

WALLOON LONG-TERM BUILDING RENOVATION STRATEGY

RECOGNISED BY THE WALLOON GOVERNMENT ON 12 NOVEMBER 2020



Planning Housing Heritage Energy

Department of Energy and Sustainable Buildings
Office for Sustainable Buildings

The building renovation strategy is a key element in Wallonia's transition to a carbon-neutral society

Wallonia's long-term energy renovation strategy is part of the implementation of Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018¹.

The Walloon long-term renovation strategy is a key link in policies to reduce greenhouse gas (GHG) emissions, to which Wallonia has committed by aiming for **carbon neutrality by no later than 2050, with an intermediate step of reducing GHG emissions by 55% by 2030, compared to 1990**².

The first version of this strategy was released on 30 April 2014. It was first updated in 2017, as an annex to the National Energy Efficiency Action Plan (NEEAP 4³) submitted to the Commission on 30 April 2017, and to the National Energy and Climate Plan (NECP) submitted in December 2019. This document constitutes the second update of this strategy.

The Walloon long-term building renovation strategy aims to mobilise investments in renovating the stock of public and private, residential and tertiary sector buildings. It is aligned with the principles of the Walloon Government, confirmed in particular in the regional policy statement. It aims to establish a highly energy-efficient and decarbonised building stock by 2050, while providing the occupants with healthy and comfortable environments conducive to the activities carried out there.

Implementation of the measures in the strategy is – and should be – constantly coordinated with the Government's other plans⁴.

The Walloon long-term building renovation strategy contributes to the Region's objectives, including in relation to employment, health, poverty, the competitiveness of businesses and environmental protection.

It complements other actions to reduce energy consumption and greenhouse gas emissions, including the project led by the Walloon Government.

The Walloon long-term renovation strategy was drawn up on the basis of several working groups and consultations with stakeholders and experts from the building sector and associated sectors (building

¹ Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amends Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency. Article 1(2) amends Directive 2010/31/EU on the energy performance of buildings by inserting Article 2a into the obligation to develop a long-term renovation strategy for buildings, replacing Article 4 of Directive 2012/27/EU on energy efficiency.

² Regional policy statement 2019-2024.

³ NEEAP 4 = Fourth National Energy Efficiency Action Plan, a strategic tool for reporting to the European Commission, intended to monitor the energy efficiency pathway in the context of energy and climate commitments.

⁴ In particular: the Walloon Energy and Climate Plan; legal framework introduced by the legislation on the energy performance of buildings; Walloon Climate Decree; Sustainable Development Strategy, Regional Development Plan; Walloon Anti-Poverty Plan 2020-2024.

materials, glass, etc.) and academic, economic and public entities. The working groups⁵ and consultations helped to gather all the latest analyses and expertise and contribute to developing the strategy⁶.

The objectives of the renovation strategy for building stock are (i) to improve occupant comfort and health, with a particular focus on energy-poor occupants; (ii) to reduce the environmental impacts associated with the infrastructure and occupancy of the building stock; and (iii) to reduce the Region's energy dependency.

More specifically, aligned with the proposals made in the regional policy statement 2019-2024, the Walloon building renovation strategy has the following objectives:

- residential. Work towards the decarbonised EPB A rating as an average for the entire housing stock by 2050, prioritising deep renovation of the least efficient housing, and ensuring that any renovation project forms part of a comprehensive assessment consistent with Wallonia's targets and formalised in the timetable for implementing the renovation strategy⁷.
- tertiary. Work towards a tertiary building stock that is energy-efficient⁸ and carbon-neutral⁹ in heating, domestic hot water, cooling and lighting, by 2040.

The Walloon long-term renovation strategy is based on three priorities, which jointly contribute to improving the quality, depth and rate of energy renovations:

- Priority 1 aims to create a transparent framework favourable to energy efficiency investments;
- Priority 2 aims to organise and strengthen the market supplying goods and services associated with renovation; and
- Priority 3 aims to boost demand for energy-efficient and carbon-neutral buildings.

The three priorities are broken down into objectives, which are themselves broken down into measures and actions, three quarters of which are planned for the short term. Several of the measures and actions have been approved in other texts, such as the Walloon Energy and Climate Plan.

Each measure is detailed in the report, defining and explaining the objective, the context, the initiatives required by 2024 and initiatives to be undertaken in the medium term.

The actions are prioritised and organised in the work plan for implementing the strategy. Responsibilities are identified, including cross-cutting responsibilities between the Government and public authorities concerned. A tool was developed as part of the strategy to monitor the implementation and impact of the actions. The priority now is to ensure effective implementation of these measures and actions.

The consultations carried out in updating the long-term renovation strategy (LTRS) consistently demonstrated the **need for a regulatory framework** to trigger the required volume and quality of renovations. The 2017

⁵ In 2016-2017, five working groups were organised on the topics of 'Performance levels', 'Tools and implementation', 'Monitoring', 'Financing' and 'Tertiary sector'. The following additional topics were added to these working groups for this update: 'renovation of public buildings', 'energy poverty and split incentive' and 'cross-cutting government actions'. There was also a more in-depth exploration of the issues of funding and mobilisation of investments.

⁶ The work was overseen by the Department of Energy and Sustainable Buildings within the Operational Directorate General for Spatial Planning, Housing, Heritage and Energy (DGO4) and by the team of the Minister for Climate, Energy and Mobility.

⁷ The short- and medium-term renovation targets for the various segments of the housing stock are presented in detail in the report;

⁸ The target for their combined final energy consumption is set at 80 kWh_{fe}/m²/year.

⁹ Net-zero annual energy balance, with energy needs met by renewable sources.

version of the LTRS indicated that the 2020 update should propose the timely introduction of energy performance obligations for existing buildings.

Any change in regulations (whether binding or incentive) governing the energy performance of buildings must meet the following criteria:

- **stability** of the support and performance monitoring mechanisms;
- **progressiveness** in the performance levels required;
- **transparency** in policies and measures implemented along with predictability, as far as possible;
- **technical feasibility** with regard to technological developments.

It is essential that beneficiaries, as well as professionals in the sector, can anticipate the progressiveness of the measures. In the same vein, improving predictability, through a medium- and long-term timetable to clearly indicate to everyone where the regulation is heading, helps to ensure that the right investment decisions are made.

Obligations will be introduced to improve the energy performance of buildings at key moments in their life cycle (purchase/sale, change of tenant, donation/inheritance, other renovation work), while ensuring that these measures do not restrict access to the property or reduce the supply of housing. In particular, an obligation will be introduced to carry out the work within 5 years of the purchase. Support will be put in place to enable the work. These **obligations of means** will be combined with an **obligation of performance** through gradual raising of the minimum authorised EPB level.

Three key tools were identified in the 2017 version of the renovation strategy: the building passport, the renovation roadmap and the one-stop shop for comprehensive support for households.

The building passport is a structured and flexible comprehensive file containing all the information required to describe the condition of a building. It is intended to accompany the building throughout its life. The building passport gathers all the data and information on the building, divided into administrative, technical and energy aspects. It is transferred on each change of ownership, digitally or in hard copy. It provides a central repository for all the features and specifications of the building concerned, and, in the renovation roadmap it includes, specifies all the renovation work carried out and to be carried out.

The renovation roadmap is included in the housing audit; it outlines the renovation pathway, in stages, to achieve the A rating. The investments needed and the annual gains are quantified here. The roadmap also highlights the wider benefits, particularly in terms of health, comfort and quality of life. The housing audit and its roadmap will be included in the building passport. The roadmap will be promoted and rolled out to give building owners insight into the work needed to bring their building up to optimum energy performance.

The energy one-stop shop brings together all support services for households in energy and housing matters. The introduction of this one-stop shop will be an opportunity to streamline existing services to support owners in their renovation decisions and procedures. It will guide the household in the type of energy renovation to carry out, ensure that the work is in line with the renovation roadmap and identify how to finance and carry out the work. To encourage both households and professionals, the one-stop shop initiative will be improved and rolled out across Wallonia.

Work has since been carried out to develop the roadmap and the building passport.

The stakeholder consultations conducted in preparing this version of the strategy highlighted the importance of moving forward in the development and roll-out of two key tools:

- integrated support for householders in the form of a one-stop shop, which remains a crucial tool to trigger and ensure the quality of the renovation of residential buildings;
- a methodology – and associated tools – for all owners, occupants and managers of non-residential buildings to develop a comprehensive and long-term property strategy.

Introduction of the renovation strategy is a necessary but not sufficient condition to achieve the low carbon targets: beyond the improvements made to buildings, the necessary transformations need to be implemented in other sectors, including the electricity generation sector.

The **investment requirements** for the renovation strategy 2020-2050 have been updated, following additional work carried out by the Government and stakeholders.

The **investment requirements** are estimated at €120 billion for the renovation of residential buildings and €34-57 billion for tertiary buildings, over the 30-year period.

Improving the leverage effect would mean that public subsidies could be maintained at the current level while funding these investments. It is thus vital to initiate discussions and launch pilot projects to improve the leverage effect. In addition to improving the leverage effect, success in mobilising European funds and the design of innovative mechanisms would help Wallonia to avoid overstretching public debt.

The introduction of measures to facilitate financing and mobilise investments is a **necessary but not sufficient condition** for achieving the long-term objectives set in this strategy. Without a progressive but strict regulatory framework, eventually requiring all buildings to comply with minimum standards in terms of energy performance and greenhouse gas emissions, the incentives and funding facilities put in place will not reach the targets.

The cost to the public authorities of implementing the strategy **depends on a series of variables which can be influenced by the public authority**. Significant budgets have already been mobilised; the additional effort required is less than it may seem. It would also be wrong to think that the renovation strategy represents only a cost for the regional budget: it also represents jobs, specialisation, economic activity, household comfort, positive impacts on health and less dependency on energy supplies, as well as responding to binding European requirements.

For buildings belonging to the public authorities, the crucial point is that a policy decision can mobilise the renovation of a large number of buildings. To unleash the quality and volume of renovations required, it is vital to facilitate the funding of renovation projects for public buildings. Firstly, this will involve **organising and disseminating information on the range of funding solutions available**, and in particular improving knowledge of the potential of non-consolidated private third-party finance¹⁰. Secondly, it will involve **connecting project leaders with investors**, for example via a platform for funding the renovation of public buildings.

For private housing, we will need to promote access to credit for deep renovation for as many people as possible: 75% of the building stock comprises private housing and the vast majority of owners will use a mortgage or instalment loan to finance the work. It is a priority to **work in collaboration with consumer banks to optimise the terms for 'traditional' loans so they can be used to finance deep renovation**. It is also essential to **develop new financial products to provide a finance solution for owners without access to traditional loans** due to age or income. This is all the more important given that Wallonia wishes to prioritise the renovation of the least efficient housing, the owners or tenants of which are more likely to be vulnerable households. The Region will conduct a pilot project to test schemes such as **granting low-interest credit and building loans, secured by the Region, for those currently without access to traditional credit**.

There is also a need to introduce one-stop shops covering all the necessary procedures. The aim is to address all the technical, financial and administrative constraints that may be encountered when wishing to renovate a home. Facilitating the introduction of these shops within the community is a priority among the proposed

¹⁰ Beyond the limits of public debt, in line with the standards of Eurostat's European System of National and Regional Accounts.

measures relating to private housing. It will also present an opportunity to streamline existing services to support owners in their renovation decisions and procedures.

For private tertiary buildings, the assumption is that the private sector will undertake the necessary work when the economic balance tips, so that it becomes more expensive to do nothing than to embark on renovations. Acting on **corporate tax** will help to encourage the private sector to make the necessary adaptations. Particular care will be taken not to reduce the autonomy of local authorities.

There are various means available to mobilise investments.

Private savings could be mobilised: Belgians currently hold more than €280 billion in savings accounts¹¹. Some of these savings could help to meet national and regional energy efficiency targets. It is essential to **develop one or more investment funds for renovation, issue bonds to renovate public buildings and develop or invest in crowdfunding platforms that finance property projects**, which will enable us to harness some of these savings and create significant leverage for public investment in renovation.

European funds are another source of finance¹². We should underline here the importance of the **LIFE programme**, which will have a new profile from 2021, including a specific sub-programme on energy with a budget of €1 billion. The advantage of this programme is that it supports region-wide application of established solutions by facilitating implementation through substantial EU co-financing (currently covering 60% and 75% of eligible costs). The current programme ends in 2020; its successor is now being drawn up and it is important for the Region to participate¹³.

Finally, regional funds should also be used. Some households have a healthy financial status, but nevertheless insufficient to obtain the necessary credit from banks. For banks, this customer segment presents a slightly higher risk profile than their risk management policy is prepared to accept. As part of a pilot project to develop innovative financial products to cover deep renovation for those excluded from traditional credit, the Region could take responsibility for the excess risk presented by this segment, which has resulted in refusal to grant credit. These regional funds are a guarantee and not an expense¹⁴.

¹¹ Outstanding amounts in regulated individual savings accounts, December 2019. Statistics published by the National Bank of Belgium (<https://stat.nbb.be>).

¹² There is a complex mapping of European programmes and projects, which is described in Annex 7.

¹³ For a detailed description, see Annex 7.

¹⁴ There will only be an expense if the risk materialises.

The building renovation strategy offers initial benefits in the short term

Renovations such as improvements to the envelope, improvements to heating and cooling systems, better interior lighting and better ventilation offer benefits that go beyond energy savings and GHG emission reductions¹⁵.

For the user, improving the energy performance of buildings has a direct impact on the energy bill and also has beneficial consequences for health, comfort and well-being. For the public authorities, besides the advantages in terms of securing an energy supply and reducing climate impact, improving the energy performance of buildings has many macroeconomic advantages, improving public finances and reducing business costs.

The renovation of buildings usually involves local companies. By increasing the rate of renovation, the strategy helps to create significant activity and jobs for the Walloon construction sector, which is largely made up of (very) small and medium-sized enterprises (SMEs).

The tightening of energy performance requirements is an opportunity to develop Walloon industries. It enables professionals to develop advanced skills in techniques relating to the building envelope and systems and contributes to the development of related activities, such as equipment manufacturing, engineering and research and even the emergence of new trades.

Substantial improvement to the energy performance of buildings could have a positive impact on public finances by increasing tax revenue and reducing public expenditure. It would also enable a reduction in energy dependency on fossil fuels and dependency on the geopolitical context for the associated imports.

Energy renovation of a building improves occupant comfort and quality of life. Several studies¹⁶ show that energy improvements to a building and good building management improve indoor comfort, which generates public health benefits, reducing respiratory and cardiovascular diseases and mortality and improving quality of life and life expectancy¹⁷.

Reducing energy consumption also reduces air pollution and the emission of air pollutants (nitrous oxides, sulphur oxides and fine particles). According to these studies, the economic gain in terms of health costs is estimated between 2% and 4% of the GDP¹⁸.

In the case of the most vulnerable households, who often rent housing in poor condition, renovation of this housing would mean they could immediately benefit from gains in quality of life and comfort, reduce their costs and spend the savings on other necessities instead.

The Walloon long-term building renovation strategy presented in this report could be usefully supplemented by additional work, particularly in intensifying the actions.

¹⁵ Although these are real wider benefits, they are difficult to estimate as they depend on multiple factors (local conditions, method of implementing the measures, etc.).

¹⁶ In particular: *Multiple benefits of investing in energy efficient renovation of buildings*, Copenhagen Economics for Renovate Europe, 2012; *Ventilation and Performance in Office Work*, Helsinki University of Technology, 2006; *The Economic Consequences of Climate Change*, OECD, 2015; *Multiple Benefits of Energy Efficiency*, IEA, 2014; *The co-benefits to health of a strong EU climate change policy*, Ecometrics Research and Consulting, 2008; *Moving towards ambitious climate policies: Monetised health benefits from improved air quality could offset mitigation costs in Europe*, Schucht et al., 2015;

¹⁷ IEA (2014), *Multiple Benefits of Energy Efficiency*.

¹⁸ OECD (2015), *The Economic Consequences of Climate Change*.

The document is structured according to the five components of the strategy as stipulated in Article 4 of the Energy Efficiency Directive:

1. Chapter I presents the overview of the building stock and the renovation targets;
2. Chapter II presents the costs and cost-effectiveness of renovating Wallonia's buildings;
3. Chapter III presents the policies and measures to stimulate the energy renovation of buildings;
4. Chapter IV presents financing for the energy renovation of buildings; and
5. Chapter V presents the wider benefits.

Two chapters have been added to clarify the following:

6. the roadmap for implementation of the measures and actions under the strategy, along with the indicative milestones for 2030 and 2050;
7. monitoring of implementation of the measures and actions presented in previous versions of the strategy.

The Annexes supplement the various chapters by structuring all the information and analyses. They are presented in a separate document available on the Government portal¹⁹.

¹⁹ <https://energie.wallonie.be/fr/strategie-de-renovation.html?IDC=9580>

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INTRODUCTION

This renovation strategy forms part of the implementation of Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency. Article 1(2) amends Directive 2010/31/EU on the energy performance of buildings by inserting Article 2a into the obligation to develop a long-term renovation strategy for buildings, replacing Article 4 of Directive 2012/27/EU on energy efficiency.

This renovation strategy has been designed to respond to the challenges faced by the European Union resulting from its increased dependency on imported energy and its limited energy resources, as well as the need to fight climate change and overcome the economic crisis. Energy efficiency is an essential tool with a positive impact on several levels. It improves the security of energy supply by reducing primary energy consumption and limiting energy imports. It helps to reduce greenhouse gas emissions and thus mitigate climate change. Finally, it contributes to disseminating innovative technological solutions and to improving competitiveness in industry, thus stimulating economic growth and creating jobs in sectors linked to energy efficiency. It also helps to improve comfort levels and reduce public health risks.

Article 4 of the Energy Efficiency Directive 2012/27/EU requires Member States to establish a long-term strategy for mobilising investment in the renovation of the national stock of residential and commercial buildings, both public and private. This strategy should include the following five components, which form the backbone of this report:

- an overview of the national/regional building stock based, as appropriate, on statistical sampling;
- identification of cost-effective approaches to renovations relevant to the building type and climatic zone;
- policies and measures to stimulate cost-effective deep renovations of buildings, including staged deep renovations;
- a forward-looking perspective to guide investment decisions of individuals, the construction industry and financial institutions;
- an evidence-based estimate of expected energy savings and wider benefits.

Article 2a of Directive (EU) 2018/844 strengthens and supplements the obligations arising from Article 4. In addition to the mandatory elements that the strategy must include, it stipulates the following.

- Each Member State shall set out a roadmap with measures and measurable progress indicators, with a view to the long-term 2050 target. The roadmap shall include indicative milestones for 2030, 2040 and 2050, and specify how they contribute to achieving the Union's energy efficiency targets in accordance with Directive 2012/27/EU.
- To support the mobilisation of investments in the renovation work needed to achieve the targets, Member States shall facilitate access to appropriate mechanisms.
- To support the development of its long-term renovation strategy, each Member State shall hold a public consultation prior to submitting it to the Commission.
- Each Member State shall annex the details of the implementation of its most recent long-term renovation strategy to its long-term renovation strategy.

The first version of this strategy was published on 30 April 2014. It was updated and annexed to the NEEAP 4²⁰ submitted to the European Commission in 2017. The 2017 document is organised around the components prescribed in the Directive, to which a section (Section 0 of Chapter I) is added describing the targets set by Wallonia. It was integrated into the Walloon Energy and Climate Plan (*Plan Wallon Energie Climat – PWEC*) sent to the Commission in December 2019 as part of the National Energy and Climate Plan (NECP).

The update aims to adapt and enhance Wallonia's 2017 long-term building renovation strategy, so as to transpose the increased obligation resulting from the new Directive (EU) 2018/844.

This strategy is in a context that is both broader and more local. Broader in that it derives its ultimate objective from international climate ambitions and their implementation, and more local in that it forms a concrete part of a set of converging Walloon policies.

CLIMATE CHANGE MAKES IT NECESSARY TO RAPIDLY REDUCE GHG EMISSIONS

The world is facing a series of societal challenges, one of which is climate change. A broad consensus recognises that greenhouse gas emissions linked to human activities are responsible for the observed increase in the Earth's temperature.

It is in this context that all the Parties to the United Nations Framework Convention on Climate Change recognise the need to reduce greenhouse gas emissions to limit the increase in the global average temperature to 2°C above pre-industrial levels. The Paris Agreement, which was adopted in December 2015 and entered into force in November 2016, formalises this objective.

THE EUROPEAN UNION SETS VERY AMBITIOUS TARGETS

The European Union has shown its determination to address the situation and lead the way by showing how to achieve the objective. In its Climate Law, the European Commission sets a target of achieving carbon neutrality by no later than 2050. The Commission also suggests that the reduction target for 2030²¹ be revised upwards, to at least -50% and towards -55% compared to 1990. The target would be set by September 2020, on the basis of an impact study currently in progress.

The 2030 target currently in force is broken down as follows:

- target of -43% by 2030, compared to 2005, for the sector subject to the Emissions Trading Scheme (ETS) Directive (2003/87/EC);
- target of -30% by 2030, compared to 2005, for other sectors (non-ETS, such as transport and building) which are governed by the Effort Sharing Decision (ESD) 406/2009/EC.

The Commission has also launched a European Energy Union project²². The aim of this European Energy Union is to ensure affordable, secure and sustainable energy for European citizens and businesses.

In addition to this objective, the European Council set more ambitious targets in 2016 in its vision for 2030-2050 than it had done in 2014: a target of at least 32% of energy consumption from renewable sources, and an improvement in energy efficiency of at least 32.5%²³ by 2030.

²⁰ NEEAP 4 = Fourth National Energy Efficiency Action Plan, a strategic tool for reporting to the European Commission, intended to monitor the energy efficiency pathway in the context of energy and climate commitments (Package 3*20%).

²¹ Target of at least -40% by 2030 compared to 1990, submitted jointly by the European Union and its Member States as a contribution to the Paris Agreement.

²² https://ec.europa.eu/energy/topics/energy-strategy/energy-union_en

²³ In the proposed revision of Directive 2012/27/EU on promoting energy efficiency, the Commission proposed a European target of 30% improvement in energy efficiency.

These targets were set in the wake of the European Council's decision to reduce EU greenhouse gas emissions by 80-95% by 2050 compared to 1990 levels²⁴. Figure 1 presents the main EU targets for 2020 and 2030²⁵.

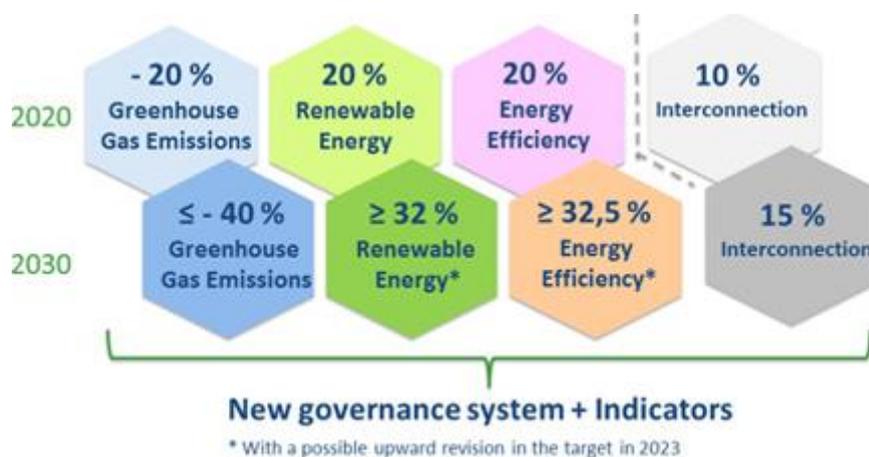


Figure 1. European Commission Package for 2020 and 2030

On 20 July 2016, the European Commission unveiled its proposal for an Effort Sharing Regulation (ESR) for non-ETS sectors. The major element is the distribution of the target between Member States. By 2030, this target will be the only binding target imposed on Member States. States will have to set their own targets for energy efficiency and renewable energy production. For Belgium, a very ambitious 2030 target of -35% compared to 2005 is proposed. Achieving this non-ETS target will require specific work on the transport and buildings (residential and tertiary) sectors, as well as on the development of renewable heat as an energy source. The building sector is thus a vital lever here.

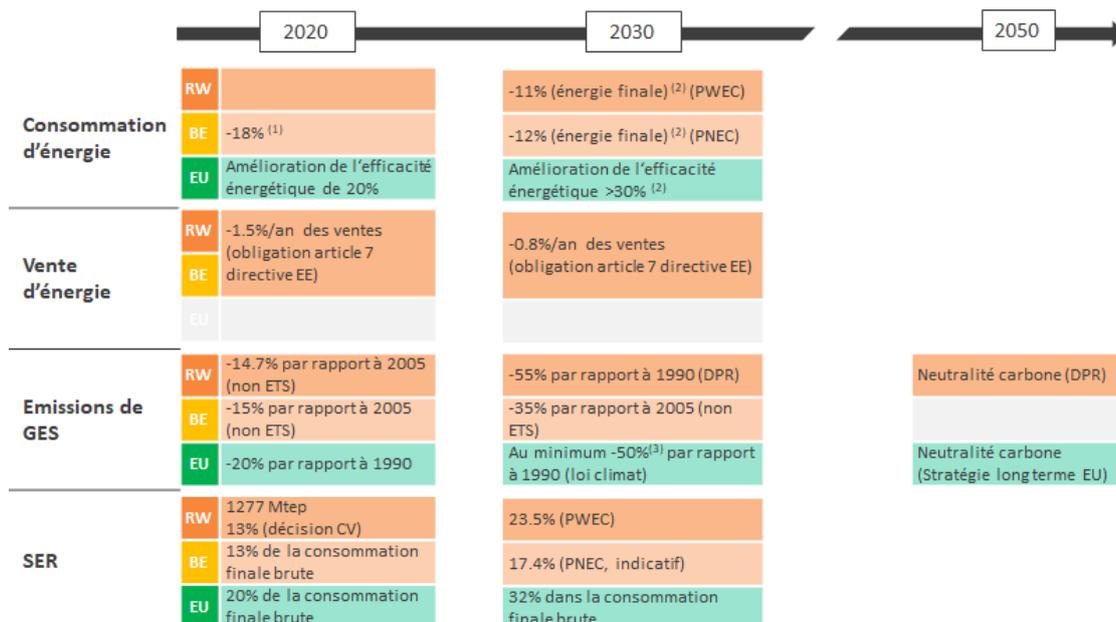
On 30 November 2016, the Commission published the package 'Clean Energy for All Europeans – unlocking Europe's growth potential'. This resulted in a series of directives and regulations, including the 2018/1999 Governance regulation, the amendments to the directives on the energy performance of buildings and energy efficiency and the revision of the directive on the promotion of renewable energy.

Figure 2 reviews the main targets (short-, medium- and long-term) affecting Wallonia, whether led by Europe, resulting from the distribution of Belgian targets between regions, or based on the ambitions of the Walloon Government:

²⁴ Presidency conclusions of 4 February 2011:

http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/119175.pdf

²⁵ The 2020 targets are: 20% reduction in GHG emissions; 20% of energy production from renewable sources; 20% improvement in energy efficiency. The 2030 targets are: 40% reduction in GHG emissions; at least 27% of energy production from renewable sources; at least 27% improvement in energy efficiency.



¹ vs Scénario Business-as-usual ² (directive EE en cours de négociation) par rapport à une valeur projetée en 2030 (PRIMES 2007) ³ sera évalué pour septembre 2020

Figure 2. Linkages between European, Belgian and Walloon (Walloon Public Service – SPW) targets

Consommation d'énergie	Energy consumption
Vente d'énergie	Energy sales
Emissions de GES	GHG emissions
SER	RES
RW	WR
BE	BE
-18% ⁽¹⁾	-18% ⁽¹⁾
EU	EU
Amélioration de l'efficacité énergétique de 20%	20% energy efficiency improvement
RW	WR
BE	BE
-1.5%/an des ventes (obligation article 7 directive EE)	-1.5% / year of sales (EE Directive, Article 7 obligation)
EU	EU
RW	WR
-14.7% par rapport à 2005 (non ETS)	-14.7% compared to 2005 (non-ETS)
BE	BE
-15% par rapport à 2005 (non ETS)	-15% compared to 2005 (non-ETS)
EU	EU
-20% par rapport à 1990	-20% compared to 1990
RW	WR
1277 Mtep 13% (décision CV)	1 277 Mtoe 13% (CV decision)
BE	BE
13% de la consommation finale brute	13% of gross final consumption
EU	EU
20% de la consommation finale brute	20% of gross final consumption
-11% (énergie finale) ⁽²⁾ (PWECE)	-11% (final energy) ⁽²⁾ (PWECE)
-12% (énergie finale) ⁽²⁾ (PWECE)	-12% (final energy) ⁽²⁾ (PWECE)
Amélioration de l'efficacité énergétique >30% ⁽²⁾	>30% energy efficiency improvement ⁽²⁾
-0.8%/an des ventes (obligation article 7 directive EE)	-0.8% / year of sales (EE Directive, Article 7 obligation)
-55% par rapport à 1990 (DPR)	-55% compared to 1990 (DPR)
-35% par rapport à 2005 (non ETS)	-35% compared to 2005 (non-ETS)
Au minimum -50% ⁽³⁾ par rapport à 1990 (loi climat)	At least -50% ⁽³⁾ compared to 1990 (climate law)
23.5% (PWECE)	23.5% (PWECE)
17.4% (PNEC, indicatif)	17.4% (NECP, indicative)
32% dans la consommation finale brute	32% of gross final consumption
Neutralité carbone (DPR)	Carbon neutrality (DPR)
Neutralité carbone (Stratégie longterme EU)	Carbon neutrality (EU long-term strategy)
¹ vs Scénario Business-as-usual	¹ vs business-as-usual scenario

² (directive EE en cours de négociation) par rapport à une valeur projetée en 2030 (PRIMES 2007)	² (EE Directive under negotiation) compared to a projected value in 2030 (PRIMES 2007)
³ sera évalué pour septembre 2020	³ to be assessed by September 2020

THE WALLOON REGIONAL POLICY STATEMENT CENTRES ON A 55% REDUCTION IN GHG EMISSIONS BY 2030

The revised strategy is perfectly aligned with the principles of the Walloon Government confirmed in the regional policy statement 2019-2024 with its triple ambition: social, ecological and economic. Its implementation must contribute to the Region's targets for transition and sustainable development, involving all stakeholders and maximising synergies. In particular, this strategy draws upon and supplements the following: the legal framework introduced by the legislation on the energy performance of buildings, the Walloon Climate Decree setting the target, the Walloon Energy and Climate Plan, the housing policy, the Anti-Poverty Plan, the Sustainable Development Strategy and the forthcoming Employment-Environment-Renovation alliance. The measures in the strategy will need to be implemented in coordination with these other plans. It is complementary to other actions promoting the reduction of energy consumption.

1. THE ENERGY RENOVATION OF BUILDINGS HELPS TO ALLEVIATE ENERGY POVERTY

While the energy renovation of housing is a core issue in energy policy and combating climate change, it has also been identified as a crucial route for structural solutions to energy poverty²⁶.

There is no officially recognised definition of energy poverty. The EU Energy Poverty Observatory refers to the following: 'Adequate warmth, cooling, lighting and the energy to power appliances are essential services needed to guarantee a decent standard of living and citizens' health. Furthermore, access to these energy services empowers European citizens to fulfil their potential and enhances social inclusion. Energy poor households experience inadequate levels of these essential energy services, due to a combination of high energy expenditure, low household incomes, inefficient buildings and appliances, and specific household energy needs.' The King Baudouin Foundation, which publishes the annual Energy Poverty Barometer for Belgium, has adopted the following conceptual definition: Energy poverty refers to a situation in which an individual or household encounters specific problems in meeting their basic energy needs at home²⁷

a) ENERGY POVERTY IN WALLONIA

According to the Energy Poverty Barometer²⁸, nearly one in five households in the Walloon Region records household energy expenditure that weighs too heavily on its budget. 3.7% of Walloon households (nearly 58 000 households) have to restrict their consumption to below their basic needs, and around 10% of Walloon households fear that they will not have the means to heat their homes properly.²⁹

Some households are more vulnerable than others, particularly low-income households (including households without income from employment), single-parent families or isolated people (especially older women).

²⁶ Huybrechs, F., Meyer, S., Vranken, J., 2011, *La précarité énergétique en Belgique*, Final report, 200 pages + annexes.

²⁷ (Huybrechs, F., Meyer, S., Vranken, J., 2011). *La précarité énergétique en Belgique*, Final report, 200 pages + annexes.

²⁸ King Baudouin Foundation, 2019, Energy Poverty Barometer (2009-2017)

<https://www.kbs-frb.be/fr/Activities/Publications/2019/20180315NT>

²⁹ Walloon Public Service (SPW), Wallonia-Brussels Federation, IWEPS (2020), *Rapport sur la Cohésion sociale en Wallonie – Droit à l'Énergie et à l'Eau*. <http://cohesionsociale.wallonie.be/publications/RCS>

Tenants, both in the public and private sectors, are particularly affected. The potential explanations for this namely include the fact that tenants have, on average, lower incomes than owner-occupants, and the fact that rented housing has generally received less investment in energy efficiency ('split incentive dilemma', also referred to as 'owner/tenant dilemma' in the residential or tertiary sectors).³⁰

The impacts of energy poverty on the mental and physical health of those affected – due in particular to the risk of falling into debt or the experience of living in poorly heated and poorly lit housing – have been well demonstrated, as have the indirect effects this can have on children's education or adults' careers. In addition, housing that is damp and poorly heated will deteriorate more rapidly³¹.

