				
People affected by energy poverty	2020	2030	2040	2050
Share of population unable to keep homes adequately warm	15.0%	9.8%		

Trajectory for the progressive renovation of residential buildings



Minimum Energy Performance Standards for non-residential buildings				
Building categories	Primary energy kWh/(m²year)			
	2030	2033	2040	2050
One category	422	340	308	264

Primary Energy Factors				
Non-renewable PEF	2023	2030	2040	2050
Electricity	2.00	2.00	2.00	2.00
Natural gas	1.17	1.17	1.17	1.17
District heating	0.92	0.92	0.92	0.92

Investment needs for renovation and funding and financing sources			
Investment needs (billion EUR)	2030	2040	2050
		Cumulative	
Residential	26.3	61.7	105.2
Non-residential	2.3	5.9	9.3
Total	28.6	67.6	122.3
Funding and financing (billion EUR)			
Public	18.1	41.5	64.9
Private	12.3	30.8	57.4
Total	30.4	72.3	122.3

Source: JRC elaboration on Member State reporting

3.13.2. Executive summary

Romania submitted a comprehensive and almost complete draft of the national building renovation plan (NBRP).

The **level of ambition** of the draft plan seems in line with the goal of achieving high energy-efficiency and a decarbonised building stock by 2050. Romania aims to ensure that new buildings are zero-emissions and that existing buildings are gradually renovated at cost-optimal levels in order to achieve zero-emission building stock by 2050. Wider benefits from implementing the plan are also discussed, but not precisely quantified. These wider benefits include reduced air pollution, energy security, innovation and competitiveness, improved productivity and public health, a positive impact on the public budget, sustainable management of natural resources, increased fire and seismic safety, reduced use of hazardous material (asbestos), improved accessibility for persons with disabilities, and energy poverty alleviation.

Romania's targets for **primary energy consumption** in the building sector are 8.5 Mtoe by 2030, 7.1 Mtoe by 2040 and 5.4 Mtoe by 2050, which correspond to reductions of 26%, 39% and 53% respectively compared with 2020 (11.6 Mtoe).

Romania's targets for **final energy consumption** in the building sector are 6.8 Mtoe by 2030, 5.8 Mtoe by 2040 and 4.4 Mtoe by 2050, which correspond to reductions of 27%, 39% and 53% respectively compared with 2020 (9.3 Mtoe).

Romania's targets for total **operational greenhouse gas (GHG) emissions** in the building sector are 5.9 $MtCO_2eq$ in 2030, 4.2 $MtCO_2eq$ in 2040 and 2.7 $MtCO_2eq$ in 2050, which correspond to reductions of 35%, 54% and 71% respectively compared with 2023 (9.2 $MtCO_2eq$).

However, due to the use of constant primary energy and emission factors, the draft NBRP does not adequately take into account the evolution of the energy sector over time, including energy storage and the deployment of renewables in electricity and heat generation. Consequently, actual reductions in primary energy and GHG emissions may turn out to be higher, if the primary energy and emission factors improve over time.

The draft NBRP appears to be aligned with the ambition, objectives, policies and measures outlined in the final **national energy and climate plan** (NECP), showing greater ambition than the NECP in the short term (2030) but less ambition than the NECP in the long term (2050). This may not comply fully with the country's national climate and energy objectives.

The contribution made by Romania's building sector to the **EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED') is not clearly outlined in the draft NBRP. However, in 2020 the building sector accounted for 39.6% of total final energy use in Romania and it will represent 30.4% in 2030[130]. This indicates that energy savings in the building sector are scheduled to occur at a faster pace than overall energy savings across all sectors.

Regarding Romania's contribution to the EU's renewable energy targets (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED'), the draft plan does not set a specific target for increasing the share of renewables used in buildings, although it says that this will be considered in the final NBRP.

By 2050, Romania aims to **renovate** cumulatively 459.1 million m^2 of residential floor area (70% of the 2020 baseline) and 49.2 million m^2 of non-residential floor area (80% of the 2020 baseline). The planned **annual renovation rates** are 2.9% between 2020 and 2030, 5.2% between 2030 and 2040 and then 3.4% between 2040 and 2050. Deep renovation rate will reach 1.1% by 2030. The renovation rates have been calibrated to achieve the draft NBRP targets for energy consumption and GHG emissions reduction set for both residential and non-residential buildings, including for the worst-performing ones.

[130] The JRC calculates the percentages as follows: In 2020, as a ratio of final energy consumption in buildings to total final energy consumption sourced from Eurostat. In 2030, as a ratio of the draft NBRP target for final energy consumption in buildings to the national energy efficiency target set under Article 4 of the EED, sourced from the final NECP 2024.

The decarbonisation objective is supported with targets in the draft NBRP for the use of solar energy in buildings, e.g., 13 600 MW capacity and a 15% and 20% share of residential buildings and non-residential buildings, respectively, equipped with solar installations by 2050.

Romania's draft NBRP sets out a trajectory for the **progressive renovation of residential buildings**, aiming to halve their average primary energy use by 2050, compared with 2020 levels, and reach 111 kWh/(m^2y) by this date. This target is aligned with the latest cost-optimal level of energy performance for the country's residential buildings. The milestones for 2030 and 2035 – reductions of 16% and 22%, respectively compared with 2020 levels – are aligned with the requirements in the Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD' for decreasing the average primary energy use of the entire residential building stock.

On **minimum energy performance standards** (MEPS) for **non-residential buildings**, Romania has set a 2030 threshold of 422 kWh/(m^2y) and a 2033 threshold of 340 kWh/(m^2y). Romania provides an indicative 2050 threshold of 264 kWh/(m^2y), which is less ambitious than the latest cost-optimal level for non-residential buildings. The 2030 and 2033 thresholds were identified by ranking the non-residential floor area from worst to best. They apply across the entire non-residential building stock in Romania, ensuring that 16% and 26% of the worst-performing non-residential buildings are renovated by 2030 and 2033, respectively.

The methodology for calculating the trajectory and MEPS thresholds set out in the draft NBRP is robust and transparent, and based on clear assumptions. However, the non-residential building stock is only partially described due to scarce data (only 5.4% of buildings have a valid energy performance certificate-EPC). The description of the residential building stock is more comprehensive, although it is unclear whether all residential buildings are included in the trajectory's baseline definition.

Worst-performing buildings are identified based on primary energy use and prioritised for renovation. There are 2 068 348 worst-performing residential buildings (282.5 million m^2) and 63 038 worst-performing non-residential buildings in Romania (16.1 million m^2). These represent 39% and 2%, respectively, of the country's total building stock floor area included in the 2020 baseline. By 2030, about 80% of the planned renovations will concern worst-performing buildings. The methodology used in the draft NBRP to identify worst-performing buildings is clear and robust.

Energy poverty is discussed extensively in Romania's draft NBRP. The indicator 'share of the population unable to keep their homes adequately warm in winter' is taken as the headline target indicator for energy poverty. It stood at 15.2% in 2022, and the draft NBRP aims to reduce this to 9.8% by 2030, in accordance with the NECP target on energy poverty. Romania's draft NBRP states the share of the population experiencing some form of energy poverty, which stood at 25% in 2021. However, neither the sources nor the methodology used to measure the level of energy poverty or calculate the share of the population living in energy poverty are provided in the draft NBRP. The related policies and measures included in the draft NBRP are consistent with those included in the NECP. These measures prioritise worst-performing buildings occupied by vulnerable households by channelling higher-intensity support and targeting technical assistance through the one-stop shop network to help achieve the 2030 target for energy poverty.

On access to **affordable housing**, the draft plan mentions the national housing strategy 2022-2050[131] which aims to ensure access to affordable, inclusive, adequate, sustainable and resilient housing for everyone. The draft NBRP also mentions funding for social housing construction. The funding will be managed by Romania's local authorities, and is intended for people who cannot afford private market housing, such as families facing eviction, disabled persons, veterans and young people leaving social protection institutions.

The **implemented and planned policies and measures** are addressed comprehensively in Romania's draft plan. A comprehensive set of measures are listed for all mandatory and optional policy areas, linked to existing regulatory frameworks, policies and financing programmes. However, most measures described in the draft NBRP are at an exploratory stage, and lack concrete actions, implementation timelines, quantified objectives and expected impacts. The expected impacts of these measures are shown only illustratively and are not quantified. Therefore, it is not possible to determine whether they are appropriate and sufficient to achieve the established targets.

Romania's draft NBRP addresses the **decarbonisation of heating** but no clear and credible measures are envisaged, indicating the need for further analysis. Possible measures listed include the deployment of heat pumps and photovoltaic and solar thermal installations, notably for self-consumption, as well as an increased use of renewables, waste heat and cogenerated heat in the district heating networks. The gradual phasing out of stand-alone fossil-fuel boilers by 2040 is mentioned, but no concrete roadmap for this phasing out is provided.

Investment needs for implementation are included in the draft plan, estimated at EUR 122.3 billion for the period 2026-2050 (representing about EUR 240 per m^2 of total floor area that is expected to be renovated[132]). It should be noted that the investment needs are not spread evenly across the four-year periods set out in the draft plan — in fact, the estimate for the first period (2026-2030) is significantly higher than for the subsequent periods. This may reflect the level of needs required to meet the EPBD requirement by 2030-2035. The estimated investments cover direct renovation costs and costs related to administrative resources (technical assistance, capacity building, energy poverty alleviation and awareness raising). The financing sources have been identified in the draft NBRP and cover the required investments in full (no gap). Public funding, including local, national and EU funds, accounts for 53% of total funding, with the remaining 47% made up of private funding. Romania's draft plan stresses the importance of **mobilising private capital** to meet renovation targets, with mechanisms such as secured loans, commercial bank financing and performance-based contracts expected to leverage the impact of public funds.

A first **public consultation** on the draft NBRP was carried out in December 2025. While the consultation may not have offered sufficient time or effective opportunities for feedback, and the extent to which this input was considered in the draft plan remains unclear, it is promising that Romania plans to conduct a more comprehensive consultation before submitting the final version of the NBRP.

[131] HG842/2022

[132] JRC calculation considering the total investment needs between 2026 and 2050, divided by the total floor area expected to be renovated between 2020 and 2050.

The assessment process has identified the following elements of the draft NBRP as strengths, **innovative measures** and/or **examples of good practice**.

— High degree of consistency with the NECP, EED, and related plans, including the comprehensive heating and cooling assessment, local heating and cooling planning, and the social climate plan.

— Detailed and comprehensive analysis of investments and administrative resource needs (human, institutional and digital and technical resources).

— Estimation of the public budget impact: the cumulative total investment of EUR 122 billion implies cumulative macroeconomic co-benefits of roughly EUR 244-488 billion by 2050.

— Regulatory measures to support the deployment of on-site renewable energy systems, such as a simplified authorisation process for the installation of rooftop photovoltaic systems on existing buildings when this requires no structural work.

— The proposal for a social financing scheme for low-income owners who do not qualify for a loan, involving a retrofit model financed by a public authority, under which households pay a small monthly fee.

— The proposal to explore the introduction of a voluntary indicator for biogenic carbon storage (e.g. $kgCO_2eq/m^2$ stored in long-lasting building products) and have this indicator included on the EPC.

— The roadmap for establishing a national qualification for construction workers by 2030, which aims to upskill or reskill over 160 000 workers.

— Streamlining of the installation of electric vehicle charging points, which caps the authorisation period at 45 days and allows a tenant or co-owner to install a charger without the consent of the landlord when pre-installed infrastructure is already in place.

However, there are several aspects of the draft NBRP that require **completion** and **improvement**, and which should be addressed in the final version.

— Ensure that the targets for energy savings and operational GHG emission savings are aligned with the objective in Article 3(1) of the EPBD to have a highly energy-efficient and decarbonised building stock by 2050.

— Ensure that the renovation roadmap set out in the NBRP is aligned with the evolution of power and heat generation projected in the NECP, so that the projected evolution of primary energy factors and the GHG emission intensity is reflected in the final NBRP roadmap.

— Convert the possible actions listed in the NBRP into specific planned policies and measures covering all details listed in Annex II to the EPBD (title, description, quantified objectives, planned budget, funding source, expected impact, etc.).

— Set and provide in the final NBRP the quantitative targets for increasing the share of renewable energy in buildings, according to RED.

— Quantify the contribution to the EU's energy efficiency and renewable energy targets in accordance with the EED and RED, that can be attributed to the renovation of the building stock.

— Estimate the expected share of the boiler fleet that will be burning fossil fuel gas in 2040 and indicate measures in relation to this share of the boiler fleet to ensure the decarbonisation of heating and cooling. Consistency with relevant plans and strategies must be ensured.

— Ensure that the indicator for monitoring energy poverty captures its multidimensional nature and is consistent with the EED, provide the methodology to estimate energy poverty rate (the draft NBRP said that the share of population experiencing some form of energy poverty was 25% in 2021) and set targets for reducing energy poverty for 2030 and beyond.

— Indicate how the proposed measures will contribute to reduce housing deprivation and energy poverty and increase the availability of affordable housing.

— Ensure that the MEPS thresholds (in particular those for 2050) align with the pathway for transforming the national building stock into zero-emission buildings; and (ii) take into account the evolution of the electricity and heat generation sector foreseen in the NECP.

— Clarify the proposal to implement voluntary MEPS for the renovation of residential buildings to achieve the objective set in the trajectory and the related framework. It should also ensure consistency between the overview of policies and measures on the one hand, and the design of the renovation trajectory for residential buildings on the other.

— Ensure that the 2020 baseline used to set the trajectory for residential building renovation includes the entire residential building stock.

— Consolidate the data on its building stock (renovation rates, nearly zero-energy buildings (NZEBs) and further improve the GHG emissions estimates. Check and confirm that the baseline GHG emissions include both direct and indirect emissions and ensure consistency between Section 2.7 and Table 2.7.1. Targets for the number of renovated buildings must also be provided.

— Ensure that the public consultation allows sufficient time for all stakeholders to provide feedback.

3.13.3. Ambition of the draft plan

Box 37. Key insights of Romania's draft NBRP.

- Romania plans to reach **primary energy use** in the building sector of 8.5 Mtoe by 2030, 7.1 Mtoe by 2040 and 5.4 Mtoe by 2050. This corresponds to reductions of 26%, 39% and 53% respectively compared with 2020 (11.6 Mtoe).
- Romania plans to reach **final energy use** in the building sector of 6.8 Mtoe by 2030, 5.8 Mtoe by 2040 and 4.4 Mtoe by 2050. This corresponds to reductions of 27%, 39% and 53% respectively compared with 2020 (9.3 Mtoe).
- Romania plans to decrease **total operational GHG emissions** in the building sector to 5.9 $MtCO_2eq$ by 2030, 4.2 $MtCO_2eq$ by 2040 and 2.7 $MtCO_2eq$ by 2050. This corresponds to reductions of 35%, 54% and 71% respectively compared with 2023 (9.2 $MtCO_2eq$).

Assessment of the overall ambition of the draft NBRP to achieve a highly energy-efficient and decarbonised building stock by 2050

The level of ambition of the draft NBRP seems to be in line with the goal of a highly energy-efficient and decarbonised building stock by 2050. However, due to the use of constant primary energy and emission factors, the roadmap in Romania's NBRP does not adequately capture the deployment of renewables in electricity and heat generation. Consequently, actual reductions in

primary energy and GHG emissions might be higher than the current roadmap suggests, if the primary energy and emission factors improve over time.

By 2050, Romania aims to bring all existing residential buildings to the average primary energy use of 111 kWh/(m^2y), and all non-residential buildings below the primary energy use of 264 kWh/(m^2y). This implies reducing the final and primary energy consumption in the building sector by 53% compared with 2020 levels. Simultaneously, Romania aims to reduce total operational GHG emissions by 71% compared with 2023 to reach a target of 2.7 $MtCO_2eq$ in the building sector, indicating that further reductions are possible if the impacts of renewable energy deployment and changes of energy fuels are taken into account.

To achieve this, Romania aims to renovate 459.1 million m^2 of residential floor area (70% of the 2020 baseline) and 49.2 million m^2 of non-residential floor area (80% of the 2020 baseline) between 2020 and 2050. These ambitious targets have been calibrated to deliver the energy and GHG emissions targets set for both residential and non-residential buildings, including the worst-performing ones. The decarbonisation objective is also supported with targets for solar energy use in buildings, e.g., 13 600 MW capacity and 17 690 GWh generation by 2050, including both solar thermal and photovoltaic installations. Moreover, the target share of buildings equipped with solar technologies by 2050 is 15% for residential buildings and 20% for non-residential buildings. Targets are also provided for 2030 and 2040.

Cost-optimal levels play an important part in the Romania's draft NBRP. The latest values (third calculation round) are used to set indicative zero-emission buildings (ZEB) thresholds for new and major renovated buildings. The target decrease in the average primary energy use of residential buildings by 2050 is aligned with the 2023 cost-optimal levels for residential buildings. However, the 2050 MEPS thresholds are set at a higher level than the cost-optimal level for non-residential buildings (264 vs 130 kWh/(m^2y), implying that many targeted renovations will not be cost optimal.

Assessment of the alignment between the draft NBRP and national commitments on climate and energy set out in the NECP

The draft NBRP seems to be aligned with the ambition and objectives of the final NECP, but compared to the latter, it sets a higher level of ambition in the short term, but a lower level of ambition in the long term (see below). However, the draft NBRP mentions that its targets are calibrated to ensure it delivers on the EPBD requirements and that these targets remain in compliance with Romania's commitments on energy and climate targets.

The following section also addresses how the draft NBRP ambition compares with the Romania's 2020 long-term renovation strategy (LTRS).

Energy efficiency

Compared with the NECP buildings-sector targets for final energy consumption (-9% by 2030 and -65% by 2050, compared with 2020), the energy saving targets in the draft NBRP are more ambitious in the short term (2030) and less ambitious in the long term (2050).

Moreover, the draft NBRP sets annual renovation rates of 2.9% until 2030, then 5.2% between 2030 and 2040 and then 3.4% between 2040 and 2050. Compared with the NECP (and the LTRS), which set annual renovation rates targets of 3.4% (gradual increase from 0.7%) by 2030, 3.8% between 2030 and 2040 and 4.3% between 2040 and 2050, it seems that in the draft NBRP the renovation rates have been adjusted upward for the period 2030-2040.

The contribution of building stock renovation to the EU's energy efficiency targets as set out in Article 4 of the recast EED is not provided in the draft NBRP. However, the draft NBRP aims to reduce the share of building sector in total final energy consumption from 39.6% in 2020 and 39.8% in 2023 to 30.4% in 2030. This indicates that building sector energy consumption is projected to decline at a faster rate than overall energy use, suggesting significant progress.

Forward-looking primary energy factors are not considered in Romania's draft NBRP. However, Romania is considering a future revision of the legislation to modify the primary energy factors in the light of the decarbonisation of electricity and district heating, and notes that the modifications stemming from this will only be reported in the next NBRP cycle.

The draft NBRP energy targets therefore seem sufficient and aligned with the 2030 national commitment on **energy efficiency** laid down in the NECP.

Decarbonisation

Compared with the NECP building sector targets and the LTRS targets (which are similar), the decarbonisation ambition in the draft NBRP is higher for 2030 (7.5 $MtCO_2eq$) and 2040 (4.9 $MtCO_2eq$) and slightly lower for 2050 (2 $MtCO_2eq$). This suggests that the operational GHG emission target in the NBRP is sufficient and aligned with the 2030 national commitment on **decarbonisation** laid down in the NECP.

However, while the draft NBRP provides a figure of 9.15 $MtCO_2eq$ in total (direct and indirect) GHG emissions for 2020, the European Environment Agency reports a figure of 10.5 $MtCO_2eq$ in direct GHG emissions alone for Romania for the same year. The draft plan notes that the estimates for GHG emissions (baseline) will be developed further in the final version of the plan.

Renewable energy

Romania does not provide a specific target in its draft NBRP for increasing the share of renewables (nor does the final NECP contain one). However, it does include quantitative targets for solar energy capacity and generation in buildings, for both solar thermal and photovoltaics. It is mentioned in the draft NBRP that, in the final version of the NBRP, the roadmap will need to include the targeted share of renewables in final energy consumption.

Expected reduction in the number of people affected by energy poverty

In 2021, 25% of the Romanian population experienced some form of energy poverty. The methodology for calculating this share is not explained in the draft plan. Several other indicators are listed, including: (i) the share of households struggling to keep their homes adequately warm during winter (15.2%) and adequately cool during summer (31%); (ii) the share of household expenditure on energy (8.7%); (iii) the share of the population living in inadequate dwelling conditions (about 20%); (iv) the share of households that spent more than 10% of their monthly income on energy bills in 2023 (34%); (v) the share of low-income-high-costs households in 2023 (10%); (vi) the share of households with a high share of energy expenditure in income (2M) in 2023 (20%); and (vii) the share of households with low absolute energy expenditure or in extreme energy

poverty (M/2) in 2023 (20%)[133]. On the share of households with low absolute energy expenditure or in extreme energy poverty, the draft plan provides data on geographic distribution, showing territorial variations in extreme energy poverty across regions.

The indicators on energy poverty used in Romania's draft NBRP are sourced from the World Bank Romania Energy Poverty Assessment (September 2024), the Romanian Energy Poverty Observatory and Eurostat[134]. It is not clear if any of these indicators were used to quantify the energy poverty target and/or inform the renovation targets.

The draft NBRP does not provide data on the energy performance of social housing or the use and repurposing of vacant housing, nor does it include quantified progress in terms of units of social housing renovated per year or accommodation capacity for the homeless.

As a target, Romania aims to decrease the share of households affected by energy poverty, measured by the 'inability to keep the home adequately warm' indicator, to 9.8% by 2030. This target is consistent with the target in the NECP.

Households most vulnerable to energy poverty usually live in poorly insulated buildings that are often fitted with inefficient heating systems. By 2030, Romania plans to have renovated 27% of the total residential floor area identified in 2020, along with 52% of the floor area of the country's worst-performing buildings identified in 2020, which suggests that reaching the stated energy poverty target is feasible.

Prioritising renovation of worst-performing buildings

In the draft NBRP, priority is given to renovation of the worst-performing buildings.

Worst-performing residential buildings are identified on the basis of their specific primary energy use, using valid EPCs and focusing on buildings built before 2000. The average primary energy and associated floor area of residential buildings with a valid EPC is extrapolated to the entire residential stock. Although the percentage of residential floor area with a valid EPC is limited, this sample is considered the best available source for deriving the relative distribution of the building stock by primary energy use, and the draft plan proposes actions to fine-tune this approach in the future. The worst-performing residential buildings are identified as those with an average primary energy use above 327 kWh/(m^2y), and they make up 43% of the total residential buildings, based on the ranking of floor area by average primary energy use.

A similar approach has been used to identify the worst-performing non-residential buildings (e.g., the 16% and 26% by floor area).

According to these methodologies, there were 2 068 348 worst-performing residential buildings (282.5 million m^2) and 63 038 worst-performing non-residential buildings (16.1 million m^2) in 2023.

Minimum energy performance standards for non-residential buildings

[133] 2M means more than two times higher than the national median share of residential energy in equivalised disposable income, while M/2 means more than 2 times lower than the national median expenditure on residential energy. For more details: https://ec.europa.eu/eurostat/statisticsexplained/index.php?title=Overlaps_in_energy_poverty_indicators

[134] code ilc_mdes01

Romania set the 2030 and 2033 thresholds in primary energy use (Table 35) using data from 2020 as the baseline. The thresholds for 2040 and 2050 take into account: (i) the overall evolution in the energy performance of non-residential buildings; (ii) renovation rates; and (iii) renovation depth. However, the draft NBRP specifies that these values are indicative at this stage, and that further revision may be needed to refine these values by typology[135] and climate zone.

Table 33. MEPS for non-residential buildings in Romania.

Building categories	**Primary energy use** kWh/(m²y)			
	2030	**2033**	**2040**	**2050**
One category	422	340	308	264

Source: JRC elaboration on Member State reporting

The EPC dataset is used in the draft NBRP as a sample to set the thresholds. The EPC data were combined with data from the LTRS, and a new building stock dataset set for the NBRP to derive a 2020 baseline and define the thresholds.

The current description of non-residential buildings is limited, due to the scarcity of existing data, a shortcoming that is acknowledged in the draft NBRP. For instance, only 5.4% of non-residential buildings have a valid EPC, while 21.5% of non-residential floor area with building-level EPCs is currently classified as E to G.

The data reported in the draft NBRP for setting the MEPS are consistent with the information provided in the overview of the building stock and other parts of the draft NBRP.

Exclusions (if applicable) pursuant to Article 9(6) of the EPBD and criteria for exemptions from MEPS

Regarding exclusions, the building stock dataset used in the draft NBRP (which relies on the previously established LTRS dataset) does not consistently include religious and heritage buildings, temporary buildings, buildings used for less than four months a year or buildings with a floor area of maximum 50 m². As a result, the draft plan mentions that a robust estimate of these building categories cannot be provided. Future versions of the plan might include such estimates. These buildings that are not captured in the baseline are also exempt from the MEPS. No further criteria for exempting individual non-residential buildings are provided in the draft NBRP.

National trajectory for the progressive renovation of residential buildings

The renovation trajectory (Figure 9) is designed by taking into account the main EPBD requirements, such as:

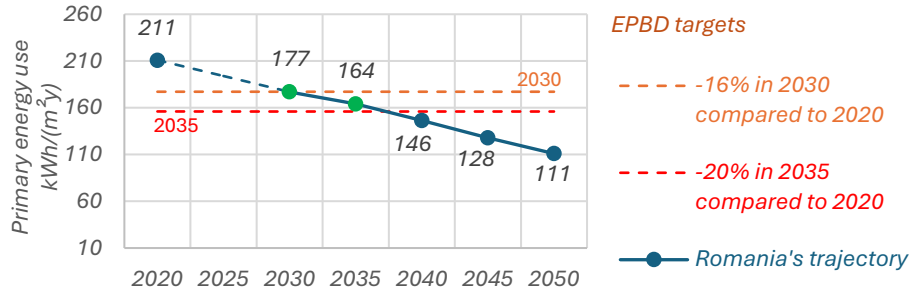
— a reduction of at least 16% in the average primary energy use of the entire residential building stock by 2030, and a reduction of at least 20–22% by 2035, compared with 2020.

— at least 55% of the total decrease in primary energy use between 2020 and 2050 is delivered in the 43% worst-performing buildings segment

[135] As per the draft NBRP, MEPS thresholds may be set in the future on the basis of six building categories: offices, educational, health, retail, tourism and sports facilities.

— the quantitative targets for expected savings in primary and final energy use, renewable energy shares and GHG reductions.

Figure 9. Trajectory for the progressive renovation of residential buildings in Romania.



Source: JRC elaboration on Member State reporting

The targeted average primary energy use in residential buildings by 2030 and 2035 is 177 kWh/(m^{2}y) and 164 kWh/(m^{2}y), respectively. Compared with the 2020 baseline of 211 kWh/(m^{2}y), this represents a reduction of 16% and 22%, respectively, which is in line with the EPBD requirements for the decrease in the average primary energy use of the entire residential building stock. The targets for 2040 and 2050 are 146 kWh/(m^{2}y) and 111 kWh/(m^{2}y), representing reductions of 31% and 47%, respectively, compared with 2020.

The draft plan estimates the number of buildings and the floor area to be renovated annually in order to reach these targets, as well as the renovation rates by depth of renovation (e.g. by the energy savings delivered) for 2030, 2035, 2040, 2045 and 2050. The share of each building category (single and multi-family houses) to be renovated is also included.

The total number and floor area of the 43% of the building stock classified as worst-performing buildings and dwellings to be renovated are provided, including the sub-target of a 55% reduction in average primary energy use (in GWh) in the worst-performing residential buildings.