There must therefore be an inclusive energy transition in the form of a global approach, with synergies between policies that are still too often carried out separately, in order to achieve the environmental targets set, particularly in a context of limited public resources. This is especially important given that the lack of a global vision for these different issues can also result in counter-productive effects.

Counter-productive effects. A carbon tax, for example, risks having a disastrous impact on energy-poor households in the absence of overall improvements to the energy efficiency of their housing, while the adoption of social energy tariffs risks making investments to improve energy efficiency less attractive. It should therefore be accompanied by in-depth reflection on redistribution.

Synergy. Where the two policies seem to agree, on the other hand, is on the need for ambitious improvements to the energy efficiency of housing – an objective that brings multiple dividends. If the improvement to energy efficiency is not at a sufficient level, there is a risk it will be partially, or even totally, wiped out by the rebound effect. (Meyer, S. and Maréchal, K., 2016, *Policy brief – 'Split incentive(s)' et rénovation énergétique des logements*, Policy Papers CEB 16-001, ULB, 12 pp.).³² Low-income owners and tenants must have access to compensatory measures to avoid an increase in the overall cost of housing.

b) WALLOON ANTI-POVERTY PLAN

On 10 September 2015, the Walloon Government adopted the Anti-Poverty Plan, with the aim of developing as wide-reaching an approach as possible to combat poverty, addressing both individuals already living in poverty and those at risk of poverty. Through this Plan, the Government intends to work on the priorities it has set to meet the targets in the Europe 2020 strategy and help to ensure that as many Walloons as possible can live in conditions consistent with human dignity and the standards of our societies.

The ambition of this first Anti-Poverty Plan is to supplement existing mechanisms with an integrated policy directed at anyone living in or at risk of living in poverty. Within the framework of regional competences, it will identify specific actions that have a concrete impact on the daily realities of people living in poverty or those at risk of poverty. It was followed by a second plan for 2017-2019. This plan aims to provide a route out of poverty, as well as action against poverty on a daily basis and cross-cutting action. Its themes focus on employment, training and housing policy, with an emphasis on automatic access to rights. All the

³⁰ Meyer, S. and Maréchal, K., 2016, *Policy brief – 'Split incentive(s)' et rénovation énergétique des logements*, Policy Papers CEB 16-001, ULB, 12 pp.

³¹ Energy Poverty Handbook 2016. <http://bpie.eu/publication/energy-poverty-handbook/>.

³² See also the summary table of potential interactions between climate policy and alleviating energy poverty by Ürge-Vorsatz, D. and Herrero, S. T. (2012) in Meyer, S. and Maréchal, K. (2016), *Policy brief – Précarité énergétique et logement en Région wallonne*, Policy Papers CEB 16-002, ULB, 17 pp.

responsibilities of the Walloon Region (housing, energy, health, mobility, economy, tourism, etc.) are therefore affected by this overall objective of reducing inequalities.

On 25 June 2020, the Walloon Government acknowledged a guidance note on the Walloon Anti-Poverty Plan 2020-2024³³. This will serve as a basis for updating the Anti-Poverty Plan.

All the measures in this renovation strategy that aim to reduce the financial burden of energy costs or help to improve the health and comfort of occupants, reducing their medical costs, contribute to the objectives of this plan.

2. NEW EMPLOYMENT-ENVIRONMENT-RENOVATION ALLIANCE DEVELOPED FOR WALLONIA

The introduction of an Employment-Environment-Renovation alliance (AEER), as included in the regional policy statement, is designed to stimulate demand for building renovation and build capacities in the renovation, sustainable construction and eco-construction sectors, in companies in the natural insulation sector and in renewable energy production, and to also develop the necessary skills. The first Employment-Environment Alliance developed in Wallonia, which initially focused on sustainable construction/renovation, has been reoriented to cover the overall renovation of buildings, particularly in terms of energy efficiency.

This alliance is helping to improve the quality of Walloon buildings, both residential and commercial, by reducing energy consumption and CO₂ emissions, improving occupant comfort and boosting demand (private and public) for renovation work, helping to support or even develop local employment. The recent study on the macroeconomic impacts of the low carbon transition in Belgium shows that it could lead to net job creation, with the highest number of jobs created directly being expected in the construction sector³⁴.

3. THE REGIONAL DEVELOPMENT PLAN ENABLES A SYSTEMIC APPROACH TO BUILDING RENOVATION

The Regional Development Plan (*Schéma de développement du territoire – SDT*)³⁵ provides Wallonia with a set of medium- and long-term measures enabling the Region to anticipate and respond to the future needs of its population. At both local and regional level, it must serve as a common thread in the choices and priorities set to achieve this common objective together.

The new issues and challenges in today's world, and the entry into force of the new Territorial Development Code (CoDT) in June 2017, have led the Walloon Government to revise the Regional Spatial Development Plan (SDER).

As prescribed in the CoDT, the Regional Development Plan defines the regional strategy for Wallonia. It was prepared on the basis of a contextual analysis and numerous regional stakeholders, experts and actors were involved in drafting it. It incorporates the ecological connectivity adopted by the Government on 9 May 2019. The significant likely impacts of its implementation have been identified, described and assessed in the environmental impact report commissioned by the Walloon Government. It was submitted for public inquiry from 22 October 2018 to 5 December 2018.

³³ Available at https://www.wallonie.be/sites/default/files/2020-06/plan_wallon_de_sortie_de_la_pauvrete_2020-2024_-_note_dorientation_-_juin_2020.pdf

³⁴ Macroeconomic impacts of the low carbon transition in Belgium, 2016, CLIMACT, the Belgian Federal Planning Bureau and Oxford Economics.

³⁵ http://lampspw.wallonie.be/dgo4/site_aménagement/amenagement/sdt

Adopted by the Walloon Government on 16 May 2019 and published in the Belgian Official Journal on 12 December 2019, the Regional Development Plan will enter into force on a date to be determined by the Government.

A) CURRENT AND FUTURE NEEDS FOR ACCESSIBLE HOUSING MUST ADAPT TO SOCIO-DEMOGRAPHIC, ENERGY AND CLIMATIC CHANGES

Challenges

To keep pace with new housing needs and ensure the well-being of its occupants, the design of housing must take into account demographic trends (expected increase in elderly and isolated people, but also changes in household size) and economic trends (increased household poverty). The housing stock also needs to be renovated to cope with changes in the climate, as well as energy performance requirements.

Implementing principles: optimise land and reuse 'well-placed' buildings

Public authorities must strive to identify and enhance territorial resources (land and buildings), in particular to meet the housing needs of the population at regional, supra-municipal, municipal and local levels. Wallonia's goal is to combat urban sprawl, make rational use of land and resources and reduce dependence on cars. These imperatives mean that public authorities need to prioritise land and buildings in urban centres or near points of connection to public transport networks, both in renovation and urban regeneration work and in the development of new residential districts. They will also need easy access to services and equipment. Buildings with recognised heritage value are a particularly valuable resource for managing the quality of the living environment where they are surrounded by similar buildings. Their renovation is therefore to be encouraged. In contrast, degraded housing that cannot be renovated and has no recognised heritage value can be demolished and replaced by new constructions.

Management and planning measures

Work towards 50% of new housing being built in urban and rural centres by 2030, and 75% by 2050.

Support measures must be put in place to address the potential consequences of these provisions.

It is proposed to achieve this through the following:

- identify, in the sectoral plan and development plans for single and multiple municipalities, suitable residential areas for densification of housing that is appropriate and tailored to the local area;
- work on the priority targets for the Walloon long-term renovation strategy;
- adjust tax and renovation incentives to reflect the suitability of the housing being built.

B) ENSURING ACCESS TO ENERGY FOR ALL AS PART OF THE ENERGY TRANSITION

Challenges

Ensuring access for all to affordable, secure and sustainable energy will require the management of energy production, consumption and storage. Wallonia is committed to the energy transition in response to the major challenge of anticipating the consequences of climate change, combating global warming and protecting biodiversity and health.

Implementing principles

The primary role of land use planning is to limit and reduce energy consumption. This involves encouraging a mixture of activities in existing centres and slowing urbanisation beyond areas that are already built up. In terms of the building stock, existing buildings are renovated and insulated, while new construction is designed to be energy-efficient (low-energy/passive construction, insulation). A greater density of buildings is recommended to help achieve this.

Management and planning measures

- Invest in the renovation of existing buildings, in both the public and private sectors, prioritising the insulation of housing;
- expand controls and incentives for improving the energy performance of buildings (energy audits for individuals when buying/selling property, obligation for large companies to conduct audits every four years) and for research into cost-effectiveness (cost/benefit ratio) of energy co-generation facilities;
- develop a benchmark for choosing between renovation and demolition/reconstruction of an existing property;
- work on the priority targets for the Walloon long-term renovation strategy.

4. THE CLIMATE DECREE AND REGIONAL POLICY STATEMENT SET AMBITIOUS TARGETS FOR THE REDUCTION IN GHG EMISSIONS

The Climate Decree of 19 February 2014 sets targets for reducing greenhouse gas (GHG) emissions by 30% by 2020 and by 80-95% by 2050, compared to 1990 levels³⁶. The decree also indicates that, in the absence of a decision by 31 December 2020, the target that will be adopted will be -95% by 2050. Wallonia's contribution to Belgium's National Energy and Climate Plan, approved by the Walloon Government on 28 November 2019, contains numerous measures to reduce GHG emissions and improve air quality. This plan thus implements the Climate Decree and should help to meet the emission budgets set for 5-year periods by the Walloon Government.

The regional policy statement (DPR) strengthens the target in the Climate Decree and defines an intermediate step by 2030. The Government stipulates in the DPR that **Wallonia is aiming for carbon neutrality by 2050 at the latest, with an intermediate step of reducing greenhouse gas (GHG) emissions by 55% by 2030, compared to 1990**. These targets will require the implementation of ambitious policies.



Figure 3. Trajectory of total GHG emissions in Wallonia [MtCO₂e/year, % of 1990] (Wallon Climate and Air Agency - AwAC, CLIMACT).

-1.3% par an	-1.3% per year
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³⁶ These targets include ETS and non-ETS sectors.

BUILDINGS HAVE A KEY ROLE IN THE TRANSITION TO A LOW CARBON SOCIETY

In 2017, buildings were responsible for 38% of the Region's energy consumption (28% from residential buildings, 10% from tertiary). This consumption represents 21% of the region's GHG emissions (17% from residential buildings, 4% from tertiary). The breakdown of energy consumption and GHG emissions by sector is shown in Figure 4.

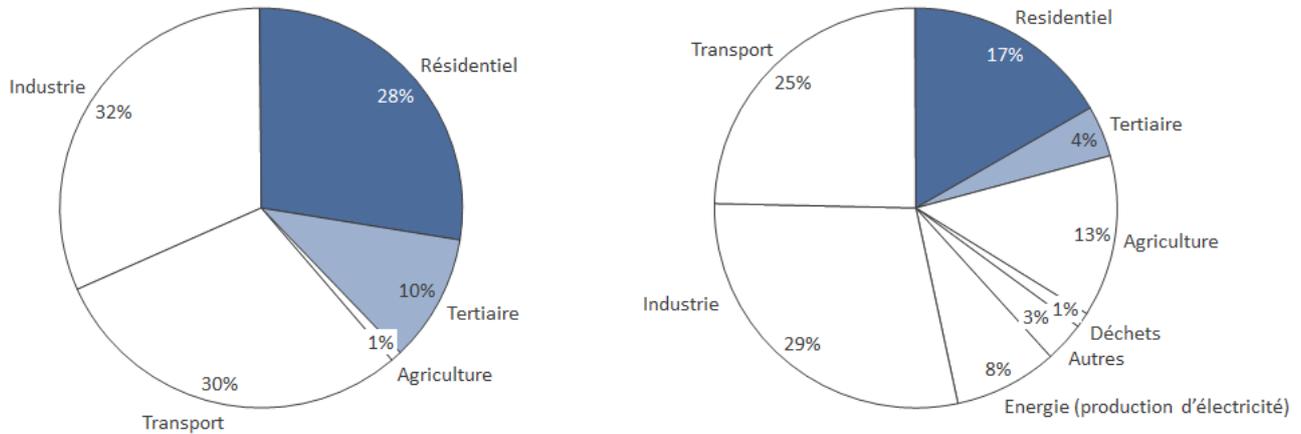


Figure 4. Sectoral distribution of final energy consumption (left – SPW) and GHG emissions (right – AwAC) in Wallonia in 2017

Industrie	Industry
Résidentiel	Residential
Tertiaire	Tertiary
Agriculture	Agriculture
Transport	Transport
Déchets	Waste
Autres	Other
Energie (production d'électricité)	Energy (electricity production)

The overall target for 2050 set in the Climate Decree has not yet been broken down into sectors. Nevertheless, the study of possible scenarios for low carbon transition in the Region³⁷ indicates that the building sector has potential to make a very significant contribution to helping the Region reduce its emissions (see Figure 5 which shows the ranges of contributions by different sectors to a target of -80%). There are similar conclusions at national or European level³⁸.

While the historical trend in GHG emissions corresponds to an annual reduction of 0.3% (% of 1990 level) between 1990 and 2017, the annual reductions required to reach the overall target of -55% by 2030 correspond to an annual reduction of 3.7% (% of 1990 level), i.e. annual reductions ten times greater than the historical average (Figure 6).

³⁷ CLIMACT 2011, *Towards a low carbon Wallonia*.

³⁸ CLIMACT 2018, *Net zero by 2050: From Whether to How – Zero Emissions Pathways to the Europe We Want*

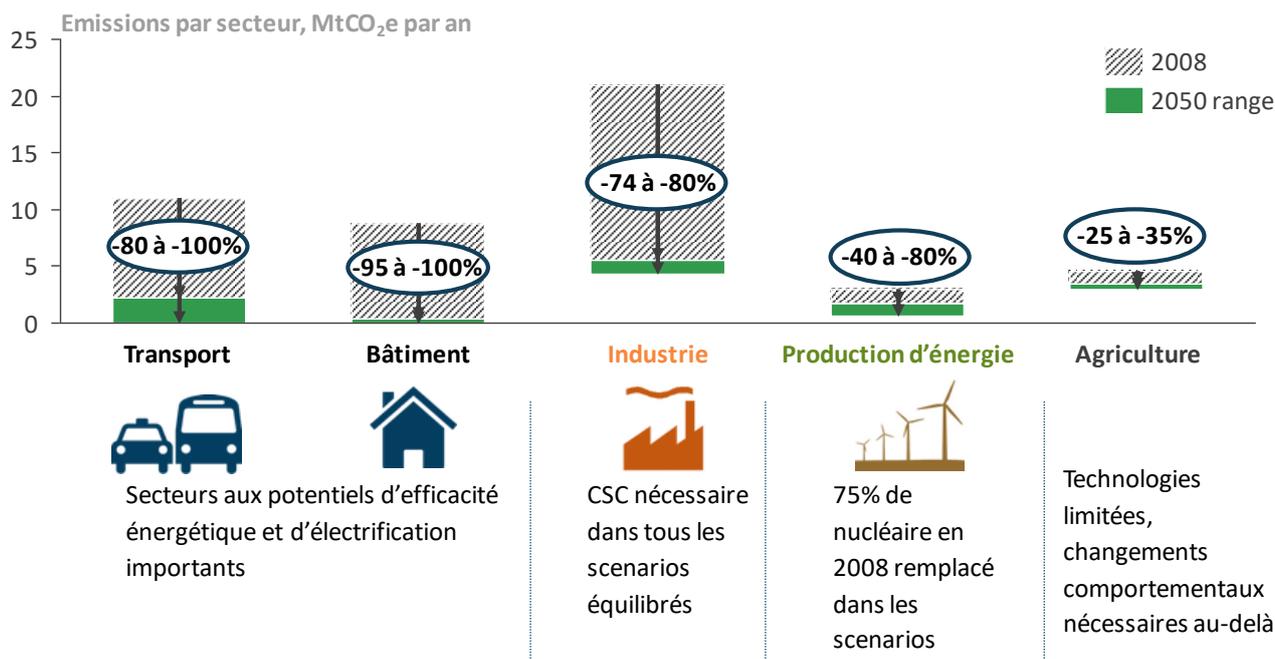


Figure 5. Reduction ranges needed per sector between 2008 and 2050 to reach -80% (vs 1990), according to balanced scenarios (CLIMACT).

Emissions par secteur, MtCO ₂ e par an	Emissions by sector, MtCO ₂ e per year
-80 à -100%	-80% to -100%
Transport	Transport
-95 à -100%	-95% to -100%
Bâtiment	Building
-74 à -80%	-74% to -80%
Industrie	Industry
-40 à -80%	-40% to -80%
Production d'énergie	Energy production
-25 à -35%	-25% to -35%
Agriculture	Agriculture
Secteurs aux potentiels d'efficacité énergétique et d'électrification importants	Sectors with significant potential for energy efficiency and electrification
CSC nécessaire dans tous les scénarios équilibrés	CSC required in all offset scenarios
75% de nucléaire en 2008 remplacé dans les scénarios	75% of nuclear in 2008 replaced in the scenarios
Technologies limitées, changements comportementaux nécessaires au-delà	Limited technologies, additional behavioural changes needed

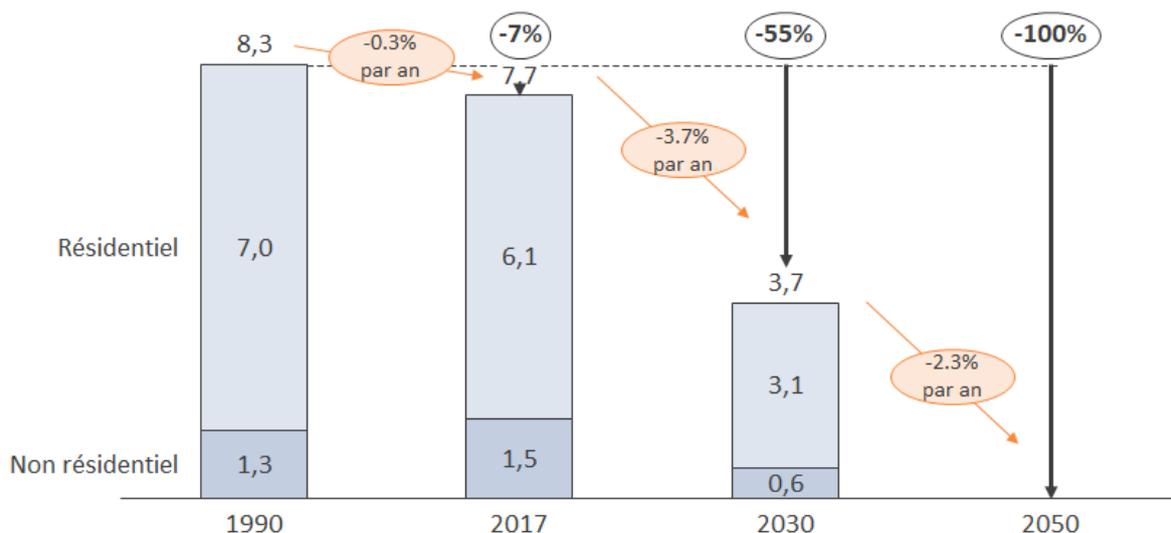


Figure 6. Trajectory of GHG emissions from buildings in Wallonia and targets for 2030 and 2050 [MtCO₂e/year; reductions in % of 1990 level] (AwAC, CLIMACT)

Résidentiel	Residential
Non résidentiel	Non-residential
-0.3% par an	-0.3% per year
-3.7% par an	-3.7% per year
-2.3% par an	-2.3% per year

Renovation of the Walloon building stock is a key issue in achieving energy and climate targets. This is because it improves energy efficiency by reducing energy consumption. It contributes to achieving targets for renewable sources of gross final energy consumption by increasing the production of renewable energy (numerator) in the buildings sector, and via the influence of renovation on consumption (denominator). Finally, it bases the reduction in GHG emissions, especially in non-ETS sectors, on reduced demand and changes to production methods.

Meyer and Maréchal explain that as the building stock has very slow turnover, the new strict standards applied to construction or deep renovation will not be enough to tangibly improve the performance of the sector by 2050. If there is a desire to improve the energy performance of the sector, this therefore also needs large-scale action on all existing stock, since the vast majority will still be around in 50 years³⁹.

It is essential to remember that most building components have a long lifespan. The components that have the most impact on energy consumption will only be renovated once by 2050, and investments must therefore be made in the right sequence to ensure that the various interventions achieve their potential.

LEGISLATION ON THE ENERGY PERFORMANCE OF BUILDINGS IN WALLONIA

In the Walloon Region, regulations on the energy performance of buildings apply to all buildings (apart from explicit exceptions) and all construction, rebuilding and alteration work.

Article 9 of the second EPB Directive (2010/31/EU) obliges Member States to ensure that by 2021, all new buildings have almost zero-energy consumption (nearly zero-energy buildings – NZEB). For public buildings,

³⁹ Meyer, S. and Maréchal, K., 2016, *Policy brief - 'Split incentive(s)' et rénovation énergétique des logements*, Policy Papers CEB 16-001, ULB, 12 pp.

this obligation has been in force since 1 January 2019. The regulatory requirements to be met in Wallonia to qualify as an NZEB have been subject to consultations between the Walloon Government and the construction sector. The NZEB performance levels required were defined by the Walloon Government on 28 January 2016.

There are four main challenges to housing needs in Wallonia:

- population growth. The Belgian Federal Planning Bureau estimates that the population of Wallonia will grow by 10.2% by 2044;
- changes in household size. This is tending to decrease due in particular to an ageing population and an increase in single-parent families;
- the condition of housing. The majority of the housing stock is obsolescent and energy-intensive⁴⁰;
- access to housing. Impacted by rent costs and increasing insecurity.

There are various mechanisms available to address these challenges.

The reform of the Walloon Housing and Sustainable Homes Code includes in particular a redefinition of 'social housing' as 'public utility housing'. By broadening the concept to cover both housing over which property operators hold real rights and housing managed and rented out by them, this then includes housing financed by the private sector, for public operators. This housing, which is new and therefore has excellent energy performance, reduces the 'heated rent'⁴¹ and alleviates energy poverty and poor quality housing.

The Territorial Development Code envisions more rapidly developing and flexibly designed tools to provide a more conducive environment for private and public actors to develop projects, particularly in the creation of less energy-intensive housing. It contains a number of provisions easing administrative procedures for obtaining authorisation to renovate the housing stock.

Notable ones include:

- the standardisation of the indicative value;
- permit exemptions – under certain conditions – for insulating a building;
- the capacity to grant a permit when work is carried out on the exterior insulation of a building subject to frontage setback;
- revocation of guidelines and standards in plans, guides or urbanisation permits which would entail a deviation or exemption or which would prohibit the installation of electricity or heat production modules whose energy source is exclusively solar;
- the expansion of options to repeal 'outdated' tools, to prevent several layers of legal lasagne from being applied to a property.

Development plans such as SDCs (municipality development plans) or SDPCs (multi-municipality development plans) help to identify the most suitable areas for densification to enable a coordinated response to the growing demand for housing. In addition, the content of the municipal planning guides (GCUs) should be consistent with the targets in the Regional Development Plan for the end of land encroachment.

In terms of densification of public housing, the Centre for Sustainable Housing Studies (CEHD) was commissioned by the previous Walloon Government to draw up a regional housing development plan. The

⁴⁰ See in particular Cassilde, S., 2014, *Enquêtes sur la qualité de l'habitat – Evolution des indices de salubrité et de qualité entre 2006 et 2012*. Centre d'Etudes en Habitat Durable, Cahier d'Etudes et de Recherches / 2014-02, Charleroi, 17 pp.

⁴¹ The concept of 'heated rent' is used to include in a single indicator the rent for occupation of the dwelling and the utility bill for heating.

plan, based on a dynamic land register, will help to identify the best location for new public housing based on the availability of public services, employment opportunities, proximity to public transport, etc.

In the long term, it could be beneficial for the data highlighted in this plan to be integrated into the various planning tools mentioned at the start of this section.

Finally, there are specific resources dedicated to the renovation of public housing that include energy criteria, while a reform of renovation and energy incentives has concentrated efforts and resources on priority and essential works.

CHALLENGES FOR THE TERTIARY SECTOR IN WALLONIA

Renovation of the tertiary building stock faces a range of challenges. The sector presents great variety, reflected in both the mix of buildings to be renovated and in their usage. Changes in usage make it difficult to draw up a long-term, phased renovation plan. Moreover, investment decisions are motivated by payback times far shorter than is required for the deep energy renovation of these buildings.

I. OVERVIEW OF BUILDING STOCK AND RENOVATION TARGETS

This chapter presents the main characteristics of the Walloon building stock and the renovation targets proposed by the Region. A more detailed description of the building stock is provided in Annex 2.

A. WALLONIA HAS AN AGEING STOCK OF RESIDENTIAL BUILDINGS

Housing accounts for around 28% of final energy consumption in the Walloon Region, mainly for heating buildings (74% of sectoral consumption in 2017⁴²). The greatest potential for energy savings is in single-family homes, of which 54% have low to very low energy performance (EPC G and F ratings⁴³). In 2013, all single-family homes in Wallonia combined accounted for nearly 90% of sectoral energy consumption for heating. In addition, these homes are mostly owner-occupied, which simplifies the decision process.

The following are the main characteristics of the current housing stock in Wallonia.

- **Age**

As shown in Figure 7, Wallonia has a lot of ageing dwellings. Almost a quarter of all housing was built before 1921 and about 80% before 1991.

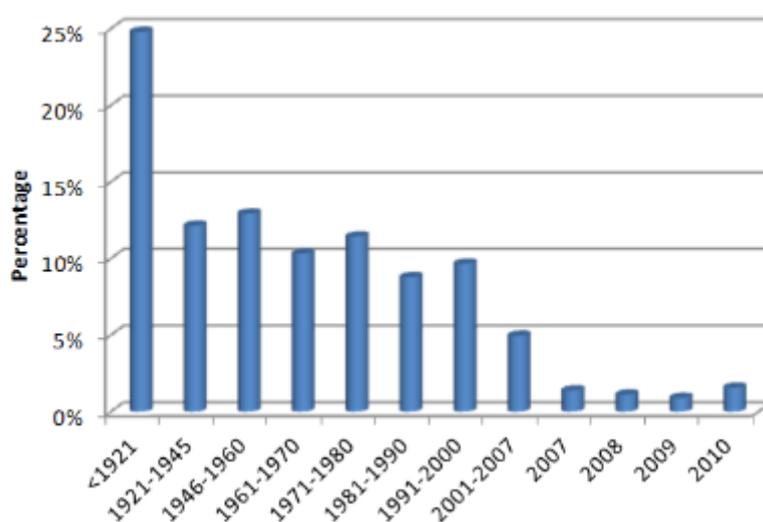


Figure 7. Year of construction of dwellings in Wallonia [Energy Consumption Survey 2012].

⁴² Source: Walloon energy balance for 2017

⁴³ Source: Databases of EPB declarations and certificates, values extracted in September 2019

- **Low energy performance**

The majority of housing has poor energy performance. Of single-family homes, more than 37% are G-rated, 17% F-rated, and 17% E-rated⁴⁴, as shown in Figure 8.

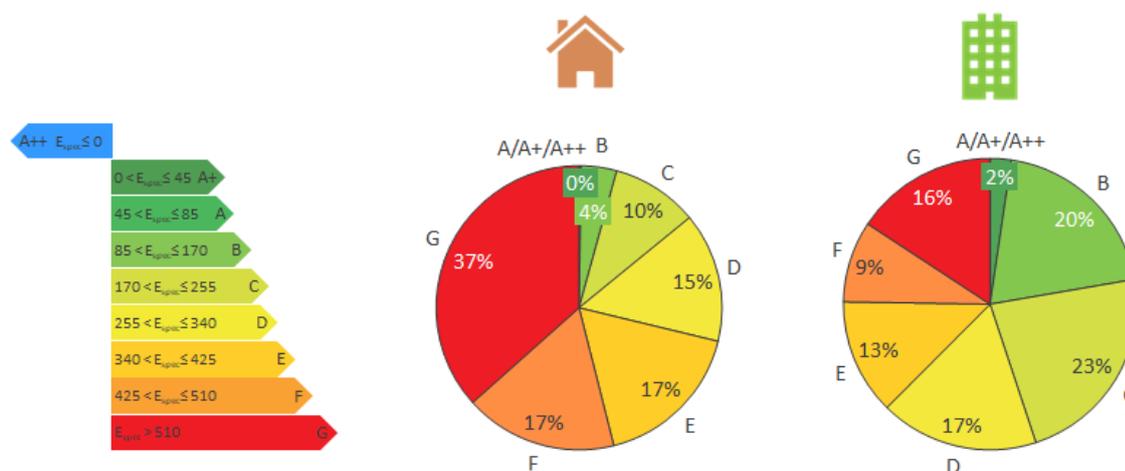


Figure 8. EPB rating scale and breakdown of Walloon residential buildings by energy performance (houses on the left, apartments on the right) Source: Databases of EPB declarations and certificates.

- **Low rate of renovation**

Each year, applications for planning permission for alterations are made for around 1% of homes. According to a recent publication by the European Commission⁴⁵, the rate of deep energy renovation for residential buildings in Belgium⁴⁶ is estimated at 0.2% a year and the rate of medium energy renovation⁴⁷ at 1% a year.

- **Overall improvement since 2001**

Thanks to efforts made in relation to energy performance of homes due to the gradual tightening of requirements, increase in public awareness and tools and incentives made available (incentives, subsidies and interest-free loans approved by public authorities), the changes in performance reflected by the EPB declarations and certificates testify to an overall improvement in the stock. This gradual improvement is more marked for single-family houses than for apartments.

⁴⁴ Databases of (new) declarations and (existing) energy performance certificates (over 495 000 EPB certificates and more than 41 000 EPB declarations).

⁴⁵ European Commission, 2019, *Comprehensive study of building energy renovation activities and the uptake of nearly zero-energy buildings in the EU*.

⁴⁶ Greater than 60% reduction in primary energy consumption.

⁴⁷ 30-60% reduction in primary energy consumption.



Figure 9. Breakdown of energy performance of residential buildings, assessed on the basis of EPB certificates and declarations. Source: CLIMACT analysis based on databases of EPB certificates and declarations.

On 1 January 2019, there were 1 628 547 dwellings in Wallonia, 83% of which were single-family homes⁴⁸:

- detached single-family house (4 facades: 33% of housing),
- semi-detached single-family house (3 facades: 24% of housing),
- terraced single-family house (2 facades: 27% of housing),
- apartment buildings (17%).

Selective and representative typologies are presented in the COZEB studies⁴⁹; these are presented in Annex 3.

In 2006, 11.8% of residential buildings housed between two and four dwellings and 8.7% housed more than five. The size of apartments is also quite significant in the breakdown of housing, as shown by the 2001 socio-economic survey.

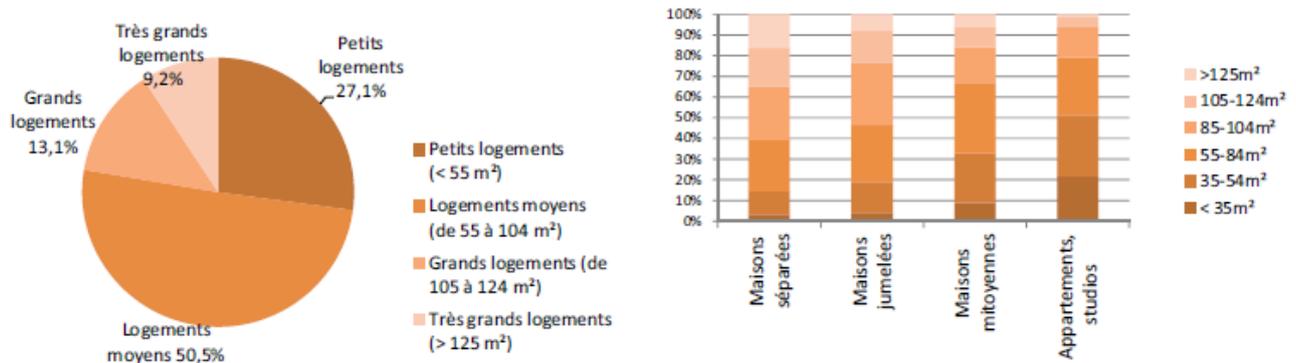


Figure 10. Breakdown of housing by habitable area (left) and size of housing by type of dwelling (right) (Source: 2001 socio-economic survey by Logements Wallons, UCL).

Grands logements 13,1%	Large homes 13.1%
Très grands logements 9,2%	Very large homes 9.2%
Petits logements 27,1%	Small homes 27.1%
Logements moyens 50,5%	Medium-sized homes 50.5%
Petits logements (< 55 m ²)	Small homes (<55 m ²)
Logements moyens (de 55 à 104 m ²)	Medium-sized homes (55-104 m ²)

⁴⁸ Source: Statbel

⁴⁹ COZEB: Cost-Optimum for Zero-Energy Buildings. The studies are presented in the following chapter.

Grands logements (de 105 à 124 m ²)	Large homes (105-124 m ²)
Très grands logements (> 125 m ²)	Very large homes (> 125 m ²)
Maisons séparées	Detached houses
Maisons jumelées	Semi-detached houses
Maisons mitoyennes	Terraced houses
Appartements, studios	Apartments, studios

B. WALLONIA HAS A DIVERSE STOCK OF TERTIARY BUILDINGS

The tertiary sector accounts for 10% of the total energy consumption in Wallonia (Figure 4. Sectoral distribution of final energy consumption (left – SPW) and GHG emissions (right – AwAC) in Wallonia in 20177).

In the Walloon energy balances, buildings in the tertiary sector are segmented into five categories (details of the sub-sectors considered in each category are given in Annex 2):

- shops
- offices (includes the categories ‘authorities’, ‘transport and communication’, ‘banks, insurance and business services’, ‘other services’ and ‘miscellaneous’)
- education
- health
- cultural and sports facilities.

In 2013, almost three quarters of the total energy consumption of the tertiary sector was shared between four activities. These were, in descending order, retail and trades (40%), offices (14%), education (14%) and health and care (11%), as illustrated in Figure 11.

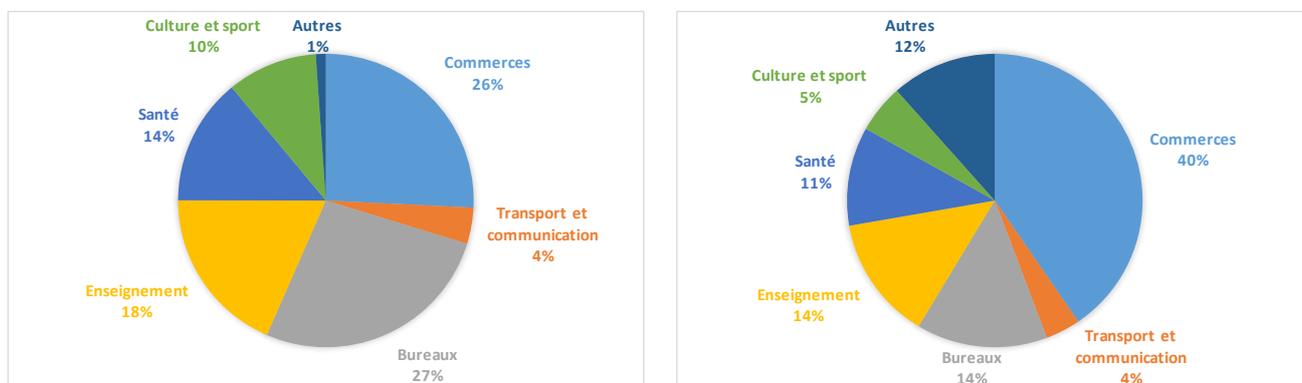


Figure 11. Breakdown of floorspace (left) and energy consumption (right) in the tertiary sector (Source: Walloon energy balance 2013).

Enseignement	Education
Santé	Health
Culture et sport	Culture and sport
Autres	Other
Commerces	Shops
Transport et communication	Transport and communication
Bureaux	Offices

Around half of the tertiary buildings are dated pre-1945 and nearly 80% are dated pre-1995. The first thermal regulations for offices and school buildings came into effect in 1996.

According to the ICEDD (*Institut de Conseil et d'Etudes en Développement Durable* – Institute for Consultancy and Studies in Sustainable Development), in 2008, 74% of educational buildings (or their latest ‘major’

renovation) were dated pre-1945, 8% were built or underwent deep renovation between 1945 and 1995 and 15% after 1995⁵⁰.

Currently, Wallonia is still working on developing an energy certification method to define the existing stock of tertiary buildings. However, since May 2010, all existing non-residential units that undergo alterations have been subject to energy performance requirements for surfaces, and healthy ventilation requirements. Since 1 May 2016, requirements also apply to all heating, domestic hot water production, air conditioning and ventilation systems installed, renovated or replaced.

In 2013⁵¹, 57.7% of energy consumption in the tertiary sector was for heating and domestic hot water. These two contributors represented 88% and 9% of fuel consumption, respectively. Lighting is the second main contributor to energy consumption, responsible for 16.5% of the total energy consumption or 39.5% of electricity consumption.

In the tertiary sector, as in the residential sector, it is in electricity consumption that there has been the most spectacular growth: +86% between 1990 and 2013. As a result of this growth, electricity represented more than two fifths of total energy consumption by the tertiary sector (42%) in 2013.

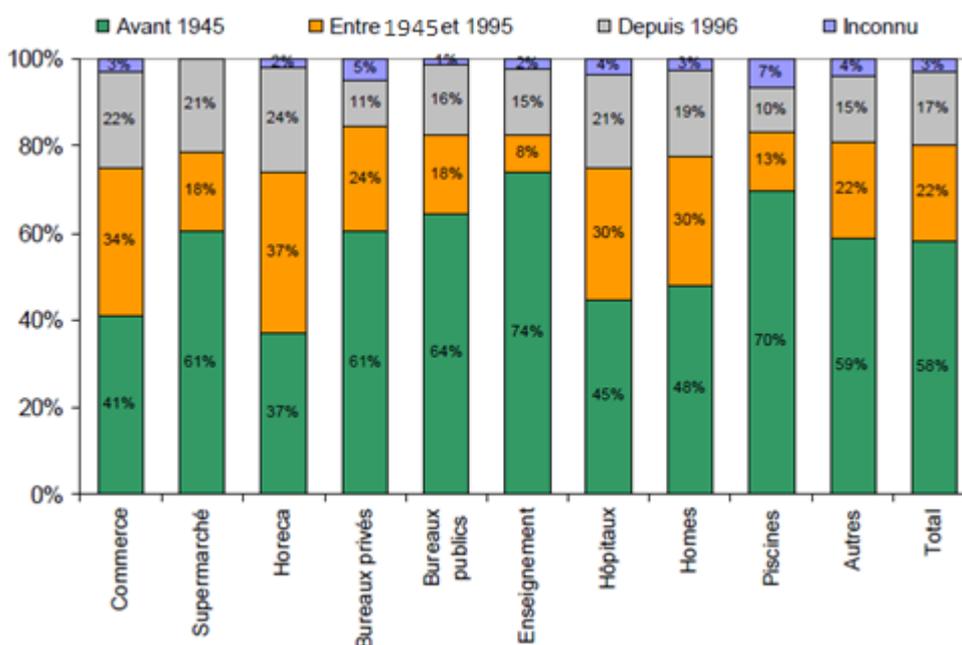


Figure 12. Year of construction / major renovation by activity segment [Walloon energy balance 2008].

Avant 1945	Pre-1945
Entre 1945 et 1995	1945 to 1995
Depuis 1996	Post-1996
Inconnu	Unknown
Commerce	Shops
Supermarché	Supermarkets
Horeca	Hospitality
Bureaux privés	Private offices
Bureaux publics	Public offices
Enseignement	Education
Hôpitaux	Hospitals
Homes	Care homes

⁵⁰ For the remaining share of buildings, the year of construction or significant renovation is unknown.

⁵¹ Walloon energy balance 2013.

Piscines	Swimming pools
Autres	Other
Total	Total

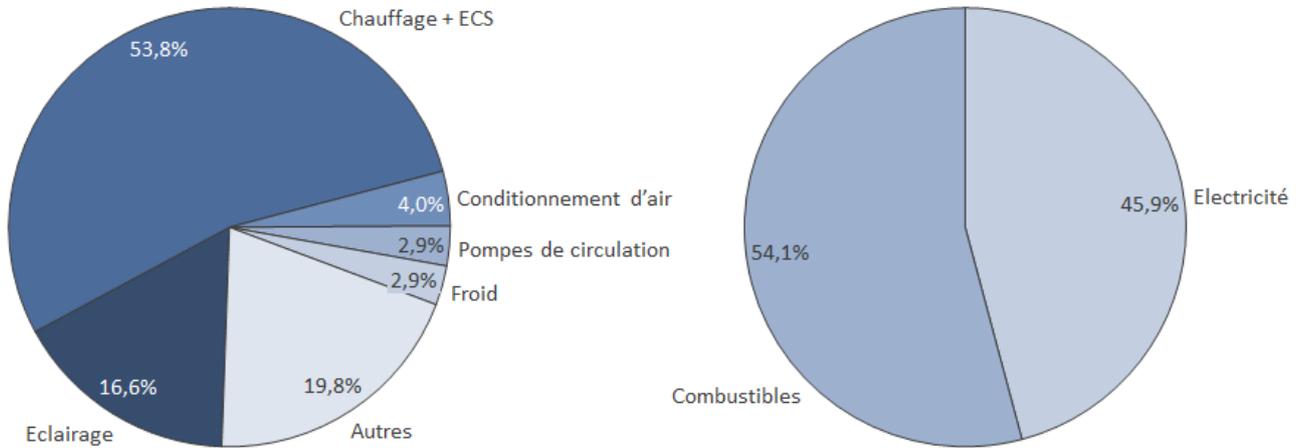


Figure 13. Breakdown of energy consumption in the tertiary sector by use (left) and by carrier (right) in 2017 (Source: Walloon energy balance 2017).

Chauffage + ECS	Heating + DHW
Conditionnement d'air	Air conditioning
Pompes de circulation	Circulation pumps
Froid	Cooling
Autres	Other
Eclairage	Lighting
Combustibles	Fuel
Electricité	Electricity

C. WALLONIA SETS AMBITIOUS TARGETS

Wallonia has shown ambition at the level needed to meet the challenges of GHG emissions reduction and energy transition. This is supported by solid and explicit guidelines, based on clear and strong political ambition to improve the energy performance of its buildings. These guidelines translate into overall targets and specific targets.

This chapter first explains the overall targets, which cover more than just energy performance. Details are then given of the specific targets for long-term energy performance of the building stock. These targets are followed by a section explaining the rationale for making any renovation project part of a comprehensive assessment for deep energy renovation, for all buildings where this is appropriate. The final section describes how the targets will be achieved, for housing, in terms of a Region-wide rate of renovation.

The following chapters elaborate on these targets and present the components of the strategy required by Article 4 of the Energy Efficiency Directive.

1. OVERALL TARGETS

In addition to aiming to reduce energy consumption, the renovation strategy enables action on several major aspects:

- improving occupant comfort and health, with a particular focus on energy-poor occupants;

- reducing the environmental impacts associated with the infrastructure and occupancy of the building stock;
- stimulating economic development and reducing the Region's energy dependency.

To cover all these aspects, indicators are needed for the following features:

- final/primary energy consumption in use,
- performance of the envelope (net energy requirement, embodied energy, etc.),
- efficiency of heating and ventilation systems,
- share of energy production from renewable sources,
- GHG emissions,
- indoor air quality,
- comfort (thermal, visual, acoustic, etc.).

Wallonia wants to combine all these indicators into one composite indicator covering all aspects of renovation, ensuring one type of impact is not replaced by another, and that the energy renovation is accompanied by an improvement in the well-being of the occupants. Outdoor air quality is particularly affected by the production of fine particles from heating installations. This strategy will have a positive impact in terms of a significant reduction in fine particles, which will be measured by a specific indicator.

Improving the quality of housing involves working simultaneously on the design and performance of buildings and on the behaviour of occupants (household choices, type of occupancy).

Alongside these indicators specific to the building, indicators will also be needed on access to housing and access to energy in order to monitor progress on the aspect of improved occupant comfort and health.

In terms of building performance, this version of the strategy focuses on the performance of the envelope, efficiency of systems and energy production from renewable sources. Measures are planned (see Chapters III and V) to ensure Wallonia is equipped to achieve the targets in its strategy for all aspects.

A long-term target and phased renovation are proposed to contribute to the targets for energy efficiency, the reduction of GHG emissions and production from renewable energy sources (RES) defined at European, Belgian or regional level, presented in Figure 2 in the Introduction.

The targets specified below are due to be achieved by 2050 for residential buildings, and by 2030 to 2040 for the various non-residential sectors. Section 5 below clarifies these timescales.

2. SPECIFIC TARGETS

The Walloon Energy and Climate Plan (PWEC) indicates the relative changes in energy consumption resulting from its phased implementation by 2020, 2030 and 2050, as illustrated in the table below.

	Résidentiel	Tertiaire	Stratégie	Objectif BE
Réduction 2020 VS 2005	-10.4%	-12.9%	-11.1%	-11.5%
Réduction 2030 VS 2005	-27.9%	-32.0%	-29.1%	-24.0%
Réduction 2050 VS 2005	-70.3%	-70.3%	-70.3%	

Table 0. Reduction in energy consumption by 2020, 2030 and 2050, compared to 2005.

	Residential	Tertiary	Strategy	BE target
2020 reduction vs 2005	-10.4%	-12.9%	-11.1%	-115%
2030 reduction vs 2005	-27.9%	-32.0%	-29.1%	-24.0%
2050 reduction vs 2005	-70.3%	-70.3%	-70.3%	

This path sets **the target for 2030, which is to reduce average energy consumption in tertiary and residential sectors by 29.1%.**

The target will have to be raised as part of the revision of the PWEC to achieve the target in the DPR of reducing GHG emissions by 55%. That is the target for this strategy with regard to the buildings sector, without prejudice to the sectoral distribution of the GHG emissions reduction target to be set during the review of the Air Climate Energy Plan.

A) RESIDENTIAL BUILDINGS

Following a stakeholder consultation⁵², in the 2017 version of its long-term renovation strategy (LTRS) the Region proposed improving the performance of housing in such a way that the entire stock would average an EPB A rating by 2050⁵³.

The average energy performance of Walloon housing in 2019 corresponded to EPB rating F, with average theoretical primary energy consumption of 459 kWh/m²/year⁵⁴, according to the databases of EPB declarations and certificates. The corrected theoretical primary energy consumption (also referred to as actual consumption), based on the consumption reported in the Region's energy balance and data available on the characteristics of the building stock, is 145 kWh/m²/year^{55,56}. The A rating target corresponds to an 81% improvement in the average EPB of the stock⁵⁷. Assuming the rebound effect is controlled, i.e. actual consumption after renovation corresponds to the theoretical estimate, reaching **this target will achieve a reduction of 41%**⁵⁸ **in primary energy consumption by housing** through improved energy efficiency. This reduction will be even greater with an increased contribution from renewable energy.

The illustrative breakdown of the stock by EPB rating in 2050, presented in Figure 14, shows that some housing will need to achieve higher performance (A+ or A++) due to the A rating not being technically or economically feasible for part of the stock.

The stock of new (energy-efficient) housing will also help to achieve the target.

⁵² See Annex 1 on the methodology used to develop the strategy.

⁵³ For which the limit is 85 kWh/m²/year.

⁵⁴ This figure has been revised, compared to that communicated in the 2017 version of the strategy, to better reflect the respective weight of single-family houses and apartments (which are over-represented in the certificate database).

⁵⁵ The actual consumption of buildings for heating differs from the theoretical consumption. In reality, the 'actual' consumption of the least efficient buildings is observed to be much lower than their theoretical consumption. The explanation is that the theoretical consumption is calculated assuming that the entire premises are heated to a constant temperature and they do not reflect the behaviour of the occupants (who do not occupy – or do not heat – the entire premises). Conversely, the actual consumption of the most energy-efficient homes can sometimes be higher than the theoretical consumption, mainly due to improper use of the building's features and/or increased occupant comfort requirements (rebound effect linked to lower utility bills).

⁵⁶ This figure has been revised compared to that communicated in the 2017 version of the strategy. It is the result of calibrating the model for the Walloon residential building stock on the total consumption reported in the Region's energy balance.

⁵⁷ The average theoretical consumption of the housing stock (calculated according to the EPB method) falls from 459 kWh/m²/year to 85 kWh/m²/year.

⁵⁸ The average actual consumption of the housing stock (according to the Walloon energy balance) falls from 145 kWh/m²/year to 85 kWh/m²/year.

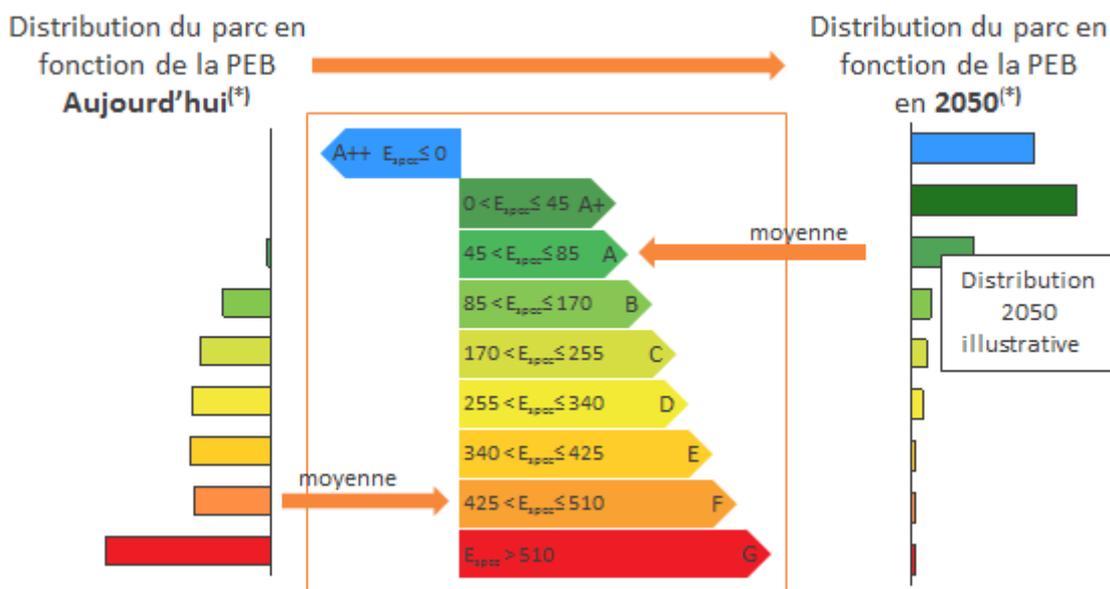


Figure 14. Long-term target for the energy performance of buildings.

Distribution du parc en fonction de la PEB Aujourd'hui (*)	Breakdown of stock by EPB rating Currently (*)
moyenne	average
Distribution du parc en fonction de la PEB en 2050 (*)	Breakdown of stock by EPB rating in 2050 (*)
Distribution 2050 illustrative	Illustrative breakdown 2050
(*) Englobe les performances de l'enveloppe, des systèmes et la production SER	(*) Includes performance of envelope, systems and RES production

A series of key requirements for achieving this target have been identified:

- knowledge of the building stock (and its condition),
- coherence between the various policies,
- building passport including a renovation roadmap,
- comprehensive support for households in the form of a one-stop shop,
- quality implementation, in particular through enhancing the role of professionals,
- innovative financing schemes.

These requirements are developed in Chapters III and IV.

The previous version of the renovation strategy suggested that priority be given to renovating the least efficient housing (G- and F-rated, representing 32% and 15% of the stock, respectively). Aligning the renovation strategy with the Walloon Government's targets for 2030 and 2050 entails launching the initial stages of renovation⁵⁹ for all buildings by 2030.

To enable this, awareness and communication campaigns, support and targeted finance instruments will be developed. Acting on the most energy-intensive housing will simultaneously address the climate and energy challenges and the issues of healthy housing and poverty.

⁵⁹ These stages of renovation and the priorities for each can be identified through a renovation roadmap specific to each building.

B) TERTIARY BUILDINGS

To achieve its 2030 and 2050 targets, Wallonia undertakes in its Energy and Climate Plan to expand and enhance the exemplary role of its public buildings. An energy neutrality target will be set for all public buildings, with a timetable for implementation depending on the level of power concerned. The aim of this timetable will be to guarantee carbon neutrality by 2050 at the latest.

Carbon neutrality is defined here as cutting energy demands (for heating, DHW, cooling and lighting) to the level of an equivalent new building, maintaining other electricity consumption at the current level and covering these demands through renewable energy, whether self-generated or purchased.

The renovation strategy extends this target to all non-residential buildings.

For the tertiary stock, the ambition is to work towards a building stock with a zero annual energy balance for heating, domestic hot water, cooling and lighting by 2040. These buildings will produce as much energy as they consume, taking into account that some of the production from renewable energy sources may be decentralised.

A benchmark for minimum energy efficiency needs to be established. The current intention is a final energy consumption limit of 80 kWh/m²/year.

There is less comprehensive knowledge of the stock of tertiary buildings, their condition and their consumption levels than there is for the residential stock. Improving this knowledge is one of the priority targets for the actions proposed in this strategy. The final energy consumption limit will need to be specified, approved, tailored according to knowledge of the stock and possibly broken down by building category (offices, schools, hospitals, etc.).

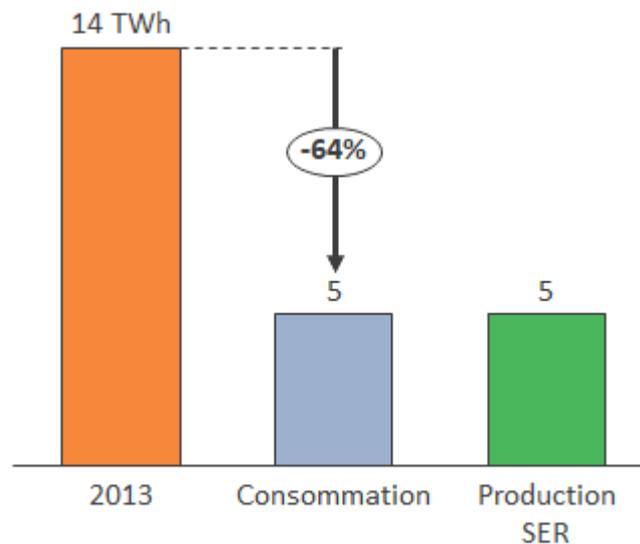


Figure 15. Long-term targets for non-residential buildings: energy efficiency and zero annual energy balance.

Consommation	Consumption
Production SER	RES production

3. CARBON NEUTRALITY TARGET

The energy performance target is ambitious given what is currently technically feasible. Nevertheless, it is a necessary condition for achieving the target of reducing the Region's greenhouse gas emissions by 2050. This is a necessary but not sufficient condition: only a target of energy-neutral buildings would make it possible to achieve the targets of reducing consumption by 95% to 100% by 2050, without other changes in the energy

system. Achieving the ambitious reductions in GHG emissions set by the Climate Decree will entail the use of renewable energy, particularly for the direct generation of heat.

The long-term target is therefore augmented by specifying that the residual heating needs must be met by decarbonised sources, and that attention must be paid to the carbon impact over the entire life cycle of construction and renovation projects.

The assessment of the carbon impact over the life cycle of buildings requires an appropriate calculation method. A quick and pragmatic approach could be used for this initially; it could then be refined as knowledge develops and data become available.

4. PROMOTING DEEP RENOVATION

A) DEEP RENOVATION

There is no universal definition of **deep renovation**. In this document, deep renovation is considered as **the entire works based on a comprehensive assessment of the building and an integrated approach using the most appropriate and effective technical solutions to significantly reduce energy consumption (from 75% to 100%)**. This comprehensive assessment addresses both the objectives of improving occupant comfort and the targets for reducing energy consumption, taking care to minimise the overall life-cycle environmental impacts of the building. Deep renovation is therefore more ambitious than the ambitious energy renovation defined in the Energy Efficiency Directive⁶⁰, which focuses more on cost-effective improvements.

Despite all the good reasons for promoting deep renovation, what is often seen now is staged, superficial renovation without a comprehensive assessment. Explanations for this include, in particular, limited investment capacity of households, a lack of overall vision and long-term targets, the intrusive nature⁶¹ of current deep renovation solutions or even a lack of supply of this type of solution. A large proportion of renovations will more than likely continue to be done in stages, if only when replacing an obsolete feature of the envelope or systems. The challenge is to thus ensure that these staged renovations are subject to a comprehensive assessment with the aim of deep renovation, and that the various steps ultimately result in a performance level consistent with the Region's targets.

B) STIMULATING THE SUPPLY OF DEEP RENOVATION SOLUTIONS

Where the term 'deep renovation' is used without clarification in this report, it refers to staged deep renovation. The strategy aims to stimulate the supply of deep renovation, whether staged or in one go, by putting in place the necessary conditions to remove the barriers to this form of renovation.

Carrying out deep energy renovation in one go means that most maintenance work needed on the housing can be included, meaning that typical budgets for maintenance can be combined with the budget for energy renovation.

To achieve the average target for the overall stock (EPB A rating for housing, energy neutrality for tertiary buildings, by 2050), **a significant proportion of buildings will need to achieve higher performance** to compensate for those for which it will not be possible to achieve a high energy performance (for technical, economic or heritage reasons). We therefore need to assess to what extent each building is able to contribute to the overall target.

⁶⁰ Major renovation is defined there as renovation of the building envelope or systems for which the cost is higher than 25% of the value of the building, or where more than 25% of the building envelope undergoes renovation.

⁶¹ Duration of the work, inconvenience during it, etc.

The proposal is to establish a renovation roadmap for each building, indicating the long-term energy performance target for the building and the renovation stages required to achieve this target. Consolidation of the individual targets will give the Region an indicator of what is achievable in the long term given the technical and economic circumstances, and of the improvements required. This long-term target and renovation roadmap will form part of the building passport presented later.

5. TIMETABLE FOR IMPLEMENTING THE RENOVATION STRATEGY

Successful achievement of the long-term targets will require a clear vision of the short- and medium-term actions needed, therefore by breaking down the target into a timetable setting out the actions to be taken. This will also make it possible to monitor the development of the building stock so it can be compared with the progression needed to work towards the long-term targets and, if necessary, to identify and take corrective action.

To develop the ideal timetable, various scenarios were assessed in light of a series of benchmarks:

- the Region's ambition to use its renovation strategy as a driving force for achieving the European targets for reducing energy consumption, in particular the ambition of the Walloon Government expressed in its regional policy statement to reduce Wallonia's GHG emissions by 55% by 2030, compared to 1990;
- the ambition to couple energy renovation with a significant alleviation of energy poverty and an improvement in the quality of Walloon housing;
- the ambition expressed in the Walloon Energy and Climate Plan and in the regional policy statement to prioritise action on public buildings, particularly office buildings and schools;
- the need to stagger the public funding required to stimulate investment in renovation projects;
- the impacts of short-term inaction in increasing medium- and long-term effort, particularly in terms of decisions, investment volumes to be unlocked and the mobilisation of professionals.

The various scenarios considered are presented in Annex 4. The conclusions are presented below, showing the phasing of renovation across the Region.

A) RESIDENTIAL BUILDINGS

Renovating almost 100% of the stock by 2050⁶², to various levels, will entail much faster rates of renovation than those currently seen⁶³, as shown in Table 2.

The priorities will be:

- **adapting (for major renovations) and adopting (for other types of renovation) a regulatory framework to make the minimum expected progress in performance of buildings transparent to all stakeholders to achieve the medium- and long-term targets;**
- **effectively introducing a building passport accompanied by a renovation roadmap, making every renovation project part of a comprehensive assessment consistent with long-term targets;**
- **implementing measures to encourage the comprehensive assessment of renovation projects, with a view to deep renovation either in one go or in stages;**
- **improving transparency about estimated costs for deep renovation at the earliest possible stage, in particular prior to purchase via the EPB certificate.**

Although a proportion (5-10%) of buildings cannot be renovated for various reasons (technical issues, heritage, architecture, location, etc.), they will still be subject to an assessment to identify improvements, even minor, so that every building contributes to the average target for the entire stock, to the level that is technically and economically feasible. For these buildings, specific solutions will have to be developed to decarbonise their

⁶² According to the EPB certificate database, only 1% of buildings are currently A rating or above, i.e. Espec [specific primary energy consumption] ≤ 85 kWh/m²/year.

⁶³ In addition to being relatively low (around 1% of the housing stock undergoes renovation subject to planning permission per year), the current rate includes partial renovations.

heat supply, using trade-offs between energy efficiency and renewable energy sources. In addition, although it cannot be quantified exactly at this stage, it is also likely that certain obsolescent buildings will need to be demolished and rebuilt.

To determine the rates of renovation required (and to monitor these), it is useful to break them down into annual rates of renovation by housing type, time horizon and renovation measure. This phasing of the renovation takes into account the need to stagger investments and to prioritise investments with the greatest potential impact. The assumptions on which this proposal is based are presented in Annex 4.

All renovations that form part of a comprehensive assessment for staged deep renovation are to be encouraged. Although the phasing of renovation measures is determined on a case-by-case basis, it is expected that for the stock as a whole, staged deep energy renovation will focus first on renovating roofs, then the rest of the envelope and finally on renovating systems and installing renewable energy sources.

At the same time, to reduce GHG emissions by 55% by 2030 compared to 1990, the following will be necessary:

- **encouraging deep renovation in one go** to harness the potential short-term gains, both in terms of health and comfort and in terms of reducing energy consumption and GHG emissions;
- **launching a strategy to convert heating solutions into decarbonised solutions.** Any replacement of systems must be consistent with this strategy; at the same time, the conversion to decarbonised solutions must now be accelerated wherever possible.

(1) DESCRIPTION OF THE PHASING AT REGIONAL LEVEL

The phasing of the renovation stages at regional level results in a change to the annual rate of renovation, broken down by measure and by segment of the housing stock. Figure 16 maps out these changes, which are quantitatively presented in the tables below. The phasing involves gradual delivery of the work packages in the renovation roadmap. This means delivering the first package identified in the roadmap to improve the energy efficiency of the building for all homes by 2030, then spacing delivery of the following packages at maximum 5-year intervals to deliver them all by 2050.

The short-term steps will be as follows.

- Formalise this phasing through a clear, consistent and predictable regulatory framework, and communicate this.
- Increase the annual rate of renovation (**dark orange**) of roof insulation for all housing, to reach 'cruising speed' by 2024 (**blue**) at the latest. This corresponds to renovating 70 000 roofs (or the priority work package identified in the housing audit roadmap) a year in 2021, and increasing this rate to reach 183 000 renovations a year from 2024⁶⁴.
- Introduce the measures needed to encourage and support renovation to an EPB A rating in one go, so that at least 10% of renovations result in a decarbonised A rating by 2025, starting with 4 000 renovations a year to a decarbonised A rating from 2021 and reaching 18 000 to 20 000 renovations a year to a decarbonised A rating from 2025. Two important opportunities could be harnessed to achieve this objective of renovating to a decarbonised A rating in one go:
 - the renovation programme for public housing, involving exemplary renovations;
 - transfers of ownership (there are 32 000 purchases/sales of single-family homes a year⁶⁵).

⁶⁴ This gradual escalation results in reducing GHG emissions by 53% by 2030, compared to 1990. A scenario of -55% would require the renovation of 160 000 roofs a year (or the priority work package identified in the audit) from 2021.

⁶⁵ Source: Statbel

- Implement the support measures needed to enable actors (on the supply side and in the various demand profiles) to be part of this acceleration.

Renovation is assumed to continue at the current rate (beige) if no efforts are made to increase it. This therefore covers renovation linked to key moments in the life of the building (e.g. sale, rental, renovations for reasons other than energy efficiency, etc.)⁶⁶. For these measures, it is key to ensure that:

- any renovation of the envelope is consistent with the long-term target so that it does not entail excess investment or technical obstacles;
- any new heating system (when replacing obsolete systems) is consistent with the long-term vision of a technological mix to ensure a decarbonised building stock.

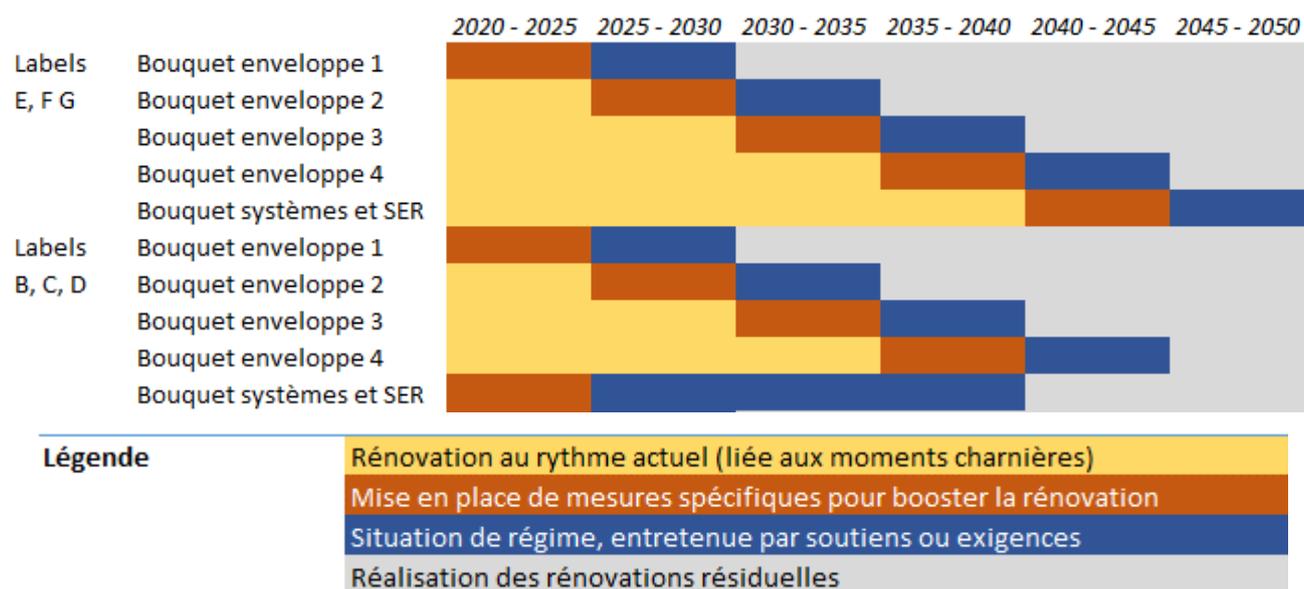


Figure 16. Illustration of the phasing of staged deep renovation across the Region^{67,68}.