The data sources are clearly identified in the draft NBRP: statistical data on final energy consumption, national primary energy factors (consistent with the national cost-optimal report) and LTRS data on residential building stock floor area. The 2020 data on residential building stock and total primary energy consumption are robust and consistent across the different parts of the draft NBRP. The following methodology was applied: first, for the calculation of specific primary energy, the residential floor area is reduced by approximately 20% to exclude unoccupied buildings. Secondly, the floor area is kept constant for the calculation period, on the assumption that demolitions compensate for new buildings. Third, no reduction of primary energy factors is applied. The data are consistent across the different parts of the plan.

The residential building stock includes single-family houses, multi-family houses, apartment blocks and social housing. The draft NBRP mentions that the main building stock data set (e.g. the one from the LTRS) does not include religious and heritage buildings, temporary buildings, buildings used for less than four months a year, and stand-alone buildings with a floor area of max 50 m^2. It is therefore possible that such buildings are not included in the baseline.

New buildings

New buildings must comply with the national NZEB requirements related to total primary energy consumption and maximum CO_2 equivalent emissions. The values depend on the building category

and climate zone. According to the Romanian NZEB definition, at least 30% of the energy used by NZEB must come from renewable sources, whereas the recommended minimum share of renewables in the total primary energy consumption of new buildings is 10%, where technically and economically feasible. The requirements for building elements (envelope) also apply to both new buildings and buildings that have undergone major renovation.

In the draft NBRP, it is tentatively considered that the upcoming ZEB thresholds for total primary energy use and GHG-emissions will be 10% lower than for NZEB both for new buildings and buildings that have undergone major renovation. The new thresholds for NZEBs and buildings that have undergone major renovation are the ones set out in the latest cost-optimal report from 2023, as the ones in force date since the previous cost optimal report from 2018. These are provisional and will be revised once the new cost-optimal reports are available (expected in 2028 and 2033) and as the national methodology is updated.

At the time of this draft NBRP, it was estimated that there were 8 998 NZEBs with a total floor area of 2 790 615 m^2 (only new buildings).

3.13.4. Sufficiency of policies and measures

The draft NBRP provides a comprehensive overview of the policies and measures that Romania is considering. All mandatory EPBD indicators, as well as the optional ones listed in Annex II, are addressed in it.

Therefore, the draft NBRP outlines the relevant policies and measures to implement MEPS for non-residential buildings and renovation of the residential building stock, a compliance system based on an updated EPC- scheme, accompanied by financial support with targeted grants by an expanded one-stop shop network, and by training and reskilling of workers. These elements are described in considerable detail and linked to existing financial instruments such as Recovery and Resilience Fund (RRF) vouchers, funding under the national thermal rehabilitation programme, the future EU Social Climate Fund (SCF).

However, most of the measures are only at the brainstorming/preparatory stage (e.g. transition from fossil fuel boilers, deployment of renewable energy or awareness-raising campaigns) and the 'planned measures' are not clear. The expected impacts of the actions planned measures are presented illustratively, and a template of proposed performance indicators is included, with a note that these indicators will be populated once modelling results become available.

The draft NBRP consistently refers to other plans, laws and strategies (e.g., NECP, the social climate plan, EED, RED, as well as related plans, such as the comprehensive heating and cooling assessment and local heating and cooling planning).

Renovation and MEPS for non-residential buildings

The draft NBRP contains a first proposal for new policies designed to support the implementation of MEPS. It is mentioned that the main Romanian law on the energy performance of buildings (Law 372/2005) will be amended to set up dedicated renovation 'trigger points', including sale, renting out, major renovation work, or change of use. The draft NBRP also mentions other potential triggers for MEPS, such as the new ban on public incentives for new stand-alone fossil-fuel boilers (in force since 2025) or bundled support for solar installations.

The draft NBRP discusses only in a preliminary way the legal framework for MEPS implementation and its main related elements, such as: (i) competent authorities; (ii) compliance and monitoring

mechanisms; (iii) the enabling framework (financial and technical assistance); and (iv) a proposal for a penalty scheme.

The legal framework set out in the draft NBRP considers the links with other policies and laws. The competent authorities are identified for each implementation stage. The draft NBRP proposes that contacts with building owners concerned by MEPS be channelled through municipalities and one-stop shops.

Some measures related to the enabling and support framework for MEPS are listed in the draft NBRP. These measures include (i) financial support (performance-based grants, bonuses for early compliance, tax allowances for small and medium enterprises (SMEs) or dedicated State aid lines for public bodies); (ii) technical assistance; (iii) solutions for split-incentive dilemmas; (iv) coordination with solar energy deployment (Article 10 of the recast EPBD) and (v) quality assurance (e.g. approved contractor lists or random checks tied to the disbursement of funding).

The draft NBRP states that Romania's primary compliance mechanism will be the EPC, but alternative approaches might be possible for some building categories (e.g. based on the metered energy performance of buildings). On monitoring, the draft NBRP proposes: (i) a quarterly dashboard; (ii) EPC registry analytics; (iii) checks/verification; (iv) sampling; and (v) publication of compliance rates. Enforcement will be ensured through quality audits and sanctions (e.g. administrative fines scaled to floor area and delay, conditional access to public funding, public naming for persistent non-compliance and other measures).

Romania's draft NBRP provides a comprehensive overview of all areas that are key to ensuring the implementation of – and compliance with – MEPS. For each area, it discusses various mechanisms based on previously successful strategies and adapted to the new requirements. However, at this point, these mechanisms are merely suggestions; it is unclear which ones will actually be implemented in practice. Despite this uncertainty, the MEPS framework has considerable potential to support the effective implementation of the MEPS.

Renovation of residential buildings

Romania is considering the partial use of MEPS for residential buildings, in order to reach 55% reduction in primary energy savings in the worst-performing buildings between 2020 and 2050[136]. A staged renovation pathway based on EPC classes is proposed in the draft NBRP: worst-performing buildings would need to be renovated to bring them from G to F by 2028 and G/F to E by 2030, depending on the availability of funding and market capacity. Not all details are provided, but Romania indicates that several elements of the MEPS scheme planned for residential buildings will be similar to the framework to be established for non-residential buildings (see above). In addition, dedicated financial support lines for worst-performing buildings and higher aid intensities for vulnerable and energy-poor households are mentioned in the draft NBRP as financial support for the implementation of MEPS in residential buildings. Technical assistance with a focus on vulnerable households, tailor-made solutions for 'split incentives' (e.g. landlord-tenant frameworks enabling rent caps in exchange for efficiency upgrades and comfort guarantees) and increased consumer protection (to prevent evictions) are also planned. For the non-residential building stock, the EPC scheme is intended as the main compliance mechanism. Enforcement follows a gradual approach

[136] However, these elements are not included in the design of the trajectory for residential building renovation.

that prioritises support and resolution before possible fines for inaction after repeated reminders and conditional access to public benefits/subsidies.

Several measures to ensure that MEPS do not create undue hardship are planned. These include flexibility on deadlines, works scheduling that takes into account technical feasibility and, in case of disproportionate costs, higher grant rates for vulnerable households.

The building renovation passport as a tool to support energy savings, complement MEPS and assist the trajectory for residential buildings

Romania intends to introduce the building renovation passport under Law No 372/2005, to be adopted by 29 May 2026. The renovation passport scheme is expected to trigger deep and staged deep renovation in Romania.

The scheme may become mandatory for specific segments such as public buildings, buildings subject to MEPS or buildings benefitting from certain high intensity grants.

Box 38. Example of policies and measures in Romania.

- Amend existing legislation to introduce trigger points for MEPS compliance: when the building is sold, rented out or subject to major renovation, change of use, licencing or public procurement, MEPS compliance must be demonstrated on the basis of an EPC. Non-compliance is penalised with scaled fines and conditional access to public funds.

- To compensate for the lack of energy savings in exempted buildings, Romania may in future (e.g. after 2028) introduce a portfolio-based rule that would require owners of exempted buildings to compensate for this lack of energy savings in other, non-exempted buildings they own. Moreover, system-level measures compatible with heritage protection (building automation and control systems (BACS), efficient heating, ventilation and air-conditioning systems, lighting controls, on-site or near-site renewables) will be promoted for exempted buildings.

Alleviation of energy poverty and housing affordability

The draft NBRP is consistent with the measures on alleviation of energy poverty in the NECP (same measures reported) and mentions that support for achieving the target will be provided by prioritising worst-performing buildings occupied by vulnerable and energy-poor households and channelling higher aid intensities and targeted technical assistance through the network of one-stop shops (OSSs).

Support for vulnerable households is addressed through the specific financing mechanism of RRF vouchers, for which assistance is provided by OSSs. Energy poverty is also addressed in district renovation with specific indicators for vulnerable households. In addition, the draft NBRP mentions that deep renovation of buildings occupied by low-income and vulnerable households will benefit from very high grant intensities (potentially up to 100% of eligible costs). It will also benefit from dedicated technical assistance delivered through OSSs and, where appropriate, social services.

Romania's draft NBRP includes measures related to Article 24 of EED, such as:

(i) the use of the future SCF to stimulate socially oriented renovation;

(j) a shift from minor thermal improvements to deep renovation to mitigate the effects of ETS II (emission trading system for buildings, transport and additional sectors);

(k) funds covering deep renovation with high grant intensities (potentially up to 100% of eligible costs);

(l) specific technical assistance for vulnerable consumers.

On access to affordable, energy-efficient housing for key groups, several policies and measures have been identified. The draft NBRP mentions the national housing strategy 2022-2050 (HG842/2022), which aims to ensure the availability of affordable, inclusive, adequate, sustainable and resilient housing. Moreover, Romania's social housing construction programme allocates funding based on applications and proposals submitted by local public authorities. Social housing is intended for individuals and families who cannot afford private market housing, including, specifically, families facing eviction, disabled persons, veterans and young people leaving social protection institutions.

To protect tenants against possible evictions or rent spikes after the renovation of the building, the draft NBRP identifies several future actions including:

(m) safeguards against undue eviction or rent increase;

(n) transparent planning of works;

(o) the resolution of scheduling conflicts and other disputes via local mediators.

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

OSSs are addressed in detail in Romania's draft NBRP. In 2024, Romania's national network of OSS for energy efficiency was established through the Recovery and Resilience plan (RRP). It is coordinated by the Ministry of Development, Public Works and Administration. The network of 42 OSSs is designed for full territorial coverage: one OSS at each of the 41 county councils, and one at the Municipality of Bucharest. For local authorities, the establishment of an OSS is voluntary.

Services provided by these OSSs include (i) public information, technical advice and project support; (ii) guidance on structuring renovation projects and information on how to access grants and/or credit; (iii) guidance on the legal framework for energy performance and on permitting procedures; (iv) a dedicated OSS webpage linked to the national information point; (v) cooperation protocols with permitting bodies and utilities to prioritise authorisations for projects supported by the OSS network; (vi) public information campaigns; and (vii) semi-annual reporting to the Ministry of Development, Public Works and Administration on completed and planned investments.

All OSS operating expenses are covered from the budgets of the relevant local authorities, with the possibility to use other legally constituted sources of funding. At the national level, the government funds a public information campaign about renovation and on-site renewables and manages the central online information point, reducing initial outreach costs for local authorities.

The draft NBRP states that the OSS network gives priority to vulnerable energy consumers and households in energy poverty. However, the draft NBRP also mentions that the 42 OSSs are currently understaffed, and the draft plan identifies specific actions to increase the capacity of the network.

Decarbonisation of heating and cooling and the phasing out of fossil fuels in heating and cooling with a view to a complete phasing out of fossil fuel boilers by 2040

Romania does not report clear and credible measures for the decarbonisation of heating. The draft NBRP addresses the decarbonisation of heating and cooling and the phasing out of fossil fuels in these sectors. However, the plan states that the proposed actions do not yet amount to policy commitments or roadmaps, and that they will be subject to further analysis.

At building level, possible actions concern the deployment of heat pumps, while taking into account the natural replacement cycle of existing heating systems, and the deployment of photovoltaic and solar thermal installations with a focus on self-consumption.

At system level, the draft NBRP describes three alternative approaches to the decarbonisation of district heating and cooling (DHC) networks. These alternative approaches are: (1) a gradual increase in the share of renewable energy, waste heat and cogenerated heat in DHC systems; (2) a progressive reduction of GHG intensity in DHC systems, using indicative thresholds over time; and (3) for DHC systems above 5 MW, the potential role of multi-annual operator planning (to be explored).

The gradual phase-out of fossil-fuel boilers by 2040 is briefly discussed, and it may cover (i) consideration of the interaction between heating system choices and electricity grid decarbonisation trajectories; (ii) the potential role of renewable gases and hydrogen; (iii) the potential use of non-fossil-fuel boilers in specific or niche contexts; and (iv) alternative phasing concepts for adjusting over time the incentives to replace appliances, reflecting technological readiness and market conditions. No estimation of the number of fossil-fuel boilers (now or in 2040) is provided in the draft NBRP. It remains unclear to what extent decarbonisation of the gas grid is expected to contribute to the decarbonisation of buildings overall, when developments across all energy vectors, infrastructure and the decarbonisation plans and pathways of end-use sectors other than buildings are taken into consideration. It also remains unclear whether other measures are necessary to achieve the phase-out of fossil-fuel in boilers in 2040, and what these measures may be.

The draft NBRP mentions that future analyses will consider the NECP trajectories and targets. Indicative monitoring indicators are also listed.

The draft NBRP also mentions complementarities with measures or plans stemming from the EED and the RED:

- with Article 25 (comprehensive heating and cooling assessment and local planning) and Article 26 (efficient district heating and cooling -DHC) of recast EED.
- with Article 23 (annual renewable energy share increase in heating and cooling - binding), Article 24 (renewable energy share and waste heat in DHC (indicative)) and Article 15a (renewables in buildings - indicative) of the RED.

Prevention of construction and demolition waste

Romania has in place a national waste prevention programme, which is the overarching national roadmap that specifically addresses construction and demolition waste (CDW) and sets a 70% recovery target for non-hazardous CDW. However, the draft plan mentions that ensuring the traceability of CDW flows across counties is a challenge, hindering targeted monitoring.

The draft NBRP outlines several actions, such as: (i) the application of the waste hierarchy; (ii) promoting selective demolition, pre-renovation and pre-demolition material audits; (iii) the

development of secondary raw material markets; (iv) support for the use of recycled aggregates and recovered construction materials; (v) the integration of circular economy criteria into public procurement; (vi) improved material flow traceability and data systems; (vii) expansion of re-use and recycling infrastructure; (viii) the use of life-cycle cost approaches in public investment; and (ix) skills development and institutional capacity building.

The application of the EU Level(s) framework may support more consistent project-level reporting of CDW flows (fractions, quantities and destinations), and it could facilitate alignment with future digital building logbooks.

Promotion of renewable energy sources and deployment of solar energy installations on buildings

The promotion of renewable energy sources in buildings is addressed in Romania's draft NBRP, focusing on the deployment of on-site and nearby renewables, in line with the indicative target for the share of renewables in the building sector laid down in Article 15a(1) of the RED.

Regulatory measures that act as enablers are: (i) NZEB requirements on minimum energy from renewables; (ii) the 'prosumers' law (compensation on electricity bills for 'prosumers' up to 200 kW until 31 December 2030, while systems above 200 kW can sell surplus generation to suppliers under contracts); (iii) shared on-site production at the building level (e.g. photovoltaic installations in common areas of apartment buildings); (iv) contracting for nearby renewable generation and simplified procedures and deadlines for connecting small photovoltaic installations and storage to the grid; and (v) simplification of authorisation procedures for rooftop photovoltaic installations on existing buildings where no structural changes are required.

Funding schemes are also listed, including: (i) grants to households to install rooftop photovoltaic and energy storage; (ii) voucher support for residential photovoltaic installations and storage (including for off-grid households and energy efficiency – RePowerEU, RRP component); and (iii) grants for SMEs, hotels and restaurants to install rooftop photovoltaic and electric vehicle (EV) chargers. Local authorities may provide complementary co-financing where applicable, particularly within RRP renovation schemes.

It should be mentioned that these are all existing regulatory and funding measures. Future regulatory changes regarding streamlined permitting and grid connection procedures will be introduced in the final NBRP.

The national deadlines for installing 'suitable' solar installations on buildings and covered car parks (Article 10 of EPBD) are provided in the draft NBRP, but no new specific measures linked to this are introduced (reference is made to the existing measures listed above).

Reduction of whole-life-cycle GHG emissions and the uptake of carbon removals

The reduction of whole-life-cycle GHG emissions is addressed in the draft NBRP. It is mentioned that Romania will create a policy framework to achieve this; however, the measures and actions related to this matter are indicative only.

Romania might in the future introduce global warming potential (GWP) limits for new buildings, differentiated by building category and climate zone. For existing buildings, criteria related to low-embodied carbon could be introduced in cost-optimal renovation packages, along with energy sufficiency principles. When beginning work, energy-efficiency upgrades, structural safety upgrades and functional upgrades should be combined in a single intervention, thus reducing the amount of embodied carbon from renovation work.

The shift to low-carbon and bio-based renovation materials is also discussed in the draft NBRP. Romania will: (i) support pilot projects using timber and bio-based solutions; (ii) develop technical guidance and standards for bio-based materials; and (iii) recognise low-carbon materials in cost-optimal calculations and incentive schemes.

The uptake of carbon removal is also addressed in the draft NBRP. Romania aims to gradually recognise carbon removal and storage in buildings as part of its construction and renovation policy mix. The inclusion on EPCs of a voluntary indicator for biogenic carbon storage (e.g. $kgCO_2eq/m^2$ stored in long-lasting building products) might be explored.

Moreover, including carbon removal in public procurement and state-aid schemes and developing data and methodologies for whole-life-cycle assessment on the basis of the EU Level(s) framework are also mentioned in the draft NBRP.

Overall, the draft NBRP is comprehensive in addressing whole-life-cycle GHG emissions, highlighting the need for more data, information and decisions in this area. Good practices identified in the Romanian draft NBRP include: (i) prioritising stakeholder consultations; (ii) outlining policies for whole-life-cycle GHG emission reduction and carbon removal; (iii) considering whole-life-cycle GHG objectives as integral to circularity, construction and demolition waste management; (iv) and resource efficiency.

Promotion of district and neighbourhood approach and integrated renovation programmes

Romania has developed a series of district- and neighbourhood-level programmes for deep renovations of public buildings and district-heating upgrades. The draft NBRP provides indicative targets (e.g. for renovated floor area, renewable energy use in buildings, public-private leverage or energy poverty reduction every year between 2026 and 2030), and the indicators will be tracked at district level and aggregated nationally.

The funding sources to promote these projects are listed and include European Local Energy Assistance (ELENA) funding, funding under the LIFE Clean Energy Transition programme and the EU City Facility. Blended financing and guarantees, performance-based payments, permitting guidelines and energy service company (ESCO) leverage are also among the mechanisms deployed to promote district-level approaches.

Improvement of buildings owned by public bodies

Romania's draft NBRP sets out measures to improve public buildings. The public sector must 'lead by example' by renovating public buildings to meet energy efficiency and NZEB requirements and achieve seismic risk reduction by 2030. The measures cover: (i) mandatory audits and EPC tracking; (ii) performance-based procurement (a shift in procurement practices from lowest-price criteria to life-cycle cost and energy/carbon reduction metrics); (iii) smart technologies in NZEBs and ZEBs (MEPS and cost-optimal renovation packages); (iv) promoting the integration of building automation and control systems (BACS) and smart readiness solutions in new and renovated public buildings; (v) models for public-private partnerships and ESCOs; (vi) multi-year renovation commitments by public entities; and (vii) alignment with the NECP and the EED.

Promotion of smart technologies and infrastructure for sustainable mobility

The draft plan mentions that Romania will examine in 2026-2027 the possibility of: (i) launching an official smart readiness indicator (SRI) test phase; (ii) developing the national SRI methodology; (iii) creating accreditation and training schemes for SRI experts; (iv) integrating SRI outputs into the digital building register; and (v) piloting SRI in public buildings. In addition, measures related to BACS

will be analysed, including linking BACS upgrades to MEPS and renovation programmes and ensuring that outdated heating/cooling controls are replaced.

On sustainable mobility, Romanian law requires 'smart-charging readiness' in both new and existing buildings, whether residential or non-residential, including ducting, pre-cabling and dedicated EV-ready sockets, which must be included in the technical design files. Designers must also embed EV-related features, such as smart metering, vehicle to grid capability, bicycle/e-bike parking and fire-safety measures.

The installation of EV-charging points has been streamlined: the National Energy Agency's fast-track procedure guarantees technical approval within 15 days. The authorisation period is capped at 45 days, and during this period a tenant or co-owner is allowed to install a charger without landlord consent when pre-installed infrastructure exists.

Fire safety for EV charging in car parks follows the national fire-safety codes, with designers required to consult the EPBD annex and the future national technical note on ventilation, detection and segregation requirements.

Accessibility for people with disabilities

Accessibility for people with disabilities is not mentioned specifically in the overview of the building stock. The draft NBRP does not identify accessible buildings or buildings in need of accessibility renovation, and they cannot be identified on the basis of the draft plan. Moreover, accessibility is not mentioned in the description of the buildings that are to be renovated. It is not possible to estimate what share of the planned building renovation will include accessibility renovations.

However, improved accessibility for people with disabilities is considered a wider benefit of energy-efficiency upgrades. The draft NBRP states that aligning renovations with universal design principles 'improves building accessibility (ramps, lifts, widened corridors), enhances autonomy for people with reduced mobility, enables compliance with EU disability-rights legislation and creates more inclusive public and residential buildings'. It also quantifies the impact: requiring that upgrades made during renovation comply with European standard EN 17210:2021 is expected to increase the functional accessibility of the renovated building stock by 20% to 40%.

Romania cites several national laws on accessibility that must be taken into account during building renovation, particularly in relation to policies and measures on infrastructure for smart mobility. One such law is Law No 372/2005 on building energy performance, which explicitly calls for ensuring accessibility to recharging points for people with disabilities at the design stage. Another law related to accessibility is Law No 448/2006 on the protection and promotion of the rights of disabled persons, which requires that at least 4% of the parking area, and a minimum of two parking spaces, in public-use buildings be reserved and marked for people with disabilities. The draft plan also mentions that the national adoption of European standard EN 17210:2021 on the accessibility and usability of the built environment introduces additional obligations, although no further information is provided. In terms of future actions, the draft NBRP mentions the introduction of accessibility guidelines for charging points that are aligned with European standard EN 17210:2021 and Law No 448/2006.

No specific information on accessibility renovation is provided in the estimate of investment needs. The draft NBRP contains some fragmented information on budget sources concerning people with disabilities in more general terms. For example, the Council of Europe Development Bank loan to Bucharest District 5 for multi-family buildings adds a social dimension, financing infrastructure, and

housing upgrades for vulnerable residents, including people with disabilities and children living in inadequate homes. The total budget is EUR 83 million.

Addressing market barriers, market failures and skills gaps

Romania's draft NBRP addresses barriers, market failures and skills gaps in a comprehensive manner. This is done by building category and area (policy and regulatory gaps, institutional gaps, market gaps and financing gaps). Some examples are provided below.

As part of its efforts to simplify and digitalise renovation-permitting procedures, Romania aims to reduce the number of approvals required and shorten processing times by moving from a paper-heavy, multi-step process to a 'single-window', online system. Romania also aims to cut the administrative lead time, which currently puts off investors and homeowners.

To improve the governance of the process, Romania proposes to create a single coordinating body (a steering committee) to align ministries, local authorities, nongovernmental organisations and the private sector. Bringing together all building-stock data, EPCs and financing offers on a single digital platform, eliminating the 'search-and-match' problem and making better use of the OSSs is intended to further streamline the renovation process.

With regard to supply-chain issues, a type-approval scheme for prefabricated and modular components aims to replace case-by-case approvals, speeding up delivery. A publicly available catalogue of pre-certified systems with verified data on life-cycle costs aims to reduce risks related to procurement. Standard ESCO contracts and targeted incentives are intended to open up the performance-contracting market and link services with financing.

Regarding education and skills, the draft plan mentions that labour shortages are particularly acute in Romania due to the constant emigration of workers, while the training infrastructure is often underdeveloped or underfunded. The BUILD UP Skills Romania initiative introduced the 2030 roadmap for establishing a qualified construction workforce by 2030. This roadmap identifies the need to upskill or reskill over 160 000 workers (estimated net labour demand), with a particular focus on 79 963 unskilled workers. It focuses on three main objectives: (i) optimising the continuous training framework for green and digital skills; (ii) ensuring an adequate and accessible supply of vocational training; and (iii) stimulating demand for green and digital skills. The 2030 roadmap is currently going through the final stage of inter-ministerial review prior to formal adoption.

Awareness-raising campaigns and other advisory tools

Measures to implement awareness-raising campaigns and build advisory tools are addressed in the draft NBRP. In addition to OSSs, Romania has launched several initiatives to raise awareness on energy efficiency: (i) a streamlined 'Train-to-NZEB' communication campaign to transfer the results of the latest research; (ii) the NZEB Roadshow; (iii) the NZEB Expo; and (iv) the 'NZEB Ready' project to stimulate demand for qualified construction services and skills and better prepare the market for the implementation of the NZEB standard. The draft NBRP also identifies key actors in raising awareness.

The draft NBRP acknowledges the emergence of a growing subsector of energy professionals, prosumers, associations and events, but notes that outreach to homeowners, building managers and other renovation decision-makers remains insufficient. However, no additional measures to address this deficit in outreach are outlined.

Promotion of modular and industrialised solutions

Currently, the Romanian building codes are not fit to support modular and industrialised construction of permanent structures. Moreover, there is a small but growing number of companies that provide modular and industrialised solutions in Romania, focusing on smaller, single-story structures.

The draft NBRP mentions that, as a future action, Romania will assess the need to devise policies that support the development of modular and industrialised construction. Such support is likely to be focused on: (i) legal and regulatory measures; (ii) public procurement and finance; (iii) market enablers and capacity; and (iv) monitoring, reporting and verification.

3.13.5. Sufficiency of financing sources and administrative resources

The draft NBRP provides a detailed description of the financial and administrative resources that will be mobilised to ensure the investment needed to achieve the renovation targets. The estimates are provided by building category and source of funding and include several scenarios and assumptions for the mobilisation of private funds based on current market conditions, regulatory constraints, historical data and findings from a recent survey.

Investment needs for building renovation works and for related administrative resources have been identified by building type (residential or non-residential, as well as worst-performing buildings) up until 2050 and with a disaggregation by period of four years. The administrative resources are related to the further development of the OSS network, municipal capacity building, programme administration, quality assurance and public-awareness measures.

The cumulative investment needs for the whole period 2026 to 2050 are estimated at EUR 122.3 billion. Although the methodology for estimating these needs is not described in detail, the comprehensive assessment of the implementation of related national strategies and plans strongly suggests that the projected investment needs are accurate and sufficient to achieve the targets.

It is important to note that the needs are not spread evenly across the four-year periods described in the draft plan. In fact, the estimated needs for the first period from 2026 to 2030 are significantly higher than for the other periods. This may reflect the level of investment needed to meet the EPBD requirement by the start of the 2030-2035 period.

The draft NBRP earmarks EUR 3.75 billion for alleviating energy poverty between 2026 and 2050 (EUR 750 million by 2030). However, it does not describe how other expenditure lines, such as worst-performing building renovation, will also contribute to addressing energy poverty.

The estimated investment needs in terms of administrative resources are based on a comprehensive analysis not only of the draft NBRP targets, but also of various national strategies and plans, such as the LTRS, the national energy and climate progress report (NECPR) and the ‘renovation wave’ strategy. The main gaps are found in rural municipalities that lack technical and expert staff, and where building stock data are scarce and dedicated financial support for households is limited. In these areas, the use of blended finance, guarantees and revolving instruments is also limited and procurement capacity is uneven, which impacts the quality and speed of renovations.