		2020-2025	2025-2030	2030-2035	2035-2040	2040-2045	2045-2050
Ratings E, F, G	Envelope package 1						
	Envelope package 2						
	Envelope package 3						
	Envelope package 4						
	Systems and RES package						
Ratings B, C, D	Envelope package 1						
	Envelope package 2						
	Envelope package 3						
	Envelope package 4						
	Systems and RES package						
Légende		Key					
Rénovation au rythme actuel (liée aux moments charnières)		Renovation at current pace (linked to key moments)					
Mise en place de mesures spécifiques pour booster la rénovation		Specific measures introduced to boost renovation					

⁶⁶ The current rate is nevertheless increased from partial renovations to deep renovations in one go.

⁶⁷ The quantification of impacts does not take into account remaining renovations (i.e. those not completed by the deadline), but assumes that the work packages are carried out in accordance with the proposed time frame.

⁶⁸ Some energy-efficient buildings will require fewer work packages. However, it is anticipated that many energy-efficient buildings (even with EPB rating B) will need to undergo various packages of work to achieve rating A. This is due to a form of lock-in through the design of the construction or previous renovations, or simply because construction components are reaching end of life for buildings constructed before the 1990s.

Situation de régime, entretenue par soutiens ou exigences	Cruising speed, maintained through support or requirements
Réalisation des rénovations résiduelles	Carrying out residual renovation

This scenario is ambitious, but is nevertheless a necessary but not sufficient condition for achieving the 2030 target of reducing GHGs by 55% compared to 1990. It also provides much wider benefits than simply achieving energy and climate targets (see Chapter V).

(2) RATES OF RENOVATION REQUIRED

The rates of renovation are assessed on the basis of the medium- and long-term timescales set for renovation of the various segments, the current energy performance of buildings (see Chapter I) and the priorities given for intensifying the renovation. They are presented in summary form in Table 1 and in more detail in Table 2.

By way of illustration, and expecting roof insulation to be generally the first priority (and so on), the work packages are expressed below with respect to the renovation of specific building components (roofs, walls, windows, floors, systems and renewable sources). The timetable may however depend on the priorities identified in the audit, taking into account the life plans of the contracting authorities.

The number of renovations directly leading to a decarbonised A rating⁶⁹ is specified in Table 3. Details of the assumptions made are given in Annex 4.

The energy savings associated with this phasing of renovation across the Region are presented in Chapter V.

	2021 - 2025	2026 - 2030	2031 - 2035	2036 - 2040	2041 - 2045	2046 - 2050
Rénovations au label A	0.7%	1.1%	1.1%	0.7%	0.9%	0.0%
Rénovations partielles	8.2%	17.4%	16.6%	14.8%	8.5%	4.6%

Table 1. Annual rates for renovation of envelopes (average for each period): staged partial renovations and full renovations to decarbonised rating A⁷⁰

	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050
Renovations to A rating	0.7%	1.1%	1.1%	0.7%	0.9%	0.0%
Partial renovations	8.2%	17.4%	16.6%	14.8%	8.5%	4.6%

⁶⁹ Renovations considered to lead to a decarbonised A rating are those that, triggered by the renovation of the roof, walls or floor, include all the other work leading to the decarbonised A rating. It follows that this will include a renovation even where the first stage (roof) or stages (roof and walls) have been carried out previously.

⁷⁰ Between 2046 and 2050, all that remains is to replace heating systems in buildings, starting with the least efficient.

Toits	2021 - 2025	2026 - 2030	2031 - 2035	2036 - 2040	2041 - 2045	2046 - 2050
G	43,552	61,090	-	-	-	-
F	20,619	28,923	-	-	-	-
E	20,619	28,923	-	-	-	-
D	19,488	27,336	-	-	-	-
C	15,348	21,529	-	-	-	-
B	12,603	17,678	-	-	-	-
TOTAL	132,229	185,478	-	-	-	-
en % du parc	8.1%	11.4%	0.0%	0.0%	0.0%	0.0%

Murs	2021 - 2025	2026 - 2030	2031 - 2035	2036 - 2040	2041 - 2045	2046 - 2050
G	5,033	41,589	58,257	-	-	-
F	2,383	19,690	27,581	-	-	-
E	2,383	20,889	26,383	-	-	-
D	2,252	18,610	26,068	-	-	-
C	1,774	14,656	20,530	-	-	-
B	1,456	12,035	16,858	-	-	-
TOTAL	15,280	127,468	175,677	-	-	-
en % du parc	0.9%	7.8%	10.8%	0.0%	0.0%	0.0%

Fenêtres	2021 - 2025	2026 - 2030	2031 - 2035	2036 - 2040	2041 - 2045	2046 - 2050
G	5,033	7,424	40,813	51,610	-	-
F	2,383	3,515	19,323	24,434	-	-
E	2,383	3,515	20,401	23,356	-	-
D	2,252	3,322	18,262	23,093	-	-
C	1,774	2,616	14,383	18,188	-	-
B	1,456	2,148	11,810	14,935	-	-
TOTAL	15,280	22,539	124,992	155,615	-	-
en % du parc	0.9%	1.4%	7.7%	9.6%	0.0%	0.0%

Sols	2021 - 2025	2026 - 2030	2031 - 2035	2036 - 2040	2041 - 2045	2046 - 2050
G	5,033	7,424	7,140	34,494	50,788	-
F	2,383	3,515	3,381	16,331	24,045	-
E	2,383	3,515	3,261	17,530	22,967	-
D	2,252	3,322	3,195	15,435	22,726	-
C	1,774	2,616	2,516	12,156	17,898	-
B	1,456	2,148	2,066	9,982	14,697	-
TOTAL	15,280	22,539	21,559	105,927	153,121	-
en % du parc	0.9%	1.4%	1.3%	6.5%	9.4%	0.0%

Techniques et SER	2021 - 2025	2026 - 2030	2031 - 2035	2036 - 2040	2041 - 2045	2046 - 2050
G	8,379	11,367	11,084	8,155	30,517	37,625
F	3,967	5,382	5,248	3,861	14,448	17,813
E	4,056	5,471	5,537	4,050	15,115	19,027
D	8,300	14,189	14,062	11,060	-	-
C	6,537	11,174	11,075	8,711	-	-
B	5,368	9,176	9,094	7,153	-	-
TOTAL	36,607	56,759	56,099	42,990	60,081	74,465
en % du parc	2.2%	3.5%	3.4%	2.6%	3.7%	4.6%

Table 2. Annual rates for renovation of envelopes, by stage and by category of housing (averages for each period): combined totals for partial renovations and renovations to rating A⁷¹.

Toits	Roofs
Murs	Walls
Fenêtres	Windows
Sols	Floors
Techniques et SER	Techniques and RES

en % du parc	% of stock					
	2021 - 2025	2026 - 2030	2031 - 2035	2036 - 2040	2041 - 2045	2046 - 2050
G	3,718	6,109	5,826	3,449	5,079	-
F	1,760	2,892	2,758	1,633	2,405	-
E	1,824	2,996	2,857	1,692	2,491	-
D	1,664	2,734	2,607	1,543	2,273	-
C	1,310	2,153	2,053	1,216	1,790	-
B	1,076	1,768	1,686	998	1,470	-
TOTAL	11,352	18,652	17,787	10,532	15,507	-
en % du parc	0.7%	1.1%	1.1%	0.6%	1.0%	0.0%

Table 3. Annual number of deep renovations in one go towards the decarbonised A rating (average over each period).

Alongside the priorities reflected in the preceding paragraphs, the Region will ensure support for renovation **at pivotal moments** in the use of the buildings:

- purchase/sale, change of tenant or owner, work for reasons other than improving energy efficiency;
- replacement of obsolete systems;
- installation of renewable energy systems during alterations or renovations to roofs.

B) TERTIARY BUILDINGS

As mentioned above, there is an energy efficiency and carbon neutrality target for non-residential buildings. An implementation timetable is needed to both guide efforts towards carbon neutrality by 2050 at the latest and to ensure that short- and medium-term efforts will enable the achievement of the 2030 milestone.

The Energy and Climate Plan proposes some key milestones in formulating a renovation timetable for the various sectors of non-residential buildings. Based on this, and taking into account the government's ambition to update targets and measures to reflect the commitments in the regional policy statement, including reducing GHG emissions by 55% by 2030 compared to 1990, various timetables (scenarios) were assessed. These are presented in Annex 4.

⁷¹ It is highly likely that, in reality, renovations will continue beyond the formal deadlines shown in the timetable above. These remaining renovations are not taken into account in quantifying the impacts.

Figure 17 presents a timetable consistent with the targets for 2030 and 2050, based on the exemplary role of public authorities while balancing efforts to be made by the public and private sectors in improving the energy and carbon performance of their buildings.

This timetable involves making the following energy-efficient and carbon-neutral:

- **by 2030**, buildings occupied by central government⁷²;
- **by 2035**, schools, other public offices, private offices, shops;
- **by 2040**, other non-residential buildings.

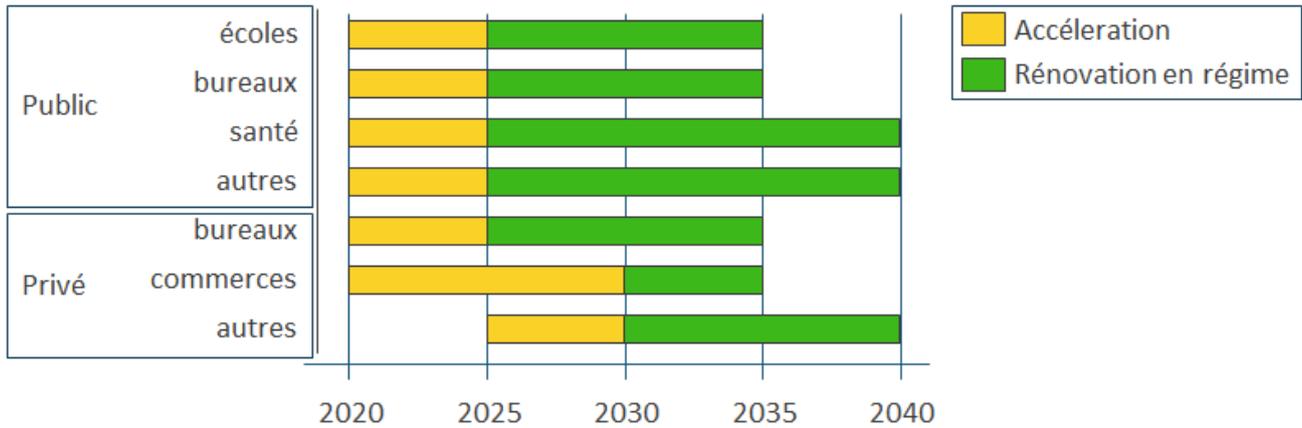


Figure 17. Timetable for achieving long-term targets for the non-residential sectors.

Public	Public
écoles	schools
bureaux	offices
santé	health
autres	other
Privé	Private
bureaux	offices
commerces	shops
autres	other
Accélération	Acceleration
Rénovation en régime	Renovation ongoing

Depending on assumptions about the evolution of the energy mix, this renovation scenario will reduce (by 2030, compared to 1990) emissions from non-residential sectors by:

⁷² In Belgium, the concept of ‘central government’ covers the federal state and the following federal entities: the Brussels Capital Region, Walloon Region, Flemish Region, French Community, German-speaking Community, Flemish Community, Common Community Commission, French Community Commission and the Flemish Community Commission. These entities are administrative bodies whose competence extends over the whole territory of Belgium, as set out in Article 2(9) of the Energy Efficiency Directive, or whose competences collectively cover the whole territory, as set out in consideration (17). Each of these institutions therefore undertakes to achieve the energy efficiency target assigned to it under Article 5 and set in accordance with the regulations on the energy performance of buildings in force in the territory where its buildings are located. This therefore covers all buildings of the federal, regional and French Community authorities located in Walloon territory. Thus, it does not cover local authorities.

- 52% if the share of natural gas is reduced from 50% to 30% of the heat demand, 20% of this gas is replaced by carbon-neutral gas and the stock is free of other fossil fuel technologies;
- 56% if the share of natural gas is reduced to 15% of the heat demand;
- 62% with a full move away from fossil fuel heating systems.

These benchmarks for the development of the systems are assumed to be achieved by the deadlines indicated in Figure 17.

The projections are illustrated in Figure 18. The long-term residual emissions represent methane and nitrous oxide emissions from biomass, and 2017 emissions not related to heating buildings (kept constant in these scenarios).

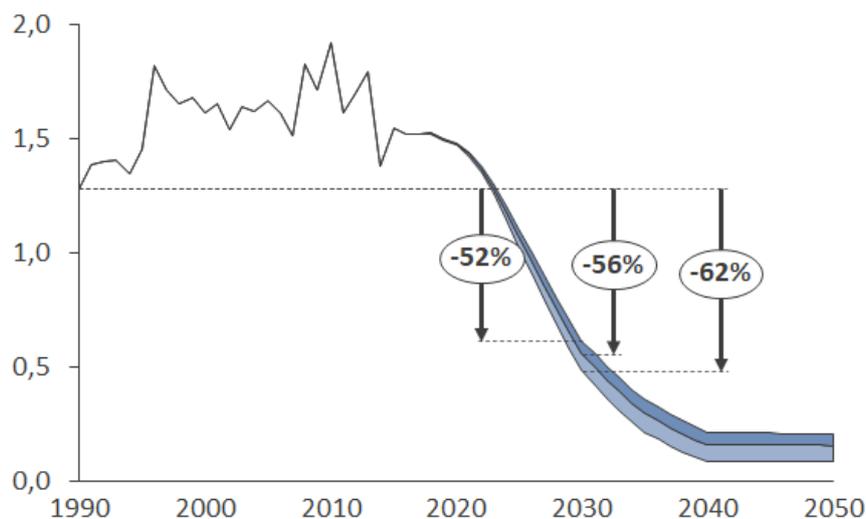


Figure 18. Trajectory for GHG emissions from non-residential buildings [MtCO_{2e}], history based on AwAC inventory and projections based on the renovation timetable and different assumptions about evolution of the fuel mix. Source: CLIMACT analysis.

Unlike residential buildings, it is not possible to identify renovation stages due to the variety of non-residential buildings and the data available. In addition, it would help to apply these targets to whole categories of buildings to maximise synergies with their changing use and with other investments required (other than for energy and carbon efficiency) due to these changes and the current condition of the infrastructure.

However, the tables below provide an overview of the renovation activity to be undertaken to comply with this timetable. Compared to the historical trajectory, this will be a massive challenge, but one that the measures outlined in this strategy aim to make possible. It will require a true paradigm shift rooted in unwavering political ambition, and contributions by all actors. There are significant wider benefits involved in terms of employment, safety and health.

		2021-2025	2026-2030	2031-2035	2036-2040
Public	Schools	39	60	59	-
	Offices	24	37	36	-
	Health	19	29	29	28
	Other	10	16	16	15
Private	Offices	31	48	47	-
	Other	2	14	21	21
	Shops	65	147	177	-
Total		190	350	385	64

Table 4. Five-year averages for annual energy savings (GWh/year) to be achieved in non-residential buildings.

		2021-2025	2026-2030	2031-2035	2036-2040
Public	Schools	493	768	751	-
	Offices	244	380	372	-
	Health	283	431	431	418
	Other	142	215	215	209
Private	Offices	517	805	788	-
	Other	31	184	286	280
	Shops	482	1 093	1 315	-
Total		2 192	3 876	4 158	907

Table 5. Five-year averages of annual surface areas to be renovated (x10³ m²/year) in non-residential buildings.

		2021-2025	2026-2030	2031-2035	2036-2040
Public	Schools	296	461	451	-
	Offices	146	228	223	-
	Health	170	258	258	251
	Other	85	129	129	125
Private	Offices	310	483	473	-
	Other	19	110	172	168
	Shops	289	656	789	-
Total		1 315	2 326	2 495	544

Table 6. Five-year averages of annual investments to be mobilised (million €/year) for non-residential buildings with an indicative cost of €600/m²

II. COSTS AND COST-EFFECTIVENESS OF BUILDING RENOVATION

The condition of the building stock and the targets were presented in the previous chapter. This chapter will present the information available on cost-effective approaches to renovating the different segments of the building stock. The first section provides an overview of existing and ongoing studies. The second presents the main conclusions, supplemented by a series of analyses carried out in the course of developing the strategy. The conclusions of these analyses provided a basis for setting the long-term targets and the phasing of the renovation presented above.

A. SEVERAL STUDIES HAVE BEEN CARRIED OUT IN WALLONIA

The following studies have been or are being carried out in Wallonia.

1. COST-OPTIMUM STUDIES

An overview of cost-optimum studies is provided in Annex 3. This section complements it by reporting the main assumptions and conclusions regarding cost-effective renovation measures.

The COZEB studies, in accordance with European regulations, aim to verify that the energy performance requirements applicable to new and existing buildings in Wallonia are cost-optimal. By extension, they help to identify all energy renovation measures that may prove economically advantageous over a given assessment period (20 years for tertiary buildings, 30 years for residential buildings).

A statistical approach is taken based on typologies of buildings representative of the Walloon housing stock and a regulatory framework set by the European Commission.

The costs of the energy improvement measures covered by this study relate to the building envelope, i.e. the surfaces (walls, windows, floors and roofs), as well as the systems (including renewable energy sources).

These costs were established in close consultation with representatives of the construction sector in Wallonia, in the form of round tables in 2016, in order to identify and confirm input data to use for the cost-optimum study. The cost database, created following these consultations, brings together all costs involved for the renovation work considered in the study.

The total cost of an energy renovation measure applied to a heat loss surface includes all work necessary for full renovation of the surface.

In the case of a roof, in addition to the insulation, the costs include dismantling, battening, roofing, zinc work, vapour barrier and plasterboard finishing.

In the case of a wall, the insulation costs include cladding, adjustment of thresholds and overhangs.

The price of interior partitions and joinery, sanitary facilities, plumbing, electricity, etc. are not included in the total cost.

Meanwhile, the European Commission sets the regulatory framework for calculating the optimal energy performance. In particular, the cost-optimal level must be assessed in terms of the **adjusted global cost (AGC)** of the energy performance improvement measure. This overall cost includes the investment costs (envelope and systems), annual running (energy, operation, maintenance) and replacement costs and costs of greenhouse gas emissions, all assessed over a period of 20 or 30 years, and reported in terms of value in the starting year.

To put the cost of energy efficiency investments and their impact into context, in terms of the AGC in relation to the property value of the building, this value has been estimated by a property expert and incorporated into the calculation of the AGC.

The performance level is calculated using the EPB method, a regulatory calculation based on assumptions of standardised occupancy and usage, not on an actual estimate of consumption. The essential role of this calculation method is to compare buildings from an energy perspective under standardised conditions.

The cost-optimal energy performance level is the measure or combination of measures to improve the envelope and systems applied to a reference building for which the adjusted global cost is minimal. Cost-effective measures are all measures for which the adjusted global cost is lower than the adjusted global cost for the starting situation, as the saving in energy consumption over 20 or 30 years is greater than the cost of the energy renovation.

This economic optimum varies depending on many parameters intrinsic to the building (building typology, construction period, condition and date of previous renovation) and separate to it (energy prices and their expected trajectory, discount rate, costs of materials and labour, calculation method, etc.).

The study used a common methodology for 40 reference buildings, broken down into eight segments representative of the Walloon residential and non-residential building stock. It gave rise to a series of observations and conclusions for each segment.

The findings helped in particular to establish the difference between the cost-optimal levels for the minimum performance requirements calculated and those for the requirements in force in 2017 and planned for 2021 (NZEB). They have been used to identify and quantify cost-effective renovation approaches in this strategy.

2. TECHNICAL AND ECONOMIC POTENTIAL FOR COMBINING HEATING AND RENEWABLE ENERGY SYSTEMS

In a study published in 2013⁷³, Wallonia examined the technical and economic feasibility of introducing a compulsory proportion of energy from renewable sources in the construction regulations⁷⁴.

For the residential sector, renewable energy technologies were considered for heating and domestic hot water production as well as for electricity production.

For a residential unit in an apartment building, collective and individual renewable energy technologies were considered.

For the tertiary sector, renewable energy technologies were considered for heating and cooling as well as for electricity production. Conventional technologies are used by default for ventilation and air humidity.

Based on the share of consumption to be covered by renewable sources, the analysis of the adjusted global cost for different combinations of heating systems and energy production technology helps to identify cost-effective and/or economic optimum solutions^{75, 76}. As an illustration, Table 7 shows the result for a detached house. For each target proportion of renewable energy, it indicates the technically and economically optimum

⁷³ 3E, 2013, *Energies renouvelables dans les bâtiments - Analyse d'une obligation de production dans les prescriptions de construction*.

⁷⁴ The analysis was carried out using various simulations of (combinations of) renewable energy technologies for reference buildings in both the residential and tertiary sectors. These simulations were carried out as far as possible using the EPB version 3.0.0 calculation methods. Technical and economic assessment of the simulation findings is carried out using the Pareto front concept. The optimum is sought under two criteria, for example the share of renewable energy and the adjusted global cost.

⁷⁶ The study referenced above presents the detailed findings of such an analysis for different typologies of residential and tertiary buildings. Any readers interested are referred to the study report for the detailed findings.

technology and the associated adjusted global cost over a period of 30 years. A solution for which the adjusted global cost – expressed relative to the baseline situation – is less than 100% is considered cost-effective. We can see from this table that the economic optimum for the situation illustrated, based on the assumptions for the study, is cost-effective and involves producing 35% of energy consumption through photovoltaic (PV) panels⁷⁷.

⁷⁷ This study dates from 2013; the costs of PV have since fallen sharply.

Share of RE [%]	AGC [%]	Technology
0%	100%	Reference detached house
17%	98%	50% of maximum installed capacity in PV energy
26%	95%	75% of maximum installed capacity in PV energy
35%	92%	Maximum installed capacity in PV energy
39%	95%	Solar water heater for domestic hot water 2.5 m ² Maximum installed capacity in PV energy
41%	96%	Solar water heater for domestic hot water 4.5 m ² Maximum installed capacity in PV energy
42%	97%	Solar water heater for domestic hot water 6.5 m ² Maximum installed capacity in PV energy
43%	104%	Combined solar system 10 m ² Maximum installed capacity in PV energy
64%	108%	Ground-to-water heat pump with underfloor heating Gas water heater for DHW Maximum installed capacity in PV energy
64%	110%	Ground-to-water heat pump with underfloor heating Maximum installed capacity in PV energy
68%	111%	Ground-to-water heat pump with underfloor heating Gas water heater for DHW Solar water heater for domestic hot water 2.5 m ² Maximum installed capacity in PV energy
68%	112%	Ground-to-water heat pump with underfloor heating Solar water heater for domestic hot water 2.5 m ² Maximum installed capacity in PV energy
70%	112%	Ground-to-water heat pump with underfloor heating Gas water heater for DHW Solar water heater for domestic hot water 4.5 m ² Maximum installed capacity in PV energy

70%	112%	Ground-to-water heat pump with underfloor heating Solar water heater for domestic hot water 4.5 m ² Maximum installed capacity in PV energy
72%	113%	Ground-to-water heat pump with underfloor heating Solar water heater for domestic hot water 6.5 m ² Maximum installed capacity in PV energy
100%	115%	Biomass boiler Maximum installed capacity in PV energy

Table 7. Renewable energy technologies using Pareto front for the adjusted global cost (in % compared to the baseline situation) and share of renewable energy (low-energy detached house)⁷⁸.

3. POTENTIAL FOR DISTRICT HEATING NETWORKS AND COGENERATION

A study completed in December 2015⁷⁹ described the status of district heating and cooling networks in Wallonia, along with their likely trajectory by 2030. It also assessed the potential for supplying these networks through cogeneration and recovery of waste heat. This study was carried out as part of the transposition of Article 14 of Directive 2012/27/EU on energy efficiency. In particular, Article 14.1 of the Directive stipulates that by 31 December 2015 at the latest, Member States shall carry out and notify to the Commission a comprehensive assessment of the potential for the application of high-efficiency cogeneration and efficient district heating and cooling networks, containing the information set out in Annex VIII. For the purpose of the assessment referred to in Article 14.1, Article 14.3 of the Directive stipulates that Member States shall carry out a cost-benefit analysis covering their territory based on climate conditions, economic feasibility and technical suitability in accordance with Part 1 of Annex IX.

A) MAIN CONCLUSIONS REGARDING DISTRICT HEATING NETWORKS⁸⁰

The estimated potential of networks is thus based on the heating needs of residential and tertiary buildings in each municipality, as well as in each statistical sector⁸¹ within municipalities, and the size of the road networks in these areas in order to identify areas with variable heat density per linear metre of network. Table 8 presents an assessment of the potential of heating networks in the nine municipalities with the most statistical sectors.

⁷⁸ *Ibid.*

⁷⁹ SPW DGO4, 2015, *Directive efficacité énergétique 2012/27 – Art. 14 – Stratégie de réseaux de chaleur et de froid alimentés par des cogénérations et des énergies fatales*. Final report, tasks 1 to 6.

⁸⁰ *Ibid.*

⁸¹ The statistical sector is the basic territorial unit resulting from the subdivision of the territory of municipalities and former municipalities by Statbel (Belgian statistical office) for the dissemination of its statistics at a finer level than the municipal level. It was created for the 1970 Population and Housing Census and redesigned for the 1981 census on the basis of structural characteristics of a social, economic, town planning or morphological nature. It was adjusted for the 2001 Socio-Economic Survey to reflect modifications to municipal boundaries and to incorporate major changes in land use. (Statbel, 2011).

Nom de la commune	Nombre de secteur, -	potentiel en RC, GWh	Potentiel cumulé, GWh	Potentiel cumulé relatif
Liège	100	1.811	1.811	13,2%
Charleroi	121	1.690	3.501	25,5%
La Louvière	52	739	4.240	30,9%
Mons	43	681	4.921	35,8%
Namur	36	538	5.458	39,7%
Mouscron	21	489	5.948	43,3%
Seraing	28	435	6.383	46,5%
Verviers	22	378	6.761	49,2%
Herstal	25	295	7.056	51,4%
Total en Wallonie	940	13.733	-	-

Table 8. Potential of district heating networks in the nine municipalities with the most statistical sectors⁸².

Municipality name	Number of sectors	Potential HN, GWh	Cumulative potential, GWh	Relative cumulative potential
Liège	100	1 811	1 811	13.2%
Charleroi	121	1 690	3 501	25.5%
La Louvière	52	739	4 240	30.9%
Mons	43	681	4 921	35.8%
Namur	36	536	5 458	39.7%
Mouscron	21	489	5 948	43.3%
Seraing	28	435	6 383	46.5%
Verviers	22	378	6 761	49.2%
Herstal	25	295	7 056	51.4%
Total for Wallonia	940	13 733	-	-

The study concludes that heating networks may present a long-term economic advantage but investment decisions must be made on a case-by-case basis, based on typological, technical and decision-making parameters.

Typological parameter

- Case studies clearly indicate a minimum heat requirement of around 1 MW for a district heating network to be practicable.
- In existing buildings, heating requirements are relatively high due to inefficient thermal envelopes.
- In new builds, low heating requirements mean that large-scale projects or mixed groupings are needed to meet the critical power rating threshold to justify a distribution network.

Technical parameter A network will be more cost-effective where it is high density and easy to install in proposed properties (loose, non-mineralised soil; synergies with other properties).

Decision-making parameter

- A network will be easier to develop where there is a limited number of decision-makers or where there has been a pilot project with a clear technical and financial perspective.
- One of the variables observed is the involvement of a technical operator acting as an investor in this type of project, and being paid back through the utility bill for heat.
- In the case of a new project, requiring a licence or right of way over public land, it is essential to secure a prior agreement between various key actors:

⁸² SPW DGO4, 2015, *Directive efficacité énergétique 2012/27 – Art. 14 – Stratégie de réseaux de chaleur et de froid alimentés par des cogénérations et des énergies fatales*. Final report, tasks 1 to 6.

- the competent authority/authorities (City or Municipality/Region)
- the intermunicipal distribution system operator
- the developer
- the heat producer and provider.

B) MAIN CONCLUSIONS REGARDING COGENERATION

The key calculations for cogeneration potential in the tertiary and industrial sectors are shown in Table 9. The technical potential is for a thermal capacity of 529 MW_{th}, 76% of this in the industrial sector, with corresponding thermal output estimated at 3 172 GWh. The potential electrical capacity is 428 MW_e, 81% of this in the industrial sector, with corresponding electrical output of 2 621 GWh. There is economic potential for 8% of tertiary facilities and 4% of industrial facilities.

	TERTIAIRE	INDUSTRIE	TOTAL	Part du pot. technique
<i>Nombre total d'établissements</i>	2 636	579	3 215	
<i>Nombre avec potentiel économique</i>	210	24	234	9,6%
<i>Part du total</i>	8%	4%	7%	
<i>Puissance thermique totale (kW_{th})</i>	48 078	37 007	85 086	16,1%
<i>Puissance électrique totale (kW_e)</i>	33 288	33 431	66 719	15,6%
<i>Production chaleur cogénérée MWh</i>	218 541	239 714	458 255	14,4%
<i>Production électrique cog. MWh</i>	150 989	210 797	361 085	13,8%

Table 9. Economic potential of cogeneration in Wallonia⁸³.

	TERTIARY	INDUSTRY	TOTAL	Share of technical potential
Total number of facilities	2 636	579	3 215	
Number with economic potential	210	24	234	9.6%
Share of total	8%	4%	7%	
Total thermal power (kW _{th})	48 078	37 007	85 086	16.1%
Total electric power (kW _e)	33 288	33 431	66 719	15.6%
Co-generated heat MWh	218 541	239 714	458 255	14.4%
Co-generated electricity MWh	150 989	210 797	361 085	13.8%

⁸³ *Ibid.*

B. DIFFERENT APPROACHES ARE RECOMMEND FOR ENERGY RENOVATION

The cost-optimum studies (COZEB, COZEB extension, COZEB II) cover renovation measures for the building envelope and heating systems. They provide a solid foundation for the renovation strategy, as improvements to the envelope reduce energy requirements for heating and cooling. Improving the systems then enables an efficient response to these limited requirements by taking advantage of renewable energy sources and by minimising losses in energy transformation and distribution. The COZEB and COZEB extension studies focused on improvements to the envelope. They were supplemented by the COZEB II study, which extended the analysis to systems (including renewable energy production).

The COZEB II study analysed 14 typologies of single-family houses, six apartment buildings, five office buildings and four schools⁸⁴. In addition to defining the cost-optimal energy performance level, the study serves to highlight combinations of cost-effective solutions, by building type, according to predetermined parameters and an assessment period and using the EPB calculation method.

A set of measures is 'cost-effective' when the initial investment is recovered over the assessment period (30 years for residential buildings and 20 years for non-residential buildings) through the energy savings generated by the renovation⁸⁵. In this case, the adjusted global cost (investment cost + disposal cost + operating costs + replacement cost) of a renovation measure is lower than the adjusted global cost of the baseline situation, without the renovation measure.

A considerable number of combinations of renovation measures were tested in the COZEB II study, in most cases representing thousands of sets of different solutions. For ease of use, we only considered a bracket of combinations of measurements located at 20% of the Pareto front (curve of lowest points on the graph). Combinations of measures above this 20% level are not considered in this analysis.

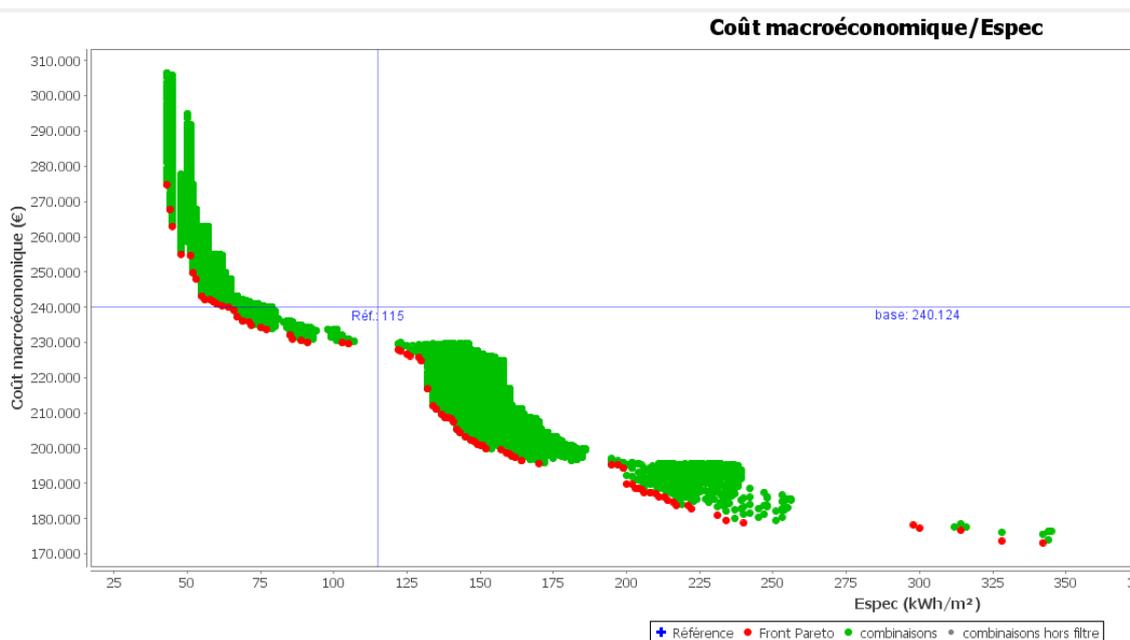


Figure 19. Example of a graph from the COZEB II study.

Coût macroéconomique/Espec	Macroeconomic cost / E_{spec}
Coût macroéconomique (€)	Macroeconomic cost (€)

⁸⁴ See the reports on the cost-optimum studies (available here: <https://energie.wallonie.be/fr/etude-co-zeb-cout-optimum.html?IDC=7224&IDD=97766>) and their key findings summarised in Annex 3.

⁸⁵ See Annex 3 for assumptions in the COZEB study.

Réf. 115	Baseline: 115
base: 240.124	Baseline: 240 124
Espec (kWh/m ²)	E _{spec} (kWh/m ²)
Référence	Baseline
Front Pareto	Pareto front
combinaisons	combinations
combinaisons hors filtre	combinations without filter

The findings were analysed with a view to long-term renovation of the Walloon property portfolio, in line with the targets and priorities in the Walloon long-term renovation strategy, including prioritising renovation of the envelope of existing buildings, followed by optimising combinations of envelope and system measures.

Photovoltaic installations were not considered in the study because of their strong impact on E_{spec} and E_w performance indicators (due to the way that local electricity production is accounted for in the EPB system) without a direct link to the energy performance or requirements of the buildings assessed. These solutions would automatically result in distortion of the cost-effectiveness of investments.

However, they will be essential to achieving carbon neutrality targets.

1. RESIDENTIAL BUILDINGS

The following analysis uses two approaches:

- a **theoretical approach** based on the methodology of the COZEB II study and the EPB calculation method determining theoretical consumption;
- a **'corrected theoretical' approach** to better reflect actual building consumption in estimating the cost-effectiveness of investments⁸⁶.

Existing single-family homes

For buildings constructed before 1985, renovation of a residential building to an A rating involves:

- fully renovating all surfaces (roof, walls, floors, windows);
- replacing the old boiler with an energy-efficient heating system; and
- fitting a ventilation system.

To comply with the target for 2050, the heating system must also be based on decarbonised solutions.

Theoretical approach

In terms of the theoretical approach, the A rating can be achieved, or even exceeded, using cost-effective renovation solutions for 10 of the 14 typologies of house studied.

It is mainly newer buildings, built after 1985, that cannot be cost-effectively brought up to an A rating.

⁸⁶ The methodology for correcting consumption and adjusted global costs for renovation solutions is presented in Annex 3.E.

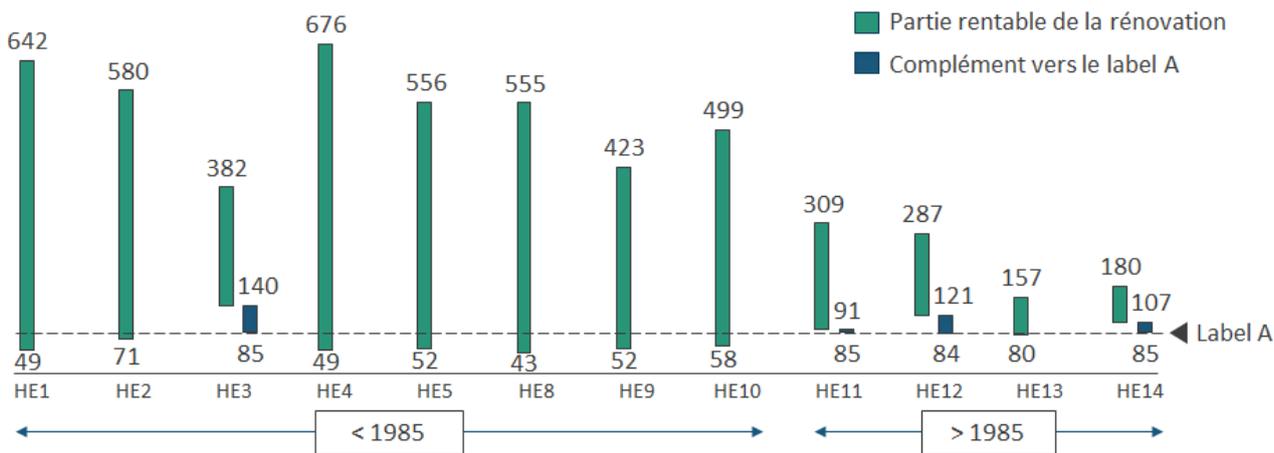


Figure 20. E_{spec} (theoretical, in kWh/m²/year) pre- and post-renovation, for the reference typologies of single-family homes, achievable through cost-effective renovation measures (cost-effective within the meaning of the COZEB II study, assessed based on theoretical consumption) and through additional renovations to achieve the A rating (Source: CLIMACT analysis based on COZEB II findings).

Partie rentable de la rénovation	Cost-effective part of renovation
Complément vers le label A	Supplement to A rating
Label A	A rating

For homes built before 1985 (with E, F or G rating), it is cost-effective to renovate the entire building up to rating A.

Renovating to an A rating involves:

- insulating the roof, walls and floor for high performance ($U\ 0.15\ W/m^2K$ for most surfaces);
- fitting windows with triple glazing;
- fitting a C+ or D controlled ventilation system with heat recovery and an efficient heating system.

In some cases, solar thermal panels for hot water production are included in the set of cost-effective measures.

For homes built after 1985, compliant with the first thermal regulations, cost-effective solutions resulting in optimum performance involve floor insulation combined with fitting a C+ or D ventilation system and an efficient heating system.

Despite the combinations of the most energy-efficient cost-effective solutions involving condensing boilers for 12 out of the 14 typologies, it is possible, for all the typologies studied, to achieve the A rating without using fossil fuels.

For buildings constructed before 1985, it is possible to use combinations of cost-effective solutions to achieve and exceed the A rating without the use of fossil fuels for heating. These combinations involve insulating all surfaces to make them energy-efficient ($U\ 0.15\ W/m^2K$ for most surfaces), replacing existing window frames with energy-efficient frames with double or triple glazing, fitting a C+ or D controlled ventilation system and fitting a renewable heating system, wood stove or heat pump as appropriate.

'Corrected theoretical' approach

However, if we try to approximate the actual consumption of a building by applying a correction factor⁸⁷, the economic optimum for achieving the A rating does not equate to cost-effective work for 12 of the 14

⁸⁷ Cf. Annex 3.E for the methodology used for these correction factors.

typologies. Nevertheless, cost-effective renovation measures can significantly improve performance for most typologies.

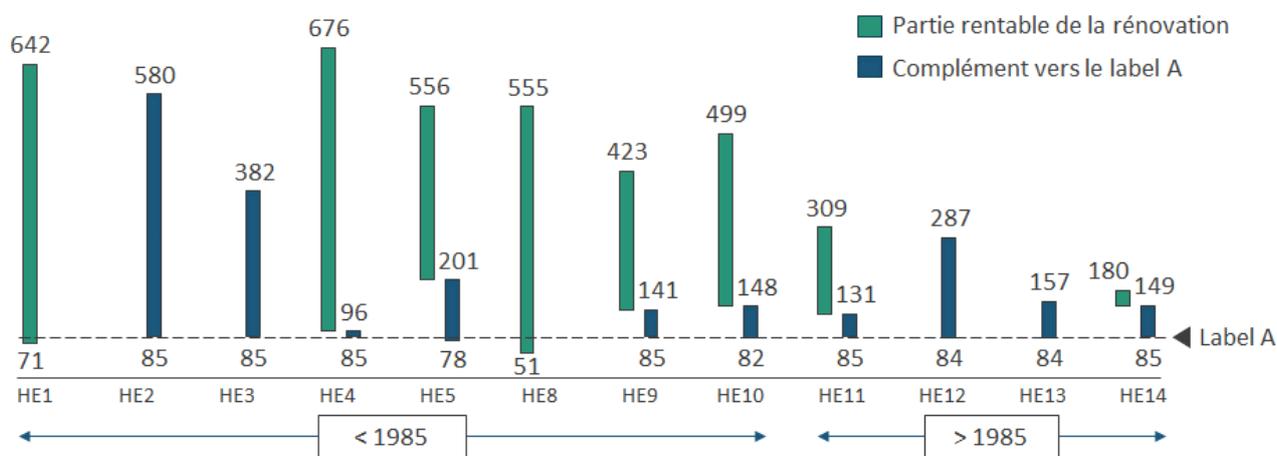


Figure 21. E_{spec} (theoretical, in kWh/m²/year) pre- and post-renovation, for the reference typologies of single-family homes, achievable through cost-effective renovation measures (cost-effectiveness assessed based on corrected consumption) and through additional renovations to achieve the A rating (Source: CLIMACT analysis.)

Partie rentable de la rénovation	Cost-effective part of renovation
Complément vers le label A	Supplement to A rating
Label A	A rating

The references typologies from the COZEB study were used as representative of construction methods in the Walloon building stock. The findings illustrated in Figure 21 therefore indicate the following.

- **Renovation to an A rating is recommended for detached houses built before 1945 (HE1 and HE4) and houses built between 1946 and 1970 (HE8).**
- **For houses built between 1970 and 1985 (HE9 and HE10), a large proportion of investments can be made cost-effective through energy savings.** However, the measures that are cost-effective vary from one building to another. This demonstrates the benefit of having a renovation roadmap for each building to identify the most appropriate measures based on the specific characteristics of the building and the development project. Today, achieving an A rating is not fully offset by the energy savings. Support for full renovation to an A rating could reflect this additional investment required.
- **For the other typologies**, while based on the theoretical approach, cost-effective measures can be used to achieve or approach the A rating; using corrected theoretical consumption to approximate actual consumption shows **there is a need to drive innovation to make renovation to the A rating cost-effective.**

For the typologies that achieve or approach the A rating, the following renovation measures are recommended.

- For the first type of building, HE1, a detached stone building, G rating, built before 1945: insulating the roof (U 0.20 W/m²K) and walls (U 0.15 W/m²K), fitting energy-efficient triple-glazed windows and a D ventilation system with heat recovery and replacing the old heating system with an energy-efficient system.
- For building HE4, detached, G rating, built before 1945, it is possible to get very close to an A rating in a cost-effective manner by replacing the windows with energy-efficient double-glazed windows, insulating the roof and walls and fitting an energy-efficient heating system and a C+ ventilation system.

- For building HE8, a terraced town house, G rating, built between 1946 and 1970: insulating the walls and floor to $U\ 0.15\ \text{W/m}^2\text{K}$ and the roof to $U\ 0.24\ \text{W/m}^2\text{K}$, fitting a D ventilation system with heat recovery, replacing the old heating system with a wood stove and installing solar thermal panels for domestic hot water.
- For buildings constructed between 1970 and 1985, the following renovation measures will be cost-effective. For building HE9, detached house, E rating, built between 1971 and 1984: replacing the windows, insulating the roof to $U\ 0.20\ \text{W/m}^2\text{K}$ and replacing the old heating system. For building HE10, terraced house, F rating: replacing the glazing with energy-efficient panes, replacing the heating system and fitting a D ventilation system with heat recovery.

Insulating the roof of buildings constructed before 1985 remains cost-effective and is an essential step in working towards A rating.

The same applies to replacing heating systems with energy-efficient systems and fitting a ventilation system: C+ or D with heat recovery, as appropriate.

Analysis of the findings of the COZEB II study, corrected to approximate actual use of buildings, shows that the measures that are currently cost-optimal do not result in energy performance improvements that meet the ambitions of the Region. Renovation to A rating, for the stock as a whole, is not currently cost-effective within the meaning of the study. This shows the importance of driving innovation to reduce the costs of renovation solutions and to make renovation to A rating cost-effective, or even cost-optimal.

Figure 22 presents the findings obtained for the entire building stock (single-family homes) when extrapolating the findings given above for each typology. The findings are presented in terms of average E_{spec} for the building stock and corresponding costs.

The average investment for these renovations to A rating is €80 500 per building or €479/m²⁸⁸, varying from €100/m² to €680/m² depending on the typology. Given that there are 1 298 204 single-family homes, and that 99% of them need to be brought up to an average A rating (as only 1% are currently A rating), deploying this level of renovation ambition for all single-family homes in Wallonia requires an investment of €103 billion, which will be made partially cost-effective through energy savings over a 30-year period⁸⁹.

⁸⁸ The estimate of the weighted average for the average investment in € per building depends on the area (ACH) of the reference typologies. In contrast, the calculation in €/m² results from weighting the investments (€/m²) for renovation to A rating of each typology, based on their representation.

⁸⁹ Based on the assumptions in the COZEB II study

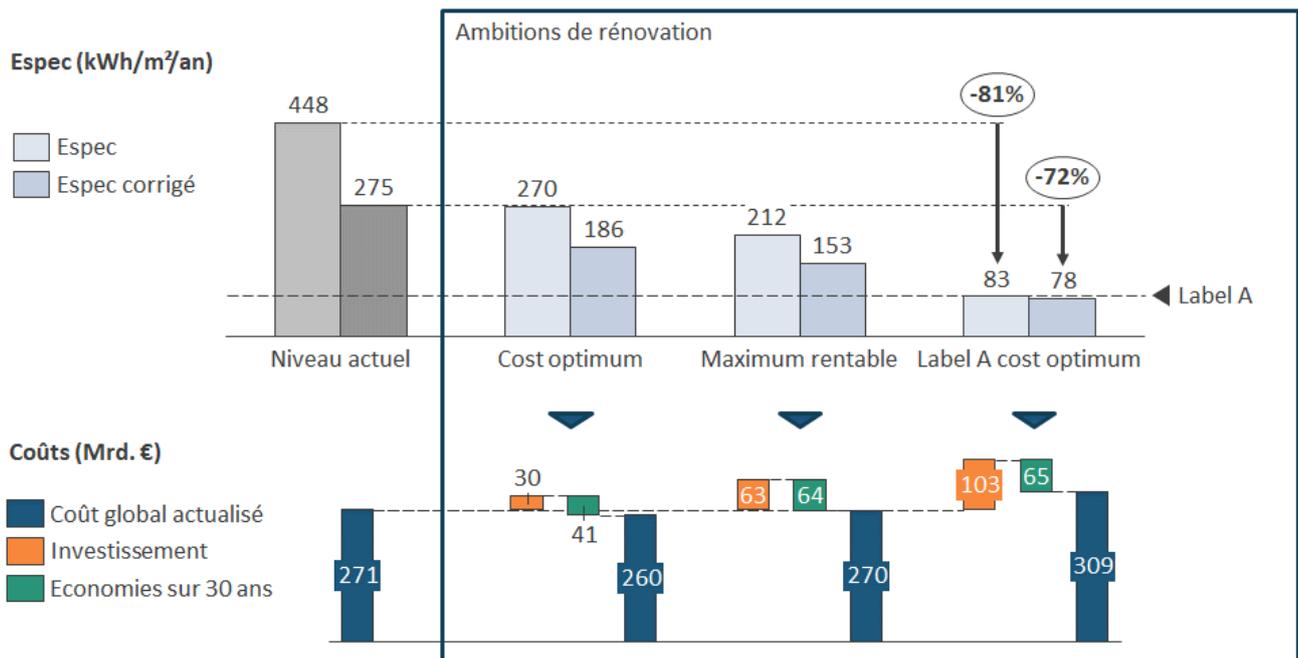


Figure 22. Average E_{spec} (theoretical and corrected) for the stock of single-family homes, pre- and post-renovation, under three levels of ambition for renovation of the envelope and systems and associated costs (costs and resulting selection of measures are based on corrected consumption) (Source: CLIMACT analysis based on COZEB II).

Espec (kWh/m²/an)	E_{spec} (kWh/m²/year)
Espec	E_{spec}
Espec corrigé	Corrected E_{spec}
Niveau actuel	Current level
Ambitions de rénovation	Renovation ambitions
Cost optimum	Cost optimum
Maximum rentable	Max. cost-effective
Label A cost optimum	A rating cost optimum
Label A	A rating
Coûts (Mrd. €)	Costs (billion €)
Coût global actualisé	Adjusted global cost
Investissement	Investment
Economies sur 30 ans	Savings over 30 years

Guidance on interpreting Figure 22 for single-family homes

The upper section of the figure shows the average specific primary energy consumption (E_{spec}) for the entire stock of single-family homes, currently and in various renovation scenarios. The average for the entire stock is obtained by weighting the values obtained for each reference building by their representation (see Annex 3.B). Both the theoretical values (according to the EPB methodology) and the corrected values (see Annex 3.E for the correction methodology) are presented. Primary energy consumption is corrected to better reflect the actual use of the buildings and thus present a cost-effectiveness calculation that approximates what can, on average, actually be achieved through these investments.

We can observe that:

- achieving A rating corresponds to an 81% improvement in energy performance and a 72% reduction in primary energy consumption;
- cost-effective measures result in an average E_{spec} of 212 kWh/m²/year; and
- cost-optimal measures result in an average E_{spec} of 270 kWh/m²/year.

The lower section of the figure shows the costs associated with each level of renovation ambition. The adjusted global cost (in blue), the total investment to renovate the entire stock at this level of ambition (in orange) and the savings generated (in green) in the renovation scenario compared to the situation without renovation (baseline). The cost-effectiveness of the measures can be seen in the difference in the adjusted global cost (in blue) between the renovation scenarios and the baseline situation.

We can observe that:

- cost-optimal renovation of the stock of single-family homes requires an investment of €30 billion and generates savings of €41 billion over 30 years, compared to the baseline situation;
- the most ambitious cost-effective renovation requires an investment of €63 billion, offset by the savings generated (by definition of the scenario); and
- the least costly renovation to A rating requires an investment of €103 billion, of which 63% is offset by the savings generated. In other words, with other costs constant (energy, VAT, etc.), the costs of renovation to A rating will need to be reduced by 37% for it to be cost-effective across the stock of single-family homes.

These observations relate to the macro analysis of the building stock. Appropriate renovation solutions need to be assessed for each building individually, taking into account the associated energy consumption and bills. **This is the purpose of the building passport and the renovation roadmap presented in Chapter III.**

Apartment buildings⁹⁰

Five typologies of existing apartment buildings were analysed in the COZEB study, ranging from G to C rating.

Theoretical approach

For all the typologies analysed, it is technically possible to achieve A rating. However, A rating can be achieved (or almost achieved) through cost-effective measures for only three of the typologies.

- A building (house divided into three apartments), G rating, built before 1919 (IAE3). Renovating to A rating involves replacing the windows, insulating the roof and walls to U 0.20 W/m²K and installing a

⁹⁰ The conclusions reported here are provided in detail for each reference typology in Annex 3.F.

wood stove, D ventilation system and solar thermal panels. This is also the only category for which there are cost-effective solutions, not using fossil fuels, that enable the A rating to be achieved.

- A second building, D rating, built between 1946 and 1970 (IAE5). In this case, renovating to A rating involves fitting triple-glazed windows, insulating the walls and roof to $U\ 0.15\ \text{W/m}^2\text{K}$ and installing a D ventilation system.
- A building constructed before 1919, not renovated and with very poor energy performance ($E_{\text{spec}}\ 524\ \text{kWh/m}^2/\text{year}$) (IAE1). Cost-effective solutions, involving full insulation of the envelope (roof, walls, floor) up to $U\ 0.15\ \text{W/m}^2\text{K}$, triple-glazed windows, a D ventilation system and solar thermal panels (for each housing unit) for domestic hot water enable $E_{\text{spec}}\ 88\ \text{kWh/m}^2/\text{year}$ to be achieved, very close to A rating.

'Corrected theoretical' approach

According to the corrected approach, there are technical solutions to achieve A rating for each typology. However, these combinations of solutions are not cost-effective.

The cost-optimal solutions to achieve A rating consist of:

- replacing the windows or panes;
- insulating the walls;
- insulating the roof (except for the most recent typology, built after 1990 and already insulated to the requirements of the time); and
- insulating the floor of buildings entirely over a cellar or garage.

These solutions, although cost-optimal, are not cost-effective according to the corrected approach. Certain one-off measures emerge as cost-effective, preventing general conclusions about cost-effective measures applicable to all typologies of residential buildings.

The average investment for these renovations to A rating is €325 160 per building or €516/m²⁹¹, varying from €310/m² to €850/m² depending on the typology. Given that there are 42 842 apartment buildings, and that 97% of them need to be brought up to an average A rating, deploying this level of renovation ambition for all apartment buildings in Wallonia requires an investment of €14 billion, which will be partially offset by energy savings over a 30-year period⁹².

⁹¹ The estimate of the weighted average for the average investment in € per building depends on the area (ACH) of the reference typologies. In contrast, the calculation in €/m² results from weighting the investments (€/m²) for renovation to A rating of each typology, based on their representation.

⁹² Based on the assumptions in the COZEB II study.

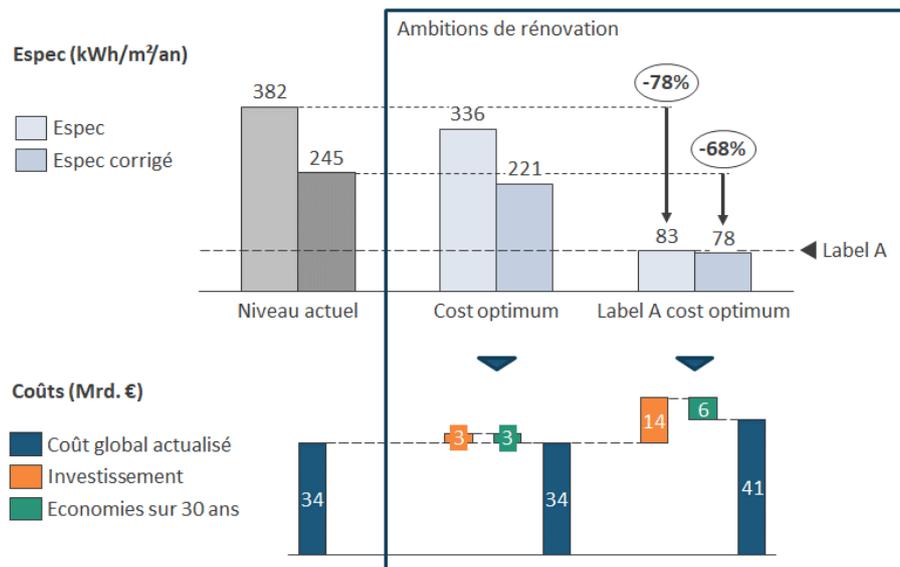


Figure 23. Average E_{spec} (theoretical and corrected) for stock of apartment buildings, pre- and post-renovation, under two levels of ambition for renovation of the envelope and systems and associated costs (costs and resulting selection of measures are based on corrected consumption) (Source: CLIMACT analysis based on COZEB II).

Espec (kWh/m ² /an)	E_{spec} (kWh/m ² /year)
Espec	E_{spec}
Espec corrigé	Corrected E_{spec}
Niveau actuel	Current level
Ambitions de rénovation	Renovation ambitions
Cost optimum	Cost optimum
Maximum rentable	Max. cost-effective
Label A cost optimum	A rating cost optimum
Label A	A rating
Coûts (Mrd. €)	Costs (billion €)
Coût global actualisé	Adjusted global cost
Investissement	Investment
Economies sur 30 ans	Savings over 30 years

2. TERTIARY BUILDINGS

For tertiary buildings, the analysis is based on the EPB calculation method for tertiary buildings (PEN method – calculation of non-residential energy performance) applied in the COZEB II study. No corrected theoretical approach has been proposed for these buildings.

Office buildings⁹³

Primary energy consumption levels ranging from 42 kWh/m²/year to 103 kWh/m²/year can be achieved through combinations of cost-effective solutions⁹⁴ for the five typologies of office building assessed. Extrapolated to the entire stock, based on representation of each reference typology, this represents a 75% reduction in primary energy consumption.

⁹³ Details of the conclusions reported here are given in Annex 3.F for each reference typology.

⁹⁴ Cost-effective over the assessment period considered (20 years) and based on the assumptions in the COZEB study.

These combinations of solutions involve full renovation of the envelope and systems, except for one typology: a small office on the ground floor of a residential building. In this case, primary energy consumption of 64 kWh/m²/year can be achieved through floor insulation and improvements to systems.

Notwithstanding the impact on overall energy consumption achieved through energy renovation (even partial) of the envelope, in the specific case of offices, targeted actions designed to improve the performance of systems (heating, cooling, lighting, etc.) are clearly essential to achieve such ambitious energy neutrality targets for this building stock.

The average investment for these cost-effective solutions is €190/m², varying from €125/m² to €300/m² depending on the typology. Given that office buildings cover a total area of 16 million m² ⁹⁵, deploying this level of renovation ambition for all office buildings in Wallonia requires an investment of €3 billion which will be offset by energy savings over a 20-year period⁹⁶.

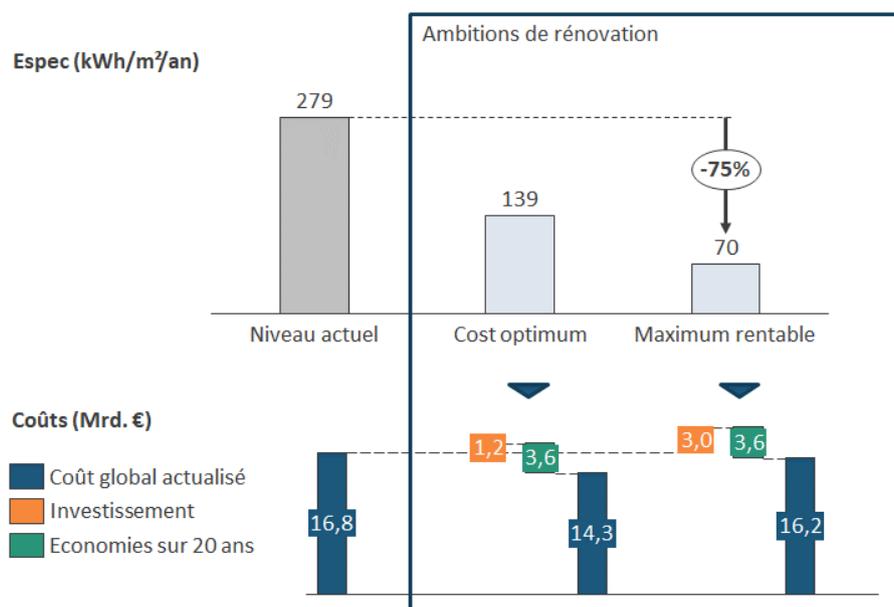


Figure 24. Average E_{spec} for stock of office buildings, pre- and post-renovation, under two levels of ambition for renovation of the envelope and systems and associated costs (Source: CLIMACT analysis based on COZEB II)

Espec (kWh/m ² /an)	E _{spec} (kWh/m ² /year)
Espec	E _{spec}
Espec corrigé	Corrected E _{spec}
Niveau actuel	Current level
Ambitions de rénovation	Renovation ambitions
Cost optimum	Cost optimum
Maximum rentable	Max. cost-effective
Label A cost optimum	A rating cost optimum
Label A	A rating
Coûts (Mrd. €)	Costs (billion €)
Coût global actualisé	Adjusted global cost
Investissement	Investment
Economies sur 20 ans	Savings over 20 years

⁹⁵ 5.1 million m² public, 10.8 million m² private. Source: Walloon energy balance for 2016.

⁹⁶ Based on the assumptions of the COZEB II study.

Schools

For the four typologies of school buildings assessed in the COZEB study, there are cost-effective solutions that can considerably improve energy performance, bringing their theoretical primary energy consumption to between 61 kWh/m²/year and 139 kWh/m²/year.

These involve full renovation of the envelope (roof, walls, floor) for high performance (U 0.15 W/m²K) and replacement of windows with triple glazed frames. Cost-effective measures for the systems depend on the typology, but in all cases the combination includes fitting LED lighting.

The average investment for these cost-effective solutions is €442/m², varying from €220/m² to €425/m² depending on the typology. Given that school buildings cover a total area of 10.3 million m²⁹⁷, deploying this level of renovation ambition for all school buildings in Wallonia requires an investment of €4.5 billion, which will be offset by energy savings over a 20-year period⁹⁸.

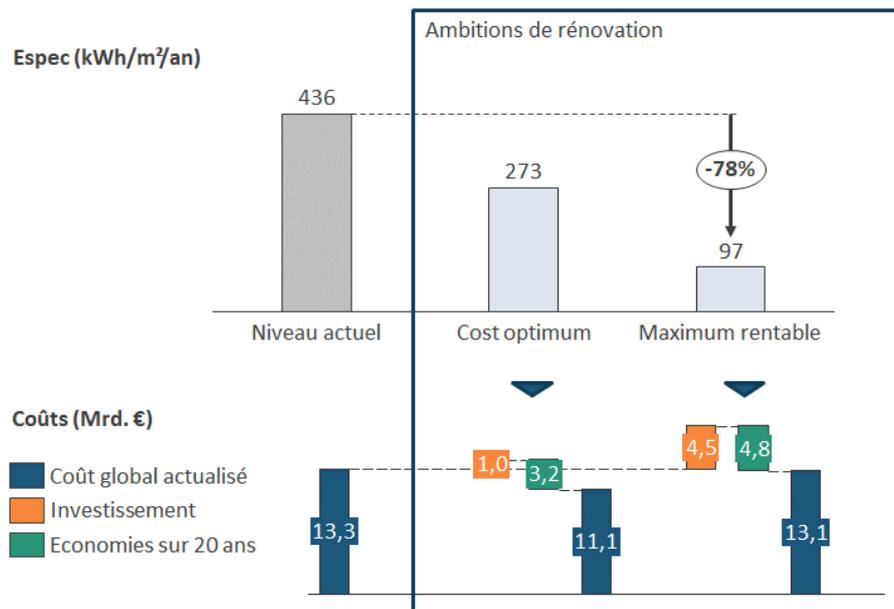


Figure 25. Average E_{spec} for stock of school buildings, pre- and post-renovation, under two levels of ambition for renovation of the envelope and systems and associated costs (Source: CLIMACT analysis based on COZEB II).

Espec (kWh/m ² /an)	E _{spec} (kWh/m ² /year)
Espec	E _{spec}
Espec corrigé	Corrected E _{spec}
Niveau actuel	Current level
Ambitions de rénovation	Renovation ambitions
Cost optimum	Cost optimum
Maximum rentable	Max. cost-effective
Label A cost optimum	A rating cost optimum
Label A	A rating
Coûts (Mrd. €)	Costs (billion €)
Coût global actualisé	Adjusted global cost
Investissement	Investment
Economies sur 20 ans	Savings over 20 years

⁹⁷ Source: Walloon energy balance for 2016.

⁹⁸ Based on the assumptions of the COZEB II study.

In addition to 'cost-optimum' works, the findings of the analysis of energy efficiency potential in the tertiary sector⁹⁹ show that energy efficiency measures with payback times of less than 12 years¹⁰⁰ reduce energy consumption by 33% (38% for electricity, 29% for combustible fuels). This potential is represented, by sector, in Figure 26.