In several cases, there are also detailed the specific costs used as assumptions to estimate the investment needs. For instance, the funding needs for energy-poverty alleviation and building renovation are based on estimated costs of EUR 5 000 to 10 000 per household for renovation and EUR 20 000 per household for solar installations. For improvements to the OSS network, including

the addition of 60 OSSs, costs are estimated at EUR 250 000 per OSS until 2035, then EUR 100 000 per OSS (operating costs estimated at 40% of initial costs).

The **funding and financing sources** are very well detailed and presented by building category (single family building, multi-family building, public building or non-residential building) and by type of funding (EU funds, national, regional or local funding, or loans from international financial institutions, including green bonds). The funding sources identified cover the investment needs, with no gaps reported.

Every funding instrument described in the draft NBRP is linked to a specific source (be it the EU budget or the national budget) and to a clear timetable. This is the case for: (i) current (2023-2025) voucher-grant lines (to be scaled up in 2026-2030); (ii) SCF grants from 2026 onward; (iii) already available guarantees; and (iv) blended-financing mechanisms throughout the 2026-2050 implementation period.

The main funding sources for tackling energy poverty are the national RRF vouchers, regional development programme funding for single family homes, and the future SCF (which is described as a key opportunity to address energy poverty). National grant schemes and affordable loan facilities with international financial institutions also contribute to alleviating energy poverty.

Public funding estimates cover local, national and EU funds and funds from international financial institutions. Local funds account for 0-5% of total public funding (for public buildings, local funds account for about 10%).

National funds are generally used for co-financing EU-funded projects and are estimated to cover about 17% of total public funding. National funds include: (i) the national thermal rehabilitation programme; (ii) European fund administration programmes; (iii) support for rooftop photovoltaic installations (Casa Verde); (iv) the 'energy efficiency in public buildings' of the environmental fund administration; (v) the national programme for public or social interest construction; and (vi) ETS (emission trading system) funds. For all these sources, the estimated funds (based on previous programmes), timelines and potential constraints are set out clearly in the draft NBRP.

The draft NBRP estimates that EU funds will cover 81% of total public funding for renovation in Romania. The main EU funding sources are the RRF regional funds, the Just Transition Fund, the Modernisation Fund, the sustainable development programme, the SCF and ELENA. Various financing methods are discussed for each source, with a clear estimate of amounts, timelines and targeted beneficiaries. However, Romania might want to consider developing its national sources of funding further (as separate funding streams or in the form of a higher degree of national co-financing topping up EU instruments) to avoid over-reliance on temporary EU funding such as the RRF.

Private financing is also comprehensively addressed in Romania's draft NBRP, as it is considered crucial to achieving the renovation targets. The schemes to mobilise private financing are listed by building type. The assumptions are based on available data, regulatory constraints and recent surveys.

Private financing includes: (i) secured and unsecured loans capped at different amounts for single-family buildings; (ii) commercial bank financing with a capital rebate and a risk-sharing guarantee; and (iii) public-private partnership/energy performance contracting financing under performance-based contracts (with ESCOs) for multi-family buildings. For public buildings, financing takes the form of capital rebates and either bank financing or ESCO financing, while for other non-residential buildings it takes the form of bank and ESCO financing.

In addition to EU grants and national programmes, Romania benefits from significant credit lines from international financial institutions for building renovation (such as the European Investment Bank Romanian Municipal Energy Efficiency Programme II or the European Bank for Reconstruction and Development green cities programme).

The draft NBRP discusses the mobilisation of private financing in terms of the leverage effect of various public-financing mechanisms. For instance, public financial support to commercial banks could have a leverage ratio of 6:1, a financial mechanism that includes guarantees typically has a leverage ratio of 4:1, and the use of blended financing has a leverage ratio of 3:1. These estimates are based on previous experiences and seem plausible.

Assessment of the adequacy of total investments

For every period (2026-2030, 2031-2035, 2036-2040, 2041-2045, 2046-2050) the draft NBRP assumes that the funding available is equal to the estimated investment needs (100% coverage). For 2026-2030, the share of public investment is 60% (local, regional, national and EU funds), while private funding represents 40% (own financing, mortgages, unsecured loans or energy performance contracting). For 2026-2050, the share of public funds is 53%, while the share of private funds is 47%.

Linking investment needs to targets through policies and measures

It is not possible to establish a clear link between the investment needs and draft NBRP targets, as the policies and measures are not clearly outlined in terms of quantified objectives and expected impact.

3.13.6. Inclusiveness of the public consultation

A first consultation on the draft NBRP was organised in December 2025, involving most stakeholders. The aim was to validate the direction of the draft NBRP and identify key challenges. This initial phase, which will be followed by a more complex consultation and engagement process, focused on involving public authorities, regulators, professional organisations, academia and financial sector representatives with relevant technical and institutional expertise. Civil society organisations, including those working with vulnerable households or representing people with disabilities, are not on the list of consulted stakeholders.

The organisation of the consultation sessions with stakeholders during the first consultation round is presented in the draft NBRP, along with the outcomes and recommendations from the sessions. Although the first consultation round may not have allowed enough time or opportunities for stakeholders to contribute effectively to the development of the draft NBRP, it is encouraging to note that the draft plan includes provisions for a second consultation planned for 2026. It is not clear if the outcomes and recommendations were taken into account in the current version of the draft NBRP.

The draft NBRP mentions that the more in-depth interinstitutional consultation phase is scheduled to take place with the aim of developing detailed public policies, financing schemes, governance arrangements and implementation schemes in close cooperation with all stakeholders.

3.13.7. Completeness of the draft NBRP and consistency with other planning or reporting exercises

Almost all mandatory indicators are included in the draft NBRP. More information is included in the following table.

Table 34. Indicators checklist for Romania.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings (number)	Yes	
	Floor area (m^2)	Yes	
	Definition of worst-performing buildings	Yes	
	Share of worst-performing buildings (%)	Yes	
	Renovated buildings/ floor area (number/ m^2)	Partially	It is mentioned that information is being compiled and will be included in the final NBRP. Some information from renovation programmes is included.
	Renovation rate (%)	Partially	
	Primary energy use (ktoe)	Yes	
	Final energy use (ktoe)	Yes	
	Specific primary energy use for residential buildings (kWh/m^2y)	Yes	
	Share of renewable energy (%)	Partially	Only for residential buildings (source: Eurostat).
	Operational GHG emissions (Mt CO_2-eq)	Yes	It is mentioned that consolidated GHG emissions data will be included in the final version of the NBRP.
	Energy poverty share (%)	Yes	
Roadmap for 2030, 2040 and 2050	Renovation targets (floor area or number)	Yes	
	Renovation rate targets (%)	Yes	
	Primary energy targets (ktoe) or reduction (%)	Yes	
	Final energy targets (ktoe) or reduction (%)	Yes	
	Renewable energy targets (%)	No	Targets for the deployment of solar technologies provided.
	GHG emission targets (Mt CO_2-eq) or reduction (%)	Yes	
	Energy poverty targets (%)	Partially	Only for 2030.
	Contribution to energy efficiency target	No	
Policies and measures	Scope and type	Yes	
	Quantified objective	Partially	Only few measures have the impact quantified, and the objective is descriptive.
	Status and implementation period	Partially	
	Budget and funding source	Yes	
Investment needs	Total and/or average investment needs (million EUR), EUR/m^2	Yes	
Residential buildings	Average specific primary energy decreases between 2020 and 2050	Yes	
	Number of residential buildings/dwellings to be renovated	Yes	
	Residential floor area to be renovated (m^2)	Yes	

Section	Indicator	Yes/No/Partially	Explanatory notes
	Worst-performing buildings contribution (%)	Yes	
Non-residential buildings	MEPS 16% thresholds	Yes	
	MEPS 26% threshold	Yes	
	2040 and 2050 thresholds	Yes	
Public consultation		Yes	Initial, with a more comprehensive consultation phase planned for 2026.

Source: JRC elaboration on Member State reporting

Consistency checks have been performed by comparing the data with previous Member State reports such as: the 2024 NECP, the 2025 NECPR, the 2020 LTRS, and the 2023 national cost-optimal report.

Plausibility checks have been performed by comparing the data with other reliable datasets: building stock observatory (BSO) for building stock indicators and Eurostat datasets for final energy consumption.

Box 39. Consistency and plausibility check for Romania.

Primary energy factors are consistent with previous reporting in the 2023 national cost-optimal report.

The number and floor area of residential buildings are plausible based on comparison with the BSO data set.

The final energy consumption is plausible based on comparison with the Eurostat data set.

Energy poverty

In Romania, energy poverty is defined in Law No 226/2021 as 'the impossibility of the single person/family who, for reasons of health, age, insufficient income or isolation from energy sources, requires social protection measures and additional services to ensure at least their minimum energy needs, e.g. the single person's/family's minimum energy consumption for lighting, optimal cooling and heating of the home, supporting cooking facilities and providing hot water in the home, using means of communication that involve the use of energy or powering medical devices to support life or to improve the health of people'.

Moreover, Government Ordinance No 92/2024 introduces a definition of households in energy poverty: a housekeeping unit consisting of individuals sharing a common residence, having common arrangements, sharing household expenses or daily needs and who require social protection measures and additional services to ensure that at least their minimum energy needs are met.

The definition of energy poverty is consistent with Romania's NECP. Regarding consistency between the draft NBRP and EED, the household scope and the list of essential services in the draft NBRP are compatible with the corresponding sections of EED. However, the quantitative indicators from the Directive are not embedded in the Romanian legal text. Romania has in place the Romanian Observatory on Energy Poverty, which monitors the share of households that: (i) spent more than 10% of their monthly income on energy bills (10% rate); (ii) are 'low-income-high-cost (LIHC); (iii) have a high share of energy expenditure as a share of income (2M); (iv) have low levels of energy expenditure; or (v) are in extreme energy poverty (M/2). Romania's final social climate plan had not been submitted at the time of this assessment, yet the SCF is identified as the main future funding

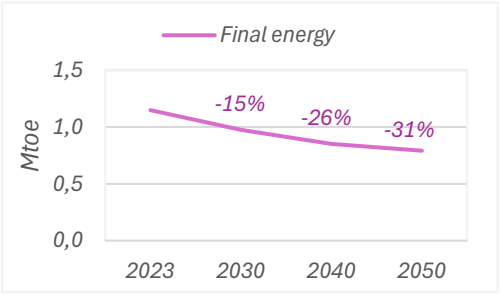
source for energy poverty alleviation. The draft NBRP measures on alleviating energy poverty are similar to the measures in the final NECP update.

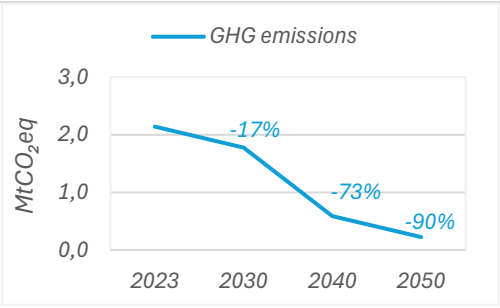
3.14. Slovenia

3.14.1. Main indicators

Table 35. Selection of main indicators from Slovenia's draft NBRP.

Renovation				
Floor area (Million m^2)	2020	2030	2040	2050
	Baseline	Cumulative renovation		
Residential	66.5	15.2	42.3	53.7
Non-residential	23.8	5.5	14.3	25.9
Total	90.3	20.7	41.5	64.5
Cumulative renovation (%)		23%	46%	71%
Annual renovation rate (%)	**2.10%**	**2.16%**	**1.98%**	**1.99%**
Number of buildings	2020	2030	2040	2050
	-	-	-	-
Energy consumption				
Primary energy (Mtoe)	2020	2030	2040	2050
Residential	-	-	-	-
Non-residential	-	-	-	-
Total	-	-	-	-
Change vs 2020 (%)		-	-	-
Final energy (Mtoe)	2023	2030	2040	2050
Residential	0.81	0.66	0.55	0.50
Non-residential	0.34	0.32	0.31	0.30
Total	1.15	0.98	0.85	0.79
Change vs 2023 (%)		**-15%**	**-26%**	**-31%**
Energy end-uses included	Heating, cooling, hot water, ventilation, and built-in lighting			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2023	2030	2040	2050
Residential	1.31	1.01	0.39	0.15
Non-residential	0.73	0.77	0.20	0.08
Total	2.14	1.78	0.59	0.22
Change vs 2023 (%)		**-17%**	**-73%**	**-90%**
GHG emissions in $kgCO_2/m^2$	-	-	-	-
Change vs 2023 (%)	-	-	-	-





Renewable energy				
Renewable energy in the final energy	2023	2030	2040	2050
Share of renewable energy in buildings' final energy consumption	52%	61%	73%	77%
Solar energy technologies in buildings	2020	2030	2040	2050
MW installed in buildings	353	3,454	7,954	11,554

Energy poverty				
People affected by energy poverty	2023	2030	2040	2050
Share of households affected	7.3%	4.2%	0.0%	0.0%
Trajectory for the progressive renovation of residential buildings				
Not available				
Minimum energy performance standards for non-residential buildings				
Not available				
Primary energy factors				
Not available				
Investment needs for renovation and funding and financing sources				
Investment needs (billion EUR)		2030	2040	2050
			Cumulative	
Residential		2.6	6.6	10.1
Non-residential		1.5	4.9	9.0
Total		4.1	11.5	19.4
Funding and financing (billion EUR)				
Public		0.9	-	-
Private		2.2	-	-
Total		3.2	-	-

Source: JRC elaboration on Member State reporting

3.14.2. Executive summary

Slovenia has submitted a partially complete draft of the national building renovation plan (NBRP).

The **level of ambition** of the draft NBRP to achieve a highly energy-efficient and decarbonised building stock by 2050 is not clearly demonstrated. While final energy consumption and greenhouse gas (GHG) emission targets are broadly in line with expectations, important aspects are missing, such as targets and factors for primary energy use, prioritising the renovation of worst-performing buildings, a trajectory for the progressive renovation of residential buildings and minimum energy performance standards (MEPS) for non-residential buildings. These gaps limit the overall clarity of the draft NBRP and raise questions about the feasibility of achieving the final energy and GHG emission targets stated within it.

Slovenia's targets for **final energy consumption** in the building sector are 976 ktoe by 2030, 852 ktoe by 2040, and 792 ktoe by 2050, representing reductions of 15%, 26% and 31%, respectively, from the 2023 level of 1 149 ktoe. Slovenia **does not provide current and targeted primary energy consumption** in the building sector.

Slovenia's targets for total **operational GHG emissions** in the building sector are 1 777 kt CO_2eq in 2030, 568 kt CO_2eq in 2040 and 223 kt CO_2eq in 2050, corresponding to reductions of 17%, 73%, and 90% compared with the 2023 baseline of 2 140 kt CO_2eq.

At the same time, the draft NBRP is partially aligned with the objectives and the policies and measures outlined in the final **national energy and climate plan (NECP)**. Although not all targets are fully comparable, the NBRP shows greater ambition for building renovation and renewable energy, but lower ambition for GHG emission targets.

The contribution of Slovenia's building sector to the **EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED') is not clearly outlined. In 2023, the building sector accounted for 25.6% of total final energy, aiming for

22.6% in 2030[137]. This indicates that the energy savings in the building sector are planned to occur at a higher pace than the energy savings across all sectors. It suggests that the energy targets for the building sector are sufficient to deliver on the expected overall energy savings by 2030. Regarding Slovenia's contribution to the **EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED'), the target is for renewable energy to account for 61% of the final energy consumption of buildings by 2030.

Slovenia aims for a gradual but sustained acceleration of **renovation** between 2020 and 2050, with target annual renovation rates of around 2% at building stock level. The rates are increasing in the non-residential sector (from 2.1% to 2.9%) and decreasing in the residential sector (2.2% to 1.5%). Slovenia aims to renovate a total of 66 520 100 m^2 between 2020 and 2050. This covers the entire non-residential floor area and 60% of the residential floor area. Since values and targets are not consistent with the building stock baseline, it is not clear if the targeted renovation will effectively contribute to achieving the roadmap target for energy consumption and GHG emissions in the draft NBRP.

Considering that Slovenia has not provided **the trajectory for the progressive renovation** of **residential buildings** and the **MEPS** for **non-residential buildings, it is not possible to assess** whether annual renovation targets are calibrated or designed with these missing aspects in mind.

Worst-performing buildings have not yet been defined in Slovenia. The draft NBRP indicates that the thresholds for worst-performing buildings will be determined per building category. This will require moving from a heat demand-based classification to a holistic approach that considers all primary energy use under the Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD'.

Alleviating **energy poverty** plays an important role in Slovenia's draft NBRP. In 2024, households in energy poverty stood at 7.3%. The target is to reduce this share to a maximum of between 3.8% and 4.6% by 2030. The methodology for estimating the energy poverty rate is not included. Measures for reaching the energy poverty targets include financial incentives and grants for vulnerable groups, informative and awareness-raising measures, technical assistance and planning actions. To cover these measures, the investment needs envisaged between 2026 and 2032 are EUR 251 million, to be covered entirely by grants. Moreover, Slovenia drew up an action plan to reduce energy poverty, but did not estimate the funding to be allocated.

On **housing affordability,** Slovenia aims to apply new measures based on the national housing programme to support the renovation of multi-family buildings, and new financial instruments from the European and national budget to mitigate the risks in private investments. It also mentions the European affordable housing plan (in the context of financing renovation to make housing more affordable) but does not explain how that plan will be translated into national actions to make housing more affordable.

[137] The JRC calculates the percentages as follows: In 2020, as a ratio of final energy consumption in buildings to total final energy consumption sourced from Eurostat. In 2030, as a ratio of the draft NBRP target for final energy consumption in buildings to the national energy efficiency target set under Article 4 of the EED, sourced from the final NECP 2024.

In Slovenia's draft NBRP, implemented and planned policies and measures are rather descriptive, with quantitative information missing, such as planned budget, funding sources, timeline and expected impact over the implementation period. A total of 24 measures are included, of which 5 are new. As the expected impact is not quantified, it is not possible to determine whether the measures are adequate and sufficient to achieve the targets set.

What is also missing is a clear link between the financing of policies and measures and the reported investment needs. The measures listed cover many of the mandatory policy areas, including vulnerable households, construction waste management and aspects relating to the circular economy. However, they do not sufficiently cover the following areas: prioritising the renovation of worst-performing buildings, progressive renovation of residential buildings, measures in the private rental sector, whole-life-cycle GHG emissions and promoting modular and industrialised solutions.

Slovenia's approach to **decarbonisation of heating** is not comprehensive. The reported measures are quite general, without many details and without clear timelines or the expected and quantified impact. A clear timeline for an effective phase-out of fossil fuel boilers by 2040 is not described. The NECP is mentioned but concrete links and synergies with other strategic plans are missing. This means that the effectiveness and credibility of the draft NBRP's measures for achieving an effective phase-out of fossil fuel boilers by 2040 are not clearly indicated.

Investment needs are included in the draft NBRP for 2030, 2040 and 2050. Between 2026 and 2050, it is estimated that around EUR 19.4 billion are needed to achieve the renovation targets and alleviate energy poverty (representing around 300 EUR/m^2 for the expected floor area to be renovated [138]). While the estimates seem plausible, due to the lack of information in the draft NBRP, it is not possible to assess whether these estimated needs are sufficient to achieve the renovation targets. The projections lack a sensitivity analysis on key variables of the investment needs. The funding sources are only presented until 2030 and an investment gap of EUR 1.15 billion is identified.

Private financing is expected to be mobilised through concessional loans offered by national financial institutions, and public-private partnerships with energy services companies. Green loans play an important role in the draft NBRP in attracting private finance, as well as international assistance programmes.

The **public consultation** allowed broad public participation at different stages of drafting the NBRP. It allowed enough time and opportunities for contributions from various stakeholders.

The assessment process has identified the following elements of the draft NBRP as strengths, **innovative measures** and/or examples of good practice.

— Slovenia tackles building renovation in a holistic way and covers other areas beyond energy and climate, such as resilience to natural hazards, seismic issues, fire safety, waste management and cultural heritage.

[138] JRC calculation considering the total investment needs between 2026 and 2050, divided by the total floor area expected to be renovated between 2020 and 2050.

— The creation of an Energy Poverty Panel will support the implementation of measures on alleviating energy poverty by strengthening coordination between national authorities and other key stakeholders. However, there is no explanation of when and how this Panel will operate.

— The action plan to reduce energy poverty sets out a scheme to alleviate energy poverty (e.g. participation in energy communities, energy literacy, integration of energy poverty into local energy planning) and includes the creation of regional advisory points on energy poverty.

However, there are several aspects of the draft NBRP that require **completion** and **improvement**, and which should be addressed in the final version.

— Provide the primary energy consumption baseline (2020, 2023) and the targets for 2030, 2040 and 2050, including the primary energy factors (PEFs).

— Ensure that the roadmap is aligned with the projected trend in power and heat generation in the final NECP, and that the use of primary energy factors reflects this trend.

— Provide the MEPS thresholds in accordance with Article 9(1) of the EPBD.

— Include the trajectory for the progressive renovation of residential buildings in accordance with Article 9(2) of the EPBD and ensure that the renovation targets are appropriate to deliver this trajectory.

— Ensure consistency between the baseline (e.g. total floor area) and the planned renovated floor area for non-residential buildings. Ensure that the roadmap provides the number of renovated buildings by 2030, 2040 and 2050.

— Define the worst-performing buildings and the methodology for identifying them, and explain how they are prioritised for renovation.

— Quantify the impacts of policies and measures for the main overall targets (e.g., expected energy savings, energy poverty reduction, GHG reductions, number of renovated buildings or other relevant indicator).

— Include policies and measures for all missing areas, in accordance with Annex II to the EPBD: prioritising the renovation of the worst-performing buildings, whole-life-cycle GHG emissions and the uptake of carbon removals, and promoting modular and industrialised solutions.

— Quantify the contribution to the EU's energy efficiency targets in accordance with Article 4 of the EED that can be attributed to the renovation of the building stock.

— Ensure that the energy poverty indicator reflects the many dimensions of energy poverty in accordance with the definition provided in the EED and set targets beyond 2030.

— Provide the thresholds for new and renovated zero-emission buildings pursuant to Article 11 of and Annex II to the EPBD.

— Clarify how the definition of energy poverty in Slovenia's new Energy Efficiency Act will differ from the current definition. Explain the distinction between 'households' in energy poverty and 'people' in energy poverty (Table 8 of the draft NBRP).

— Include the results of the sensitivity analysis, the methodological approach and the input parameters in the estimation of investment needs. Clarify the sources that have been identified to address the investment gap. Add the financing sources up to 2050, specifying the amounts available and linking them to investment needs and policies and measures.

— Provide a clear roadmap for the phase-out of fossil fuel boilers by 2040, with a clear timeline and concrete measures, including by specifying the expected share of the boiler fleet that will combust fossil-fuel gas in 2040.

— Ensure consistency of this roadmap with other strategic plans.

— Provide a complete overview of the building stock, including the total and disaggregated number of buildings, data on nearly zero-energy buildings (NZEBs), energy performance certificate (EPC) classes, social housing data and the baseline for specific primary energy demand.

— Include a description of the expected wider benefits, such as reducing energy bills, creating jobs, economic growth and improving comfort and health.

3.14.3. Ambition of the draft plan

Box 40. Key insights of Slovenia's draft NBRP.

- Slovenia plans to reach **final energy use** in the building sector of 976 ktoe in 2030, 852 ktoe in 2040 and 792 ktoe in 2050. This means reductions of 15%, 26% and 31%, respectively, compared to 2023.

- Slovenia plans to decrease **total GHG emissions** in the building sector to 1 777 ktCO_2eq in 2030, 568 ktCO_2eq in 2040 and 223 ktCO_2eq in 2050. These reductions correspond to 17%, 73% and 90%, respectively, compared to 2023 (2 140 kt CO_2eq).

Assessment of the overall ambition of the draft plan to achieve a highly energy-efficient and decarbonised building stock by 2050

The level of ambition of the draft NBRP to achieve a highly energy-efficient and decarbonised building stock by 2050 is not clearly demonstrated. While final energy consumption and GHG emission targets are broadly in line with expectations, important aspects are missing, such as primary energy consumption, factors and reduction; prioritising the renovation of worst-performing buildings; the trajectory for progressive renovation of residential buildings; and the MEPS for non-residential buildings. These gaps undermine the overall credibility of the plan and raise questions about the feasibility of achieving the stated final energy consumption and GHG emission targets.

By 2050, the draft NBRP of Slovenia aims to reduce GHG emissions in buildings by 90% and reduce final energy end-use by 31% in 2050, compared to 2023. The reduction in expected final energy consumption is more significant in residential buildings (-39% in 2050 compared to 2023 for residential buildings vs -12% for non-residential buildings in the same period). The decarbonisation objective is also supported by the increase of renewable energy in the building sector from 23% in 2023 to 76% in 2050.

However, this is not underpinned by an improvement in the related primary energy factor, and the impact in terms of reducing primary energy consumption is not described.

The draft NBRP sets out a gradual but sustained acceleration of renovation, with targeted annual renovation rates of around 2% at the level of the entire stock (1.5% residential, 2.9% non-residential).

The draft NBRP stresses the need for an integrated approach to renovation, addressing not only energy efficiency but also seismic safety, quality of the indoor environment and alleviating energy poverty for a gradual, fair and cost-effective transformation of Slovenia's building stock towards climate neutrality by 2050.

Cost-optimal levels are not reported in the draft NBRP, and it is not clear if they have been used to set the energy targets for the building sector.

Assessment of the alignment between the draft NBRP and the national commitments on climate and energy set out in the NECP

The draft NBRP is partially aligned with the ambition and objectives outlined in the final NECP. Although not all targets are fully comparable, it shows greater ambition for building renovation and renewable energy and lower ambition for GHG emission targets. The section below also addresses how the ambition of the NBRP compares with the 2020 long-term renovation strategy (LTRS) adopted by Slovenia.

Energy efficiency

In the NECP, Slovenia aims to reduce final energy consumption in the building sector by 15% by 2030 compared to 2020. The value in the draft NBRP is identical. However, the two targets are not fully comparable due to different baselines and definitions. Moreover, the final energy target in the draft NBRP (975 ktoe) is more ambitious in absolute terms than the LTRS target (1 268 ktoe).

In 2023, the building sector accounted for 25.6% of total final energy, aiming for 22.6% in 2030. This indicates that the energy savings in the building sector are planned to occur at a higher pace than overall energy savings. While the contribution of the draft NBRP to the energy efficiency target is not clearly outlined, the energy targets for the building sector are assessed as sufficient to deliver on the overall energy savings expected by 2030.

Current and projected PEFs for buildings are not provided in the draft NBRP. It is mentioned that they are expected to be updated in the future due to the decarbonisation of the electricity system and the expected changes in the structure of energy supply but this trend is not described or explained.

Considering the available data, the level of ambition of the draft plan appears sufficient and in line with the national commitment on **energy efficiency** laid down in the NECP.

Decarbonisation

The NECP aims for a 70% reduction in operational GHG emissions by 2030, as compared to the 2005 level. In the draft NBRP, the operational GHG emissions of residential buildings in 2005 (base year) were 2 858 kt CO_2eq. By 2030, they are planned to reach a level of around 1 008 kt CO_2eq, representing an overall decrease of around 65%[139]. This reduction is lower than the NECP target of 70%. However, the NECP target covers the entire building stock, while the NBRP does not provide the 2005 baseline values for non-residential buildings, preventing a full comparison.