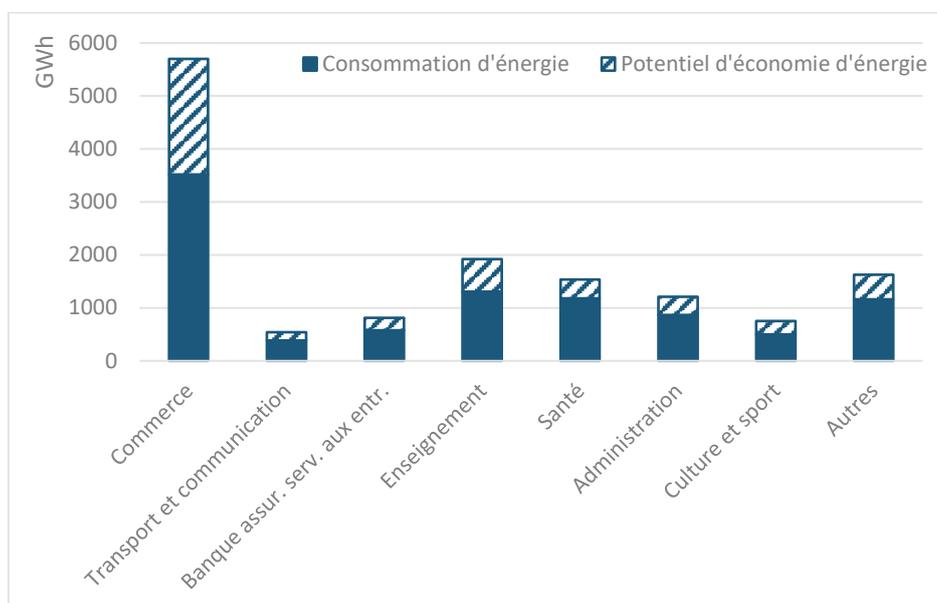


Figure 26. Energy consumption and potential for reduction in the tertiary sector (Source: ICEDD, energy balance 2013 and energy efficiency potential).

Consommation d'énergie	Energy consumption
Potentiel d'économie d'énergie	Potential energy savings
Commerce	Shops
Transport et communication	Transport and communication
Banque assur. serv. aux entr.	Banks, insurance + business serv.
Enseignement	Education
Santé	Health
Administration	Authorities
Culture et sport	Culture and sport
Autres	Other

To achieve ambitious targets and avoid lock-in effects in the energy performance of buildings, payback times cannot be the only drivers of energy renovation. This is because, while renovation is generally cost-effective in the long term (particularly if wider benefits are taken into account in the evaluation), investment choices generally focus on measures with payback times of less than 5 years.

A paradigm shift is needed for investments with a payback period of around 20 years to be genuinely considered. Appropriate instruments are needed to guide renovation decisions. This observation is confirmed by the conclusions of the CityNvest study¹⁰¹, summarised in Table 10. These findings show that we need a change in approach, highlighting all the drivers for renovation: modernising and improving the quality of the building, the need for renovation due to obsolescence, equipment needing modernisation, company image, well-being of workers, etc. There is still not sufficient emphasis on these aspects.

⁹⁹ ICEDD, 2016, *Estimation des potentiels d'efficacité énergétique par sous-secteurs industriels et tertiaires et moyens d'activation*.

¹⁰⁰ Includes a set of measures with a payback time of less than 5 years.

¹⁰¹ CityNvest, 2015, *Increasing capacities in Cities for innovating financing in energy efficiency*, Section 3.

Reduction in energy consumption:

	Up to 35%	Up to 50%	Up to 75%	Carbon-neutral
<i>Payback time</i>	10 years	15-20 years	> 25 years	
<i>Renovation measures</i>	Replacing technical installations EMS ¹⁰²	Replacing technical installations Insulating the envelope RES EMS	Deep energy renovation	Deep energy renovation and production through RES
<i>Typical cost of renovation</i>	<€50/m ²	<€200/m ²	<€800/m ² to more than <€1 500/m ²	
<i>Financing models</i>	ESCO Third-party investors	EPC ¹⁰³ via ESCO Third-party investors	Mix of financing solutions ¹⁰⁴	Mix of financing solutions

Table 10. Characteristics of renovation projects by level of ambition (Source: CityNvest, 2015).

¹⁰² Energy Monitoring System.

¹⁰³ Energy performance contracting.

¹⁰⁴ Conventional financing, ESCO financing, Programme Delivery Unit (PDU) financing, investment fund.

Coût de la rénovation (€/m ²)	300			600			1000		
	300	600	1000	300	600	1000	300	600	1000
Secteurs	millions m ²						% public		
Santé	8.0	2.4	4.8	8.0	100%	4.8	8.0		
Écoles	10.3	3.1	6.2	10.3	100%	6.2	10.3		
Bureaux publics	5.1	1.5	3.1	5.1	100%	3.1	5.1		
Bureaux privés	10.8	3.2	6.5	10.8		0.0	0.0		
Commerces	14.8	4.4	8.9	14.8		0.0	0.0		
Autres	8.0	2.4	4.8	8.0	50%	2.4	4.0		
Total		17	34	57		16	27		

Table 10a. Estimated investment needs for renovation of non-residential buildings according to different cost assumptions.

Coût de la rénovation (€/m ²)	Cost of renovation (€/m ²)
Secteurs	Sectors
Santé	Health
Écoles	Schools
Bureaux publics	Public offices
Bureaux privés	Private offices
Commerces	Shops
Autres	Other

III. POLICIES AND MEASURES TO STIMULATE THE ENERGY RENOVATION OF BUILDINGS

Ambitious targets have been set for energy renovation. Meeting them will depend on the Region's capacity to stimulate renovation in order to simultaneously increase the rate of renovation and ensure that, at each stage, the energy performance achieved is consistent with the long-term ambition.

There are three main pillars to Wallonia's strategy:

- **strengthen the framework** to provide transparency, stability and credibility conducive to investments in energy efficiency;
- contribute to **structuring and strengthening the market supplying** goods and services designed to improve the energy efficiency of buildings, taking advice from skilled professionals;
- **increase demand** for energy-efficient buildings.

Mobilising all sources of funding through effective instruments is key to making the deep energy renovation of Walloon buildings a reality. The strategy for financing the renovation is presented in Chapter IV.

This chapter is structured as follows. Firstly, there is an overview of the current policy framework in relation to energy renovation, and the main barriers. Secondly, details are given of proposals to strengthen this policy framework and stimulate deep energy renovation. These proposals were informed by the stakeholder consultation that was carried out alongside the development of the strategy. They are updated and supplemented by the proposals for measures emerging from the working groups held at the end of 2019 in order to transpose the new EPB Directive. This second section also provides an overview of all measures and actions that Wallonia proposes to implement under this strategy. Thirdly and finally, the suggested measures and actions are presented in detail.

A. ORGANISATION OF CURRENT WALLOON RENOVATION POLICIES

1. MAIN DOCUMENTS SETTING OUT THE POLICIES FOLLOWED

A series of measures approved by the Walloon Government are helping to stimulate the building renovation strategy. The documents serving as the current basis for determining these policies and measures¹⁰⁵ are:

- [the regional policy statement 2019-2024](#),
- [the Walloon Energy and Climate Plan \(PWEC\), regional contribution to the National Energy and Climate Plan \(NECP\)](#),
- [the Walloon public housing renovation plan 2020-2024](#),
- [the Walloon Anti-Poverty Plan](#),
- [the Sustainable Development Strategy](#),
- National Energy Efficiency Action Plans (including the 2017 NEEAP), containing the first proposals for a long-term renovation strategy.

Implementation of some of these measures as part of existing action plans in 2016 (such as the Marshall Plan 4.0 and the Employment-Environment Alliance – EEA) has been subject to monitoring (namely the EEA implementation report, analysis of the EEA by the Walloon Institute for Evaluation, Forecasting and Statistics (IWEPS), the monitoring of measures in the Air Climate Energy Plan, reporting to the European Commission

¹⁰⁵ For readers of the electronic version, the items listed below include links to the various plans.

through NEEAP, etc.). They are included in the series of measures to be implemented to accelerate deep energy renovation.

These existing measures are supplemented by new measures and actions proposed in developing this strategy. These additions resulted from Government discussions, stakeholder consultation, examples from neighbouring regions and countries and good practices in the European Commission guidance on developing a renovation strategy.

2. DESCRIPTION OF POLICIES AND MEASURES IN RELATION TO ENERGY RENOVATION IN THE REGION

Through its renovation strategy published in April 2017, Wallonia established clear and ambitious energy performance targets for renovation of the building stock by 2050. The main energy renovation measures currently being implemented in Wallonia are summarised below using the structure proposed in the European Commission guidance on drafting the strategy.

A) REGULATIONS

The regulations on the energy performance of buildings apply to all buildings (apart from explicit exceptions) and all construction, rebuilding and alterations.

The current energy performance of buildings (EPB) regulations resulted from transposition into Walloon law of the second European Directive of 19 May 2010 on the energy performance of buildings. The Directive was transposed through the adoption of the EPB Decree of 28 November 2013 and its enforcement orders. The EPB regulations to be observed (energy performance requirements, EPB procedure, calculation method) depend on the date of submission of a request for planning permission. These regulations were adapted (Decree 2020) in order to transpose EPB Directive 2018/844/EU.

(1) EPB REQUIREMENTS

The EPB regulations adopted by the Walloon Government came into force on 1 May 2010. For new buildings, these stipulate minimum overall energy performance (E_w and E_{spec}) and thermal insulation values (U_{max}) for the surfaces of the envelope. In terms of building renovation, the EPB requirements cover the performance level of renovated walls and state that the level achieved must be the same as that for the walls of new structures¹⁰⁶. These requirements, which are described in detail in Annex 5, have been regularly tightened. The latest version has been in force since 1 January 2017.

Since 1 January 2017, the minimum overall performance level for buildings ($E_w \leq 65$ and $E_{spec}^{107} \leq 115$ kWh/m²/year) must be achieved by new housing and major renovations (defined as involving over 75% of the surface area of the building envelope and the replacement of systems). This E_{spec} level was reduced to

¹⁰⁶ For new buildings, the requirements relate to the overall performance of the building.

¹⁰⁷ The specific consumption E_{spec} is defined as the ratio between 1) the annual primary energy consumption of the EPB unit for heating, domestic hot water, auxiliaries and potentially cooling (taking into account a possible deduction for self-generation of electricity and calculated based on standardised use of the EPB unit and on its technical characteristics) and 2) the heated floor area of the EPB unit.

85 kWh/m²/year¹⁰⁸ from 1 January 2021¹⁰⁹. Details of the requirements are available on the energie.wallonie.be portal¹¹⁰.

The EPB calculation method also changed on 1 January 2017¹¹¹. The changes include, firstly, a new NEP (non-residential energy performance) method for calculating the performance of NEP units (non-residential units and collective dwellings) and, secondly, amendments to the REP (residential energy performance) method for individual housing, structural nodes and transmission losses.

(2) SYSTEM-RELATED REQUIREMENTS

Since 1 May 2016, requirements (efficiency, lagging, energy metering, etc.) have also applied to systems (heating and domestic hot water, air conditioning, ventilation) that are installed, replaced or modernised. Although these requirements primarily apply to existing buildings, some of them (energy metering) also apply to new buildings¹¹². They are being extended to other systems as part of the transposition of EPB Directive 2018/844/EU.

(3) COHERENCE BETWEEN DIFFERENT REGULATIONS

The Walloon Housing and Sustainable Homes Code has been revised with a view to improving the quality of Wallonia's building stock and its energy performance, while steering the construction sector towards a more sustainable approach and boosting employment. The Code now sets out **criteria for hygiene and minimum energy performance based on insulation and airtightness** that apply to Wallonia's entire housing stock. As mentioned above, the CoDT, which entered into force on 1 June 2017, contains a number of provisions aimed at administrative procedures. By allowing the general use of indicative values for urban planning permissions and schemes and by abolishing certain standards, urban planning requirements are now more flexible and energy concerns are more effectively integrated into the management of administrative authorisations. The resulting Regional Development Plan (SDT) proposes a combination of medium- and long-term measures enabling Wallonia to anticipate and meet the future needs of its population (including accessible housing adapted to socio-demographic, energy and climate trends, and access to energy for all through the energy transition). The Walloon Heritage Code, which entered into force on 1 June 2019, updates the legislation and provides a closer link to the CoDT.

B) FINANCING AND TAXATION

Developed in Chapter IV.

C) INFORMATION CAMPAIGNS

(1) THE CAMPAIGN AND COMMUNICATION MATERIALS *WALLORENO – EN ROUTE VERS LE LABEL A* ('EN ROUTE TO THE A RATING') PROVIDE A FRAMEWORK FOR PROMOTING MEASURES AND

¹⁰⁸ Value of the NZEB (nearly zero energy building) standard in the Walloon Region.

¹⁰⁹ This requirement has been in force as of 1 January 2019 for new buildings occupied and owned by public authorities.

¹¹⁰ <http://energie.wallonie.be/fr/la-reglementation-wallonne-sur-la-peb.html?IDC=7224>.

¹¹¹ The regulatory texts are available on the government's Energy portal: <http://energie.wallonie.be/fr/reglementation-peb-du-01-01-2017-au-31-12-2020.html?IDD=114101&IDC=7224>.

¹¹² They are defined in Annex C of the Walloon Government Decree of 15 May 2014 implementing the Decree of 28 November 2013 on the energy performance of buildings (<http://energie.wallonie.be/servlet/Repository/annex-c4-systemes-agw-2016-01-28.pdf?ID=41885>).

ACTIONS ARISING FROM THE RENOVATION STRATEGY, INCLUDING THE HOUSING INCENTIVES PROGRAMME

The Walloreno communication campaign was specifically set up to promote all the actions in the renovation strategy to the general public. The slogan 'en route vers le label A' is designed to raise broad awareness of the target set.

The Walloreno campaign includes:

- a communication campaign to promote housing incentives and audits (leaflets, radio and television announcements);
- information sessions at trade shows and fairs such as the *Energie Habitat* trade fair in Namur;
- a Walloreno handbook, to provide detailed information on the target, the benefits of renovation and how to design a comprehensive and coordinated long-term renovation (under development);
- numerous visual materials such as posters, banners, social media posts, video.

(2) FOR HOUSEHOLDS

Wallonia has developed a series of information and awareness tools available on the energie.wallonie.be portal. The main ones are listed below.

- Practical guides
 - *Rénover pour consommer moins d'énergie* ('Renovate to cut your energy consumption')¹¹³, developed under the first Employment-Environment Alliance to advise householders wishing to insulate the roof, walls or floor of their home, change the windows or boiler, etc. This guide is in high demand from households with the resources to invest in renovation.
 - The guides *101 idées futées pour faire des économies d'énergie chez soi* ('101 smart ideas to save energy at home')¹¹⁴ published in 2011 by the Walloon Public Service Department of Energy and *Economisez l'énergie au quotidien* ('Save energy every day') published by the Walloon Housing Company in 2008 are particularly useful for low-income households.
- A public database containing the list of approved auditors (housing audits), along with their contact details (interactive map).
- Energy information points (16 across Wallonia) which citizens can visit for free advice on issues relating to domestic energy use. Specialised consultants provide personalised, independent and completely free technical advice. They provide clear information on energy regulations in force and support available in Wallonia.

(3) FOR PROFESSIONALS

Exemplary practices in terms of sustainable construction and renovation are also showcased in **training centres set up specifically for this sector**, in particular the skills centres run by FOREM (Walloon Public Service for Employment and Vocational Training) and the IFAPME (Walloon institute for ongoing and freelance training and SMEs) network (including Construfarm Hainaut and Construfarm Liège).

¹¹³ <https://energie.wallonie.be/fr/guide-pratique-renover-pour-consommer-moins-d-energie.html?IDC=6024&IDD=81592>.

¹¹⁴ <http://energie.wallonie.be/servlet/Repository/101-idees-futees-pour-faire-des-economies-d-energie-dans-le-menage.PDF?IDR=2911>.

Since 2014, the **Sustainable Construction portal** has provided professionals (contractors, architects, consulting firms, manufacturers and traders) with internet-based access to validated information on innovative and sustainable techniques, materials and products; it also links to the Energy portal.

D) VOLUNTARY AGREEMENTS

In order to disseminate good practice allowing the sector to gradually meet the energy performance requirements for buildings, between 2004 and 2011 the Walloon Region conducted a campaign entitled **Construire avec l'énergie ('Build with Energy')**, intended to promote the construction of new low-energy housing meeting higher standards than those imposed by the applicable regulations. This was followed by a campaign entitled **Bâtiments Exemplaires Wallonie ('Exemplary Buildings in Wallonia')**, designed to promote the construction and renovation of exemplary sustainable buildings in both the residential and tertiary sectors. This measure has served as a real-life laboratory for the sustainable construction and energy performance of buildings.

E) TOOLS

Stimulating energy renovation and achieving ambitious targets for the energy performance of buildings requires action on awareness, communication and support, making sure that renovation projects form part of a comprehensive long-term assessment.

Three tools are being developed to respond to these challenges:

- Quicksan¹¹⁵,
- the housing audit including roadmap,
- the building passport.

Quicksan

Quicksan is an awareness and communication tool for the general public. It is a free application which can be used on a smartphone, tablet or PC to enable householders to quickly assess the energy performance of their home without professional help, taking into account improvements already made.

The tool also provides standard recommendations for renovating the home to A rating.

Intended to make the owner of a property without an EPB certificate aware of the potential for improving their home, it will be a gateway to other support tools such as the housing audit, energy information points and the energie.wallonie.be website.

It went live in August 2020 and is applicable to single-family homes.

The housing audit and renovation roadmap

The *procédure d'avis énergétique* (energy audit procedure – PAE) has been in place since 2006, but was significantly expanded and adapted in 2014 (PAE 2) and 2018. Now renamed the '**housing audit**', it provides a comprehensive assessment of the energy performance of existing housing and incorporates health and safety aspects. An approved auditor assesses the home, sets a renovation pathway based on its maximum technical potential for improved energy performance and defines the order and priorities for the work to be done.

The housing audit has been supplemented by the **roadmap** since May 2020. The roadmap provides a summary of the renovation pathway proposed by the auditor in the form of renovation stages to be followed to achieve

¹¹⁵ Available through website: www.monquicksan.be

A rating. The tool provides personalised and costed recommendations to obtain this rating, and makes it possible to do the following:

- visualise at a glance the potential for energy improvement of the building in relation to the overall target for the entire building stock (A rating). If this target cannot be achieved, the auditor will explain the reasons in their report;
- determine the renovation pathway to follow to achieve this target;
- phase the work while retaining an overall vision of the renovation project, so as to anticipate and coordinate future work, avoiding lock-in effects resulting from poorly planned renovation;
- quantify the costs of the works and the savings generated by them;
- highlight the wider benefits of renovation, in terms of comfort, health, property value or environmental impacts.



Figure 27. Illustration of the current version of the roadmap.

FEUILLE DE ROUTE	ROADMAP
Echelle de performance énergétique	Energy efficiency scale
Draft « 4 phases standard »	Draft '4 standard stages'
SITUATION INITIALE	INITIAL SITUATION
ÉTAPE 1	STAGE 1
ÉTAPE 2	STAGE 2
ÉTAPE 3	STAGE 3
ÉTAPE 4	STAGE 4
Adresse du logement :	Address of dwelling:
Rue : Avenue Pierre Holoffe	Street: Avenue Pierre Holoffe
N° : 21 - Boîte :	No: 21 - Box:
CP : 1342 - Localité : Limelette	Postcode: 1342 - City: Limelette

Type de logement :	Type of dwelling:
maison unifamiliale	single-family house
Année de construction :	Year of construction:
avant 1971 ou inconnu	before 1971 or unknown
Surface de plancher chauffé (Ach) : 201.1 m ²	Heated floor area (Ach): 201.1 m ²
LABEL E	E RATING
TRAVAUX PRÉALABLES	PRELIMINARY WORKS
• Remplacement de la couverture de toiture, traiter les éventuelles moisissures (p.20)	• Replace roof covering, treat any mould (p. 20)
• Contrôle et entretien de la chaudière (p.20)	• Check and service boiler (p. 20)
TRAVAUX ÉNERGÉTIQUES	ENERGY WORKS
• Remplacement de la toiture (p.21 à 22)	• Replace roof (p. 21-22)
• Isolation des conduites de chauffage (p.23)	• Insulate heating pipes (p. 23)
• Limitations du débit aux points de puisage (p.23)	• Limit flow at draw-off points (p. 23)
COÛT ESTIMÉ	ESTIMATED COST
Primes	Incentives
GAIN ESTIMÉ	ESTIMATED SAVINGS
401 €/an	€401/year
LABEL E	E RATING
ÉTAPE 1	STAGE 1
TRAVAUX PRÉALABLES	PRELIMINARY WORKS
• Remplacer le dispositif de collecte des eaux pluviales (p. 23)	• Replace rainwater collection system (p. 23)
TRAVAUX ÉNERGÉTIQUES	ENERGY WORKS
• Remplacement des châssis et vitrage (p.23)	• Replace window frames and glazing (p. 23)
• Isolation par l'extérieur des façades et des pignons (p.24)	• Insulate exterior of facades and gables (p. 24)
• Améliorer l'étanchéité à l'air (p.25)	• Improve air tightness (p. 25)
• Installer un système de ventilation complet (p.25)	• Install a complete ventilation system (p. 25)
LABEL C	C RATING
ÉTAPE 2	STAGE 2
TRAVAUX ÉNERGÉTIQUES	ENERGY WORKS
• Isolation du sol (p.26)	• Insulate floor (p. 26)
• Isolation des murs donnant vers des espaces adjacents non-chauffés (p.26)	• Insulate walls with adjacent unheated spaces (p. 26)
LABEL B	B RATING
ÉTAPE 3	STAGE 3
Au terme des travaux, votre logement atteindra les objectifs de performance énergétique fixés pour 2050	When all works are completed, your home will meet the energy performance targets set for 2050
TRAVAUX ÉNERGÉTIQUES	ENERGY WORKS
• Placer une installation photovoltaïque (p.27)	• Install a photovoltaic system (p. 27)
AVANTAGES	BENEFITS
• Augmentation du confort de vie	• Increase in comfort
• Augmentation de la valeur du bien	• Increase in value of the property
• Diminution du montant des factures	• Reduction in bills
• Lutte contre le changement climatique	• Action on climate change
LABEL A	A RATING
ÉTAPE 4	STAGE 4
Wallonie énergie SPW	Wallonia Energy SPW
WALLORENO	WALLORENO
EN ROUTE VERS LE LABEL A	EN ROUTE TO A RATING
Avec l'aide de l'Instrument financier LIFE de la Commission Européenne LIFE IP CA 2018 BE-REEL	Supported by the European Commission financial instrument LIFE LIFE IP CA 2016 BE-REEL

Building passport

The building passport, which is in development, is a tool for householders. It involves bringing together and centralising all the information available for a building, organised under various topics: energy (EPB certificate, applications for incentives, housing audit), technical (plans, structural surveys, HVAC, soil and water tests, etc.) and administrative (location, type of housing, permissions, etc.).

The passport is interactive and evolving, accompanying the building throughout its life and being transferred on each change of ownership. Information recorded in the Government databases will automatically feed into the building passport. Different types of access to the tool can be created for different user groups. Hard copies

of all documents can also be sent free of charge for inclusion in the building passport. Likewise, anyone with access to a particular passport can receive a free hard copy.

The building passport is being introduced to serve the following purposes.

- For purchasers of a property
 1. Piece together the history of a building and related information (housing audits and roadmap, energy saving and/or renovation work). This information will enable the purchaser to take an informed, holistic approach to renovation.
 2. Simplify contact with the Government through a unique identification code for each home, using an authentic police source to identify the street and house number (ICAR project developed by the Department of Geomatics to transpose the INSPIRE Directive, due to be in operation from January 2018).
- For public decision-makers
 3. Provide a more precise picture of the stock of Walloon property and its development from a statistics and forecasting perspective. This more detailed knowledge will help to steer public policies towards priority actions for health, energy savings, the use of renewable energies, etc. These priorities can then be coupled with regional support (incentives and loans).
- For the Government
 4. Facilitate and accelerate the assessment of applications for incentives and monitoring (checking that the building in question has not already been subject to the same type of works).

The development of Quickscan, the roadmap and the building passport are part of the European LIFE Integrated Project BE-REEL!¹¹⁶.

In short, Quickscan is a tool independent of others. The building passport contains all the energy, technical and administrative information for the building. In particular, it includes the EPB certificates, any audits that may have been carried out and, if so, the roadmap generated. The EPB certificate is a record of the building's energy performance at a given time. The housing audit is a more in-depth and comprehensive assessment of the building, including health and safety aspects. Its purpose is to establish a pathway for work to be carried out to achieve the best possible performance for a given building. This pathway is recorded in the roadmap. The roadmap is generated automatically as part of the audit of the building. There are discussions about introducing a simplified roadmap to be produced as part of EPB certification, which would, for example, inform purchasers about works needed on the building they are planning to buy.

Tertiary buildings

Energie+ software is an online tool¹¹⁷ to support decision-making on the energy efficiency of tertiary buildings. It sets out both theoretical and practical concepts for the renovation and energy design of tertiary buildings. It provides both an assessment of the current situation and assistance in carrying out the project. The tool is designed for a wide audience: energy managers, building managers, consulting firms or schools and universities, especially engineering schools. There is also an audit methodology made available to large

¹¹⁶ BE REEL! is a project supported by funding from the European LIFE Programme to implement actions in the regional renovation strategies for Wallonia and Flanders. In the Walloon Region, this project is implementing, testing and promoting the key tools for the renovation strategy – Quickscan, the roadmap and the building passport.

¹¹⁷ <http://www.energieplus-lesite.be/>.

companies for the audits they have to conduct every 4 years. This methodology includes a component for buildings. The audit can be carried out by an AMURE (private companies) or UREBA (public bodies) auditor.

3. THE MAIN BARRIERS TO ENERGY RENOVATION

There is a series of barriers to increasing the rate and quality of renovation of Walloon buildings. The main barriers are identified in this section. The measures presented and developed in the following sections are designed to remove these barriers.

A) INSUFFICIENT MOBILISATION OF FINANCIAL RESOURCES

There is an overall lack of financial resources compared to the needs for the energy renovation of housing¹¹⁸. Firstly, many households, not only those living in poverty, are not in a position to bear the costs of repaying the investments required for deep energy renovation. Secondly, the Region still needs to successfully mobilise European funds, increase leverage from existing public resources and find innovative mechanisms that do not overstretch public debt and that harness partnerships with private actors.

As regards household access to financing, banks are increasingly asking for guarantees and equity capital. This often makes energy renovations inaccessible for new homeowners, for many households with insufficient resources to pay advance costs for a loan or works and for people deemed too old to take out new credit. The difficulty of obtaining mortgage loans is one of the major barriers to renovation.

Lack of alignment of interests between owners and tenants ('split incentive'¹¹⁹) is yet another barrier to financing.

B) POPULATION GROWTH

Wallonia is experiencing demographic pressure with an increase in the number of households, as illustrated by data from the Federal Planning Bureau (BFP) and the Federal Public Service Economy (SPF Economie) in the

Table 11 (change in population) and

Table 12 (change in number of households).

Région	2010	2020	2030	2040	2050	2060
Flandre	6.251.983	6.581.826	6.787.135	6.918.693	7.001.177	7.057.098
Wallonie	3.498.384	3.678.940	3.834.189	3.955.758	4.051.594	4.145.919
Bruxelles-Capitale	1.089.538	1.228.775	1.273.328	1.286.727	1.301.568	1.319.867
Belgique	10.839.905	11.489.541	11.894.652	12.161.178	12.354.339	12.522.884

Table 11. Population projections for the three regions of Belgium(BFP and SPF Economie). Source: 1991-2016: observations, DGS and BFP calculations; 2017-2061: projections, BFP and DGS.

Région	Region
Flandre	Flanders
Wallonie	Wallonia
Bruxelles-Capitale	Brussels
Belgique	Belgium

¹¹⁸ More details are provided in Chapter IV on financing.

¹¹⁹ 'Split incentive' is defined as a circumstance in which the flow of investments and benefits are not properly rationed between the parties to a transaction, impairing investment decisions.

Région	2010	2020	2030	2040	2050	2060
Flandre	2.629.734	2.839.146	2.976.144	3.092.949	3.163.837	3.198.161
Wallonie	1.509.991	1.632.800	1.742.321	1.834.745	1.903.282	1.963.290
Bruxelles-Capitale	522.568	575.927	591.965	599.888	606.720	612.184
Belgique	4.662.293	5.047.872	5.310.430	5.527.583	5.673.839	5.773.635

Table 12. Household projections for the three regions(BFP and SPF Economie) Source: 1991-2016: observations, DGS; 2017-2061: projections, BFP and DGS.

This is due partly to an increase in population and partly to a decrease in the number of people per household as a result of the rise in single-parent families. The trend towards an ageing population is also noticeable in Wallonia.

These two trends on their own could be a driving force for building renovation. However, the rise in property prices¹²⁰ and the resulting pressure on the buyer's and rental markets are having the opposite effect, as they are reducing the resources available to households to finance the renovation of their homes. This lack of available resources is being exacerbated by the banking sector tightening conditions for granting loans over recent years. Lack of awareness of energy savings associated with renovation is also an obstacle to renovation.

C) GOVERNANCE

Governance must improve to provide clearer encouragement for renovation. The lack of long-term targets and uncertainties about forms and levels of support seen too often under successive parliaments appears to be limiting market dynamics. Given the time it takes for operators to take ownership of these regulatory requirements, they end up having very limited effect.

In addition, changes to the support mechanisms result in a loss of confidence in the stability of the system and a lack of clarity in the long-term vision. These changes generate some confusion among households and managers of tertiary buildings. They may experience problems both in fully understanding which projects to prioritise, and in assimilating the information necessary to optimise returns on investments.

D) DEMAND IS STAGNATING DUE TO COMPLEXITY AND LACK OF INFORMATION

On the demand side, the first barrier arises from households' lack of awareness of the (wider) benefits they could derive from energy renovation, and from its intrinsic complexity (which works, in what order, etc.).

The institutional landscape is very fragmented and there is a lack of transparency for the general public:

- energy information point, housing advice and information
- EPB manager, EPB certifier, energy advisers, energy mentors, housing auditors, etc.
- housing incentives, interest-free loans/social credit (Access Pack, Rénopack, Rénoprêt, etc.)
- other provisions.

In particular, financial assessment is made more difficult by the fragmented support mechanisms (lack of alignment between policies, competences and access requirements) and their complicated distribution

¹²⁰ EU-SILC 2009-2014: over this period, the national median cost of housing in Belgium (rent, mortgage repayment) increased by 20%, while the consumer price index only increased by around 11%.

between the various levels of power (e.g. additionality between regional and federal measures). In addition, few innovative solutions are emerging to encourage the decision to invest (for example, research into alternative financing). Although energy prices are high, they are paradoxically not high enough to make certain investments designed to reduce the utility bill economically advantageous, and are increasing the payback times.

Ultimately, the lack of a centralised source of information to clarify the options and to link supply and demand is a barrier for households. The one-stop shop – a comprehensive support solution for households in undertaking renovation – is proposed as a solution to these challenges. It is presented below.

E) FRAGMENTED PROVISION AND LACK OF INNOVATION

The range of services for renovation works is predominantly provided by SMEs, or even very small businesses and self-employed people. These providers face various forms of uncertainty in relation to their activities, which are threatened by international competition. As a result, they have little time available to devote to acquiring new knowledge and skills. They generally become proficient in a limited number of techniques, with little or no perspective on the overall result. In addition to this lack of perspective on delivery of the renovation project as a whole, there is a lack of collaboration between contractors to achieve an overall result.

Contractors find themselves in competition for projects, including those other than energy renovation. Adding energy performance targets can increase the bill for the customer. Consequently, these targets are seldom included in renovation projects.

The complex landscape (number of stakeholders and fragmentation of skills) and insufficient networking between the necessary actors and skills are resulting in a series of gaps in energy renovation.

At the same time, the techniques and technologies available to support high-level renovation are evolving very rapidly, making it difficult for these various stakeholders to incorporate them. A lack of support for innovation also seems to be limiting the development of inexpensive deep renovation solutions.

F) TRAINING AND QUALITY OF DELIVERY

The building trades are also suffering badly from international competition and not being sufficiently attractive or valued. The training courses currently on offer do not sufficiently support quality energy renovation. The renovation sector sometimes suffers from a lack of knowledge of new techniques within the trades. This situation stems, among other things, from the uncertainty and competition faced by building professionals, the speed of technological development and inadequate controls and inspections. In addition, regular outsourcing by approved operators to less well-regulated subcontractors is not helping to improve quality.

G) RESIDENTIAL: LACK OF CONSIDERATION OF OCCUPANTS' CIRCUMSTANCES

Another barrier to renovation is its impact on home life. The lack of consideration for the household's life plans, in raising awareness of energy renovation and in identifying renovation projects may lead to this energy aspect being neglected in favour of investments focusing on comfort and a quick fix. It is thus important that this is made part of the overall project.

More specifically, certain obstacles arise where the interests of the various stakeholders are not aligned (split incentive). This is often the case between owners and tenants: for the tenant, the payback period is often disproportionate to the period of occupancy. This divergence of interests and information between owners and tenants, and the discrepancy between the payback period and period of occupancy, is a major barrier to widespread renovation. This affects 34% of the Walloon housing stock (Census 2011), mainly in urban centres where the proportion of rented housing often exceeds 43%, or even 50% in Liège in particular, not to mention buildings under joint ownership combining different profiles of owners. This lack of alignment can also be found between different types of owner (e.g. bare owner and beneficial owner, owner-occupier and owner-

landlord in a jointly-owned property or joint owners and co-owners' association in a jointly-owned property). We must therefore ensure that policies target all user categories.

These issues often prevent delivery of an overall renovation project for the building as a whole. For example, work on apartment buildings is carried out piecemeal by the different owners, resulting in reduced efficiency and quality of the work. In houses, work may be carried out piecemeal from a technical perspective: functional renovation (refurbishment of living areas) is carried out separately to 'energy' renovation, naturally resulting in additional costs. All of the above reflect the importance of having a long-term overall vision for the building, as provided, for example, through a roadmap as part of the housing audit (using a multi-criteria approach: comfort, energy, health, etc.).

H) TERTIARY

Renovation of the tertiary building stock faces a range of challenges. The sector presents great variety, reflected in both the mix of buildings to be renovated and in their usage. Changes in usage make it difficult to draw up a long-term, staged renovation plan, and investment decisions are motivated by payback times far shorter than is required for the deep energy renovation of these buildings.

B. THE POLITICAL FRAMEWORK MUST BE STRENGTHENED TO ACCELERATE DEEP RENOVATION

1. BENCHMARKING AND STAKEHOLDER CONSULTATION

In developing its renovation strategy, Wallonia conducted a benchmarking exercise and stakeholder consultation (the methodology followed is presented in Annex 1). One of the objectives of this process was to draw up a comprehensive and coordinated combination of measures and actions to be implemented as a priority. These measures aim to steer all renovation components towards meeting the long-term targets, and to remove the barriers to renovation. Another important objective was to ensure input from experts by closely involving them in the discussions held and recommendations drafted.

As shown in Figure 28, the benchmarking exercise conducted to develop the proposal for strengthening policies was based on measures:

- approved by the Walloon Government and included in the texts referenced in Section III.A.1 'Main documents setting out the policies followed';
- mentioned in various internal Government discussions;
- suggested in the European Commission guidance on developing a renovation strategy;
- implemented in other regions;
- mentioned in working groups during stakeholder consultation.

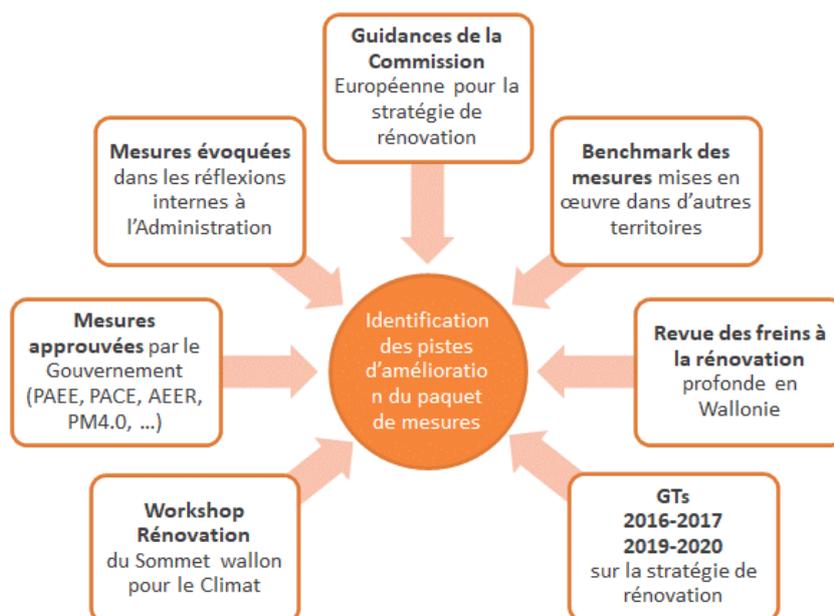


Figure 28. Identifying avenues for improving the package of measures.

Workshop Rénovation du Sommet wallon pour le Climat	Renovation Workshop Wallonia Climate Summit
Mesures approuvées par le Gouvernement (PAEE, PACE, AEER, PM4.0, ...)	Measures approved by Government (NEEAP, PACE, AEER, PM 4.0, etc.)
Mesures évoquées dans les réflexions internes à l'Administration	Measures mentioned in internal government discussions
Guidances de la Commission Européenne pour la stratégie de rénovation	European Commission guidance on the renovation strategy
Benchmark des mesures mises en œuvre dans d'autres territoires	Benchmark measures implemented in other territories
Revue des freins à la rénovation profonde en Wallonie	Review of barriers to deep renovation in Wallonia
GTs 2016-2017 2019-2020 sur la stratégie de rénovation	Working groups 2016-2017 2019-2020 on the renovation strategy
Identification des pistes d'amélioration du paquet de mesures	Identifying avenues for improving the package of measures

The results of this benchmarking exercise were reworked in discussion with the stakeholders during the consultations in 2016-2017 and 2019-2020. In their sub-group discussions, the stakeholders fleshed out the actions to be scheduled and identified those to prioritise in order to stimulate renovation in line with a long-term vision for the energy performance of buildings.

2. GOVERNANCE AND CROSS-CUTTING NATURE OF THE STRATEGY

The renovation strategy defines long-term targets, intermediate milestones and actions to achieve these. Experience over the years since the first version of the strategy shows that it is crucial to define roles and responsibilities in coordinating and monitoring the implementation of the strategy, and that significant resources are essential for successful delivery.

The table below summarises the measures and actions developed to make governance of the renovation strategy as high quality and cross-cutting as possible. These actions will be prioritised in the weeks following approval of this strategy by the Walloon Government. The table is followed by more detailed descriptions of the three working groups organising the monitoring of the implementation of the renovation strategy: the high-level interministerial group, the intergovernmental working group and the high-level stakeholder committee.

Reference (page #)	Overview
Mesure 0 (p. 108)	Recognise and formalise mechanisms for governing and steering the renovation strategy
[Action 0.1]	Establish a high-level interministerial working group
[Action 0.2]	Record the targets and intermediate milestones of the renovation strategy in a decree to ensure continuity , and invite future governments to develop the necessary means
[Action 0.3]	Define roles and responsibilities in implementing and monitoring the renovation strategy
[Action 0.4]	Specify the resources required to implement and monitor the strategy
[Action 0.5]	Establish a high-level stakeholder committee to assess the implementation of the strategy Define the framework for mobilising and involving stakeholders:
[Action 0.6]	in implementing the renovation strategy
[Action 0.7]	in monitoring and identifying appropriate strengthening of the renovation strategy
Mesure 2 (p. 112)	Improve coherence between different regulations in terms of energy efficiency criteria
[Action 2.1]	Create an intergovernmental working group to assess the feasibility of integrating into the various policies energy efficiency criteria in line with the targets in the building renovation strategy
Mesure 4 (p. 115)	Monitor the results of the renovation strategy
[Action 4.1]	Refine the indicators and quantified targets for different time horizons, for each of the measures, to enable monitoring of the strategy
Mesure 5 (p. 116)	Assess and regularly update the renovation strategy for buildings
[Action 5.1]	From 2020, on an annual basis, review the resources deployed for proper implementation of the strategy, and check their impacts on the indicators for the strategy so the efforts required can be adapted
[Action 5.2]	At the time of each report on the strategy to the European Commission, identify whether social, technical, economic and budgetary trends allow strengthening of ambition in the long-term targets and/or intermediate milestones
Mesure 10 (p. 125)	Engage all actors (civil society, stakeholders, etc.) through appropriate communication
[Action 10.1]	Plan annual communication on the outcomes of the strategy

Table 13. Summary of measures and actions developed to make governance of the renovation strategy as high quality and cross-cutting as possible.

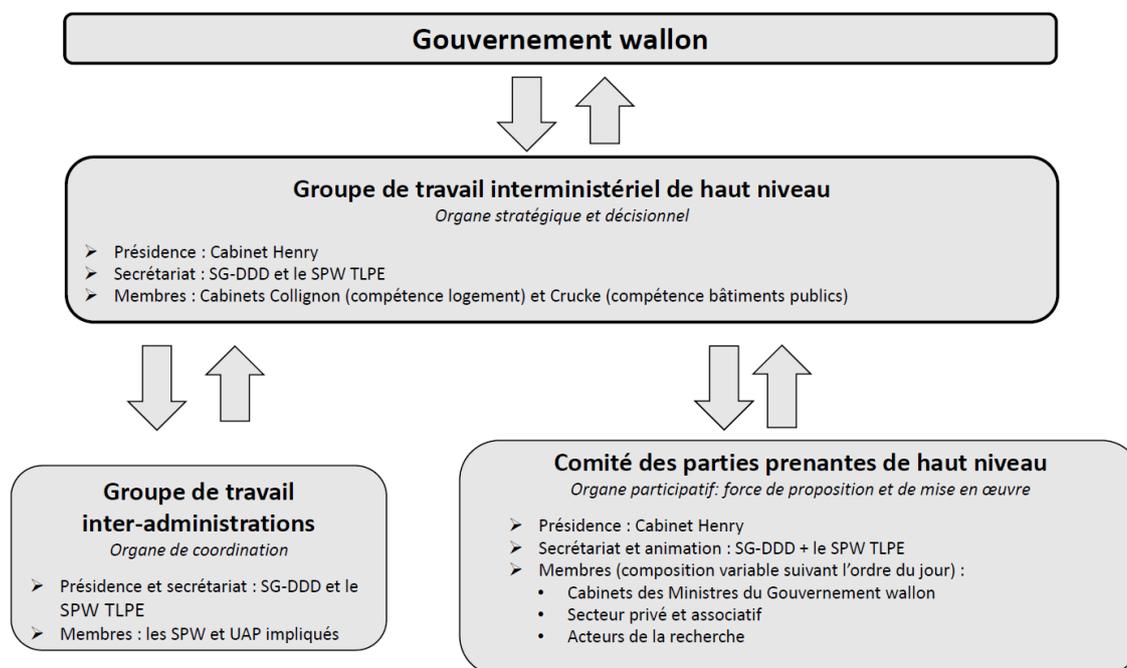
Governance bodies for Wallonia's long-term renovation strategy

Governance is strengthened compared to the 2017 LTRS through recognising and formalising mechanisms for steering the renovation strategy. This will involve setting up working groups responsible for steering implementation of the strategy, ensuring or advocating for allocation of the necessary resources and ensuring proper consultation and coordination between the various aspects of the plan.

Three bodies will provide governance for the project:

- a high-level interministerial working group [Action 0.1]
- an intergovernmental working group [Action 2.1]
- a high-level stakeholder committee [Action 0.5].

These bodies are intended to be complementary and to ensure effective management, better coordination and involvement of stakeholders, in a spirit of partnership. These bodies may be supplemented, during implementation of the LTRS, by more specific working groups.



Gouvernement wallon	Walloon Government
Groupe de travail interministériel de haut niveau	High-level interministerial working group
Organe stratégique et décisionnel	Strategic decision-making body
➤ Présidence : Cabinet Henry	➤ Presidency: Office of Philippe Henry
➤ Secrétariat : SG-DDD et le SPW TLPE	➤ Secretariat: General Secretariat/Directorate of Sustainable Development and SPW DGO4
➤ Membres : Cabinets Collignon (compétence logement] et Crucke (compétence bâtiments publics)	➤ Members: Offices of Christophe Collignon (responsible for housing) and Jean-Luc Crucke (responsible for public buildings)
Groupe de travail inter-administrations	Intergovernmental working group
Organe de coordination	Coordinating body
➤ Présidence et secrétariat : SG-DDD et le SPW TLPE	➤ Presidency and secretariat: General Secretariat/Directorate of Sustainable Development and SPW DGO4
➤ Membres : les SPW et UAP impliqués	➤ Members: Public Service and Public Administration Units involved
Comité des parties prenantes de haut niveau	High-level stakeholder committee
Organe participatif: force de proposition et de mise en oeuvre	Participatory body: responsible for proposals and implementation
➤ Présidence : Cabinet Henry	➤ Presidency: Office of Philippe Henry
➤ Secrétariat et animation : SG-DDD + le SPW TLPE	➤ Secretariat and facilitation: General Secretariat/Directorate of Sustainable Development + SPW DGO4
➤ Membres (composition variable suivant l'ordre du jour) :	➤ Members (composition varies depending on agenda):
• Cabinets des Ministres du Gouvernement wallon	• Offices of Walloon Government Ministers
• Secteur privé et associatif	• Private and non-profit sectors
• Acteurs de la recherche	• Research community

The **high-level interministerial working group** [Action 0.1] is a decision-making and strategic monitoring body.

Presidency	Office of the Vice-President of Wallonia and Minister for Climate, Energy and Mobility
Secretariat	Walloon Public Service – General Secretariat – Directorate of Sustainable Development and Walloon Public Service – DGO4 – Department of Energy and Sustainable Buildings
Composition	<p>The Offices of the Ministers responsible for the main measures included in the LTRS:</p> <ul style="list-style-type: none"> - Office of the Minister for Climate, Energy and Mobility - Office of the Minister for Housing, Local Authorities and Urban Policy - Office of the Minister for Economic Affairs, Foreign Trade, Research and Innovation, the Digital Economy, Spatial Planning, Agriculture, IFAPME (Walloon institute for ongoing and freelance training and SMEs) and competence centres (economic responsibility + Vice-presidency). <p><i>Experts, project managers of initiatives, etc. may be invited at the request of one of the members.</i></p>
Responsibilities	<ul style="list-style-type: none"> - Define the methodology for developing and monitoring the LTRS. - Choose the actors to involve. - Analyse proposals by the high-level stakeholder committee and the intergovernmental working group, during development and monitoring of the LTRS. - Validate documents submitted to the steering committee. - Submit for Government approval any proposals for reorienting the strategy. - Submit for Government approval new proposals for initiatives. - Report to the Government on progress in implementing the strategy.

The **intergovernmental working group** [Action 2.1] is a body for coordination, preparation and operational implementation. It brings together the Walloon public authorities involved in various capacities in the LTRS. Such a working group is necessary given the many actors involved within the administrations. It will enable significant information exchange and will allow each actor to feel involved.

<i>Presidency and secretariat</i>	Walloon Public Service – General Secretariat – Directorate of Sustainable Development and Walloon Public Service – DGO4 – Department of Energy and Sustainable Buildings
<i>Composition</i>	<ul style="list-style-type: none"> - Walloon Public Service – Planning, Housing, Heritage and Energy - Walloon Public Service – Economy, Employment and Research - Walloon Public Service – Agriculture, Natural Resources and Environment - Walloon Public Service – Taxation - Walloon Public Service – Budget, Logistics and Information and Communication Technology - Walloon Public Service – Interior and Social Action - Walloon Social Credit Society (SWCS) - Walloon Housing Fund (FLW) - Walloon Housing Company (SWL) - FOREM - IFAPME - Walloon Air and Climate Agency (AwAC) - Wallonia-Brussels Federation (FWB)
<i>Responsibilities</i>	<ul style="list-style-type: none"> - Coordinate the work of the various Walloon authorities. - Contribute to the content of the LTRS. - Supervise implementation of the actions. - Promote the development of synergies between sectoral and cross-cutting actions. - Coordinate monitoring of the LTRS. - Ensure consistency with the other work of the respective authorities. - Prepare Wallonia's policy positions at national and international level.
<i>Interactions with the high-level interministerial working group</i>	<ul style="list-style-type: none"> - The intergovernmental working group makes proposals to the high-level interministerial working group. - The intergovernmental working group reports to the high-level interministerial working group, particularly in monitoring implementation.

This intergovernmental working group is responsible for assessing the feasibility of integrating into the various policies energy efficiency criteria in line with the targets of the building renovation strategy, and for ensuring consistency between the energy and carbon targets for the renovation strategy, provisions on housing and provisions on town planning and territorial development. There will also be enhanced linkages between Action Plans for Sustainable Energy and Climate (PAEDCs) and the various municipal plans, programmes and tools. This will also require an overall analysis of regional taxation. An overall framework will be established for climate and environmental taxation to adjust the signals given in the sectors concerned. Energy safety criteria will be updated based on the new regulatory requirements.

The **high-level stakeholder committee** [Action 0.5] is a body for leadership and proposals, open to the stakeholders. It is above all a participatory body. It should be noted that this committee is not an advisory body; its role is to listen to stakeholders and gather their proposals for developing and implementing the LTRS.

Presidency	Office of the Vice-President of Wallonia and Minister for Climate, Energy and Mobility
Secretariat	Walloon Public Service – General Secretariat – Directorate of Sustainable Development and Walloon Public Service – DGO4 – Department of Energy and Sustainable Buildings
Composition <i>(non-exhaustive list which can vary depending on the agenda)</i>	<ul style="list-style-type: none"> • Offices of: <ul style="list-style-type: none"> - Minister-President; - Minister for Housing, Local Authorities and Urban Policy; - Minister for Economic Affairs, Foreign Trade, Research and Innovation, the Digital Economy, Spatial Planning, Agriculture, IFAPME (Walloon institute for ongoing and freelance training and SMEs) and competence centres; - Minister for Employment, Training, Health, Social Action, Equal Opportunities and Women's Rights; - Minister for the Environment, Nature, Forests, Rural Policy and Animal Welfare; - Minister for the Civil Service, Information Technology and Administrative Simplification, with responsibility for family allowances, tourism, heritage and road safety; - Minister for the Budget and Finance, Airports and Sports Infrastructure. • Federations, in particular the Walloon Construction Confederation (CCW), Walloon union of architects (UWA), the federation of French-speaking property agents of Belgium (Federia), Royal Federation of Belgian Notaries (FRNB), federation of Belgian financial institutions (Febelfin), Belgian association of producers of materials for construction (PMC-BMP), Belgian Federation for Real Estate (UPSI), Walloon federation for housing advocacy associations (APL), Agoria, Escensia, Renovate Belgium, wood sector. • Clusters: Ecoconstruction, CAP Construction, TWEED, etc. • Passive House Platform • Voluntary actors, in particular IEW, Concertes, Walloon Anti-Poverty Network, Walloon assembly for the right to housing (RWDH), Walloon network for sustainable access to energy (RWADE), Habitat et Participation, etc. • Local actors, in particular the Union of Cities and Municipalities of Wallonia (UVCW), association of Walloon provinces (APW) and the intermunicipal groups for economic development. • Walloon union of social housing agencies (UWAIS) • Sustainable housing research centre (CEHD) • Greenwin competitive cluster • Consumer representatives (Test-achats, AB REOC) • Trade unions • Representatives of social economy initiatives, employment and training consultancies, IDDES, network of cooperatives, etc.: SAW-B, Financité, etc. • Renovation platforms, advice and training non-profits, sectoral promotion, adult education: ELEA, Ecoconso, Bat'Acc, etc. • Universities, education, etc.

	<i>The steering committee may meet in sub-groups to discuss specific topics.</i>
Responsibilities	<ul style="list-style-type: none"> • Contribute to developing the LTRS by proposing solutions and priority actions. • Facilitate development of the LTRS by discussing possible options and comparing alternatives. • Enable information exchange between the various actors involved in the renovation of buildings in Wallonia. • Analyse, capitalise and disseminate existing good practices. • Contribute to evaluating the implementation of the plan.
Interactions with the high-level interministerial working group	The high-level stakeholder committee makes suggestions to the high-level interministerial working group.

The composition of the various bodies may be added to, based on recommendations of the high-level interministerial working group and the intergovernmental working group.

3. TWO KEY TOOLS TO STIMULATE ENERGY RENOVATION

Three key tools were identified in the 2017 version of the renovation strategy: the renovation roadmap, the building passport and the one-stop shop for comprehensive support for households. Since this earlier publication, work has been carried out to develop the roadmap and building passport (see section on tools in force and under development in the Region, p. 73, and the chapter ‘Monitoring implementation of the strategy’, p. 232).

The stakeholder consultations conducted in preparing this version of the strategy highlighted the importance of moving forward in the development and roll-out of two key tools:

- comprehensive support for households in the form of a one-stop shop, which remains crucial for triggering and ensuring the quality of the renovation of residential buildings; and
- a methodology – and associated tools – for all owners, occupants and managers of non-residential buildings to develop a comprehensive and long-term property strategy.

The benchmarks identified for their effective implementation, collected from stakeholders or based on best practices, are presented below.

A) COMPREHENSIVE SUPPORT FOR HOUSEHOLDS IN THE FORM OF A ONE-STOP SHOP

There are currently numerous public bodies supporting households with renovation work: *espaces Wallonie* (a citizens' advice service), energy information points, housing information and advice, development and town planning advisers, municipal energy advisers, municipal housing advisers, SWCS and Housing Fund experts, municipal eco-advisers, etc. Each body has its own remit and a particular field of expertise in relation to housing (safety, rental permits, renovation, incentives), management of permits and/or energy (heating system, priorities for insulation work, incentives). Until recently, a household approaching one service was still often redirected to another service, not due to the complexity of the question asked, but because of each body's specific area of responsibility. As services were not centralised in the same place, this sometimes involved citizens having to make numerous confusing trips.

In order to provide adequate, consistent and comprehensive support, a **one-stop shop is needed, bringing together all support services for households in relation to energy and housing**. This will be an opportunity to streamline existing services to support owners in their renovation decisions and procedures. In relation to energy, these one-stop shops will educate, inform and guide the household in choosing the type of energy renovation to carry out, help them understand the advantages and disadvantages and ensure that the renovations follow the pathway prescribed in the roadmap. They will also support households in identifying professionals and contractors to design the project and carry out the work, in financing (bank loans, incentives, subsidies and tax relief) and in monitoring the work.

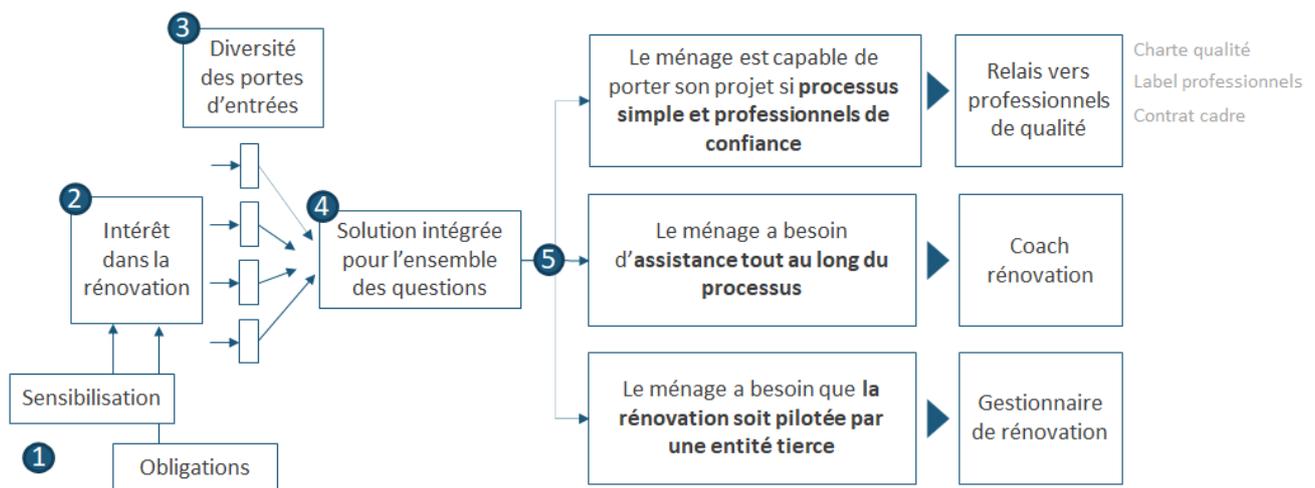


Figure 29. Illustration of an *à la carte* and *A to Z* support model.

Diversité des portes d'entrées	Variety of gateways
Intérêt dans la rénovation	Interest in renovation
Sensibilisation	Awareness-raising
Obligations	Requirements
Solution intégrée pour l'ensemble des questions	Integrated solution for all enquiries
Le ménage est capable de porter son projet si processus simple et professionnels de confiance	Household capable of managing project with a simple process and trusted professionals
Relais vers professionnels de qualité	Refer to quality professionals
Charte qualité	Quality charter
Label professionnels	Professional label
Contrat cadre	Framework contract
Le ménage a besoin d'assistance tout au long du processus	Household needs assistance throughout the process
Coach rénovation	Renovation coach
Le ménage a besoin que la rénovation soit pilotée par une entité tierce	Household needs the renovation to be managed by a third party
Gestionnaire de rénovation	Renovation manager

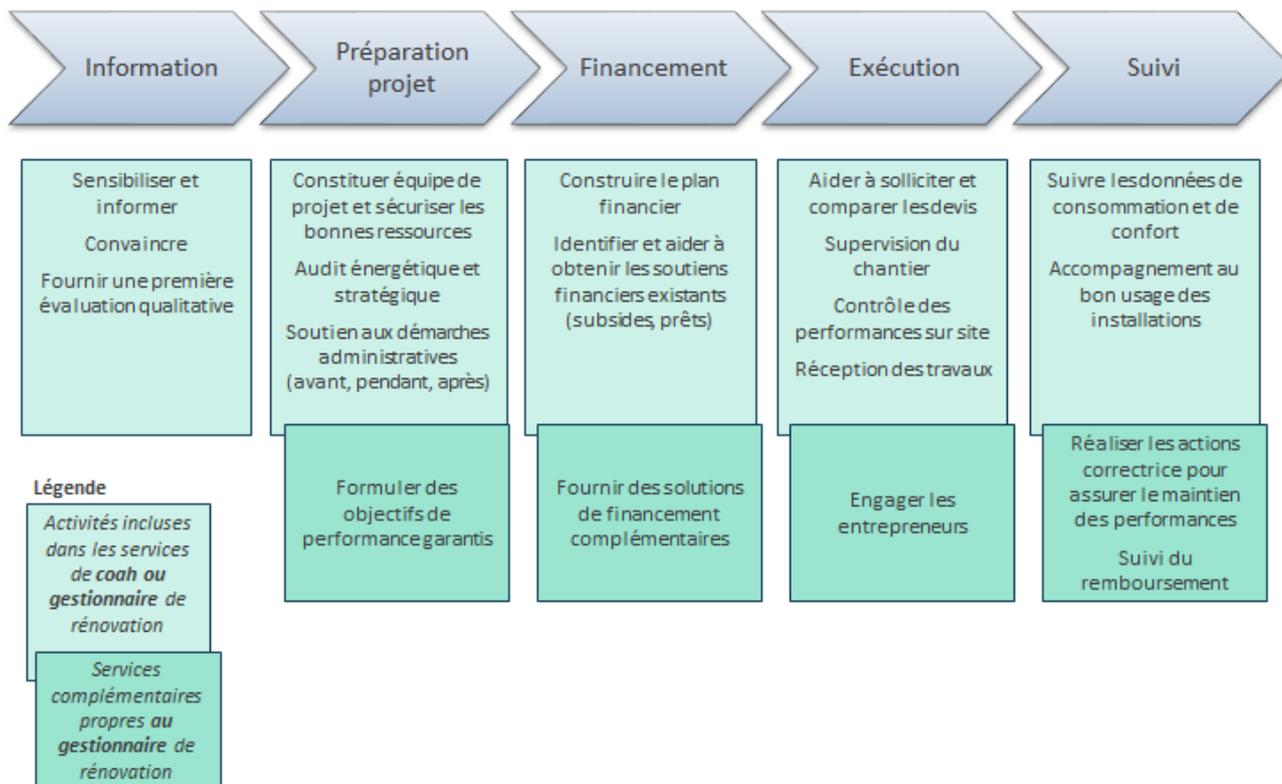


Figure 30. Illustration of the roles of a one-stop shop in providing comprehensive support to households based on best practices (Source: CLIMACT).

Information	Information
Préparation projet	Project preparation
Financement	Finance
Exécution	Delivery
Suivi	Monitoring
Sensibiliser et Informer	Raise awareness and inform
Convaincre	Encourage
Fournir une première évaluation qualitative	Provide initial qualitative assessment
Constituer équipe de projet et sécuriser les bonnes ressources	Build project team and secure the right resources
Audit énergétique et stratégique	Energy and strategy audit
Soutien aux démarches administratives (avant, pendant, après)	Support with administrative procedures (before, during, after)
Construire le plan financier	Develop financial plan
Identifier et aider à obtenir les soutiens financiers existants (subsidés, prêts)	Identify and help to obtain existing financial support (subsidies, loans)
Aider à solliciter et comparer les devis	Help to request and compare quotes
Supervision du chantier	Supervise building works
Contrôle des performances sur site	Monitor performance on site
Réception des travaux	Sign off works
Suivre les données de consommation et de confort	Monitor consumption and comfort data
Accompagnement au bon usage des installations	Support proper use of facilities
Formuler des objectifs de performance garantis	Set guaranteed performance targets
Fournir des solutions de financement complémentaires	Provide complementary finance solutions
Engager les entrepreneurs	Hire contractors
Réaliser les actions correctrices pour assurer le maintien des performances	Carry out corrective actions to maintain efficiency
Suivi du remboursement	Supervise repayment
Légende	Key
Activités incluses dans les services de coach ou gestionnaire de rénovation	Activities included in services of renovation coach or manager
Services complémentaires propres au gestionnaire de rénovation	Additional services specific to renovation manager

A one-stop shop could present the following advantages.

- **Single point of contact.** Limiting the number of sources makes it much simpler for households to access information, saves them time and gives them greater transparency. For example, the household could be guided from A to Z through the entire energy renovation process and supported by a single advisor, in one place, who is responsible for delegating tasks to the various bodies.
- **Solutions identified.** Through the housing audit (roadmap), households will be advised on work to carry out in the short, medium and long term. Based on the energy work planned, the household will be able to call on recognised contractors via the list of certified companies. Households could potentially receive support in comparing providers. They could be supported in finding funding solutions for energy renovation suited to their situation.
- **Support for households in monitoring the work.** Solutions could be explored for monitoring the work done and verifying it has been completed properly (quality of the works and energy performance) in conjunction with skilled professionals. This would include a discussion on updating the home roadmap and adding to the building passport.
- **(Fully or partially) free service.** consideration must be given to ensuring the various services are accessible to households.

The one-stop shop provides information and support to Walloon households in their renovation efforts. It fulfils several roles, from education and information for inquirers to technical, administrative and financial support. It keeps all relevant information – technical, administrative and financial – centralised and up-to-date.

The following benchmarks, identified by stakeholders during the consultation, will ensure the success of this service.

- The support service must **adopt a proactive approach to convince** households. This means that operators visit households without waiting for households to come to the one-stop shop.
- Education and awareness-raising is a fundamental task that must crucially also be carried out in advance by the Region and local operators.
- All actors, including public authorities at all levels, must work to foster **public confidence in the support service and maximise its visibility among different audiences.** The following points were identified here:
 - **ensuring visibility** in regional and local public communications;
 - **ensuring regional coordination** of local initiatives. This involves establishing a framework in which 1) the lead role in this coordination is defined and recognised by the different initiatives, 2) there is an established process for dialogue, consultation, experience sharing, the communication of needs, etc. between local entities and the regional coordination.
 - **Shaping local initiatives** to embed them in the community.
 - **Designing the support process to take its cue from the needs** or plans of the household.

- **Optimising the quality of information:**
 - in particular, **best use must be made of existing information**¹²¹ by optimising the design and/or use of processes and tools. The building passport is identified as a central element in organising and centralising information;
 - **reducing uncertainty about the granting of incentives** will help to build public buy-in and confidence. In addition, this will reduce the windfall effect resulting from this uncertainty¹²².
- **There must be a distinction between the trades and the responsibilities** of this one-stop shop. The aim is above all to ‘place the project at the core and assemble the professionals around it’, not to create a new actor with all the capacities of the trades to be mobilised. This will thus involve working in consultation with local or regional actors (professionals and administrations) and providing a simplified interface, if possible with a single designated point of contact for households.
- Public confidence **requires that the different functions have designated responsibilities** within this support service¹²³. **The processes and tools must promote a quality approach**, in particular through the following:
 - **making professionals responsible for the quality of their work.** To avoid increasing levels of administration and monitoring, it is proposed that professionals declare their work in the building passport and guarantee it;
 - **enabling storage of information on work done.**
- Particular attention must be paid to the **profile required for actors** signing up to the interface provided by the one-stop shop and to **quality training for these actors**, who must have the capacity to act as a main point of contact for households.
- Finding finance for this support (audit, input from architect or other ‘renovation coach’) is a major obstacle to households in accessing it. **Avenues must be developed for the service to be prepaid or free.** The independence of the service is a key aspect in building and nurturing trust, and current experience shows we need public support if we want to develop these initiatives.

Table 14 provides an overview of actions proposed in the strategy in relation to the one-stop shop.

¹²¹ EPB certificate or any other type of assessment/study carried out on the building.

¹²² Those who can finance the work anyway move ahead with their project and receive the incentives later, while those who are dependent on incentives are hindered in carrying out their projects. Work is therefore needed to identify the obstacles that arise and how to address them as early as possible in the process.

¹²³ In particular, what are the obligations of the ‘renovation coach’? Likewise, the auditor currently bears no responsibility.