[139] JRC Calculation

Renewable energy

Slovenia sets targets for the share of renewable energy in final energy consumption in the building sector: 61% for 2030, 73% for 2040 and 77% for 2050. It includes electricity generation from solar power plants and self-sufficiency targets for the same years. It uses 2023 as a baseline, with a share of 52% (60% residential, 33% non-residential).

For the reference year 2023, available statistics are used to calculate the share of renewable energy, while projections consistent with scenarios for how the energy system could develop and long-term climate objectives are used for 2030. The projections take into account both the expected increase in renewable energy generation at country level and changes in the structure of energy use in buildings, in particular the increased electrification of heating and cooling and the phase-out of fossil fuels. The targets are set in accordance with Article 15a of the RED although it is not explicitly mentioned.

In the NECP, the overall share of renewable energy is 33% and the target for the share of renewable energy produced on-site, nearby and from the grid in buildings is 55% for 2030 (target under Article 15a of the RED). Therefore, the 2030 target share of 61% in the NBRP is higher than the NECP one.

Compared with the indicative national shares provided in the Commission guidance on heating and cooling (C/2025/2238), Annex C, the draft NBRP target for 2030 is four percentage points lower (61% vs 65.4%).

Expected reduction in the number of people affected by energy poverty

In 2024, households in energy poverty stood at 7.3%, 0.1 percentage points higher than the previous year. This corresponds to around 63 000 households in energy poverty, with 110 000 people living in energy poverty.

According to the draft NBRP, inadequate housing conditions (19.8%) are the main contributors to energy poverty among households below poverty level or at risk of poverty (19.3%), followed by arrears in housing-related payments, including water, electricity and heating (6.1%). The highest shares of energy-poor households are found among single-person households (14.3%) and single-parent households with at least one dependent child (13.7%). However, the methodology for deriving this rate from the indicators is not provided.

The draft NBRP does not provide data on the geographical distribution of energy poverty, the energy performance of the social housing stock or the use or repurposing of vacant buildings, or quantified progress indicators such as the number of units renovated per year or capacity to house homeless persons.

The draft NBRP sets a 2030 target of reducing the share of households in energy poverty to 3.8-4.6%, but it does not set quantified targets for 2040 or 2050.

Prioritising renovation of the worst-performing buildings

The section of the NBRP on the renovation of worst-performing buildings is still under development. It is envisaged that the thresholds and scope of worst-performing buildings will be determined separately per building type (e.g. single-family, multi-family, public building and other non-residential buildings), as their energy characteristics, use patterns and technical potential differ significantly. Identifying these buildings requires a shift from the existing classification, which is mainly based on the heat demand indicator, to a more holistic consideration of energy performance

that considers all primary energy use under the EPBD. Nonetheless, Slovenia estimates that 15-20% of buildings exceed average primary energy consumption of 300 kWh/(m^2y), which indicates their relatively low energy efficiency.

Minimum energy performance standards for non-residential buildings

MEPS thresholds have not yet been yet determined and are thus not provided in the draft NBRP. Determining them will require a comprehensive, methodologically sound approach that considers the diversity of the building stock, the national climate, technical conditions and the long-term energy and climate policy objectives. The assessment of the analytical aspects underpinning the thresholds will be detailed in the final version of the NBRP.

National trajectory for the progressive renovation of residential buildings

The trajectory is still under development and has not been provided in the draft NBRP.

New buildings

The plan reports that NZEBs represent the highest level of energy performance that has been progressively implemented in national legislation for new buildings as well as major renovations over the last decade. Based on the available data, 3 547 residential NZEBs with a total useful area of 1 515 152 m^2 have been recorded cumulatively in Slovenia. The non-residential segment accounts for 401 NZEBs with a total useful area of 965 818 m^2.

3.14.4. Sufficiency of the policies and measures

The draft NBRP lists 19 existing measures and 5 new ones. The measures are only described in general and their impacts are not quantified. This prevents an assessment of whether they are adequate and sufficient to achieve the targets set. The plan indicates that the missing information will be provided in its final version. The policies and measures in the draft NBRP are consistent with those included in the final NECP (2024).

The innovative nature of the draft NBRP is based on the integrated approach towards renovation, which also addresses issues such as resilience to hazards such as earthquakes, fires and hazardous substances. A measure specifically related to renovating cultural heritage buildings is also reported.

Renovation and MEPS for non-residential buildings

Although the MEPS implementation framework and its main components are missing[140], some measures related to its preparation are listed under this section. Regulatory measures on MEPS compliance, including with the recourse of trigger points, are not identified in the draft NBRP.

The plan designates MOPE (Project Office for Energy Renovation of Buildings) as the primary competent authority responsible for implementing the framework for future MEPS .

As the impact of the measures is not quantified, it is not possible to assess if national targets can be achieved by implementing these measures.

[140] Such as identification of buildings and interactions with owners.

Renovation of residential buildings

The milestones of the trajectory for the progressive renovation of residential buildings have not yet been determined. Furthermore, a quantified estimation of the impacts of measures to renovate residential buildings is missing. Therefore, it cannot be assessed whether such measures are sufficient to lower average primary energy use according to the milestones and sub-target set out in Article 9(2) of the EPBD. Worst-performing buildings are not covered in any of the descriptive measures reported, as the definition of worst-performing buildings is still under development.

The building renovation passport as a tool to support energy savings, complement MEPS and assist the trajectory for residential buildings

The draft NBRP does not describe how the building renovation passport scheme can contribute to energy savings and complement the MEPS, including by promoting staged deep renovations.

Box 41. Example of policies and measures in Slovenia.

- *Transition to deep building renovations*: preparing substrates to promote and finance sustainable renovation (which, in addition to energy renovation, also take into account all other relevant building renovation criteria: seismic activity, fire safety, radon problems, installation of wood and other sustainable materials). Develop a sustainable building renovation plan that focuses on deep building renovation and takes into account all aspects of renovation (energy, seismic activity, cultural heritage and others). The plan is to be developed separately for the residential and non-residential sectors and is to include an analysis of the technical potential for renovation with a view to achieving binding climate targets.

- *Grant schemes for energy efficiency in the public sector*: continuing and following up the implementation of the measure, improving monitoring of the effects of investments receiving credits (Eco Fund and others) to reduce energy use and GHG emissions, and increasing energy production from renewable energy sources. Providing a systemic financial resource is to be considered.

- *Household energy efficiency grant schemes*: Eco Fund loans and incentives from other green loan providers for the housing sector and continuing the implementation of the measure and setting up new financial instruments. Details are regulated by the 2020 long-term renovation strategy.

Alleviation of energy poverty and housing affordability

The draft NBRP includes a dedicated section on energy poverty and providing targeted support to reduce the number of energy-poor households. The relevant measures seem sufficient to achieve the targeted reduction in energy-poor households (-3.8-4.6% by 2030 compared to current state). One key measure is support for investments in energy efficiency and renewable energy for at least 8 710 energy-poor and vulnerable households, with expected cumulative energy savings of about 570 GWh over the period 2021-2030. Subsidies cover 100% of eligible costs for energy-poor households, and multiple measures may be combined within the same dwelling. A pilot phase for the scheme is planned, followed by a long-term financing scheme, as also reported in the 2024 NECP. The creation of an Energy Poverty Panel is intended to support implementation by strengthening coordination among relevant parties and stakeholders.

In addition, the action plan to reduce energy poverty proposes a scheme with both structural and temporary relief measures. Structural measures include participation in energy communities, energy literacy and integrating energy poverty into local energy concepts. Temporary measures include support for paying energy bills. The scheme also envisages a project office and regional advisory

points on energy poverty. Its main financial instrument consists of incentives for energy efficiency measures and deploying renewable energy for energy-poor households, combined with energy advice and information through local awareness-raising networks. While the target group is clearly energy-poor households, the draft NBRP does not specify whether specific vulnerable groups, such as young people, homeless persons or other vulnerable households, are prioritised for ad hoc support.

Moreover, on housing affordability, Slovenia aims to apply new measures based on the national housing programme to support the renovation of multi-family buildings, and new financial instruments from the European and national budget to mitigate the risks in private investments. The draft NBRP also mentions the European affordable housing plan (in the context of financing renovation to make housing more affordable) but does not explain how it will be translated into national actions for housing affordability.

Overall, the section of the draft NBRP on energy poverty under policies and measures is designed in accordance with Article 24 of the EED.

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

The draft NBRP provides a limited description of the network of one-stop shops (OSSs). It reports that the scope of this topic is to support targeted renovation projects and promote incentive schemes. The relevant NBRP measure sets out a mechanism to encourage the emergence of energy service companies, with a particular focus on small and medium-sized enterprises, by simplifying and accelerating the procedures on which they provide technical and financial advice.

The plan also envisages awareness-raising and training activities for stakeholders involved in deep renovation, especially in the public sector, although further details are not provided.

Decarbonisation of heating and cooling and the phasing out of fossil fuels in heating and cooling with a view to a complete phasing out of fossil fuel boilers by 2040

The draft NBRP mentions a programme to phase out the use of fossil fuels in buildings that was adopted in 2025 but has not yet been implemented. This programme aims to replace fossil fuel technologies to decarbonise the building stock. The actions described under this main measure are quite general, without sufficient details to assess their credibility and without clear timelines or the expected and quantified impact.

The draft NBRP also describes how the public sector will replace old and ineffective heaters. The plan reports that a CO_2 emission tax and environmental policy governance will support the phase-out of fossil fuels. Another measure promotes the phase-out of fossil fuel use in buildings by banning the sale and installation of fossil fuel boilers. The plan does not sufficiently describe how this dimension is aligned with other strategic documents such as the NECP, network development plans, the national heating and cooling assessment and the national plans to support EU action to phase out Russian gas. Therefore, the consistency of the NBRP with these documents cannot be verified based on the available information.

Prevention of construction and demolition waste

The draft NBRP does not report measures to prevent construction and demolition waste. These will be reported in the final version of the NBRP.

Promotion of renewable energy sources in line with Article 15a of the RED

Promoting renewable energy sources in buildings is an important pillar of the draft NBRP of Slovenia. The aim is to achieve 61% of renewable energy production in buildings by 2030. Measures include: financial incentives for renewable use in residential buildings, production of electricity from renewable sources to achieve the target share for renewable energy sources, and ensuring additional heat generation from renewable energy in the public sector in line with the renewable energy objectives.

One measure aims at integrating energy-poor and vulnerable households into energy communities, in particular into community solar power plants and thermal energy communities (e.g. community heat pumps). The role of renewable energy communities will be better addressed in the final NBRP.

Deployment of solar energy installations on buildings

Deploying solar energy installations on buildings is adequately covered in Slovenia's draft NBRP.

The plan envisages grants for solar power plants, battery storage and charging stations. Slovenia plans to increase the number of self-consumption systems for solar-based electricity in buildings and promote the exemplary role of public buildings.

Campaigns to raise awareness and provide information on this topic are also included in the plan.

Incentives are included to analyse the potential for achievable renewable energy measures. The plan envisages increasing self-consumption by increasing solar installations. It is not specified if measures refer only to photovoltaics or also to solar thermal collectors.

Reduction of whole-life-cycle GHG emissions and the uptake of carbon removals

The draft NBRP does not contain measures to address whole-life-cycle GHG emissions and the uptake of carbon removals. These will be reported in the final version of the NBRP.

Promotion of a district and neighbourhood approach and integrated renovation programmes

The draft NBRP of Slovenia mentions a measure for the deep renovation of neighbourhoods. It aims to support the preparation of integrated renovation projects for different building types.

Improvement of buildings owned by public bodies

The draft NBRP of Slovenia includes measures on improvements to public buildings in line with Articles 5, 6 and 7 of the EED. Specifically, the measures aim to better promote investments in energy renovations of public buildings, equip managers of public buildings with systems for monitoring and recording energy use, improve strategic planning and coordination, provide staff training, improve energy efficiency and simplify the administrative procedures for granting incentives, including digitalising operations.

No specific measures on green public procurement and worst-performing public buildings are included.

Promotion of smart technologies and infrastructure for sustainable mobility

The draft NBRP includes a measure on promoting smart technologies. This measure, which is already included in the 2020 LTRS, is planned until 2050. It involves developing solutions for ensuring effective control of energy in buildings and effectively integrating renewable energy sources in order to align production and consumption. The draft NBRP also envisages improving

energy management in public-owned buildings and equipping them with systems for monitoring and recording energy use.

On sustainable mobility, Slovenia includes a measure aimed at adapting buildings to support sustainable transport. Subsidies are provided for energy efficiency improvements and for the installation of charging infrastructure for electric vehicles and battery storage systems.

Accessibility for persons with disabilities

In the draft NBRP, accessibility is only mentioned in relation to affordable solutions in measures for vulnerable groups and energy poverty. No details are given as to how to address accessibility during renovation or checking/monitoring compliance. There are no references to people with disabilities in specific programmes.

Addressing market barriers, market failures and skill gaps

Slovenia does not address barriers and market failures in the draft NBRP. This will be addressed at a later stage in the final version of the NBRP. It is reported that there are skills gaps in the labour market. They concern specific profiles such as installers of advanced heating systems, designers of deep energy renovations, energy advisers and experts in smart and digital solutions in buildings.

It is also planned to simplify the administrative procedures for granting incentives, including by digitalising operations.

The draft NBRP reports that, without targeted education and training programmes, there is a risk that shortages of suitably skilled labour will limit the pace of renovations and affect their quality. The final plan will cover systematic skills development, which includes vocational education, additional training, certification of operators and promotion of new recruits to the sector. The final NBRP will also include a realistic assessment of market barriers, the available capacity in the sectors undertaking renovations and the availability of a suitably skilled workforce.

Awareness-raising campaigns and other advisory tools

Awareness-raising and training activities are also included through a measure targeting stakeholders responsible for deep renovation at all levels, aiming to strengthen their capacity to prepare and implement projects in public-sector buildings.

Moreover, the draft NBRP mentions awareness-raising and information instruments. These are to provide technical and professional support highlighting the importance of reporting data for buildings larger than 250 m^2 of useful surface area. They will also cover technical building systems and the state of a building, the use of annual energy for heating, cooling, electricity and hot water, and planned and implemented measures in the field of renewable energy and efficient energy use.

Promotion of modular and industrialised solutions

Measures on promoting modular and industrialised solutions for construction and renovation are not included in the draft NBRP.

3.14.5. Sufficiency of financing sources and administrative resources

The draft NBRP identifies **investment needs** for 2030, 2040 and 2050, with total estimated requirements of around EUR 19.4 billion over the period 2026-2050, equivalent to roughly

EUR 300/m² of renovated floor area. These estimates cover residential and non-residential buildings, both public and private, as well as measures addressing energy poverty.

However, the draft NBRP does not explain the methodology used to estimate these investment needs, or include the underlying parameters or any sensitivity analyses carried out. As a result, it is difficult to assess whether the estimates are sufficient to implement the planned policies and measures, although the estimates seem plausible. The plan notes that further information will become available once MEPS, renovation trajectories and the link between worst-performing buildings and households in energy poverty are determined.

The investment needs are broken down into residential, public non-residential and private non-residential buildings, with **residential** accounting for the largest share.

The **residential** sector drives the largest investment demand, requiring around EUR 2.56 billion over the period 2026-2030 before gradually declining but staying significant (over EUR 1.7 billion per five-year period until 2050). For the **public** sector, funding needs grow steadily, from EUR 108 million in 2026 to EUR 831 million by 2050, most likely driven by the EED's 3% annual renovation target. **Private non-residential** buildings see rising investment needs too, from EUR 190 million in 2026 to nearly EUR 1.3 billion by 2050, underscoring the need for sustained financing and incentives across the entire period.

Slovenia reports further investments to integrate energy-poor and vulnerable households into energy communities, especially renewable energy communities such as community solar projects and thermal energy communities, including shared heat pump schemes. The objective is to support at least 1 600 energy-poor or vulnerable households in joining energy communities, with a preliminary budget of EUR 9 million. Additional investments are planned for awareness-raising, information, education and training. The estimated cost is about EUR 585 000 for training and EUR 671 000 for information activities, including campaigns, ongoing communication and personnel costs.

Because the draft NBRP includes measures across legislative, financial, organisational and data-related areas, it also highlights the need for adequate and sustainable administrative capacity. In Slovenia, this would require legal and technical expertise, inter-ministerial coordination, implementation monitoring, grant scheme management, instrument development, impact monitoring, consulting support, project management, IT and data expertise, and standardised reporting.

The draft NBRP identifies the main **funding sources** for 2030, 2040 and 2050, including the Recovery and Resilience Facility until 2026, the Social Climate Fund, the Just Transition Fund, the Eco Fund and the Modernisation Fund. It also identifies investment gaps between needs and projected financing by 2030, but does not explain how these gaps will be addressed. For example, the gap is reported at around EUR 90 million for public-sector buildings, and around EUR 96 million for private non-residential buildings.

For public buildings, the draft NBRP provides a **public funding** estimate. Local and regional authorities are expected to cover 49% of the total, while the remaining 51% would come from other public partners and public-private partnerships, particularly through energy performance contracting. This model has already been used successfully for deep renovations and is expected to remain significant in mobilising private capital and reducing the budgetary burden on the public sector.

EUR 1.6 billion of private financing in the residential sector is expected to be mobilised thanks to various public funds between 2026 and 2030. This will be supported by concessional loans provided by national financial institutions, partnerships with energy service companies, green loans and international assistance programmes. As regards mobilising private investments, grants of EUR 357 million are expected to mobilise an additional EUR 1.585 billion in private finance.

In non-residential buildings, investment decisions depend heavily on returns and payback periods. It is expected that EUR 363 million will be mobilised thanks to EUR 93 million from various public funds. On the mobilisation of private financing, grants of around EUR 93 million are expected to mobilise an additional EUR 363 million in private finance. Private capital is expected to be mobilised mainly with concessional loans offered by national financial institutions and from partnerships with energy service companies. Green loans and international assistance programmes are also expected to support private investment.

For energy poverty, financial support is expected to rely mainly on direct subsidies and grants. The draft NBRP states that at least EUR 251 million will be needed over the period 2026-2032, based on the social climate plan, which has the overarching objective of reducing the share of households in energy poverty.

Assessment of the adequacy of total investments

The total investment needs for the period 2026-2030 are estimated at EUR 4.25 billion. Over the same period, the identified funding sources are EUR 3.10 billion, resulting in a gap of EUR 1.15 billion, indicating that a boost is needed to align funds with estimated needs. The available funding sources are represented by public funds, e.g. grants (27%) and private funds (73%).

Linking investment needs to targets through policies and measures

It is not possible to establish a clear link between the investment needs and draft NBRP targets, as the policies and measures are not clearly outlined in terms of quantified objectives and expected impact.

3.14.6. Inclusiveness of the public consultation

The public consultation allowed the public to participate at different stages of drafting the NBRP, involving relevant stakeholders and ensuring that the measures were designed in a transparent and informed manner. However, it is possible that the missing, and significant, aspects of the NBRP and implementing the EPBD, such as setting the MEPS thresholds, the residential trajectory and their associated framework, were not subject to the public consultation.

Three consultations and expert meetings were carried out in Ljubljana between September and December 2025 as part of the preparation of the Slovenian draft NBRP. These meetings aimed to gather technical and institutional input (especially for public-sector renovation and advisory support for households/public sector).

During the first event, 50 public-sector representatives discussed barriers and needs for public building renovation, including an inventory and a centralised system for data/energy management. During the second event, 45 participants (including representatives of ministries, researchers, engineers, members of academia and finance/investment stakeholders) discussed how to scale renovations and align energy efficiency with seismic safety, stressing data and governance gaps. During the third event, 40 energy advisers discussed decarbonisation targets, limitations of

incentives, the slow pace of deep renovation and the need to integrate energy, seismic and social aspects (including energy poverty) into renovation policy and advice services.

No specific organisation exclusively representing persons with disabilities was involved in the consultation. However, some participating organisations may also work with people with disabilities or have initiatives that benefit them, in addition to their primary focus on social welfare and housing solutions for vulnerable populations.

3.14.7. Completeness of the draft plan and consistency with other planning or reporting exercises

Not all the essential and mandatory indicators are provided in the draft NBRP. The following are missing: worst-performing buildings, milestones for primary energy reduction, number of residential buildings/homes in the overview of the building stock and to be renovated, trajectory for the progressive renovation of residential buildings and MEPS for non-residential buildings. The draft NBRP provides several optional indicators. More information is provided in the following table.

Table 36. Indicators checklist for Slovenia.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings (number)	No	It is mentioned that a detailed structure will be developed later.
	Floor area (m^2)	Yes	
	Definition of worst-performing buildings	Partially	It is mentioned that the worst-performing buildings will be definitively identified in detail at a later stage (shift from heating to total primary energy).
	Share of worst-performing buildings (%)	Partially	It is mentioned that a proper quantification of worst-performing buildings is being developed.
	Renovated buildings/ floor area (number/ m^2)	Partially	The number of buildings is not available.
	Renovation rate (%)	Yes	
	Primary energy use (ktoe)	No	It is mentioned that further analysis is expected after updating the primary energy factors.
	Final energy use (ktoe)	Partially	Final energy by end-uses is not provided.
	Specific primary energy for residential buildings (kWh/m^2y)	Partially	It is mentioned that detailed analysis will be done in the coming months, but preliminary data are provided.
	Share of renewable energy (%)	Yes	
	Operational GHG emissions (Mt CO_2-eq)	Yes	
	Energy poverty share (%)	Yes	
Roadmap for2030, 2040 and 2050	Renovation targets (floor area or number)	Partially	Number of buildings not provided.
	Renovation rate targets (%)	Yes	
	Primary energy targets (ktoe) or reduction (%)	No	It is mentioned that it will be calculated later.
	Final energy targets (ktoe) or reduction (%)	Yes	
	Renewable energy targets (%)	Yes	
	GHG emission targets (Mt CO_2-eq) or reduction (%)	Yes	

Section	Indicator	Yes/No/Partially	Explanatory notes
	Energy poverty targets (%)	Partially	Target only for 2030 and methodology for calculation missing.
	Contribution to energy efficiency target	Yes	
Policies and measures	Scope and type	Yes	
	Quantified objective	Partially	Quite qualitative.
	Status and implementation period	Partially	Not always clear.
	Budget and funding source	Yes	
Investment needs	Total and/or average investment needs (million EUR), EUR/m^2	Yes	
Residential buildings	Average specific primary energy decreases between 2020 and 2050	No	
	Number of residential buildings/dwellings to be renovated	No	
	Residential floor area to be renovated (m^2)	Yes	
	Worst-performing buildings contribution (%)	No	
Non-residential buildings	MEPS 16% threshold	No	It is mentioned that a detailed analysis will be developed later.
	MEPS 26% threshold	No	
	2040 and 2050 thresholds	No	
Summary of the public consultation		Yes	

Source: JRC elaboration on Member State reporting

Consistency checks have been performed by comparing the data with previous Member State reports: 2024 NECP, 2025 national energy and climate progress report (NECPR) and 2020 LTRS.

Plausibility checks have been performed by comparing the data with other reliable datasets: building stock observatory (BSO) for building stock indicators and Eurostat datasets for final energy consumption.

Box 42. Consistency and plausibility check for Slovenia.

The floor area of buildings is consistent with previous reporting in NECPR 2025.

The number and floor area of buildings are plausible based on comparison with BSO dataset.

The final energy consumption is plausible based on comparison with Eurostat dataset.

Energy poverty

The draft NBRP defines energy poverty as a condition in which households with incomes below the at-risk-of-poverty threshold are unable to meet basic energy needs due to inadequate housing conditions, poor energy efficiency or unaffordable energy costs. These needs include heating, domestic hot water, cooling, cooking and lighting. This definition is consistent with Article 2(52) of the EED, aligns with the related recommendations and guidance on energy poverty and is consistent with the NECP in reflecting a multidimensional understanding of energy poverty. At national level, Slovenia addresses energy poverty through Article 34 of the Electricity Supply Act and the Decree

on the criteria for defining and assessing energy-poor households. These provisions are expected to remain in force until the adoption of the new Energy Efficiency Act (ZURE-1).

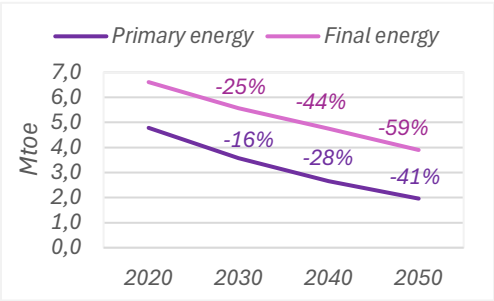
The draft NBRP of Slovenia mentions the social climate plan and additional programmes supporting vulnerable households. The draft NBRP is prepared in line with the NECP and the social climate plan, and the measures are consistent with both the NECP and the social climate plan. All the information will be available in the final plan.

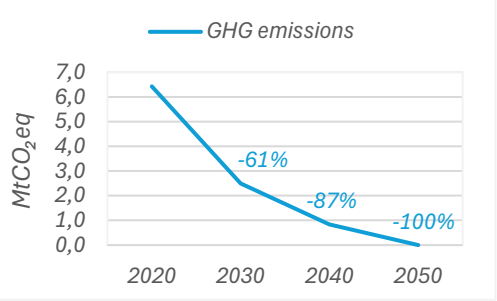
3.15. Finland

3.15.1. Main indicators

Table 37. Selection of main indicators from Finland's draft NBRP.

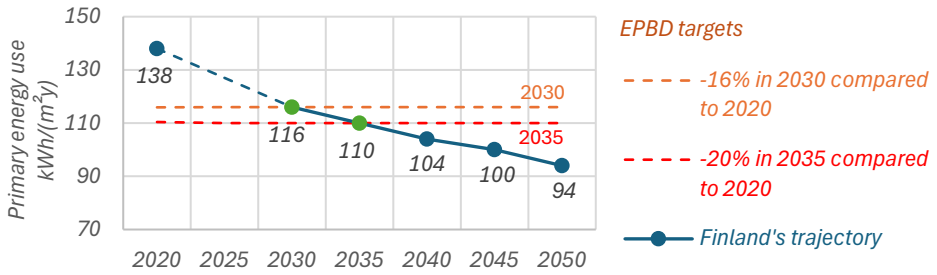
Renovation				
Floor area (Million m^2)	2020 Baseline	2030 Cumulative renovation	2040 Cumulative renovation	2050 Cumulative renovation
Residential	306.6	37.0	68.0	93.0
Non-residential	101.9	9.0	17.0	24.0
Total	408.5	46.0	85.0	117.0
Cumulative renovation (%)		11%	21%	29%
Annual renovation rate (%)		**1.13%**	**0.95%**	**0.78%**
Number of buildings	2020	2030	2040	2050
Total	1 394 300	224 000	412 500	570 000
Cumulative renovation (%)		16%	30%	41%
Energy consumption				
Primary energy (Mtoe)	2020	2030	2040	2050
Residential	3.41	2.53	1.89	1.39
Non-residential	1.38	1.04	0.77	0.57
Total	4.79	3.57	2.66	1.96
Change vs 2020 (%)		**-25%**	**-44%**	**-59%**
Final energy (Mtoe)	2020	2030	2040	2050
Residential	4.78	3.97	3.33	2.70
Non-residential	1.83	1.60	1.42	1.20
Total	6.61	5.57	4.75	3.90
Change vs 2020 (%)		**-16%**	**-28%**	**-41%**
Energy end-uses included	Heating, cooling, hot water, ventilation, lighting and user equipment			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2020	2030	2040	2050
Residential	3.94	1.49	0.49	0.00
Non-residential	2.48	1.01	0.35	0.00
Total	6.42	2.50	0.84	0.00
Change vs 2020 (%)		**-61%**	**-87%**	**-100%**
GHG emissions in $kgCO_2/m^2$	10.6	-	-	-
Change vs 2020 (%)		**-**	**-**	**-**





Renewable energy				
Renewable energy in the final energy	2023	2028	2029	2030
Share of renewable energy in buildings' final energy consumption	60%	68%	69%	70%
Solar energy technologies in buildings		2030	2040	2050
Share of residential building equipped		13%	20%	25%
Share of non-residential buildings equipped		10%	20%	30%
Energy poverty				
People affected by energy poverty	2020	2030	2040	2050
Share of people affected	0.1%	-10.0%	-30.0%	-50.0%

Trajectory for the progressive renovation of residential buildings



Minimum Energy Performance Standards for non-residential buildings

Not available

Primary Energy Factors				
Non-renewable PEF	2023	2030	2040	2050
Electricity	1.20	1.20	1.20	1.20
Natural gas	1.00	1.00	1.00	1.00
District heating	0.50	0.50	0.50	0.50

Investment needs for renovation and funding and financing sources			
Investment needs (billion EUR)	2030	2040 Cumulative	2050
Residential	3.85	11.55	19.25
Non-residential	2.75	8.25	13.75
Total	6.60	19.80	33.00
Funding and financing (billion EUR)			
Public	2.50	7.50	12.50
Private	4.10	12.30	20.50
Total	6.60	19.80	33.00

Source: JRC elaboration on Member State reporting

3.15.2. Executive summary

Finland submitted a partially complete draft of the national building renovation plan (NBRP) including a voluntary spreadsheet showing the values of main quantitative indicators.

The **level of ambition** of the draft NBRP is in line with the goal of achieving a highly energy-efficient and decarbonised building stock by 2050.

Finland's targets for **primary energy consumption** in the building sector are to reach 3.6 Mtoe by 2030, 2.7 Mtoe by 2040 and 2 Mtoe by 2050. This corresponds to reductions of 25%, 44% and 59% compared with 2020 figures (4.8 Mtoe).

Finland's targets for **final energy consumption** in the building sector are to reach 5.6 Mtoe by 2030, 4.7 Mtoe by 2040 and 3.9 Mtoe by 2050. This means reductions of 16%, 28% and 41% compared with 2020 figures (6.6 Mtoe).

Finland's targets for **total operational greenhouse gas (GHG) emissions** in the building sector are 2.5 $MtCO_2eq$ by 2030, 0.8 $MtCO_2eq$ by 2040 and 0 $MtCO_2eq$ by 2050. This means reductions of 61%, 86% and 100% compared with 2020 levels of emissions (6.4 $MtCO_2eq$).

The draft NBRP is aligned with the objectives and policies and measures outlined in the final n**ational energy and climate plan** (NECP), although not all targets are fully comparable. It shows an increase in the level of ambition for reducing GHG emissions and for renewable energy in the building sector.

Finland's draft NBRP does not clearly outline the building sector's contribution to the **EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED')). In 2020, the building sector accounted for 29% of total final energy in Finland, estimated to decrease to 27% by 2030[141]. This indicates that energy savings in the building sector are planned to occur slightly faster than the overall energy savings. In terms of Finland's building sector contribution to the **EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED'), Finland's target is for renewable energy to provide a 70% share of buildings' energy consumption by 2030.

The decarbonisation objective is supported by targets to instal solar energy in buildings, e.g. to reach 2 115 MW generation capacity by 2030 and 3 365 MW generation capacity by 2050. Finland aims to reach a 25% share of residential buildings and 30% of non-residential buildings equipped with solar technologies by 2050.

Finland aims to **renovate** cumulatively 93 million m^2 of residential floor area (30% of the 2020 baseline) and 24 million m^2 of non-residential floor area (24% of the 2020 baseline) by 2050[142]. The planned **annual renovation rates** are 1.13% by 2030, 0.95% by 2040 and 0.78% by 2050 (JRC calculation). It is not clear how these relatively modest renovation targets will be effective in enabling the country to achieve the energy and greenhouse gas emission reduction goals and its residential housing renovation trajectory.

Finland has set a trajectory for the **progressive renovation of residential buildings**, aiming to reduce average primary energy use by over 30% by 2050 compared with 2020 levels. This would translate into an average primary energy use of 94 $kWh/(m^2y)$ for all existing residential buildings in 2050, in line with the primary energy targets set in the roadmap. Milestones for 2030 and 2035 aim at reductions of 16% and 21% compared to 2020, respectively, also in line with the Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD') requirements. The trajectory calculation methodology is robust and based on EPC datasets and the national building register. The 2020 baseline (primary energy and building

[141] The JRC calculates the percentages as follows: In 2020, as a ratio of final energy consumption in buildings to total final energy consumption sourced from Eurostat. In 2030, as a ratio of the draft NBRP target for final energy consumption in buildings to the national energy efficiency target set under Article 4 of the EED, sourced from the final NECP 2024.

[142] These figures are provided only in the voluntary spreadsheet.

stock data) is consistent across the draft NBRP although it is unclear whether all residential buildings are included in the baseline.

Finland did not include the **minimum energy performance standard (MEPS)** for **non-residential buildings** because this is still pending approval.

The **worst-performing buildings** are identified on the basis of primary energy use (EPC classes F and G). The methodology to identify them is clear. By 2050, Finland plans to renovate only 32% of the 2020 floor area of all worst-performing buildings. It is unclear, therefore, whether this part of the building stock is prioritised for renovation. The draft NBRP provides a sub-target to reduce by at least 55% the average primary energy, but it is unclear whether this is aligned with the planned renovation targets.

Energy poverty is also covered in the draft NBRP. Finland reports that 0.10% of people were affected by energy poverty in 2023/2024[143]. Finland expects to achieve a reduction in the people affected by energy poverty of 10% by 2030, 30% by 2040 and 50% by 2050[144], however the methodology for this calculation is not specified.

Finland does not provide a clear definition of energy poverty, which it tackles under general social policy (housing and income support). The policies and measures related to energy poverty are consistent with the NECP and include social aid in the form of energy grants or household allowances for vulnerable households, the Energy Performance Contract for rental housing associations and energy advice for vulnerable households. However, it is not clear whether these measures are sufficient to achieve the target.

Finland tackles **housing affordability** through the use of income and social support, subsidies, grant and allowances. It provides this support to specific segments of the population, such as students or older people, as well as technical and financial advice from housing companies.

The draft NBRP includes an **overview of implemented and planned policies and measures** covering most of the mandatory and optional policy areas, at least partially. Over 80 implemented or pending policies and measures have been identified, most of which contain several subsets of measures and actions. However, the quantified expected impacts are not included in most cases, which means a complete assessment cannot be made of their sufficiency to meet the targets and roadmap.

Finland tackles the goal to **decarbonise heating** in a relatively comprehensive way. The draft NBRP includes national legislation, financial aid, roadmaps and strategies to move towards the ambitious objectives of phasing out of fossil heating oil and gas boilers by 2030. Finland also plans to achieve carbon negativity beyond climate neutrality by 2035 (e.g. with the use of carbon capture) but this does not seem to be reflected in the target to reduce GHG emissions above. The draft NBRP references the NECP and the regional heating and cooling plans for synergies without providing many details. Furthermore, the expected impacts of the planned measures and their consistency with other related strategic plans are not clearly described, this raises question of their effectiveness in phasing out fossil fuel use for heating.

[143] The year is not clarified. The updated final NECP 2024 is referenced.

[144] Data only provided in the voluntary spreadsheet.

The **investment needs** are included in the draft NBRP. Between 2026 and 2050, EUR 33 billion of investment needs are estimated (representing about EUR 282/m^2 for the expected total renovated floor area[145]). However, the draft NBRP does not set out the methodology for the estimate nor the sensitivity analyses. It provides some examples of financing sources without clear information about the corresponding available budget and without a timeline after 2030. The budget is built on existing and planned instruments and funds allocated specifically to renovation and to decarbonising the building sector, with public financing estimated at EUR 0.5 billion per year based on the current situation (2024). However, the draft NBRP mentions several measures on building renovation that were discontinued in 2023. The draft NBRP partially covers the aspect of mobilising private financing, with mentions of bank loans and green bonds, supported by the European Investment Fund guarantee targeting small and medium enterprises and housing associations. However, it does not give a volume breakdown by type of instrument or detail the related assumptions.

The **public consultation** process to prepare the draft NBRP was comprehensive, with multiple opportunities provided and sufficient time for feedback through regional workshops and online platforms. The contributions were actively taken into account in shaping the draft.

The Commission's assessment has identified the following aspects of the draft NBRP as strengths, **innovative measures** and/or examples of **good practice.**

— It estimates the wider benefits expected as a result of implementing the NBRP and quantitatively describes the impact as follows:
    - gross domestic product is expected to increase by EUR 670 million;
    - employment is expected to increase by 9 500 years of full-time employment;
    - savings in the cost of energy estimated at EUR 2 300 million/year;
    - increased value of the building stock by EUR 50 billion;
    - 5 500 fewer days of illness due to lower levels of pollution;
    - 200 fewer disability years due to asthma cases avoided;
    - 300 avoided deaths due to excess cold weather[146] and other factors.
— New legislation, tax incentives and guidance (e.g. energy-community rules for housing-company cooperatives) make energy self-generation easier and improve the economics of shared solar photovoltaics (PV) use.

[145] JRC calculation considering the total investment needs between 2026 and 2050, divided by the total floor area expected to be renovated between 2020 and 2050.

[146] Excess cold weather mortality is a result of various factors, e.g. exposure to air pollution due to fossil-fuel-based heat supply in winter, indoor and outdoor cold, increase in winter-related infectious and bacterial epidemics as well as associated indoor crowding.

— Energy performance contracts are an important part of Finland's energy and climate strategy. They support action to achieve the zero-emission building stock target and the national trajectory for reducing the average primary energy use of the residential building stock in Finland.

— The plan targets the installation of 1 GW of small-scale solar PV by 2030 through legislation, tax incentives and energy-community rules that enable housing-company co-ownership and that improve the economics of self-generation.

— The National Emissions Database (CO_2 data) provides objective and transparent information on the climate impact of construction products, construction processes and systems used in Finland.

— The Service Centre for Continuous Learning and Employment coordinates training on clean-transition investments and renewable technologies. Vocational schools and technical universities provide specialised qualifications in renovation and renewable-energy installation.

— The aim to decarbonise the heating sector, consisting of the objective of phasing out fossil heating oil by 2030 and climate neutrality by 2035.

— Inspections schemes and alternative measures under Article 23 of the EPBD are analysed extensively in a report included in the annexes to the draft NBRP.

However, there are several aspects of the draft NBRP that require **completion** and **improvement**, and which should be addressed in the final version. These aspects are set out below.

— Set MEPS thresholds for non-residential buildings in accordance with Article 9(1) of the EPBD.

— Clarify how the expected renovation rates will effectively contribute to the energy and GHG emission reduction goals and the residential trajectory.

— In the trajectory for progressive renovation of the residential building stock, specify the number of buildings, floor area and renovation rate as reported in the voluntary spreadsheet.

— Ensure that the baseline includes the entire residential building stock (including vacant buildings).

— Ensure that the roadmap is aligned with the projected changes in power and heat generation in the final NECP, and that the primary energy factors used reflects this.

— Add the quantified objective, planned budget, funding sources and expected impact of all policies and measures in the final plan and make a clear link between the financing of policies and measures and the investment needed.

— Identify the requisite administrative and financing sources, include them in the final plan beyond 2030 and clarify how the investment gap will be covered.

— Provide a clear definition of energy poverty in line with Article 2(52) of the EED, with Commission Recommendation (EU) 2023/2407 on energy poverty, guidance document (SWD/2023/647) and the method for calculating the energy poverty rate.

— Add specific financial resources and the budget allocated to alleviating energy poverty.

— Provide the thresholds for new and renovated zero-emission buildings pursuant to Article 11 in accordance with Annex II.

— Provide more details on housing affordability and tackle the identified barriers to renovation stemming from vacant buildings, in particular measures to repurpose non-residential buildings located in growing urban areas for residential use.

— Quantify the contribution to the EU's energy efficiency targets in accordance with Article 4 of the EED that are attributable to the renovation of the country's building stock.

— Provide the baseline number and floor area of the worst-performing buildings, for both residential and non-residential buildings.

3.15.3. Ambition of the draft NBRP

Box 43. Key insights of Finland's draft NBRP.

- Finland plans to reduce **primary energy use** in the building sector to 3.6 Mtoe by 2030, 2.7 Mtoe by 2040 and 2 Mtoe by 2050. This means reductions of 25%, 44% and 59% compared with the level of primary energy use in 2020 (4.8 Mtoe).
- Finland plans to reduce the **final energy use** in the building sector to 5.6 Mtoe by 2030, 4.7 Mtoe by 2040 and 3.9 Mtoe by 2050. This means reductions of 16%, 28% and 41% compared with the level of final energy use in 2020 (6.6 Mtoe).
- Finland plans to reduce **total operational GHG emissions** in the building sector to 2.5 $MtCO_2eq$ in 2030, 0.84 $MtCO_2eq$ in 2040 and 0 $MtCO_2eq$ in 2050. This means a reduction of 61%, 86% and 100% compared with 2020 levels of emissions (6.4 $MtCO_2eq$).

Assessment of the overall ambition of the draft NBRP to achieve a highly energy-efficient and decarbonised building stock by 2050

The level of ambition of the draft NBRP is in line with the goal of achieving a highly energy-efficient and decarbonised building stock in Finland by 2050.

By 2050, Finland aims to bring all existing residential buildings to the average primary energy use of 94 kWh/(m^2y), but it has not yet set MEPS maximum thresholds for non-residential buildings.

This aim is expected to be achieved by renovating 93 million m^2 of residential floor area (30% of the 2020 baseline) and 24 million m^2 of non-residential floor area (24% of the 2020 baseline) by 2050. However, it is not clear how these relatively modest renovation targets will be effective in helping the country to achieve the set energy and GHG emission reduction goals and the residential trajectory, as the draft NBRP does not provide any information.

The decarbonisation objective is also supported with targets to roll out solar energy in buildings, e.g. to reach 2 115 MW generation capacity by 2030 and 3 365 MW by 2050. The targeted share of buildings equipped with solar technologies in 2050 is 25% for residential, and 30% for non-residential buildings. The targets for renewable energy sources in electricity are 65% and 74% in district heating and cooling in 2030.

Assessment of the alignment between the draft NBRP and national commitments on climate and energy set out in the NECP

The level of ambition of the draft NBRP is consistent with the objectives set in Finland's final NECP. As described in more detail, although not all targets are directly comparable, it reflects a higher

level of ambition to reduce GHG emissions and expand the share of renewable energy in the building sector.

The section below also addresses how the NBRP goals compare with the 2020 long-term renovation strategy (LTRS) adopted by Finland.

Energy efficiency

In its draft NBRP and as mentioned above, Finland aims to reduce the primary energy consumption of its building sector by 25% and final energy consumption by 16% by 2030 compared with 2020 levels.

The NECP and the 2020 LTRS targets refer to heating energy consumption (gross and delivered), which means that the targets are not comparable[147].

The draft NBRP does not specify Finland's contribution to the EU's energy efficiency targets in accordance with Article 4 of the EED attributable to the renovation of the building stock. In 2020, the building sector accounted for 29% of the total final energy in Finland, projected to decrease to 27% in 2030. This indicates that energy savings in the building sector are planned to come in at a faster rate than the overall energy savings.

No projections were made for primary energy factors. The total primary energy factors are estimated to remain constant over the period 2030-2040-2050 for all energy sources. Values correspond to 2020 levels (electricity 1.2, district heating 0.5, district cooling 0.28, fossil fuels 1.0 and renewable fuels 0.5). The values assessed are in line with the current share of renewable energy in the different systems.

Overall, the draft NBRP energy targets seem sufficient and in line with the national commitment on **energy efficiency** laid down in the NECP.

Decarbonisation

The draft NBRP provides more ambitious targets for reducing operational GHG emissions than the NECP (a 63% reduction by 2030 to 2.9 $MtCO_2e$, a 81% reduction by 2040 to 1.5 $MtCO_2e$ and a 92% reduction to 0.7 $MtCO_2e$ by 2050 compared with 2020 figures).

Fuel emission factors are provided, and emissions from electricity and district heating are projected to reach zero by 2050, in line with the projections in Finland's integrated NECP.

The draft NBRP operational GHG emission targets seem sufficient and in line with the national commitment on **decarbonisation** laid down in the NECP.

Renewable energy

Finland sets yearly targets for the share of renewable energy in the final energy consumption in the building sector between 2026 (65%) and 2030 (70%). The targets are in line with Article 15a of the RED[148].

[147] In the NBRP end-uses cover the EPBD scope while the NECP and LTRS refer to heating energy use only.

[148] Targets reported only in the voluntary spreadsheet.

In the final NECP, Finland reports an indicative target to reach a 38% share of renewable energy produced on-site, nearby and from the grid in buildings in the framework of Article 15a of the RED. It is not clear whether the two targets are fully comparable.

Compared with the indicative national shares provided in Annex C to the Commission guidance on heating and cooling (C/2025/2238), Finland's 2030 target in its draft NBRP is 1.2 percentage points lower (70% vs 71.2%).

Expected reduction in the number of people affected by energy poverty

Finland does not provide a clear definition of energy poverty, which is addressed through general social policy (housing and income support).

According to the draft NBRP and based on the 2024 NECP, the energy poverty rate baseline is 0.10%[149], but it is unclear whether this value is for 2023 or 2024. The expected reduction in the number of people affected by energy poverty is reported only in the voluntary template with target reductions of 10% by 2030, a 30% reduction by 2040 and a 50% reduction by 2050.

There are no details on the methodology used to estimate this rate. To calculate the co-benefits of energy efficiency improvements, Finland used the MICAT tool[150] which uses two indicators to track energy poverty: (1) low absolute energy expenditure or extreme energy poverty (M/2) and (2) high share of energy expenditure in income (2 M).

Finland's draft NBRP very briefly mentions the share of heating and electricity costs in housing costs to be 9-12%, depending on the income group and without further explanations. It does not detail the sources or the methodology used for this calculation. It provides information on the allowances received for housing support (not only for energy). The indicator related to inadequate housing conditions is linked to moisture damage, which affects about 30 000 - 50 000 people. The draft NBRP does not describe the geographic distribution of energy poverty.

Prioritising the renovation of the worst-performing buildings

Finland defines the worst-performing buildings as those in energy classes F and G. These buildings are identified by building type and by specific primary energy use, based on the datasets of energy performance certificates (EPCs) from 2020.

Using the national building register, the EPC dataset was extrapolated to the entire building stock. The buildings are classified by construction period. The thresholds for the 43% worst-performing buildings are 250 kWh/(m^2y) for single-family houses, 190 kWh/(m^2y) for multi-family houses and 150 kWh/(m^2y) for apartment blocks.

By 2030, the worse-performing buildings are expected to account for 43% of the renovated residential floor area, with the share set to stay constant up to 2050. By 2050, it is expected to fall to only 32% of the total worst-performing buildings floor area planned for renovation. Therefore, it is not clear how these buildings are prioritised for renovation.

[149] 0.10% of people are affected by energy poverty.

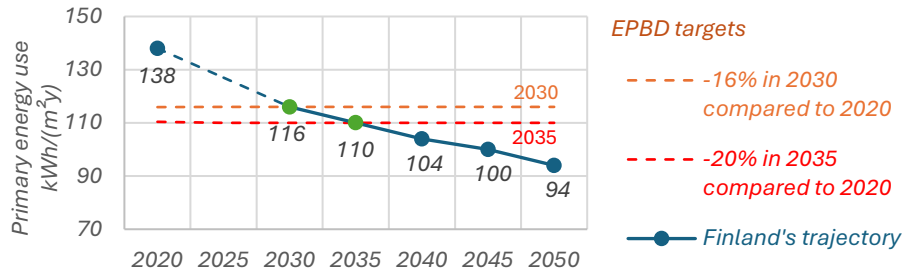
[150] https://app.micatool.eu/

Minimum energy performance standards for non-residential buildings were not reported in the draft NBRP as they are still under discussion and the adoption of a specific national regulation is required.

National trajectory for the progressive renovation of residential buildings

The target average primary energy use across all categories of residential buildings is 116 kWh/(m²y) by 2030 and 109 kWh/(m²y) by 2035 (Figure 10). Compared with 2020 figures, this represents a decrease of 16% and 21%, in line with the EPBD requirements. The milestones for 2040 are 104 kWh/(m²y) and for 2050, 94 kWh/(m²y), representing reductions of 25% and 31%, respectively, compared with 2020 figures for primary energy use.

Figure 10. Trajectory for the progressive renovation of residential buildings in Finland.



Source: JRC elaboration on Member State reporting

The draft NBRP mentions that the 2040 and 2050 milestones cover the overarching goals of zero-emission building stock by 2050 but it does not provide the thresholds for new or renovated zero-emissions buildings, therefore this cannot be verified. It also considers that 55% of energy savings will be achieved by renovating the 43% worst-performing buildings, but it is unclear whether this is aligned with the planned renovation targets for this category.

By 2030, 224 000 residential buildings with a floor area of 46 million m² will be renovated (representing 12% of the total floor area). By 2050, Finland plans to renovate 544 000 buildings with a total floor area of 93 million m² (representing 38% of total floor area).

The main data sources for setting the renovation trajectory of residential buildings are the EPC datasets and the national building register of Finland. The data for the 2020 residential building stock and total primary energy consumption are robust and consistent across different parts of the draft NBRP. The figures on primary energy factors are constant, as reported above.

Exclusions (if applicable) pursuant to Article 9(6) of the EPBD and criteria for exemptions from MEPS

It is not clear if the 2020 baseline captures the entire residential buildings stock or if it excludes vacant buildings. In terms of which buildings are excluded, the draft NBRP mentions 22 600 – 51 000 protected buildings in Finland. These make up 2-3% of the entire building stock.

New buildings

The draft NBRP mentions that provisions related to new buildings are still under discussion and may be added to the final plan if adopted before the deadline for submitting the final plan.

In 2023, there were 36 000 new nearly-zero energy buildings (NZEB) and 20 000 renovated NZEB, accounting for 31 million m^2 total floor area of new NZEB and 17.1 million m^2 of renovated NZEB.

3.15.4. Sufficiency of the policies and measures

Finland's draft NBRP contains more than 80 policy measures. Almost all policy areas are covered, but some of them are discussed only briefly (e.g. residential buildings trajectory, one-stop shops). Most measures are described in detail or are linked to external sources. However, their expected impact and available budget is not provided in a quantified, consistent and clear way to assess their sufficiency and ambition.

The draft NBRP emphasises financing instruments for deep renovation and energy efficiency requirements. The following measures may be considered as innovative: the prioritisation of circular economy schemes in financing renovations, the use of energy performance contracts, application of innovative criteria in public procurement, the use of fiscal incentives to shift to using electricity for district heating and to promote low-temperature district heating.

Renovation and MEPS for non-residential buildings

Although the draft NBRP does not provide the MEPS for non-residential buildings, it identifies neighbourhood schemes as a potential trigger point for energy efficiency improvements. By combining and aggregating renovation projects, the housing associations in charge of a neighbourhood may expect to generate economies of scale. Another trigger point for renovations is the renewal of a lease contract. In this context, owners and tenants may agree to share the costs of any energy efficiency improvements.

The draft NBRP lacks a mention of the legal framework for MEPS implementation.

It highlights the need to develop an effective monitoring mechanism but there are no specific measures.

Renovation of residential buildings

The draft NBRP very briefly describes the measures to support the progressive renovation of the residential worst-performing buildings, mainly in the form of grants and allowances for building owners without further details. It lacks a precise estimate of impacts, which means that it is not possible to assess their sufficiency on quantitative grounds.

The draft NBRP highlights that for all categories of buildings due to demographic and/or regional economic developments, some buildings might be permanently vacant and will therefore not be subject to energy renovations as the expected lifetime is short. It also mentions that even if there might be use of the building, it is not possible to finance their renovation due to their low value. Although this problem is clearly identified, the draft NBRP does not include specific policies or measures to address it.

The building renovation passport as a tool to support energy savings, complement MEPS and assist the trajectory for residential buildings

The draft NBRP mentions that the renovation passport system is under development. The building renovation passport will be voluntary and aim to complement energy efficiency certification.

Box 44. Example of policies and measures in Finland.

- A grant (implemented in 2020-2023) to renovate the worst-performing buildings, open to all income categories, resulted in an average improvement of 58% for houses, 53% for apartment blocks and 57% for terraced houses. The draft NBRP mentions that energy grants have a leverage effect of 4.8 (a grant of EUR 1 million generated energy renovations of EUR 4.8 million and 56 man/years).

Alleviation of energy poverty and housing affordability

The draft NBRP reports several measures allocated to tackle households' vulnerabilities, including energy poverty.

The draft NBRP includes measures focusing on alleviating energy poverty for vulnerable groups such as pensioners, in the form of social aid. The draft NBRP is consistent with the final NECP in this regard, and it mentions that it will be aligned with the social climate plan. The energy poverty measures included in the draft NBRP focus mainly on grants and social aid. There are no further details on resource distribution.

Finland is addressing housing affordability through the use of income and social support schemes, financial tools such as subsidies, grants and allowances. The schemes focus mostly on vulnerable segments of the population, such as students or older people. Technical and financial advice from housing companies is also provided. Finland also tackles the issue of affordable rent, especially under the programme Social Finance Framework for Municipalities.

Finland mentions that there is a high number of vacant houses in the country, and that this number is likely to increase in future due to population migration, which could be a barrier to renovation. Finland also has a large number of vacant non-residential buildings in growing urban areas.

It is not clear if the draft NBRP section on tackling energy poverty under policies and measures has been designed in accordance with Article 24 of the EED.

It is unclear if the policies and measures are sufficient to achieve the energy poverty reduction targets as the draft NBRP lacks detail on the expected impacts.

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

Finland's draft NBRP neither establishes nor clearly describes one-stop shops (OSS) as required under Articles 18 and 19. It mentions OSS-related elements only implicitly and in a fragmented way through advisory and information services, without clear evidence of how they contribute to implementation of the plan. The key OSS features (integration, mandate, governance, financing, targeted outreach, energy poverty focus) are largely absent or unspecified.

Other energy advisory services and contact points are also available in Finland. The public consultation run on the draft NBRP, however, highlighted the need for a more advanced plan of OSS implementation.

Decarbonisation of heating and cooling and the phasing out of fossil fuels in heating and cooling with a view to a complete phasing out of fossil fuel boilers by 2040

The level of ambition in the draft NBRP is high: to decarbonise heating ahead of the timeline indicated in Annex II of the recast EPBD. It provides information on implemented and planned policies and measures to reach the objectives, including information on financing and achieved impact of some of them. However, the expected impacts of the planned measures are not consistently reported, raising a question on their effectiveness in contributing to the process to phase out fossil fuel use in heating. An aspect that could be improved is a more consistent and clear indication of the expected impact of the planned measures and the explained synergies with other strategic plans such as the comprehensive national heating and cooling (H&C) assessments, the assessment of the potential to use renewable energy and waste heat and cold in H&C.

The draft NBRP confirms the general policy direction to decarbonise heating, with the focus on phasing out oil-based heating in line with the decision of the Finnish government to phase out fossil heating oil by 2030. The measures mainly concern replacing oil-fired boilers and the use of biofuel oil. The draft NBRP gives more emphasis to the phase-out of fossil heating oil than to the phase-out of natural gas because gas is not a common heating fuel in Finland. However, some financial aid for households and small enterprises to replace both heating sources have been in force since 2020.

No quantitative estimates are provided on the implementation of measures by 2040. Finland notes that its national energy and climate strategy, drafted in 2025, promotes the use of waste heat and the shift to electric district heating. Other national legislation establishes the obligation of a minimum share of 38% renewable energy of the calculated purchased energy of a new building or a building undergoing major renovation if technically, functionally and economically feasible. Wind and solar energies are promoted through legislation. The draft NBRP lists other national laws and strategies that promote energy neutrality and carbon negative solutions as of 2030.

The timeline for phasing out fossil fuel boilers by 2040 is only implicit, most probably due to the actions and roadmaps described above that set targets for earlier years.

The final NECP 2024 is referenced in the draft NBRP under the section on decarbonising heating and cooling. The other plans and strategies referenced include the medium-term climate plan for the effort sharing sector, the recovery and resilience plan (RRP), the regional heating and cooling plans and the 2021 Low-Carbon Roadmap for the energy sector. The section does not refer to comprehensive heating and cooling assessments under Article 25(1) of the EED.

However, the draft NBRP details the current status in CO_2 savings achieved as a result of the grants issued between 2020-2024, fast electrification trends on district heating and cooling (with the highest share to be produced from heat pumps) and a notable increase in the use of renewables.

Prevention of construction and demolition waste

The draft NBRP refers to measures to manage construction and demolition waste (CDW), such as extending the service life of buildings through renovation, prioritising renovation over demolition and improving planning and the design of renovation works.

Furthermore, it mentions the promotion of circular economy principles in construction and action to raise awareness and develop practices in material reuse. The reuse of construction materials is encouraged in principle but not detailed. The draft NBRP includes measures to improve the sorting and processing of CDW, higher-quality recycling and the alignment with circular economy objectives.

Promotion of renewable energy sources

The draft NBRP links action to promote renewable energy in buildings to Finland's medium-term climate plan, which covers emission reductions in the non-ETS sector, including building heating. It highlights the role of cleaner heating solutions in reducing emissions. The new Construction Act, in force since January 2025, requires that at least 38% of the calculated energy use of new buildings and major renovations come from renewable sources, where technically and economically feasible, with compliance demonstrated by calculation.

Finland plans to update the Act to reflect revised RED requirements. Sector-specific low-carbon roadmaps coordinated by the Ministry of Employment and the Economy support progress towards carbon neutrality. The draft NBRP also confirms continued financial support for phasing out oil and gas heating in small houses and municipalities to help support the uptake of renewable heating, emission reductions, lower energy import dependency and employment in the construction sector.

Deployment of solar energy installations on buildings

The draft NBRP highlights strong growth in small-scale solar PV in Finland, reaching around 1 000 MW by 2030, mostly from building-based installations. The country has brought in legislation, tax rules and guidance to facilitate self-generation, notably through energy communities in housing companies, enabling shared use of PV electricity and improving investment economics. The Electricity Market Act and related decrees provide the regulatory framework for local and cross-property energy communities, including direct lines and credit calculation. Fiscal measures, including electricity tax exemptions and favourable income tax and value-added tax (VAT) treatment, also provide support for small-scale PV.

The draft NBRP refers to forthcoming requirements for solar-ready and solar installations in new buildings and major renovations (2026-2030). To complement the roll-out of solar installations, Finland plans extensive advisory tools, online courses, safety guidance and cultural heritage guidance. The draft NBRP identifies the need to develop further awareness-raising and to remove barriers to energy communities, especially in rented housing.

Reduction of whole-life cycle GHG emissions and the uptake of carbon removals

The draft NBRP includes comprehensive measures to reduce whole-life-cycle GHG emissions, including explicit preparatory work for introducing life-cycle Global Warming Potential (GWP) limit values for new buildings, in line with Article 7(5) of the EPBD. Finland has taken action to reduce life-cycle carbon emissions since 2017. The implemented measures in force and relating to construction and demolition waste could also help reduce whole-life-cycle emissions. The draft NBRP only partially addresses carbon removals. It only mentions reporting concepts and preparatory studies and does not provide binding or incentivising measures at this stage.

Promoting district and neighbourhood approach and integrated renovation programmes

The draft NBRP includes measures to promote district and neighbourhood approaches and integrated renovation programmes, mainly through urban planning frameworks, group renovation practices, EU-funded regional programmes and guidance tools. However, it does not yet provide a comprehensive, operational system to deliver integrated renovation programmes at scale, nor does it ensure systematic, up-to-date mapping and knowledge of such initiatives across the country.

Improvement of buildings owned by public bodies

The draft NBRP reports measures pursuant to Articles 5, 6 and 7 of the revised EED by setting a mandatory 1.9% annual reduction in total final energy consumption for all public bodies combined,

relative to 2021 levels. To achieve this, Finland is updating the Energy Efficiency Act to require public bodies to report their annual energy consumption to the Energy Authority and to mandate that regional and local authorities integrate specific energy efficiency measures into their long-term planning tools. Public property owners can fulfil these EED obligations by participating in voluntary energy performance certificate schemes. The KEINO competence centre provides mandatory guidelines for carbon-neutral and resource-wise public procurement.

For non-residential public buildings, the draft NBRP mentions that once MEPS thresholds are defined, some synergies will be explored by identifying 'trigger points' for these buildings such as tenant changes, lease renewals or the refurbishment of external cladding. The draft NBRP also promotes operational synergies by directing public support and incentives specifically to energy efficiency improvements that exceed standard requirements, particularly for entities utilising energy performance contracts or innovative energy service contracts (ESCO) service models.

Promotion of smart technologies and infrastructure for sustainable mobility

Finland promotes smart technologies through the Act on Recharging Points and Automation Systems (733/2020), which mandates automation and control systems for large non-residential buildings. The draft NBRP confirms that Finland tested the smart readiness indicator between 2022 and 2025. The testing phase has ended and the results submitted to the Ministry of the Environment. Finland has not taken a decision on introducing the smart readiness indicator.

On sustainable mobility, the draft NBRP includes policies to roll out charging points and pre-cabling in new and extensively renovated buildings, as well as existing non-residential buildings with over 20 parking spaces. The draft NBRP specifically addresses fire safety in car parks through the updated Construction Act and specialised guides for solar systems. It also emphasises accessibility for people with disabilities in infrastructure development and mentions streamlining installations in multi-apartment buildings. Overall, these measures aim to integrate smart infrastructure with the goal to achieve zero-emission mobility.

Accessibility for people with disabilities

Accessibility is not specified in Finland's overview of its national building stock. The draft NBRP does not estimate how many buildings are accessible or need accessibility renovation.

Finland's draft NBRP links accessibility to building renovation by promoting it as a key life-cycle advantage alongside energy efficiency and safety. Although it does not provide a full stock assessment, it targets support to older and disabled populations through specific renovation allowances that cover up to 70% of costs. These funds, managed by the Centre for State-Sponsored Housing Construction, explicitly support accessibility, safety and health improvements.

The draft NBRP does not specify which building categories are targeted for improving their accessibility in Finland but it emphasises homes for older people and sports facilities. In general, the draft NBRP describes the intention to address accessibility when renovating for energy efficiency. The draft NBRP does not mention the legal framework to adapt buildings for accessibility, any related standards and commitments or a mention to check/monitor compliance as regards accessibility. It does not specifically mention people with disabilities in raising awareness programmes, how much financing is allocated to accessibility measures or whether this aspect has been considered in the estimated investment needs.

Addressing market barriers, market failures and skills gaps

The draft NBRP provides a thorough analysis and description of the market barriers. Some solutions to overcome the barriers are mentioned. They include the development of new financing models such as leasing, ESCO, savings investments and tailor-made products for banks and financial institutions. The draft NBRP tackles market barriers and skill gaps through a state-subsidised education system that integrates energy efficiency and structural physics into basic construction training at all levels. The plan u refers to the Service Centre for Continuous Learning and Employment to coordinate upskilling in clean transition investments and sustainable energy solutions for the working-age population. Vocational institutions and technical universities complement primary education by providing targeted qualifications in renovation and renewable technologies. The draft NBRP also mentions a voluntary certification scheme for renewable energy installers and a 'needs-based' qualification system managed by FISE Oy to build technical competence in specific structural systems.

To overcome administrative and market barriers, the strategy proposes streamlining permitting by integrating energy performance data into building permit forms and monitoring compliance through municipal authorities. Fragmentation is mitigated by promoting OSS models and 'energy renovation packages' that bundle efficiency measures for smaller properties. Supply chain stability is supported by Finland's high degree of reliance on domestic construction products and the promotion of industrial modular solutions. Finally, the government secures future labour supply through primary school communication campaigns and centralised information platforms like Motiva.

Awareness-raising campaigns and other advisory tools

Several information and communication campaigns, consultancy services, websites and platforms are mentioned in the draft NBRP. However, it does not clearly describe the role of these tools and the synergies with one-stop-shops.

Promotion of modular and industrialised solutions

The draft NBRP does not mention the regulatory framework for the promotion of modular and industrialised solutions. However, the following initiatives are mentioned on this topic: use of prefabricated products in renovation and consumption, heat pumps and smart temperature control systems, established as standard solutions in the market and digitalisation to promote behavioural change in the construction process.

3.15.5. Sufficiency of financing sources and administrative resources

Finland provides a detailed description of investment needs. However, it does not provide a detailed description of the financial and administrative resources that will be mobilised to meet the 2030-2050 renovation targets. The allocation of both financial and administrative resources is not totally clear for the short- to medium term (2026-2030). The investment plan has a solid basis of resources allocated for the longer term, but further adjustments would give greater assurance that the resources will remain adequate as the plan is implemented.

Finland's draft NBRP sets out the **investment needs** by building type (residential and non-residential). Between 2026 and 2050, the estimated needs are EUR 33 billion, or EUR 1.3 billion per year (representing about EUR 282/m^2 for the total renovated floor area[151]).

The draft NBRP lacks a mention of the investment needed to renovate the 43% of the worst-performing buildings. It is not clear if the reduction of **energy poverty** is included in the estimated investment needs because it is not singled out. The methodology used to estimate the investment needs and the considered parameters or sensitivity factors are not reported in the draft NBRP.

The identified **funding and financing sources** mainly apply to the period 2021-2026 and could be linked to some already implemented policies and measures reported in the draft NBRP (for example, it mentions that the RRP was a major source of grants in the period 2021-2026). The budgetary resources are broken down into public funding (EUR 0.5 billion per year) and private funding (EUR 0.8 billion). It gives some examples of financing sources for the short-term, but Finland explains that accurate estimates cannot be made.

The draft NBRP lacks details of the **administrative resources** needed to implement the financial plan. Under the public and private resources, it mentions the following instruments: ESCO, green and social financing, subsidies and grant schemes, fiscal allowances and green bonds. It does not provide details of the sources beyond the year 2030.

The **public funding** available consists of European funds (RRP, Cohesion Fund, ELENA, Social Climate Fund to be prepared) and the State Budget.

The mobilisation of private financing is also covered in Finland's draft NBRP. Bank loans and green bonds are predicted to mobilise private investments. A guarantee from the European Investment Fund is also available, targeting small-medium enterprises (SMEs) and housing associations. Investment companies provide active support in Finland too. Energy grants are awarded by the Housing Finance and Development Centre, with the draft NBRP specifying the leverage factor of an implemented grant (at 4.8, e.g. a grant of EUR 1 million generated energy renovation of EUR 4.8 million and 56 man/years).

Assessment of the adequacy of total investments

The financing sources with available budget are mentioned only indicatively and mainly relate to the period prior to 2026, so it is not possible to assess their sufficiency in terms of the investment needs. Examples are the RRP allocation for climate and energy (EUR 1.68 billion for 2021-2026), the state budget for energy subsidies (EUR 14.1 million in 2024) and the Housing Finance and Development Centre support for grants (EUR 240 for 2020-2023).

Linking investment needs to targets through policies and measures

The measures in the draft NBRP do not include information about the planned budget and do not identify the sources of financing.

[151] JRC calculation considering the total investment needs between 2026 and 2050, divided by the total floor area expected to be renovated between 2020 and 2050.

3.15.6. Inclusiveness of the public consultation

Finland ran a series of public consultations, regional workshops and roundtables to discuss the development of the draft NBRP.

The draft NBRP was then published for public comments on the national 'Have Your Say' service in October 2025, and the comments received were used to finalise the draft NBRP, submitted in December.

The work to prepare the draft NBRP also involved a broad strategic monitoring group composed of representatives of industry associations in the real estate, construction, building, engineering and finance sectors and representatives of government ministries and agencies. The group met four times in 2024 and 2025. The monitoring group was actively involved in drafting the plan and provided a wide range of comments and suggestions for solutions and developments at various stages of the drafting process, which were then taken into account, in particular in the drafting of proposals for the draft NBRP.

Overall, the public consultation enabled a wide variety of parties to participate and the process allocated enough time for the parties to provide feedback. The feedback was used both as a basis for the draft NBRP and for developing and revising specific sections.

3.15.7. Completeness of the draft NBRP and consistency with other planning or reporting exercises

Almost all mandatory indicators are included in the draft NBRP. Finland submitted the voluntary spreadsheet for data collection. More information is listed in the following table.

Table 38. Indicators checklist for Finland.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings (number)	Yes	
	Floor area (m^2)	Yes	
	Definition of worst-performing buildings	Yes	
	Share of worst-performing buildings (%)	Yes	
	Renovated buildings/ floor area (number/ m^2)	Yes	
	Renovation rate (%)	Yes	
	Primary energy use (ktoe)	Yes	
	Final energy use (ktoe)	Yes	
	Specific primary energy for residential buildings (kWh/m2y)	Yes	
	Share of renewable energy (%)	Yes	
	Operational GHG emissions (Mt CO_2-eq)	Yes	
	Energy poverty share (%)	Yes	
Roadmap for2030, 2040 and 2050	Renovation targets (floor area or number)	Yes	
	Renovation rate targets (%)	Yes	
	Primary energy targets (ktoe) or reduction (%)	Yes	
	Final energy targets (ktoe) or reduction (%)	Yes	
	Renewable energy targets (%)	Yes	
	GHG emission targets (Mt CO_2-eq) or reduction (%)	Yes	

Section	Indicator	Yes/No/Partially	Explanatory notes
	Energy poverty targets (%)	Yes	
	Contribution to energy efficiency target	No	
Policies and measures	Scope and type	Yes	
	Quantified objective	Partially	Some objectives of the measures can be deduced by the policy description.
	Status and implementation period	Yes	
	Budget and funding source	Partially	The budget and funding sources of policies are reported only for some measures.
Investment needs	Total and/or average investment needs (EUR million), EUR/m^2	Yes	
Residential buildings	Average specific primary energy decreases between 2020 and 2050	Yes	
	Number of residential buildings/homes to be renovated	Yes	
	Residential floor area to be renovated (m^2)	Yes	
	Worst-performing buildings contribution (%)	Yes	
Non-residential buildings	MEPS 16% threshold	No	The draft NBRP indicates that the MEPS part is still under discussion.
	MEPS 26% threshold	No	
	2040 and 2050 thresholds	No	
Summary of the public consultation		Yes	

Source: JRC elaboration on Member State reporting

Consistency checks were carried out by comparing the data with previous Member State reporting: the 2024 national energy and climate plan (NECP), the 2025 national energy and climate progress reports (NECPR), the 2023 national cost-optimal report and the 2020 long-term renovation strategy.

Plausibility checks were carried out by comparing the data with other reliable datasets: the Building Stock Observatory (BSO) for building stock indicators and Eurostat datasets for final energy consumption.

Box 45. Consistency and plausibility check for Finland.

The number of buildings and total floor area are consistent with previous reporting in the 2025 NECPR.

Primary energy factors are consistent with previous reporting in the 2023 national cost-optimal report.

The report is consistent with the spreadsheet submitted by the country.

The number of buildings and total floor area are plausible based on a comparison with the BSO dataset.

Energy poverty

The report states that energy poverty is covered under social policy. Due to Finland's northern location, it is important to safeguard basic household needs such as energy supply and adequate indoor temperatures.

The definition of vulnerable customers is set out in Section 19 of the Finnish Constitution, from which the right to social security is derived. According to this, anyone who is unable to provide the security needed for life with dignity has the right to the necessary means of subsistence and care. Section 2 of the Act on Income Support (1412/1997) complements this definition and allows the Finnish authorities to apply the definition of vulnerable customers to cases involving energy poverty, for example, by prohibiting energy providers from disconnecting vulnerable customers at critical times.

Consequently, it is not possible to ensure consistency with Article 2(52) of the EED and with the Commission Recommendation (EU) 2023/2407 on energy poverty.

The draft NBRP is consistent with the NECP section on energy poverty. However, it does not seem to be consistent with Article 2(52) of the EED or with Commission Recommendation (EU) 2023/2407 on energy poverty and its guidance document (SWD/2023/647).

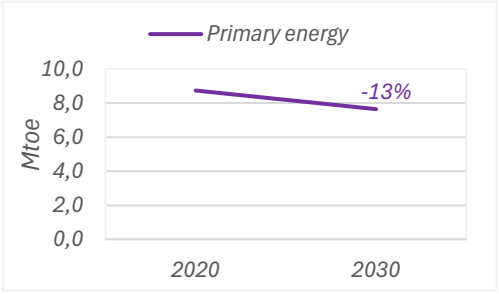
3.16. Sweden

3.16.1. Main indicators

Table 39. Selection of main indicators from Sweden's draft NBRP.

Renovation				
Floor area (Million m^2)	2023 Baseline	2030 Cumulative renovation	2040	2050
Residential	582.8	332.0	-	-
Non-residential	224.3	45.2	-	-
Total	807.1	377.2	-	-
Cumulative renovation (%)		47%	-	-
Annual renovation rate (%)	**2.15%**	**4.61%**	-	-
Number of buildings	2023	2030	2040	2050
Total	3 196 966	1 647 460	-	-
Cumulative renovation (%)		52%	-	-
Energy consumption				
Primary energy (Mtoe)	2020	2030	2040	2050
Residential	6.2	5.2	-	-
Non-residential	2.5	2.4	-	-
Total	8.7	7.6	-	-
Change vs 2020 (%)		**-13%**	-	-
Final energy (Mtoe)	2020	2030	2040	2050
Residential	5.6	-	-	-
Non-residential	2.5	-	-	-
Total	8.1	-	-	-
Change vs 2020 (%)		-	-	-
Energy end-uses included	Heating, cooling, hot water, ventilation, lighting, other technical building system			
GHG emissions				
GHG emissions ($MtCO_2eq$)	2023	2030	2040	2050
Residential	2.6	-	-	-
Non-residential	1.1	-	-	-
Total	3.7	-	-	-
Change vs 2023 (%)		-	-	-
GHG emissions in $kgCO_2/m^2$	4.4	-	-	-

Change vs 2023 (%)	-	-	-	-



Renewable energy				
Renewable energy in the final energy	2023	2030	2040	2050
Share of renewable energy in buildings' final energy consumption	77%	-	-	89%
Solar energy technologies in buildings	2020	2030	2040	2050
Not available				
Energy poverty				
People affected by energy poverty	2023	2030	2040	2050
Not available				
Trajectory for the progressive renovation of residential buildings				
Not available				
Minimum energy performance standards for non-residential buildings				
Primary energy kWh/(m²year)	2030	2033	2040	2050
Office	204	167	-	-
Education	229	183	-	-
Hospitals	238	191	-	-
Accommodation and restaurants	301	248	-	-
Sport	260	211	-	-
Commercial and cultural	217	176	-	-
Other non-residential buildings	239	187	-	-
Primary energy factors				
Non-renewable PEF	2023	2030	2040	2050
Electricity	1.80	1.80	1.80	1.80
Natural gas	1.80	1.80	1.80	1.80
District heating	0.70	0.70	0.70	0.70
Investment needs for renovation and funding and financing sources				
Investment needs (billion EUR)		2030	2040	2050
			Cumulative	
Residential		-	-	-
Non-residential		-	-	-
Total		-	-	-
Funding and financing (billion EUR)				
Public		-	-	-
Private		-	-	-
Total		-	-	-

Source: JRC elaboration on Member State reporting

3.16.2. Executive summary

Sweden has submitted a partially complete draft national building renovation plan (NBRP) with important key elements missing, as described below.

The **level of ambition** of the draft plan cannot yet be fully assessed, as Sweden has not set 2030, 2040 and 2050 targets for final energy consumption or GHG emissions in the building sector.

Sweden's targets for **primary energy consumption** in the building sector are 7.6 Mtoe by 2030, representing a reduction of 12.5% compared with 2020 level of 8.7 Mtoe. No targets are provided beyond 2030.

Sweden does not include targets for **final energy consumption** and **operational greenhouse gas (GHG) emissions** in the draft NBRP.

Therefore, a meaningful comparison of the NBRP's ambition with the Swedish national energy and climate (NECP) cannot be performed.

The contribution of Sweden's building sector to the **EU's energy efficiency targets** (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive' or the 'EED') is not outlined. However, in 2020, the building sector accounted 21.2% of total primary energy consumption in Sweden and it is aiming for 18.6% in 2030, indicating that reductions in buildings are expected to occur faster than across all sectors. Regarding Sweden's building sector **contribution to the EU's renewable energy targets** (Article 15a of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive' or the 'RED'), the draft NBRP adopts the NECP target of 89% by 2030.

To achieve the preliminary targets, Sweden aims to **renovate** approximately 322 million m^2 of residential floor area and about 45 million m^2 of non-residential floor area by 2030, resulting in 47% of the total floor area renovated by 2030. The targets for the average annual renovate rates between 2020 and 2030 are 4.6% (5.7% residential and 1.9% non-residential buildings). These figures are estimated in line with the achievements of the energy savings, however, they are indicative, as the trajectory for residential buildings is under development.

Sweden aims to apply paragraph 8 of Article 9(2) of the Energy Performance of Buildings Directive (Directive (EU) 2024/1275 on the energy performance of buildings, the 'EPBD' to set its **renovation trajectory for residential buildings**, given that the average share of fossil fuels in the energy consumption of its residential building stock is below 15**%**[152]. While the draft NBRP currently includes milestones for 2030 and 2035 aligned with paragraph 1 of Article 9(2) of the recast EPBD, these will be revised. Milestones beyond 2035 and the contribution of the worst-performing buildings are not yet specified.

On the **minimum energy performance standards** (MEPS) **for non-residential buildings**, the 16% and 26% thresholds (for 2030 and 2033, respectively) have been preliminary set for seven building categories. The thresholds set in primary energy range from 204 to 301 kWh/(m^2y) for 2030, and from 167 to 248 kWh/(m^2y) for 2033. Thresholds for 2040 and 2050 are yet to be developed. The methodology is robust, data sources are provided, and the thresholds are consistent with the EPBD requirement that 16% and 26% of the non-residential worst-performing buildings are renovated by 2030 and 2033, respectively.

Worst-performing buildings are identified as buildings with energy performance certificate (EPC) class G. In 2020, such buildings represented 12% and 34% of the total number of residential and non-residential buildings, respectively. The draft NBRP clearly prioritises their renovation as Sweden focuses on the renovation of residential buildings EPC classes D-E-F-G by 2035. However, the contribution of these buildings to overall energy savings have not yet been sufficiently quantified.

Energy poverty is partially addressed in the draft NBRP through a national definition which focuses on single-family buildings and a set of indicators: share of households in single-family

[152] According to Annex 5 of the draft NBRP, the share of fossil fuel in buildings' energy consumption in 2023 was 11%.

buildings living in energy poverty, energy expenditure as a share of income and thermal comfort conditions (number of people living in dwellings without adequate indoor temperature). The plan estimates that around 5.2% of households in single-family buildings were in energy poverty in 2020, but does not set reduction targets for 2030, 2040 or 2050. Relevant measures focus mainly on income-based social support and consumer protection, such as housing allowances and anti-disconnection rules, without a clear link to building renovation and without quantified impacts.

Housing affordability is marginally addressed in the Swedish draft NBRP. The plan primarily focuses on general income-based support measures (e.g., housing allowances, housing supplements, and social assistance) that help households cope with housing and energy costs but does not outline a dedicated strategy linking affordability with energy renovation.

The **overview of implemented and planned policies and measures** covers all required areas, except the promotion of district and neighbourhood strategies and integrated renovation programmes at district level but remains limited in terms of detail and quantification. Most measures lack quantified objectives, budgets, or expected impacts, and their contribution to national targets is not demonstrated. Moreover, several key policy frameworks, such as MEPS for non-residential buildings, promotion of deep renovation, building renovation passports, and smart readiness indicator, are missing or under development, and the plan explicitly states that further measures will be introduced in 2026 or later.

The **decarbonisation of heating** is ensured by Sweden's already largely fossil-free heating system, with fossil fuels accounting for only about 1% of heating energy use. The draft NBRP include credible measures in order to ensure a full phasing out of fossil fuel in heating, such as financial support for the deployment of smaller district heating networks and connection to these networks.

Investment needs have not been estimated, as targets have not yet been set. Moreover, the draft NBRP does not identify corresponding funding sources or financing mechanisms. Public funding is only briefly referenced (e.g., the 2026 budget), and private financing is not addressed, making it impossible to assess the adequacy of funding.

The **public consultation** process was comprehensive, involving multiple stakeholders and stages. It included working groups, public meetings and online consultation. The draft outlines the main suggestions and comments raised by stakeholders but does not clearly explain how the feedback was incorporated into the draft NBRP. It is mentioned at several instances that the weighting factors were criticized but it is unclear if and how this criticism has been addressed. Furthermore, since many major parts of the plan were not included in the draft version made available for consultation, the process cannot be considered fully inclusive or representative of informed stakeholder input.

The assessment process has identified the following elements of the draft NBRP **as strengths, innovative measures** and/or **good practice** examples:

— Sweden has a high level of electrification of buildings and benefits from a largely decarbonised heating system as well as a high share of renewable energy in buildings. In 2023, fossil fuel boilers accounted for only 1% of heating and hot water energy use. About 15%% of single-family buildings and 90% of multi-family buildings are connected to district heating, with 73% from renewables and 9% from waste heat. Moreover, 30% of single-family houses and 7% of multi-family buildings are equipped with heat pumps. The draft NBRP builds on a long-standing and coherent policy framework, including carbon and energy taxation, which effectively internalise external costs and incentivise the shift away from fossil fuels.

— The draft NBRP includes a solid analytical basis, such as cost-optimal calculations, comprehensive building stock data and EPC registers, combined with alignment with the NECP (e.g. definition of worst-performing buildings), supporting consistency and comparability and forming a strong basis for the final version of the plan.

— The draft presents a thorough analysis of market barriers and failures, identifying key issues such as information asymmetries and reflecting them in the design of policy instruments.

— Sweden has a long-standing municipal energy and climate advisory service acting as one-stop shops (OSS), present in nearly all municipalities, and targeting a wide audience including business, households, and associations.

— Sweden also demonstrates good practice in skills and capacity-building, with a range of education and training initiatives targeting the construction and energy sectors.

— Sweden has already in place a national regulation that tackles the calculation of life-cycle GHG emissions in buildings.

However, there are several aspects of the draft NBRP that require **completion** and **improvement** and should be addressed in the final version.

— Set targets for final energy and GHG emission reduction for 2030, 2040 and 2050 and set targets for primary energy reduction for 2040 and 2050.

— Provide the renovation trajectory for residential buildings, including the contribution of the worst-performing residential buildings.

— Ensure that the energy and emissions targets are aligned with the projected evolution of energy generation in the final NECP, and that the NBRP primary energy factors or weighting factors and emission factors reflect this evolution.

— Complete the MEPS framework for non-residential buildings, including thresholds beyond 2033 and the number and floor area of buildings to be renovated.

— Ensure that the energy poverty covers all types of households and aligns with the EED Article 2(52), set targets for energy poverty reduction by 2030, 2040 and 2050 and describe clear measures to address energy poverty as well as housing affordability in connection with building renovation.

— Further develop the renovation framework, including the floor area, number of buildings and the annual renovation rate for 2040 and 2050, ensuring consistency with the trajectory for residential building renovation and the MEPS for non-residential buildings.

— Strengthen and further specify key policy areas currently under development or missing, including measures related to MEPS implementation, worst-performing buildings, building renovation passports, the smart readiness indicator, one-stop shops and district-level approaches for renovation.

— Consolidate the overview of the implemented and planned policies and measures by providing all mandatory descriptive elements (name, description, type, planned budget and funding sources, expected impact, quantified objective, status and implementation period, entity responsible) and clearly link them to national targets.

— Quantify the contribution to the EU's energy efficiency targets in accordance with Article 4 of the EED attributable to the building stock's renovation.

— Provide a comprehensive assessment of investment needs, funding sources and private financing mechanisms, ensuring a clear link between investments, policies and targets.

— Explain how the feedback received during the public consultation was considered in the final version of the NBRP.

3.16.3. Ambition of the draft NBRP

Box 46. Key insights of Sweden's draft NBRP.

- Sweden plans to reach **primary energy use** in the building sector of 7.6 Mtoe by 2030, which means a reduction of 12.5% compared to 2020 (8.7 Mtoe). Targets for 2040 and 2050 have not been set.

Assessment of the overall ambition of the draft NBRP to achieve a highly energy-efficient and decarbonised building stock by 2050

It is unclear if the level of ambition is sufficient and in line to ensure the renovation of the national building stock into a highly energy-efficient and decarbonised building stock by 2050, due to missing targets.

Sweden has not yet set most of 2030, 2040 and 2050 targets, such as the final energy, operational GHG emissions and primary energy beyond 2030. However, the average fossil share of energy consumption in Sweden's residential building stock is less than 15%, showing high progress towards decarbonisation.

However, it includes indicative milestone for primary energy use of residential buildings for 2030 and 2035, and the 2030 and 2033 MEPS thresholds for non-residential buildings, which are set according to the requirements. However, it has recently determined that it can apply the alternative methodology set out in Article 9(2) paragraph 8 of the EPBD for the residential building renovation; therefore, the current milestones are just indicative.

To achieve the preliminary targets, Sweden aims to renovate approximately 322 million m^2 of residential floor area and about 45 million m^2 of non-residential floor area by 2030. The targets for the average annual renovate rates between 2020 and 2030 are 4.6% (5.7% residential and 1.9% non-residential buildings). By 2030, 53% of all residential buildings and 19% of non-residential buildings should be renovated. Of residential buildings, 94 125 renovations annually (e.g., 941 250 by 2030) will be among the 43% worst-performing buildings, e.g., 57%. These figures are estimated

in line with the achievements of the energy savings, however, they are indicative, as the national trajectory and targets are still under development

The draft NBRP refers to Sweden's updated NECP from 2024, which states that the share of renewable energy in buildings is expected to increase from 76 % in 2020 to 89 % in 2030. The draft NBRP includes targets for the share of buildings equipped with solar technologies, (including MW installed and GWh generated) by 2030, 2040 and 2050. By 2050, 15-20% of residential and non-residential buildings will have solar technologies, mostly photovoltaics.

The draft NBRP presents the calculated cost-optimal energy performance levels from the 2023 national report. These have been used to set the preliminary thresholds for zero-emission non-residential buildings, except office buildings. The cost-optimal levels are expected to be used for setting the thresholds for renovated zero-emission buildings; however, these have not been established yet.

Assessment of the alignment between the draft NBRP and the national commitments on climate and energy set out in the NECP

The draft NBRP is designed in alignment with the final NECP of Sweden regarding the target for the increase of renewable energy in buildings' final energy consumption and identification of worst-performing buildings. The use of different indicators and missing information in the draft NBRP prevent full comparability with the final NECP of Sweden, as described below. The section below also discusses how the draft NBRP ambition compares with the 2020 long-term renovation strategy (LTRS) submitted by Sweden.

Energy efficiency

Sweden aims to reduce primary energy consumption in the building sector by 12.5% by 2030 compared to 2020. The final energy consumption in 2030 has not been estimated. The targets are provisional and will be updated with the final version of the NBRP. The NECP does not provide energy targets for the building sector. The 2020 LTRS set a reduction target of 7% in 2030 compared to 2020 for delivered heat and electricity in apartment building, offices and schools. It is not possible to compare the levels of ambition, as targets are not comparable.

The draft NBRP states that the contribution to the EU's energy efficiency targets, in accordance with Article 4 of the EED, attributable to the renovation of its building stock, is not yet available. However, in 2020, the building sector accounted for 21.2% of the total primary energy in Sweden, and it is projected to decrease to 18.6% in 2030. This indicates that building-sector savings are planned to be achieved at a faster rate than overall energy savings.

Sweden uses the concept of weighting factors instead of primary energy factors. They were established in 2020, and for now, they are expected to remain constant until 2050. Nevertheless, as the renewable energy share is expected to increase (from 77% in 2023 to 89% by 2030), Sweden should consider planning the evolution of these factors accordingly. It is mentioned at several instances that the use of weighting factors was criticized by stakeholder during the public consultation, but it is unclear if and how this criticism has been addressed.

Due to the missing targets, it is not possible to assess whether the energy targets are sufficient and on track to achieve the national commitment on energy efficiency laid down in the NECP.

Decarbonisation

Sweden has not set its GHG emission targets in the draft NBRP. The NECP provides a building-related target of maximum fossil fuel use of 1% in 2030, and 0% in 2040 and 2050, similar to the 2020 LTRS.

Due to the missing targets, it is not possible to assess whether the GHG emission targets are sufficient and on track to achieve the national commitment on decarbonisation laid down in the NECP.

Renewable energy

Sweden's final NECP states that the share of renewable energy in buildings is expected to increase from 76% in 2020 to 89% in 2030. The draft NBRP refers to this target, which is set in accordance with Article 15a of the RED.

The target provided in the NECP and referred to in the draft NBRP is in line with the indicative national share set out in the Commission guidance on heating and cooling (C/2025/2238), Annex C, which for Sweden is 88.6%.

Expected reduction in the number of people affected by energy poverty

Energy poverty is partially addressed in the draft NBRP. While Sweden provides a definition as well as the methodology to estimate the energy poverty rate, it does not set targets for the reduction of energy poverty. Furthermore, the proposed indicators used by Sweden address households living in single-family buildings (Indicator 1) and all types of households (indicator 3) which might distort the calculation of people living in energy poverty.

Sweden estimates that in 2020, 5.2% of households were living in energy poverty, defined as living in single-family buildings with an 'expensive or volatile' energy type and in an area with a high proportion of low-income people. The average share of disposable income spent on energy was 2.8% (2020) and 3.4% (2023) – calculated for households living in single-family houses heated by district heating. The respective shares for the lowest income deciles amount to 12.6% and 14.6% (decile 1) and 8.0% and 9.3% (decile 2). The energy cost for a single-family house with district heating increased by around 15 % between 2020 and 2023. The number of people living in dwellings without adequate indoor temperature increased from 280 000 in 2020 to 622 000 in 2023.

The draft NBRP does not include data on the geographic distribution of energy poverty; on the energy performance of the social housing stock, e.g. the segment where people in energy poverty live; or on the use or repurposing of vacant buildings, including quantified progress (e.g. number of units renovated per year, capacity to house the homeless).

Prioritising renovation of the worst-performing buildings

The Swedish draft NBRP identifies the worst-performing buildings and prioritise them in the renovation targets, at least by 2030.

The draft NBRP, in line with the final NECP, identifies the worst-performing buildings as those with an EPC energy class G. The draft NBRP estimates that in 2020, there were a total of 369 141 residential buildings (representing 12% from the total) corresponding to this definition with a total area of 31.6 million m^2, and 29 102 non-residential buildings (representing 24% from the total) with a total area of 24.7 million m^2.

The NBRP expects that 58% of annually renovated buildings would be among the worst-performing. The number and floor area of the 43% worst performing residential buildings to be renovated by 2030 are provided. The draft NBRP does not indicate the targeted energy savings in 2030 to be achieved by the worst-performing buildings, nor the total number of renovations needed by 2050.

Minimum energy performance standards for non-residential buildings

Sweden sets MEPS thresholds for seven building categories in primary energy use for 2030 and 2033 (Table 40). Thresholds beyond 2033 are not provided. The thresholds are set in primary energy use and calculated from the data in the EPC register, extrapolated to the whole building stock. The thresholds are consistent with the requirement that 16% (2030) and 26% (2033) of the non-residential buildings should not exceed them.

Table 40. MEPS for non-residential buildings in Sweden.

Building categories	**Primary energy use** kWh/(m^{2}y)			
	2030	**2033**	**2040**	**2050**
Office buildings	204	167	-	-
Education	229	183	-	-
Hospitals	238	191	-	-
Accommodation and restaurants	301	248	-	-
Sport	260	211	-	-
Trade and culture	217	176	-	-
Other	239	187	-	-

Source: JRC elaboration on Member State reporting

The total number and floor area of building to be renovated according to these thresholds are not included in the draft NBRP.

The thresholds are based on a sufficiently robust analysis. The baseline is clearly depicted, though numerical values could be added to the graphical presentation. The non-residential building stock is generally sufficiently characterised, about 44% is covered by EPCs.

Values for 2040 and 2050 are missing in the draft NBRP.

Exclusions (if applicable) pursuant to Article 9(6) of the EPBD and criteria for exemptions

Proposed exclusions from MEPS requirements include 1) places of worship and religious activities, 2) temporary buildings with use of two years or less, and buildings with low energy consumption, 3) detached buildings with a floor area below 50 m^2 and 4) building for defence purposes. Buildings of historical/cultural value are included in the baseline but may be exempted on an individual basis.

Sweden states than it has not yet established criteria for exempting individual non-residential buildings from MEPS requirements.

National trajectory for the progressive renovation of the residential buildings

As the average fossil share of energy consumption in Sweden's residential building stock is less than 15%, Sweden aims to apply paragraph 8 of Article 9(2) of the EPBD to establish the trajectory for residential building renovation.

However, the draft NBRP does include milestone set in accordance with paragraph 1 of Article 9(2) of the recast EPBD, but these will be revised. The indicative milestone for 2030 is 104 kWh/(m^{2}y), and for 2035 is 99 kWh/(m^{2}y). Compared to 2020, these values are 16% and 20% lower, in line with the requirements.

The indicative number and floor area of residential buildings to be renovated annually (including the worst-performing buildings) are provided up until 2030 only. The draft NBRP does not indicate the targeted energy savings to be achieved by the worst-performing buildings in 2030, the depth of those renovations, or the total number of renovations needed by 2050.

The baseline is established using land registers/cadastres and EPCs, which are available for about 20% of residential buildings and extrapolated to the whole stock. The 2020 and 2023 residential building stock data are robust and consistent across the different parts of the draft NBRP, providing information on number and floor area, age structure, energy classes (where available), and primary and final energy consumption.

New buildings

Sweden's nearly zero-energy buildings (NZEB) requirements for maximum primary energy use for new residential buildings range from 75 kWh/(m^2y) for multi-family buildings and 90–100 kWh/(m^2y) for single-family houses, depending on size. For non-residential buildings, the requirements range from 70 to 96 kWh/(m^2y). These NZEB requirements remain applicable until ZEB requirements enter into force. The NZEB requirements also apply to major renovations, though with adjustments.

Sweden introduces preliminary ZEB thresholds for new buildings that are generally about 10 % stricter than current requirements, with values such as 68 kWh/(m^2y) for multi-family and office buildings and 81–90 kWh/(m^2y) for single-family houses, depending on size, alongside differentiated levels for various non-residential building types. It is expected that limit values will also be introduced for renovated existing buildings.

3.16.4. Sufficiency of the policies and measures

The overview of implemented and planned policies and measures is included in the Swedish draft NBRP, addressing all mandatory areas listed in Annex II.

However, the measures are limited in their descriptions; most lack key elements, such as a quantified objective, funding sources, or expected impacts. Therefore, the adequacy of policies and measures to achieve the NBRP objectives remains unclear.

Consistency of the measures with the final NECP, the comprehensive heating and cooling assessment pursuant to Article 25(1) the EED, and local heating and cooling planning at the local level cannot be assessed due to the lack of information.

Renovation and MEPS for non-residential buildings

The draft plan includes a section discussing the implementation of MEPS but does not provide concrete measures. In particular, the draft NBRP states that Sweden's National Board of Housing, Building and Planning has submitted a proposal to introduce MEPS in the Swedish building code, including the exemptions. It also states that monitoring and enforcement of MEPS can be done with the system already in place coordinated by the ' building committee' but does not offer further information.

The draft NBRP does not mention specific requirements at trigger points. However, staged renovation in 'packages' is mentioned.

Renovation of residential buildings

To enable the achievement of the trajectory for residential building renovation, Sweden relies on a mix of regulatory, fiscal, economic, and information measures. However, the measures are presented as a list without further details. Specifics on the promotion of deep renovation for residential buildings are not provided. The draft NBRP notes that to achieve the (indicative) 2030 targets, the renovation rate would need to double between 2020 and 2030 relative to existing levels.

The NBRP does not report specific measures targeting the worst-performing buildings.

Building Renovation Passport as a tool to support energy savings and complement MEPS and the trajectory for residential buildings

The draft NBRP does not explicitly mention the building renovation passport.

Box 47. Example of policies and measures in Sweden.

- *Energy and climate advisory services (Energirådgivning)* – Sweden operates a long-standing system of municipal energy and climate advisors providing free, independent guidance to households, which the NBRP plans to further develop into more integrated "one-stop shop" structures. These services aim to support homeowners throughout the renovation process (technical, financial, administrative), building on an established advisory network.
- *Carbon and energy taxes* – Sweden applies a high carbon tax on fossil fuels, including fuels used for heating in buildings, which strongly incentivises the shift away from oil and gas towards district heating, heat pumps, and other low-carbon solutions.
- *Climate Leap (Klimatklivet)* – a national investment support scheme providing grants for local and regional measures that reduce greenhouse gas emissions, though the NBRP states that for 2025 only a small part was intended for heating related measures (e.g. conversion of heating systems, district networks).

Alleviation of energy poverty and housing affordability

The draft NBRP specifies a limited number of measures to address energy poverty. The 'warm rent' (all-inclusive rent, heating included) system addresses the principal-agent barrier in rental housing, incentivising property owners to undertake energy efficiency measures (though not tenants to resource-efficient use). Other measures include income-based social support to help vulnerable households[153] cover housing and energy costs, which is managed by local authorities.

Moreover, the legislation includes anti grid-disconnection measures aiming at protecting vulnerable households unable to pay their electricity bill.

While the draft NBRP includes some measures related to Article 24, point 3, of the EED, it does not present a dedicated, targeted policy framework linking renovation to energy poverty alleviation. Impacts of the measures related to energy poverty are not quantified.

Housing affordability is addressed primarily through income-based support measures (e.g., housing allowances, housing supplements, and social assistance) that help households cope with housing

[153] e.g. families with financial difficulties, young people and people with low or no retirement pension.

and energy cost, but the plan does not outline a dedicated strategy linking affordability with energy renovation.

Creation of one-stop shops or similar mechanisms pursuant to Article 18 of the EPBD for the provision of technical, administrative and financial advice and assistance

Sweden has a long-standing municipal energy and climate advisory service, present in nearly all municipalities for almost 50 years. It is aimed at households, businesses, and associations. It is supported by a national website[154] with further information. The Swedish Energy Agency provides municipalities with additional funding for their climate and energy advisory services.

The draft NBRP mentions that this service represents the basis for the implementation of one-stop shops requirements, and the Swedish Energy Agency presents proposals for adapting it to respond to the requirements in the EED and EPBD. However, concrete details are not included in the draft NBRP.

The draft NRBP does not specify whether there is a special focus on households affected by energy poverty or on the worst-performing buildings, thus it remains unclear if the services align with the one-stop shop requirements in Article 18 of the EPBD.

Decarbonisation of heating and cooling and the phasing out of fossil fuels in heating and cooling with a view to a complete phasing out of fossil fuel boilers by 2040

The Swedish draft NBRP indicates that heating is already largely decarbonised. In 2023, fossil fuel accounted for only 1% of heating and hot water energy use. Even though the draft NBRP does not confirm the target date for phasing out fossil-fuel boilers by 2040 and does nor does it provide a clear roadmap to achieve this, it describes the measures in place to further support the decarbonisation of heating.

About 15% of single-family houses and 90% of multi-family buildings are connected to district heating, with 73% from renewables and 9% from waste heat. For the remaining fossil energy in heating and cooling, there is an investment support scheme, the Climate Leap (Klimatklivet) which covers measures such as deployment of smaller district heating networks and connection to these networks. Additionally, renewable cogeneration is supported through state aid.

Similarly, the final NECP describes the heating sector as already largely decarbonised and continuing towards a (near-)complete fossil-phase-out by 2040.

Consistency with other national and local planning, such as the comprehensive national heating and cooling assessment, and the local heating and cooling plans in municipalities, cannot be verified.

Prevention of construction and demolition waste

The Swedish draft NBRP contains limited information on policies and measures aimed at preventing construction and demolition waste. One aspect to note is that buildings' developers must draw up a plan for the control of construction and demolition waste for their projects, including potential reuse and high-quality recycling, as well as the removal of hazardous substances.

[154] https://energiochklimatradgivningen.se

Promotion of renewable energy sources in line with Art 15a of the RED

The draft NBRP states that in 2023, the share of renewable energy in buildings was 77% (calculated in accordance with Art. 15a of the RED). Therefore, the draft NBRP indicates that it does not see the need to introduce minimum levels for energy from RES in the building regulations. The Swedish building code sets maximum primary energy use levels for new buildings and renovations, calculated using weighting factors that favour renewable energy sources over fossil fuels.

Deployment of solar energy installations on buildings

The draft NBRP discusses measures to support the deployment of solar energy installation in buildings. Regarding financial and fiscal support, the draft NBRP references the final NECP, in particular the subsidy rates for installation of solar photovoltaics, though they have decreased from 20% to 15% since 2024. Moreover, the tax reductions for micro renewable electricity generation were abolished from January 2026.

On regulatory measures, the draft NBRP states the proposal for adopting the solar energy targets (in line with Article 10 of the EPBD) has been submitted. Additionally, solar installations on buildings benefit from simplified permitting procedures and streamlined grid connections.

Reduction of whole life cycle GHG emissions and the uptake of carbon removals

The Swedish draft NBRP addresses whole-life cycle GHG emissions mainly through the existing requirement for climate declarations for new buildings, which obliges developers to assess and report emissions from the construction phase but does not yet set binding limit values[155]..

Additionally, the National Board of Housing, Building and Planning is preparing a roadmap to introduce limit values for life-cycle GWP in line with the EPBD. Measures on carbon removals are not specifically developed in the draft NBRP.

Promotion of district and neighbourhood approach and integrated renovation programmes

The draft NBRP does not address the promotion of district and neighbourhood approach or integrated renovation programmes.

Improvement of buildings owned by public bodies

The draft NBRP addresses the EED requirement on policies and measures for improving buildings owned by public bodies, specifically Articles 5, 6, and 7, focusing on regulatory and information measures. The public authorities must introduce and develop environmental management systems and procure energy-efficient goods, services, and buildings that meet specific thresholds. Municipalities are also part of the Public Real Estate cooperation forum, which gathers key stakeholders, provides a platform for collaboration and funding initiatives, and serves as a knowledge hub.

Promotion of smart technologies and infrastructure for sustainable mobility

The draft NBRP references the final NECP and the financial support for smart technologies and infrastructure for sustainable mobility in buildings. This includes e.g. tax credits for batteries and

[155] It is unclear whether the calculation covers the full life cycle or just the construction phase.

availability of recharging points. Moreover, the National Board of Housing, Building and Planning is developing further guidance on the implementation of mobility requirements in line with EPBD.

The draft NBRP does not contain information on the Smart Readiness Indicator. Accessibility needs regarding charging infrastructure have not been assessed in the draft NBRP.

Accessibility for persons with disabilities

The draft plan does not include information on accessibility for persons with disabilities.

Addressing market barriers and market failures and skill gaps

The Swedish draft NBRP includes a thorough analysis of the barriers and market failures. The economic factors, profitability and financing problems are considered the main obstacles to building renovation. Information gaps, organisational, regulatory uncertainty, behavioural barriers, are other barriers identified. They are addressed through broad, economy-wide instruments, such as energy taxation (internalising external costs), the EPCs (reducing information asymmetries), and general information measures.

Apart from the solar-related exemptions, permitting and zoning issues are not systematically addressed in the draft NBRP.

The draft NBRP also includes a thorough analysis of construction companies, employees including by level of education and age, number of companies in technical consultancy, number of certified experts in the filed of energy certification, and energy and climate advisors. It also includes workforce projections in the construction sector and price developments for building materials.

Regarding skills, the plan outlines a comprehensive set of education and training initiatives, including a dedicated Science, Technology, Engineering Mathematics strategy, vocational education programmes, and sector-specific training programmes (e.g. Energilyftet, Energy Builders, Driftlyftet). However, they are described without detailed targets or quantified impacts.

Awareness-raising campaigns and other advisory tools

The draft NBRP section on advisory tools refers directly to the one-stop shops section. Information on energy efficiency and building renovation is provided by the Swedish Energy Agency and the National Board of Housing, Building and Planning.

Promotion of modular and industrialised solutions

The draft NBRP promotes modular and industrialised solutions. In Sweden, prefabricated solutions based on timber are particularly common in the single-family housing industry, with an 85–90% share of this market (catalogue houses). Additionally, prefabricated solutions make up about 16% of new multi-apartment buildings on timber structure. Since 2024, a system of 'Certified Construction Design Companies' has facilitated technical verification and expertise in the construction process. There is no widespread use of modular and industrial solutions in building renovation.

3.16.5. Sufficiency of financing sources and administrative resources

The draft NBRP does not provide a complete or attributable estimation of investment needs to meet the 2030–2050 targets, as these have not yet been defined. Instead, it presents a general consultancy-based estimate that needs to be further refined. The allocation of funding sources is

not clearly identified, with only a general reference to existing measures being covered in the 2026 budget proposal and no assessment of adequacy with any target set. Public funding is only partially described, while private financing mechanisms are not addressed at all.

As the targets have not yet been set, it has not been possible to calculate the corresponding **investment needs**.

Financing sources have not been identified. The draft NBRP only states that, in the 2026 national budget proposal, funds have been allocated to cover existing policies and measures. It cannot be assessed whether funding sources would match the required investments.

Public funding is only briefly referenced, as mentioned above, while **private financing** estimation, structure, and mechanisms are not provided in the draft NBRP.

Assessment of the adequacy of total investments

It is not possible to assess the adequacy of total investments, as the targets have not been set in the draft NBRP, and investment needs will be calculated upon setting the targets in the final NBRP.

Linking investment needs to targets through policies and measures

It is not possible to link investment needs to specific targets: the targets have not been set in the draft NBRP, and the investment needs will be calculated upon setting the targets in the final NRBP.

3.16.6. Inclusiveness of the public consultation

The public consultation provided sufficient time and opportunities for feedback, and it was broad in terms of the stakeholders involved. However, since many major parts of the plan were not included in the draft version made available for consultation, the process cannot be considered fully inclusive or representative of informed stakeholder input.

Public consultation was carried out in several steps. A working group composed of various stakeholders (particularly from the construction and real estate sectors) contributed to drafting the NBRP. The draft NBRP was then presented in individual meetings with additional stakeholders, such as banking associations, owners' associations, and utilities. In October 2025, a major on-site public consultation was held, during which the draft NBRP was presented. Of the 126 invited organisations, 40 attended (including representatives of industry, public institutions, civil society organisations, and knowledge platforms), and 11 submitted specific comments during the meeting. Further meetings were held with building owner associations and platforms, and written comments were also submitted as part of the consultation process.

The draft NBRP provides an overview of stakeholders' key comments and suggestions. It is mentioned at several instances that the weighting factors were criticized but it is unclear if and how this criticism has been addressed. Overall, while it is not clear how these comments were included in the draft NBRP, it is noted that the feedback might be used to develop the final version of the NBRP.

3.16.7. Completeness of the draft plan and consistency with other planning or reporting exercises

The draft plan is partially complete, with several mandatory indicators missing, including final energy targets, renovation and primary energy targets beyond 2030, energy poverty targets, investment needs, funding sources, and others. More information is listed in the following table.

Table 41. Indicators checklist for Sweden.

Section	Indicator	Yes/No/Partially	Explanatory notes
Overview of the national building stock	Number of buildings (number)	Yes	Social buildings missing.
	Floor area (m^2)	Yes	
	Definition of worst-performing buildings	Yes	
	Share of worst-performing buildings (%)	Yes	
	Renovated buildings/ floor area (number/ m^2)	Yes	For 2023.
	Renovation rate (%)	Yes	
	Primary energy use (ktoe)	Yes	
	Final energy use (ktoe)	Yes	
	Specific primary energy for residential buildings (kWh/m^2y)	Yes	
	Share of renewable energy (%)	Yes	
	Operational GHG emissions (Mt CO_2-eq)	Yes	
	Energy poverty share (%)	Yes	Including definition and methodology.
Roadmap for2030, 2040 and 2050	Renovation targets (floor area or number)	Partially	Targets set only for 2030. The full roadmap will be developed once the analysis of the residential stock is completed and the MEPS for non-residential are set.
	Renovation rate targets (%)	Partially	
	Primary energy targets (ktoe) or reduction (%)	Partially	
	Final energy targets (ktoe) or reduction (%)	No	
	Renewable energy targets (%)	Yes	
	GHG emission targets (Mt CO_2-eq) or reduction (%)	No	Not quantified yet.
	Energy poverty targets (%)	No	Not quantified yet.
	Contribution to energy efficiency target	No	Not quantified yet.
Policies and measures	Scope and type	Partially	Not always clear.
	Quantified objective	Partially	Quantification missing in most cases.
	Status and implementation period	Partially	Only for some measures.
	Budget and funding source	Partially	Only for some measures.
Investment needs	Total and/or average investment needs (million EUR), EUR/m^2	No	Some estimates are included.
Residential buildings	Average specific primary energy decreases between 2020 and 2050	Yes	Preliminary values for 2030 and 2035 by building category. Final values to be included in the final version of the plan.
	Number of residential buildings/dwellings to be renovated	No	Some considerations provided. Values to be included in the final version of the plan.
	Residential floor area to be renovated (m^2)	No	
	Worst-performing buildings contribution (%)	No	

Section	Indicator	Yes/No/Partially	Explanatory notes
Non-residential buildings	MEPS 16% threshold	Yes	By building category. Preliminary values (not yet adopted in the Swedish legislation).
	MEPS 26% threshold	Yes	
	2050 and 2050 thresholds	No	To be reported in 2026.
Summary of the public consultation		Yes	

Source: JRC elaboration on Member State reporting

Consistency checks have been performed by comparing the data with previous Member State reports such as: the 2024 NECP, the 2020 LTRS and the national cost-optimal report.

Plausibility checks have been performed by comparing the data with other reliable datasets: building stock observatory (BSO) for building stock indicators and Eurostat datasets for final energy consumption.

Box 48. Consistency and plausibility check for Sweden.

The weighted energy factors are consistent with the national cost-optimal report, 2023.

The number and floor area of residential buildings are plausible based on comparison with the *BSO dataset. There are differences in the number of non-residential buildings compared to the BSO dataset (-62% less buildings in the draft NBRP compared to the BSO dataset).*

Energy poverty

Sweden has established a definition of energy poverty for the social climate plan, defining energy-poor households as those living in single-family houses with a low standard of living and high energy costs. The definition considers the multidimensionality of energy poverty but is limited in terms of household coverage, focusing on single-family buildings only. This risks to disregard households living in multi-family buildings which should be considered in policies and measure addressing energy poverty alleviation and building renovation.

Moreover, while the Swedish Energy Agency has proposed using SILC (EU statistics on income and living conditions) indicators, in line with the EED, it considers them subject to several limitations. Therefore, the National Board of Housing, Building and Planning proposed three alternative indicators, deemed relevant for Swedish conditions: 1. Share of households in the single-family house stock living in energy poverty at a given time, 2. Energy expenditure as a share of disposable household income broken down into several income segments, and 3. The number of people in all types of residential buildings living in dwellings without adequate indoor temperature. However, it is not clear which indicators are, therefore, used for targets and further monitoring.

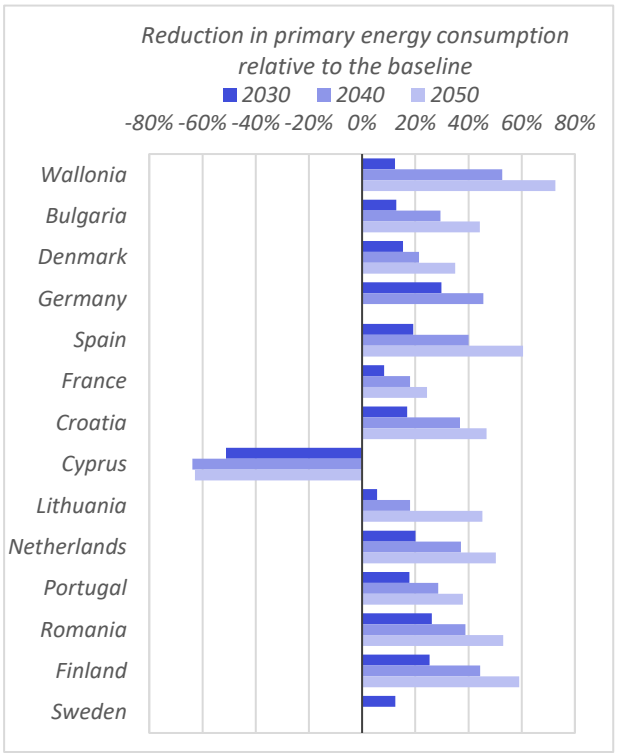
The general set of existing measures stems from the updated NECP from 2024. The draft does not refer to the social climate plan in terms of policies and measures.

4. Cross-country findings

Following the country-specific assessment of each draft national building renovation plan (NBRP) received between December 2025 and May 2026, as outlined in Chapter 3, this chapter presents the key takeaways on the most critical elements of the draft NBRPs, summarising the cross-country findings.

Primary energy consumption: Only two of the 16 draft plans have not yet set targets for the reduction of primary energy consumption. Among these 14, all plans but one foresee **substantial reduction of primary energy consumption in the buildings sector in the coming decades.** By 2050, reductions range **from 24% to 73%**, and by 2030, **from 6% to 30%,** compared to 2020 or 2023 baselines (Figure 11). Cyprus projects an increase in primary energy consumption, mostly due to growth in the building stock. In six draft plans, primary energy consumption is projected to decrease faster than final energy due to the projected deployment of renewables, changes in primary energy factors, and fuel switching. By contrast, most of the remaining countries use constant primary energy factors, which might not reflect the expected evolution of their energy systems. This indicates that, 1) currently, several countries have not fully considered the interplay between energy efficiency and changes in energy systems, and 2) primary energy reductions could potentially be greater than currently reflected in these draft plans.

Figure 11. National targets for reducing **primary energy consumption** in the building sector for 2030, 2040 and 2050 relative to the respective baseline year (2020 or 2023). Positive values indicate reductions in primary energy, while negative values indicate increases.

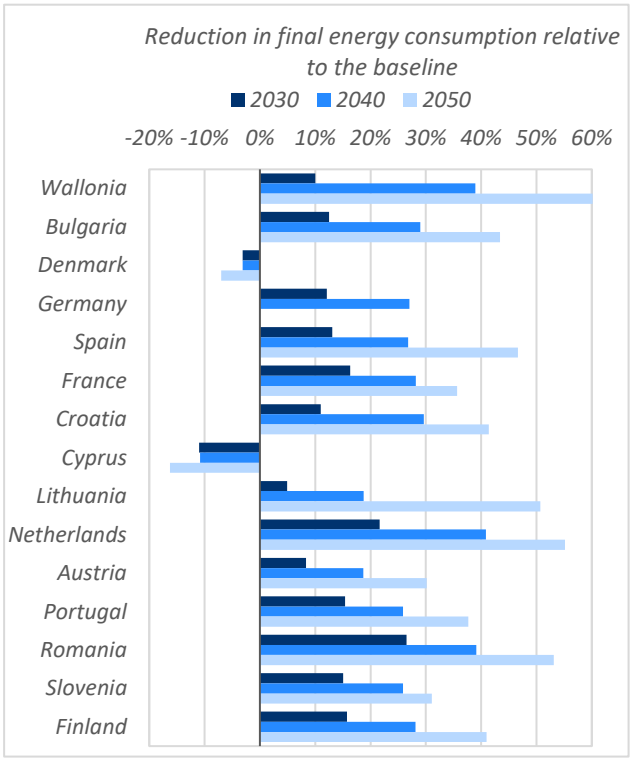


Note: Austria and Slovenia do not provide targets for primary energy consumption. Sweden provides only the 2030 target. Germany does not provide the 2050 target. Bulgaria's targets for 2040 and 2050 cover only non-residential buildings, while Portugal's targets cover only residential buildings.

Source: JRC elaboration based on Member States' reporting

Final energy consumption: The draft NBRPs show **a strong overall commitment to reducing energy use in buildings**. Almost all draft plans include both baselines and targets for final energy consumption, with Sweden still expected to provide its target. By 2050, planned reductions in final energy consumption range from **30% to 60%**, while by 2030 they range from **5% to 27%**, compared with 2020 or 2023 baselines (Figure 12). This shows that Member States are setting out **clear long-term pathways to improve the energy performance of the building stock**. Even in Denmark and Cyprus, where total final energy consumption is projected to increase, mostly due to growth in building stock, energy consumption per square metre of floor area is expected to decrease. This indicates that **buildings are becoming more energy efficient**, even where overall consumption trends may be influenced by factors such as changes in floor area or activity levels. The analysis of the contribution of building stock renovation to energy efficiency target (Article 4 of Directive (EU) 2023/1791 on energy efficiency, the 'EED') indicates that, by 2030, final energy consumption in the building sector is expected to decrease **faster than economy-wide final energy consumption** in most cases. This highlights the **central role of building renovation and energy efficiency measures** in achieving national energy and climate commitments.

Figure 12. National targets for reducing **final energy consumption** in the building sector for 2030, 2040 and 2050 relative to the respective baseline year (2020 or 2023). Positive values indicate reductions in final energy, while negative values indicate increases.



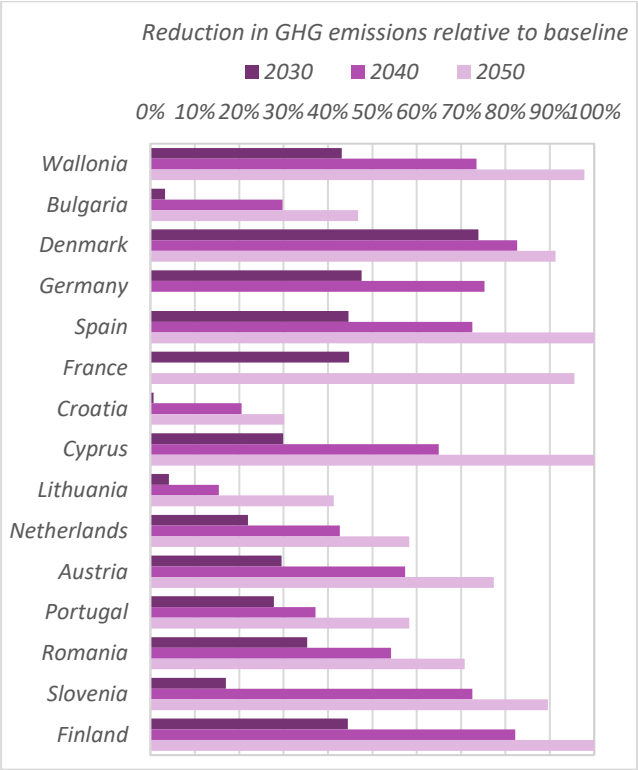
Note: Sweden does not provide targets for final energy consumption. Bulgaria's targets for 2040 and 2050 cover only non-residential buildings, while Portugal's targets cover only residential buildings. Germany does not provide the 2050 target.

Source: JRC elaboration based on Member States' reporting

Operational greenhouse gas (GHG) emissions: The draft NBRPs show a strong commitment to decarbonising the building stock, with operational GHG emissions addressed in all draft plans except Sweden. The plans set out pathways towards a decarbonised building stock by 2050, with projected

reductions ranging from 30% to 100% compared with 2020 or 2023 baselines (Figure 13). **Almost half of the draft plans target reductions of more than 90% by 2050**, demonstrating a high level of ambition and a clear commitment to aligning the building sector with long-term EU climate objectives.

Figure 13. National targets for reducing **total operational GHG emissions** in the building sector for 2030, 2040 and 2050 relative to the respective baseline year (2020 or 2023). Positive values indicate reductions in operational GHG emissions.

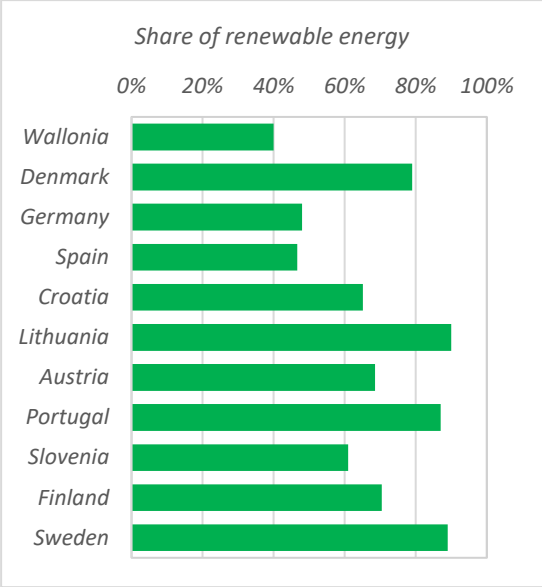


Note: Sweden does not provide targets for operational GHG emissions. Bulgaria's targets for 2040 and 2050 cover only non-residential buildings, while Portugal's targets cover only residential buildings. Germany does not provide the 2050 target (provides 2045 instead), while France does not provide the 2040 target.

Source: JRC elaboration based on Member States' reporting

Renewable energy: The draft NBRPs show a high level of completeness and ambition on renewable energy in buildings. Nearly all countries provide the current share of renewables in building energy consumption, and 11 set targets for 2030 or beyond (Figure 14). **By 2030, the share of renewable energy** from on-site, nearby and off-site sources in buildings' final energy consumption is expected to range from **40% to 90%**, indicating a **strong contribution from buildings to renewable energy uptake**. The analysis also shows good alignment with Article 15a of Directive (EU) 2018/2001, the 'RED', on the promotion of energy from renewable sources and with projections in the final national energy and climate plans (NECPs). Most countries also set targets for the deployment of solar technologies in buildings, although the indicators used vary. Eight countries set targets for the share of buildings equipped with solar technologies by 2030 to 2050. Solar photovoltaics is widely addressed, while solar thermal is explicitly included in six draft plans: Cyprus, Croatia, Germany, Lithuania, Romania and Portugal.

Figure 14. National targets for the **share of renewable energy** in buildings' final energy consumption by 2030.



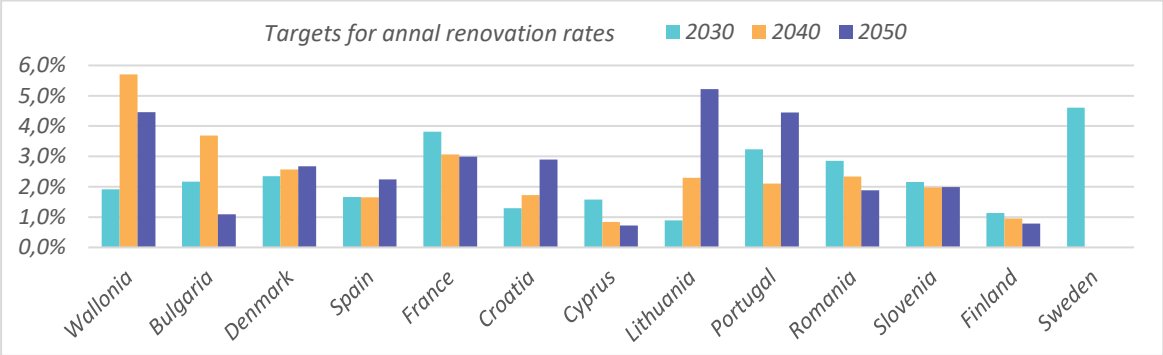
Note: Bulgaria, France, Netherlands and Romania do not provide targets for the share of renewable energy in building's final energy consumption. Cyprus provides several values, making the target unclear.

Source: JRC elaboration based on Member States' reporting

Renovation rates: Renovation rates remain **one of the most challenging indicators** in the roadmap. Data on baselines and progress in renovating the building stock remains highly incomplete, with fewer than half of the draft plans providing complete figures, highlighting the need to strengthen monitoring and reporting systems across Member States. A positive finding is that the **floor area targeted for renovation is included in almost all draft plans**. This provides a useful basis for calculating the annual energy renovation rate where it is not already provided by Member States.

Based on the available information, annual energy renovation rates range from **0.7% to 5.7%** (Figure 15), indicating that several Member States are setting out ambitious renovation pathways. Most annual renovation rates range between 1.0% and 3.0%. The **renovation rates vary significantly** across Member States and milestone years. Some countries begin with higher rates by 2030 and then decelerate their efforts, while others start slower and increase their efforts after 2040. These variations are generally linked to the current status of their building stock, the estimated efforts required to implement Article 9 of the EPBD, and the national ambitions regarding a decarbonised building stock in 2050, as well as the depth of these renovations. At the same time, some targets appear preliminary and not yet fully verified, with inconsistencies compared with baseline data. Overall, the findings show that monitoring building renovation remains challenging for most Member States, but the inclusion of renovation floor-area targets in almost all draft plans represents a solid starting point for improving data quality, tracking progress and strengthening future implementation.

Figure 15. National targets for **annual renovation rates** for 2030, 2040 and 2050.



Note: The annual renovation rate is calculated as the ratio between the floor area renovated in a year and the total floor area identified for renovation. The JRC calculation for Wallonia, Bulgaria, Spain, Croatia, and Lithuania is based on floor area targets. Bulgaria includes only non-residential buildings, while Portugal includes only residential buildings.

Source: JRC elaboration based on Member States' reporting

Minimum energy performance standards (MEPS) for non-residential buildings are **one of the areas where further development is most needed** in the draft plans. Less than half of the submitted draft plans include them, and seven draft plans do not yet address MEPS at all. Where MEPS are included, thresholds are typically expressed in terms of **primary energy use**, in kWh/(m^{2}year), with significant variation across countries, reflecting, in particular, differences in climate. Most countries apply a single building category, while Bulgaria, Croatia, Spain and Sweden provide a more differentiated approach. Spain also accounts for climatic zones, which represents a useful example of tailoring MEPS design to national conditions. Except for Spain, all countries use energy performance certificates (EPCs) to identify the buildings covered by MEPS and define the thresholds. However, some countries note that the low share of certified non-residential buildings remains a significant limitation. Sweden stands out positively, with 44% EPC coverage across the non-residential building stock, providing a stronger basis for implementation and monitoring.

As **support measures for MEPS implementation**, several approaches are noted: countries aim to improve current identification systems through consolidated EPC registers or simplified assessment tools, as seen in Wallonia, Bulgaria, and Spain. Technical assistance measures, including the prominent role of one-stop shops, are frequently mentioned and highlighted in Cyprus, Croatia, and Romania. Financial support is planned to ease the renovation burden in several draft plans. On compliance checks, Denmark stands out as a good example, comprehensively addressing compliance checks and monitoring of MEPS implementation.

The national trajectory for the progressive renovation of residential buildings shows **greater completeness than MEPS for non-residential buildings**, with nine draft plans addressing it comprehensively. A particularly positive finding is that several Member States, such as Germany, Spain, Denmark, the Netherlands and Portugal, as well as the Walloon Region in Belgium, have set milestones for reducing average primary energy use by 2030 and 2035 that **go beyond the minimum EPBD requirements**. Another positive aspect is that five Member States have used cost-optimal levels to define average energy use by 2050, providing a more evidence-based basis for long-term renovation planning.

Worst-performing buildings: The identification of worst-performing buildings is **well addressed** in the draft plans, with 11 draft plans providing a clear definition. These buildings are most commonly defined on the basis of **EPC classes**, typically EPC class F or below. In some cases, the

definition is based on the year of construction, such as buildings constructed before 1970 in Croatia or before 2000 in Romania. The draft plans also show **a clear effort to prioritise the renovation of worst-performing buildings**, with specific renovation targets assigned to this segment of the building stock. In addition to the MEPS scheme for non-residential buildings, which effectively phases out the worst-performing non-residential buildings, several draft plans propose MEPS-based approaches to phase out residential buildings with poor energy performance. This is a positive signal of growing policy ambition. For example, France plans to phase out rental housing with EPC classes E, F and G by 2034, while the Netherlands aims to do so by 2028. The Walloon Region aims for the residential building stock to reach at least EPC class F by 2031.

Regarding the thresholds for **new and renovated zero-emission buildings** in terms of total primary energy use and operational GHG emissions, half of the countries include them. In most of these countries (seven), the maximum thresholds for total primary energy are set **10% lower than the current thresholds for nearly zero-energy buildings**. Future revisions of these values aligned with new cost-optimal calculation rounds are mentioned by several countries.

Energy poverty is addressed as a **common priority across all draft plans**, showing that Member States recognise its importance in the context of building renovation. However, **definitions and headline indicators vary significantly**. Some Member States fully align with the multidimensional definition in the EED while others focus on a single aspect, such as the share of the population unable to keep homes adequately warm or disproportionate energy expenditure. Almost all draft plans describe the baseline situation, with Germany being the only exception. This provides an important starting point for better monitoring and policy design. At the same time, only 30% of draft plans set clear targets for reducing energy poverty over the full planning period, making this one of the least developed target areas. **All countries propose measures to alleviate energy poverty**, which shows broad policy commitment. However, the financing committed to these efforts is not yet sufficiently addressed. Most Member States should better connect energy poverty reduction objectives with estimated financing needs and identified funding sources, in order to strengthen implementation and ensure that support reaches vulnerable households.

Housing affordability is **addressed in different ways across the draft plans**, reflecting the variety of national contexts and housing challenges. It is generally considered in relation to **vulnerable households**, showing that Member States are linking affordability with social protection and energy poverty. Some draft plans also identify **vacant housing as a barrier to renovation** (Bulgaria, Finland). However, only a limited number of Member States integrate affordable housing objectives into broader energy renovation measures. Good practices are identified in Spain and the Walloon region, which include measures aimed at **mobilising vacant housing stock** for use as social housing or keeping rents affordable. The final NBRPs offer a significant opportunity to more effectively embed affordable housing principles within building renovation, particularly in areas experiencing high housing demand stress.

Policies and measures are **generally well covered** in the draft NBRPs, with 12 draft plans including all mandatory policy areas listed in Annex II of the EPBD. This shows that most Member States have made significant progress in structuring their renovation policy frameworks. A key area for improvement is the overall **lack of quantified objectives** and expected impacts. These are fully provided only by Spain and the Walloon Region, while in the other 14 draft plans this information is included only partially. Based on the available data, the assessment found that **five draft plans appear to include sufficient policies to achieve their targets**, while for the

remaining plans more information is needed to confirm adequacy. At the same time, several Member States present **strong policy frameworks**, even where the impacts are not yet fully quantified, notably France and the Netherlands. Some draft plans go beyond the mandatory policy areas by including additional measures, such as indoor environmental quality in Portugal and climate resilience criteria in Wallonia. Overall, the draft plans show **broad policy coverage and several good practices**, while also highlighting the need for a clearer overview of the expected impacts of policies and measures in order to assess whether they are sufficient to achieve the NBRP targets.

Decarbonisation of heating in buildings is addressed by all countries, with **nine countries taking a comprehensive approach** by introducing clear and credible measures to phase out fossil fuels. While most countries aim to phase out fossil fuel boilers by the 2040 deadline, some are ahead of this deadline. Denmark plans to phase out fossil fuel boilers by 2035, Finland targets oil boilers by 2030, and Sweden reports only 1% fossil fuel use in heating currently. Although **heat pump deployment** is mentioned in all draft plans, only five countries are addressing it comprehensively. Efforts to develop efficient **district heating networks** and promote connection to it are noted in 12 drafts, and six mention using **biofuels in gas grids**, with Denmark, Spain, Croatia, and the Netherlands implementing specific measures. What is generally missing is a roadmap with quantitative targets for the fossil-fuel boiler phase-out by 2040 and an estimate of the share of boilers that will still use fossil fuels by then.

Investment needs are identified, **at least partially, in all draft plans**. In some cases, investment needs are identified only up to 2030, which provides a useful basis for further elaboration in the final version of the plan. However, most estimates lack a clear calculation methodology and input data. A positive practice is the use of building-level investment costs from the latest cost-optimal calculations, which can improve the consistency and credibility of the estimates (as seen in Walloon Region and Lithuania). Investment needs show considerable variation across countries. Five countries report investment needs below 200 EUR/m^2, four countries fall within the range of 200 to 500 EUR/m^2, and one country exceeds 500 EUR/m^2. This calculation identified the need for further verification of data in certain cases, as explained in the country assessments. The identification of **financing and funding sources** is less developed than the estimation of investment needs. Nine draft plans provide figures, while fewer provide a comprehensive overview of the sources of financing. Public funds generally cover between 20% and 30% of renovation costs. At the same time, greater emphasis is needed on the **mobilisation of private financing**, which is addressed in seven draft plans and will be essential to scale up renovation. With regard to the financing gap between identified needs and available funds, half of the draft plans indicate no such gap, while the other half would benefit from further clarification. Slovenia is the only Member State to explicitly identify a financing gap in its NBRP.

Generally, the **public consultation** processes were identified as inclusive, offering several opportunities for input and feedback. In many cases, expert groups and committees were involved at various stages of the draft plans' development, reinforcing the inclusive approach. However, in several cases, it remains unclear whether the feedback has informed the draft or will be used in the final version of the NBRP.

The overview of the national building stock is included in all draft plans, although the level of detail varies. All drafts provide floor area by building category and the number of issued EPCs by energy class, indicating a **solid understanding of building stock and energy performance baseline**. Half of the countries disaggregate building stock by year of construction, while five

provide data by climatic zone. Spain, Lithuania, and Romania offer additional breakdowns by regions, municipalities, and urban-rural distribution, respectively. The floor area data show that **building stock grew at different rates** between 2020 and 2023/2024, averaging 1% per year. Growth was lower in Spain and Portugal, at or below 0.3% annually, while Bulgaria and Romania experienced higher growth rates of 4% to 6% per year.

Completeness and consistency check have been conducted for all submitted draft plans. As noted, the draft plans are **largely complete**, showing that Member States have made significant progress in preparing more structured and comprehensive renovation plans. Some new elements, compared with the previous Long-term Renovation Strategies, are missing more frequently, notably **primary energy use** and **MEPS**. Positively, most of these elements are marked as **under development**, indicating that the final versions of the NBRPs are likely to include them. Regarding consistency with other reporting exercises, the assessment finds **strong consistency with the NECPs** in terms of building stock targets. Some inconsistencies remain, particularly concerning the number and floor area of non-residential and public buildings, including in relation to the 2025 national energy and climate progress reports. A further positive finding is the alignment in the use of primary energy factors with the latest cost-optimal reports, which supports the credibility and coherence of the draft plans.

5. Conclusions

This report provides the assessment of the draft national building renovation plans (NBRPs) submitted under the recast Energy Performance of Buildings Directive (EPBD). It covers 16 complete draft plans received between December 2025 and May 2026 from the Walloon Region (Belgium), Bulgaria, Denmark, Germany, Spain, France, Croatia, Cyprus, Lithuania, Netherlands, Austria, Portugal, Romania, Slovenia, Finland, and Sweden.

The assessment was carried out for each draft NBRP by analysing the ambition of the renovation roadmap (targets), policies and measures, investment needs and financial resources, completeness, and consistency with other reporting exercises, following the methodology described in Chapter 2 of this report.

The main objective of this assessment is to guide Member States in submitting complete and comprehensive final plans by 31 December 2026, aligned with the goal of achieving a highly energy-efficient and decarbonised building stock by 2050, and to identify the progress made and overarching trends in achieving national energy and climate commitments.

The results indicate substantial commitments towards EU objectives, with all draft plans setting targets for energy and greenhouse gas (GHG) emission reduction, supported by ambitious targets for building renovation in most cases. Furthermore, these are supported by comprehensive packages of policies and measures, which cover a broad range of policy areas including deep renovation, empowering vulnerable citizens, heating decarbonisation, renewable energy deployment, market barriers, skills gaps, indoor environmental quality and climate resilience. Compared to previous planning exercises, namely the long-term renovation strategies, there is greater completeness, homogeneity, and consistency, most likely due to the introduction of a common template under the recast EPBD.

However, areas commonly requiring further refinement include current renovation status, targets for energy poverty reduction, quantified impacts of policies and measures, and clarity on investment needs and financing sources. Additionally, newer requirements, such as minimum energy performance standards for non-residential buildings need further development in many cases. These areas have been highlighted in the country-specific assessments of each Member State's draft plan. Furthermore, the assessment identifies good practices that can serve as inspiration for other countries when developing the respective sections of their NBRPs.

The 16 draft NBRPs form a solid foundation for developing robust final NBRPs that aim to save energy, reduce GHG emissions, strengthen energy independence and security, lower energy bills, enhance health and indoor comfort, safeguard economic prosperity and social justice, and support renewable energy integration and grid stability.

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List of abbreviations and definitions

Abbreviations	Definitions
Annual renovation rate	The ratio between the floor area renovated in a year and the total floor area
BACS	Building automation and control systems
BSO	Building stock observatory
CDW	Construction and demolition waste
Cost-optimal level of minimum energy performance requirements	The energy performance level of a building or a building element which leads to the lowest cost during the estimated economic life cycle calculated according to Article 6 of EPBD
EED	Directive (EU) 2023/1791 on energy efficiency, the 'Energy Efficiency Directive'
EPBD	Directive (EU) 2024/1275 on the energy performance of buildings, the 'Energy Performance of Buildings Directive'
EPC	Energy performance certificate
EPEEF	Environmental Protection and Energy Efficiency Fund
ESCO	Energy service companies
ETS	Emission trading system
EU	European Union
GDP	Gross Domestic Product
GHG	Greenhouse gas
GWP	Global Warming Potential
H&C	Heating and cooling
JRC	Joint Research Centre
LTRS	Long-term renovation strategy
MEPS	Minimum energy performance standards
NBRP	National building renovation plan
NECP	National energy and climate plan
NECPR	National energy and climate progress report
NZEB	Nearly zero-energy buildings
OSS	One-stop shop
PEF	Primary energy factor

Abbreviations	Definitions
PV	Photovoltaics
RED	Directive (EU) 2018/2001 on the promotion of energy from renewable sources, the 'Renewable Energy Directive'
RRP	Recovery and resilience plan
RRF	Recovery and resilience fund
SCP	Social climate plan
SCF	Social climate fund
SME	Small-medium enterprise
SRI	Smart readiness indicator
VAT	Value-added tax
ZEB	Zero-emission building

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