No	Action	Deadline
24.3	Coordinate advisers on sustainable housing information (energy and housing information points, energy and housing advisers, eco-advisers) to simplify the landscape of actors.	Ongoing
24.4	Move ahead with development and financial support for pilot project one-stop shops (comprehensive support), including streamlining existing frameworks.	
24.5	Evaluate and roll out one-stop shop solutions (social, technical and financial solutions) that prove most appropriate.	2022
26.6	Integrate into the responsibilities of comprehensive support services social responsibilities to detect energy-poor households and give them appropriate support with decisions and procedures to improve their living environment.	2022
28.2	Develop communication specifically targeting landlords, through various media and intermediaries.	2022
29.2	Develop tools and contacts (e.g. coaches, facilitators) specifically for jointly-owned properties with a mix of private and communal ownership, different types and profiles of owners or different actors.	2021
29.7	Facilitate grouped renovation projects.	2021
30.4	Develop practical tools (handbooks) to promote the maintenance and renovation of housing.	2022

Table 14. Overview of actions proposed in the strategy in relation to the one-stop shop.

B) LONG-TERM COMPREHENSIVE PROPERTY STRATEGY

There is a need for a **comprehensive** property strategy (including other aspects such as the condition and use of buildings, their location and the services they must provide) for the **long term** (taking into account potential future developments in the use of buildings, a long-term target and a prioritisation of measures). This is crucial to avoid technical and economic lock-ins and to harness the wider benefits of deep renovation. This ensures a renovation plan that is consistent with the long-term target for the renovation strategy.

Most of the key elements to incorporate into this strategy are identified in the Walloon Energy and Climate Plan (p. 117 of this plan). They were supplemented by the stakeholders consulted in updating the renovation strategy.

The following points emerged from this consultation.

- 1) The property strategy should be structured depending on the type of investment (energy efficiency, RES, heating network):
 - I. at municipal or supra-municipal level (for public buildings),
 - II. for a set of actors grouping their buildings that perform similar functions.
- 2) The property strategy must include at least the following elements:
 - I. the framing of current and future needs, avenues for pooling needs and streamlining 'infrastructure' responses to them,
 - II. a register of buildings,
 - III. monitoring of energy consumption,
 - IV. the assessment of investments needed and a strategy to finance them,
 - V. generic target outcomes for the region, based on actual consumption,
 - VI. an action and investment plan to achieve the timetable of improvements set out in Action 1.b. and repeated in point V above,
 - VII. quantification of human resources needed for this action plan,
 - VIII. an impact measurement and monitoring plan.

Development and deployment of these overall long-term property strategies is a cornerstone for overcoming the main barriers to implementing a structured, efficient and effective approach, improving the condition of infrastructure and achieving the long-term energy and GHG emissions targets. This is because implementing these strategies enables actions to be broken down – at all levels of public authority and among actors in the tertiary sectors – to achieve the following:

- improve understanding of the condition of the public building stock by establishing a complete register of public buildings;
- monitor energy consumption and the condition of infrastructure (in particular maintenance needs, to ensure synergies between the various investment needs);
- enable prioritisation of work by building group, and investment plans for this, across the territory/territories.

Implementation of this tool is proposed in [Action 1.12].

4. PILOT INITIATIVES

The multitude of barriers to increasing the rate and quality of the renovation of Walloon buildings should encourage the Region to test certain promising initiatives in the field, gather best practices and build on these experiences in planning large-scale implementation. Investing reasonable sums in delivering several pilot initiatives (for example, involving local cooperatives, repayable advances¹²⁴, loans linked to the building not the person, etc.) will make it possible to assess the potential for putting the options into practice, improving and adjusting them based on feedback and taking into account the reality in Wallonia, its specific characteristics and the reception by the target audiences.

Initiatives should be selected primarily on the basis of the two following criteria:

¹²⁴ There are mechanisms for pre-financing certain costs such as audits, and repaying when the corresponding incentive is received.

- their applicability across Wallonia for the segment considered,
- how much they increase the leverage effect in order to limit the level of public investment.

Details are given below for seven pilot initiatives identified through discussions with the sector while developing the renovation strategy.

1 Carry out at least one pilot campaign for deep renovation each year, focusing on specific targets such as public buildings and public housing.

Public buildings should serve as a model, firstly to show what is technically achievable, for example, through the use of proven but still under-utilised innovative technologies [Action 7.19] and, secondly, because 17% of Walloon buildings belong to the public sector or are managed by public authorities, so their renovation has significant leverage in providing an example and initiating a ripple effect in the private sector.

This will involve [Action 14.7] promoting and supporting at least one pilot campaign for deep renovation (net zero) each year until 2025, in order to test innovative technical solutions and encourage Walloon actors to innovate in removing barriers (costs, intrusiveness, etc.). This ‘renovate with energy’ support could take inspiration from the ‘build with energy’ programme previously carried out by Wallonia.

These initiatives will also serve to prove the efficiency of cross-cutting action [Action 2.1] through the delivery of inspirational projects. This efficiency should be reflected in a range of benefits, translating into the optimisation of costs, time, simplified administration, open and respected dialogue and financial resources.

2 Develop support for households through the concept of one-stop shops

In order to provide adequate, consistent and comprehensive support, a **one-stop shop is needed, bringing together all support services for households in relation to energy and housing** [Actions 24.4 and 24.5]. This will be an opportunity to streamline existing services to support owners in their renovation decisions and procedures. These one-stop shops will educate, inform and guide households in choosing the type of energy renovation to carry out, help them understand the advantages and disadvantages and ensure that the renovations are in line with the roadmap and building passport. They will also support households in identifying professionals¹²⁵ and contractors to design the project and carry out the work, in financing (bank loans, incentives, subsidies and tax relief) and in monitoring the work.

Particular care will be taken to prevent the accreditation or certification process for construction professionals from reducing the number of professionals available to carry out the work.

Energy suppliers, banks and other actors are working to develop ‘one-stop shops’. It is interesting to observe market-driven initiatives and it is important for the Government to take notice and get involved, to ensure there is quality management, applicants receive adequate support and projects are structured in line with the long-term targets.

The benchmarks for the success of this facility are presented in section ‘II.B.3.a). Comprehensive support for households in the form of a one-stop shop’ above. Different models should be tested in order to provide innovative solutions while building on the expertise of existing actors in the field, in particular to ensure a variety of gateways for households to these comprehensive support facilities.

Since January 2019, the Region has been providing 2-year funding for a project to introduce local energy renovation platforms that are trialling some of the activities of a one-stop shop. The eight platforms involved

¹²⁵ The assistance provided may be in the form of analysing quotes received, or providing a list of approved professionals, provided that the public service has established official accreditation.

are mobilising energy renovation professionals to develop technical, administrative and financial support for the private residential sector (with the exception of one platform aimed at the public residential sector). They are also delivering awareness-raising and communication. The platforms vary in terms of their legal structure, partnerships established with other local actors, plans for mobilisation of renovation professionals, the proposed financial model, type of support offered and targets in terms of the number of homes renovated.

In terms of financial support, the platforms being developed provide information on traditional finance instruments, signpost prospective renovators to an approved Financial Services and Markets Authority (FSMA) agent, provide assistance in finding financing and offer pre-financing for audits, insulation or the replacement of systems.

In addition to supporting households, these platforms enable 1) the creation of local clusters of businesses committed to a quality approach, and 2) the measurement and collation of actual results obtained to monitor the true effectiveness of the renovation programmes.

Local citizens' cooperatives, potentially with municipal involvement, appear to work closely enough with citizens to encourage them to take the right decisions. These initiatives must nevertheless comply with the framework in place (follow the benchmarks for operating a one-stop shop; use the tools developed or under development by the Region, such as EPB certification, Quicksan, the housing audit and roadmap and building passport, etc.). Any initiative is welcome as long as it is consistent with what is already in place.

Cooperatives could provide a way to address the issue of the *split incentive*: why would the owner pay for the work if it is the tenant who benefits from the energy savings, and why would the tenant pay for the work when they have no guarantee of still occupying the property in a year or two?

In addition, some citizens' cooperatives in Wallonia offer third-party finance to individuals wishing to carry out energy renovation work on their homes, with repayment based on the energy savings generated. This mechanism is more expensive than a traditional loan, but it is accessible to people with no option of borrowing and little or no equity.

Lastly, since mid-2019, there has been a public authority body that contributes capital to cooperatives with projects in the fields of renewable energy production and the energy performance of buildings, in particular. This is the 'Kyoto' mechanism Brasero from SOWECSOM/SRIW (*Société Régionale d'Investissement de Wallonie*)¹²⁶.

Lessons learned from the first initiatives show a need to do the following:

- expand and sustain the initiatives for local renovation platforms through financial support for their activities and support for the investments they generate (e.g. in the form of purchasing project bonds);
- continue to reflect on business models for integrated energy renovation services, moving towards solutions offering a variety of gateways to a single point of contact;
- assess how to supplement existing mechanisms in order to best support the emergence of citizens' cooperatives working on the energy performance of buildings.

¹²⁶ As long as the cooperative has at least €30 000 in private capital, Brasero can, on request, double the capital up to a maximum contribution of €500 000. Its exit horizon is between 5 and 10 years.

3 Promote and support pilot initiatives for the renovation of a jointly-owned property, a street, district or municipality.

Energy renovation projects often encounter a problem with scale: the projects are too small and the individual management costs too high.

Building renovations can be planned and organised taking a broader, district approach – not limited to individual buildings but considering the renovation of a whole neighbourhood, street or district. District renovation approaches can result in potentially significant cost reductions through economies of scale and smart logistics. They can also make investment more attractive by aggregating projects and reducing risk through diversity within project portfolios.

District renovation approaches also promote synergies between energy efficiency and other necessary changes in the district, particularly in terms of working in conjunction with the development of local renewable energy sources or with territorial development and infrastructure development strategies.

Joint ownerships can lead by example, such as a residential tower (or block¹²⁷), but also individual houses or small joint ownerships of a few homes (for example forming a cooperative to negotiate conditions for credit and working as a group). In this case, the property manager undertakes a group project, bringing together a number of individual owners.

This type of initiative can obtain tailored loans¹²⁸ and cover the risk of default through insurance specially designed for this purpose¹²⁹.

As this practice is not very widespread, public support could take the form of a subsidy for property managers or cooperatives undertaking projects.

The Region proposes [Action 29.8, Action 39.3] – based on the jointly-owned property model – to **bring together applicants for renovation of a jointly-owned property, a street, district or municipality. The aim is to create a critical mass for pooling shared services, negotiating with banks and contractors and taking out completion insurance, removing the barriers stopping individual owners from deciding to undertake renovations in their buildings.**

¹²⁷ A residential block is a unit that extends lengthwise.

¹²⁸ Belfius offers financial products enabling these measures.

¹²⁹ For example, Atradius.

4 Through a pilot framework agreement between financial actors and Wallonia Public Service, promote low-interest borrowing and loan guarantees to provide financing solutions to households without access to traditional loans.

This will involve planning a pilot project [Action 40.1] with one or more banking institutions responding to a call for tenders in order to develop new products for owners who cannot find a finance solution to renovate their property because of their age or income.

Stimulating finance for energy renovations will firstly require giving access to credit to a category of applicants who are just below the threshold accepted by banks, and, secondly, establishing a link between energy efficiency works and an increase in the value of renovated buildings¹³⁰.

The category defined as 'just below the threshold accepted by banks' presents an opportunity, for both the bank, as it opens up a new market that it has voluntarily excluded itself from until now, and for the public authorities, which can then satisfy a number of renovation applicants without incurring too much expense. Defining the scope of this 'category' should be subject to a partnership discussion on risk management. This pilot project is not intended to compete with public lending institutions.

Consider a hypothetical case where the bank accepts a default risk of 4% and the segment in question presents a risk of 6%¹³¹. This risk, higher than the internal rules of the financial institution allow, is the reason not to lend to customers in this segment, but if the public authorities intervene as guarantor to cover the excess risk, these customers become an acceptable market once more.

In this example, a maximum of 2% of outstanding loans would need to be covered in this segment. However, it is understandable that for a segment where the default risk is estimated at 10%, the cost of public support becomes too high. It is therefore not a solution for everyone in obtaining renovation finance.

5 Pilot project to mobilise private funding through contribution to crowdfunding platforms under a framework agreement between the Walloon Public Service and a financial institution

The cost of energy renovation for housing in Wallonia is estimated at €120 billion by 2050. Achieving this target will require massive mobilisation of private savings. Several financial operators¹³² in Wallonia are offering interesting solutions in this area. Through the use of crowdfunding platforms, the Region can consider the potential in helping to finance many projects while undertaking only a small part of the funding (10%, i.e. a leverage ratio of 1:10. For each €1 of public funds mobilised, €9 of private funds are raised¹³³). In addition, this is a revolving mechanism where the funds are reimbursed and can be used for other borrowing. We propose to carry out a test limited to a thousand individual loans [Action 39.5]. Results will be apparent from the early months and the scheme can be extended depending on its success. Conversely, it will also be possible to

¹³⁰ There is still little recognition of this by financial institutions; this action aims to improve this.

¹³¹ Each financial institution defines its own risk policy. For some, youth – or too little professional experience – is a risk factor. The point here is not proven risks, but an internal classification of customer categories. The proposed action aims to expand the segments of eligible applicants, without significantly increasing defaults.

¹³² For example, the Mozzeno platform makes it possible to invest indirectly in collaborative renovation loans for individuals. <https://www.mozzeno.com/fr/>

¹³³ To limit the default risk to the investor, the platform screens loan applicants and takes out special insurance, but it also combines investors on the same investment. If the investor is providing sole finance for a borrower who defaults, they lose all of that investment. In contrast, if, through the platform, the same investment is funded by 10 different investors, the risk is divided by 10. This 'blending' is done automatically.

withdraw from the initiative if it is not as effective as expected. In the event of withdrawal, public money will be fully recovered¹³⁴.

6 Pilot project for energy renovation loans attached to buildings

An interesting development for achieving the regional targets for the energy efficiency of buildings is to secure the loan not against the occupants or beneficiaries, but against the building itself. Using several volunteers, a pilot project will be launched to specifically assess the advantages and difficulties of implementation¹³⁵ [Action 43.2].

The principle is to undertake the necessary work and to repay the loan through the utility bill. A meter number corresponds to a specific home, so there is a direct link between the meter and the building/home benefiting from the work financed. There are two advantages to this procedure. The first is that the loan does not depend on the calculation of the borrowers' repayment capacity, because additional credit for energy efficiency may not be approved for a household that already has a mortgage and a car loan. The second advantage is that when the building is sold or changes occupancy, the next occupant continues to repay the initial loan through the utility bills. The cost to the occupant therefore reflects the duration of their occupation of the premises. This is a possible solution to the *split incentive* (the tenant benefits from improved comfort and reduced bills and contributes as long as they occupy the premises).

Insurance similar to that used in large, jointly-owned properties could play a role in this initiative by moderating the risk taken by the financial institution, which is providing credit not to an individual but to a property.

In addition, there will be support for the pilot projects for local renovation platforms.

7 Stimulate development of the circular economy in the renovation sector

As suggested in Action 13.1, this will involve pilot projects designed to recover various streams, including pre-treatment operations (dismantling, sorting and selective collection) in order to assess the profitability and feasibility of dismantling and sorting these various streams on the construction site (for example, gypsum comes in different forms and is sometimes amalgamated with other materials, making sorting difficult). These various pilot projects will identify good practices in the reuse, recycling and recovery of construction materials, depending on the different streams analysed, but will also identify the actors in the sector that should be supported in Wallonia. This action will be carried out in close coordination with the 'Circular Wallonia' initiative.

5. MAIN ADDITIONS IN THE 2020 VERSION TO MEET THE REQUIREMENTS OF ARTICLE 2A OF DIRECTIVE 2018/44 ON THE ENERGY PERFORMANCE OF BUILDINGS

This chapter is an adapted and enhanced version, strengthening the renovation strategy by transposing Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive

¹³⁴ It is not the intention of the Region to cover a risk that a bank would not normally accept; it is a question of broadening options for access to finance for households. However, the risk of non-repayment will remain the responsibility of the financial intermediary.

¹³⁵ Regional jurisdiction in this area will be confirmed before launching the pilot project.

2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency. The following paragraphs briefly present the main adjustments made to the 2017 version of the strategy.

- 1) **The long-term targets are strengthened to reflect Wallonia's target of carbon neutrality** by 2050 at the latest. **The scenarios for implementation of the strategy are adjusted to meet the 2030 target** of reducing GHG emissions by 55% compared to 1990. See section I.C 'Definition of renovation targets for the region'.
- 2) **The evaluation of the costs and cost-effectiveness of renovation is updated** to take into account the latest findings of the cost-optimum studies (see Chapter II. Costs and cost-effectiveness of building renovation).
- 3) **The policies and measures are strengthened and enhanced** to make the strategy more effective and address the aspects required by Article 2a of the amended Directive on the energy performance of buildings. The following paragraphs provide a non-exhaustive overview of the main proposals.

Governance is strengthened by recognising and formalising mechanisms for steering the renovation strategy (Measure 0). This will involve establishing a high-level interministerial working group [Action 0.1], recording the targets and intermediate milestones of the renovation strategy in a decree to ensure continuity [Action 0.2], defining roles and responsibilities in implementing and monitoring the strategy [Action 0.3], specifying the resources required [Action 0.4] and proposing the framework for involving stakeholders in implementing and monitoring the strategy [Actions 0.5 to 0.7].

Coherence is strengthened with the various other policies of the Region (Measure 2). This includes the creation of an **intergovernmental working group** which assesses the feasibility of integrating into the various policies energy efficiency criteria in line with the targets of the building renovation strategy [Action 2.1] and ensures consistency between the energy and carbon targets for the renovation strategy, provisions on housing [Actions 2.5 to 2.6] and provisions on town planning and territorial development [Actions 2.3 and 2.8]. There will also be enhanced linkages between PAEDCs and the various municipal plans, programmes and tools [Action 2.8.a].

There is encouragement for the cost-effective deep renovation of buildings, including staged deep renovation, and support for targeted cost-effective measures and renovation. This is achieved, for example, through the establishment of a building passport scheme comprising an energy component and a renovation roadmap.

Changes of ownership are identified as key moments to encourage the deep renovation of buildings. This is because it is more likely for the building to be vacant for a period of time, and because considering funding for renovation at the time of purchase steers buyers towards properties where their repayment capacity can cover purchase and renovation, and funding for renovation can be included in the long-term mortgage loan.

A combination of incentives and obligations is proposed. Firstly, there is an obligation to carry out the work within 5 years of purchase [Action 1.7-b]. Secondly, there will be reductions in registration, inheritance and gift taxes, conditional on renovation to A rating within 5 years after transfer of ownership [Action 41.1]. More generally, there will be a comprehensive analysis of all regional taxation in order to identify incentives contrary to climate and environmental targets and to propose alternatives [Action 2.2]. Renovation upon transfer of ownership will be facilitated by inclusion in the EPB certificate of an estimate of the costs of renovation to decarbonised A rating [Action 15.1].

EPB regulations will be strengthened to bring them into line with the global approach recommended in the audit and the roadmap [Action 1.1]. Incentives to encourage deep renovation will include a bonus for

renovation to A rating [Action 42.1]. For non-residential buildings, any manager of non-residential public or private buildings of more than 250 m² will be encouraged and subsequently forced to develop a long-term comprehensive property strategy – including an action plan for energy management to ensure the action meets the obligation to improve the energy performance of buildings [Action 1.12].

To encourage both households and professionals, the one-stop shop initiative will be strengthened and rolled out through local renovation platforms [Action 24.4].

There will be encouragement to renovate the **least efficient segments** of the regional building stock.

Creating registers of public housing [Action 3.1] and public tertiary buildings [Action 7.1] will help to identify the least efficient buildings to be targeted first. For private buildings, priority targets could be achieved through the gradual roll-out of the EPB certificate for all existing buildings [Action 4.13] and proactive detection of those in energy poverty [Action 26.1].

It emerged from discussions with stakeholders that timetabling enhancement of the minimum requirements in terms of the EPB of existing buildings is a prerequisite for triggering the required rate and quality of the renovation. Progressive obligations in improving the energy performance of existing buildings will be defined, while ensuring effective transitional measures encouraging proper renovation of the stock [Action 1.7a]. This regulatory framework is also identified as a precondition for integrating EPB into market prices for property. Proper integration of EPB into market prices for property will limit the investments needed for renovation by freeing up budgets otherwise absorbed by the purchase of property.

Support for vulnerable groups is expected to go hand in hand with targeting the least efficient buildings. This will be assessed by tracking changes in ownership, profiles of buildings, the ownership and occupancy of homes and profiles of owners [Action 3.2]. Specific support will then be scaled accordingly to enable the renovation of these homes [Actions 26.2 to 26.4]. In addition, energy renovation of housing managed by social housing agencies will be encouraged and facilitated (Measure 27).

Plans also include benchmarks to identify situations where demolition and rebuilding is a better solution than deep renovation [Action 13.3], and in these cases to promote this [Action 13.4] and support it through a reduced VAT rate [Action 41.2].

The strategy will be strengthened to better mitigate split incentive situations. The regulatory framework outlined above will provide owners – including owner-landlords – and other investors with a clear signal enabling them to plan their investments. Without such a regulatory framework, owner-landlords have no incentive to improve the quality of their properties. A rate of improvement every 5 years lends itself well to the activity of the rental market where the average lease term is 5 years¹³⁶. It will be crucial to regularly assess the socio-economic impacts of the minimum energy performance requirements for buildings [Action 1.8], and in particular to assess the impacts on the low-rent housing stock to identify and introduce the associated measures required [Actions 26.3 and 26.4].

Gradual tightening of minimum performance levels also helps to prioritise the least efficient buildings. Attending to these buildings simultaneously addresses energy efficiency, the health and comfort of the population and the alleviation of energy poverty. However, the least efficient buildings are both the most numerous and, on average, likely to be those occupied by households (in the case of owner-occupiers) less able to financially support the renovation of their housing. A series of measures and actions is proposed to facilitate funding of the renovation of these segments.

¹³⁶ IWEPS, 2018, *Le marché locatif sous la loupe. Mesurer les loyers dans les communes belges et wallonnes*. Accessible (in French) at https://www.iweeps.be/wp-content/uploads/2018/12/RS_2_Loyers.pdf

A series of other initiatives has been developed to **encourage renovation of the rental stock**. Adjusting property tax on the basis of energy performance (being mindful of the municipal budget) [Action 41.5]. Providing quality housing support [Action 26.4] (particularly in relation to energy performance) in addition to current energy poverty support accessible to tenants (rental support) and to owner-occupiers (renovation support), or even replacing current home ownership support.

Measures have been developed to **alleviate energy poverty by triggering renovation of the rental stock**: renovate public housing in an exemplary manner (Measure 6), encourage and facilitate the energy renovation of housing managed by social housing agencies (Measure 27) and encourage private funding of energy renovation (Measure 28). There are also proposals to rethink energy-related social support (Measure 26), currently mainly focused on paying bills and not on improving housing.

Alongside differences of interest between landlords and tenants, the proposals are also strengthened to provide better support in complex situations such as jointly-owned property [Actions 29.2 to 29.6].

Promote smart technologies and well-connected buildings and communities: current and planned initiatives in Wallonia are presented in Annex 6 – Overview of initiatives to promote smart technologies and skills. In addition, the measures set out under Objective 8 of the strategy aim to increase efforts to train and upgrade professionals so they can offer energy-efficient solutions (design, systems, materials, processes) that meet the needs (volume, quality and performance targets to be met) and can assess the performance achieved by buildings.

- 4) **The quantification of energy savings and greenhouse gas emissions** has been refined on the basis of an **analysis of possible scenarios** for implementation of the strategy. In line with the 2030 target, the timetable for renovation of residential buildings has been revised and a timetable for non-residential buildings has been proposed. See Section I.C.5.a)(1).
- 5) **A roadmap including the timings for the implementation of measures** had already been developed but was not communicated in the text of the strategy. It has now been integrated into the strategy document (p. 218), with measurable progress indicators and indicative milestones for 2030, 2040 and 2050.
- 6) **An analysis of the implementation of the strategy** is also now included in the text of the strategy (p. 167). In addition, annual communication is planned on the outcomes of the strategy [Action 10.1], in particular presenting progress based on the indicators given in the roadmap.
- 7) **There are strengthened measures and actions to support the mobilisation of investments**, based in particular on the aspects identified by the Commission for this effective mobilisation (Chapter IV. Financing the energy renovation of buildings).

6. OVERVIEW OF MEASURES PROPOSED TO STIMULATE DEEP RENOVATION

The Walloon renovation strategy brings together the energy renovation initiatives previously approved by the Walloon Government and supplements them, in particular through a series of measures identified during a stakeholder consultation process. The different sources considered are illustrated in Figure 28¹³⁷.

¹³⁷ All the measures in the following tables are hyperlinks to the corresponding parts of the document.

The measures are organised under three main priorities, which are then broken down into a series of objectives.

PRIORITIES	OBJECTIVES
<p>A</p> <p>Strengthen the framework to provide transparency, stability and credibility conducive to investments in energy efficiency</p>	<ul style="list-style-type: none"> • Develop the regulatory system for building renovation to tighten requirements in a way that is collectively negotiated, planned, stable, transparent, measurable and consistent (including with other Walloon authorities and levels of power) • Ensure knowledge of energy efficiency is constantly updated, regularly assess the renovation strategy in relation to the indicators set and adapt it through a collectively negotiated process • Mobilise public authorities, including local, regional and supra-regional bodies, as primary drivers and locations for energy renovation of buildings • Ensure that the communication and awareness-raising tools have a horizon of 2050, ensuring involvement of all actors (civil society, stakeholders, etc.) through appropriate communication • Provide financial stability for the deep energy renovation of buildings
<p>B</p> <p>Contribute to structuring and strengthening the market supplying quality goods and services designed to improve energy efficiency, taking advice from skilled professionals</p>	<ul style="list-style-type: none"> • Support the development of innovative energy-efficient solutions (systems, materials, processes), with a particular focus on the quality and sustainable use of resources • Develop tools and support for professionals to help and encourage them to propose and implement energy-efficient solutions (systems, materials, processes), with a focus on the sustainable use of resources • Increase efforts to train and upgrade professionals so they can offer energy-efficient solutions (design, systems, materials, processes) that meet the needs (volume, quality and performance targets) and can assess performance achieved by buildings.
<p>C</p> <p>Increase demand for energy-efficient buildings</p>	<ul style="list-style-type: none"> • Raise awareness among owners (citizens and legal entities) about the energy performance of housing, on an ongoing basis and during the initial stage of projects, and encourage and support citizens in their renovation projects • Strengthen public demand for high quality, sustainable and energy-efficient solutions (systems, materials, processes), ensuring that this covers all stock and types of audience • Ensure that reductions in energy consumption are maintained

Objectives	Measures
Develop the incentive system	0. Recognise and formalise mechanisms for governing and steering the renovation strategy 1. 2. Improve coherence between different regulations in terms of energy efficiency criteria
Update knowledge and adapt the strategy	3. Improve the knowledge of the building stock 4. Monitor the results of the renovation strategy 5. Assess and regularly update the renovation strategy for buildings
Mobilise public authorities	6. Set an example when renovating public housing 7. Reinforce the exemplary role of public buildings 8. Incorporate social, ethical and environmental clauses in public works contracts
Ensure communication and awareness-raising tools reflect the 2050 vision	9. Encourage municipalities to introduce an energy and climate policy in their territory 10. Engage all actors (civil society, stakeholders, etc.) through appropriate communication
Provide financial stability	<i>(See below)</i>
Support the development of sustainable energy-efficient solutions	11. Develop the sectors offering innovative and sustainable construction materials and systems in Wallonia 12. Promote innovative Wallonia-sourced materials for sustainable design 13. Promote exemplary practices in terms of reuse, recycling and recovery of building or demolition materials 14. Support and promote sustainable, high-quality and energy-efficient solutions
Develop tools and support for professionals	15. Develop and strengthen tools enabling an integrated and long-term approach to projects 16. Promote tools that allow all the sustainability-related aspects of renovation projects to be assessed 17. Raise awareness among professionals and encourage experience sharing in sustainable energy renovation
Increase efforts for awareness-raising, training, certification and monitoring	18. Provide high-quality training 19. Ensure that works or services are properly executed 20. Expand the role played by professionals in renovation work 21. Monitor the proper execution of works or services

Provide awareness-raising and support for the public	<ul style="list-style-type: none"> 22. Raise awareness among owners of the energy performance of their housing and encourage them to carry out sustainable energy renovations 23. Encourage owners to make their renovation project part of a comprehensive assessment by encouraging the creation of a renovation roadmap 24. Develop and promote tools to support households, with preference being given to integrated support solutions 25. Raise awareness among legal entities of the energy performance of their buildings and encourage them to take decisions on sustainable energy renovation
Increase demand from all categories	<ul style="list-style-type: none"> 26. Help the most disadvantaged in society to access quality housing 27. Stimulate and facilitate energy renovation of housing managed by social housing agencies 28. Support and encourage owner-landlords in making overall improvements to the energy performance of their buildings 29. Encourage and facilitate grouped renovation projects
Ensure that reductions in energy consumption are maintained	<ul style="list-style-type: none"> 30. Encourage the maintenance of buildings and installations 31. Implement a strategy aimed at mitigating the rebound effect

Provide financial stability

Buildings owned by public authorities	<ul style="list-style-type: none"> 32. Ensure coherence between regional budgets and the long-term targets in the renovation strategy 33. Encourage overall energy renovation through low-interest loans 34. Establish a framework for energy performance contracts and promote them 35. Promote the development of third-party investor mechanisms 36. Promote the use of public-private partnerships 37. Improve the efficiency of grants for the renovation of public tertiary buildings 38. Ring-fence savings made to finance longer-term investments (revolving fund)
Private housing	<ul style="list-style-type: none"> 39. Encourage low-interest loans and other credit arrangements to encourage deep renovation 40. Extend access to finance through loan guarantees 41. Mobilise tax instruments to stimulate and support energy renovation 42. Continue to simplify the incentive system and improve its effectiveness in encouraging a global and integrated approach to renovation to improve the energy performance and healthiness of housing. 43. Develop 'bricks and mortar' credit solutions 44. Stimulate and support the development of cooperatives working in energy renovation
Private sector buildings	<ul style="list-style-type: none"> 45. Proceed with professional loans or investment loans 46. Continue and improve the tax relief scheme for companies Continue to provide specific finance solutions for private actors 47. wishing to invest in energy renovation and/or decarbonisation of their energy supply 48. Optimise, simplify and harmonise the investment aid system for SMEs and very small businesses 49. Increase emissions reduction for industrial buildings subject to industry agreements
Sources of finance	<ul style="list-style-type: none"> 50. Mobilise private savings 51. Mobilise European funds 52. Mobilise regional funds

C. COMPREHENSIVE MEASURES TO ACCELERATE DEEP RENOVATION

The **priority actions to be implemented by 2024** were identified through stakeholder consultation. These actions are listed under the heading **'short-term initiatives 2024'** and are given an action number (for example [Action 1.1]). The actions to be undertaken after 2024 are listed under the heading 'medium-term initiatives'.

**1. CREATE THE TRANSPARENT, STABLE AND CREDIBLE FRAMEWORK
CONDUCTIVE TO INVESTMENTS IN ENERGY EFFICIENCY**

OBJECTIF 1. DEVELOP THE REGULATORY SYSTEM FOR BUILDING RENOVATION TO TIGHTEN REQUIREMENTS IN A WAY THAT IS COLLECTIVELY NEGOTIATED, PLANNED, STABLE, TRANSPARENT, MEASURABLE AND CONSISTENT (INCLUDING WITH OTHER WALLOON AUTHORITIES AND LEVELS OF POWER)

Mesure 0. Recognise and formalise mechanisms for governing and steering the renovation strategy

Objective - Define the role of coordinating implementation of the strategy, identify the responsibilities and resources required and bring them together.

Context - The renovation strategy defines long-term targets, intermediate milestones and actions to achieve these. Experience over the years since the first version of the strategy shows that it is crucial to define roles and responsibilities in coordinating and monitoring the implementation of the strategy, and that significant resources are essential for successful delivery. The recommendation is to properly establish a team, ideally cross-cutting, dedicated to implementing the strategy, with the necessary resources and support.

SHORT-TERM INITIATIVES (2024)

Cross-cutting

- [Action 0.1]* **Establish a high-level interministerial working group** (strategic coordination) on the long-term renovation strategy. This group will, firstly, ensure the various policies are cross-cutting and consistent, and secondly propose and approve the short and medium-term actions to be implemented and ensure monitoring (and, where appropriate, corrective actions).
- [Action 0.2]* Based on the Climate Decree, consider the potential for **recording the targets and intermediate milestones of the renovation strategy in a decree to ensure continuity**, and invite future governments to develop the necessary means.
- [Action 0.3]* **Define roles and responsibilities in implementing and monitoring** the renovation strategy, and formalise the entity or entities assuming these roles and responsibilities.
- [Action 0.4]* **Specify the resources required to implement and monitor the strategy** and ensure that these resources are made available to the actors identified in [Action 0.3], taking into account any trade-offs.
- [Action 0.5]* **Establish a high-level stakeholder committee** to assess the implementation of the renovation strategy and make recommendations.
- [Action 0.6]* **Define the framework for involving stakeholders in implementing, monitoring and identifying appropriate strengthening of the strategy.**

Mesure 1. The main working groups organising the implementation of the renovation strategy are detailed on p. 83. Continue to tighten energy standards

Objective - Tighten requirements to trigger renovation and ensure that the work results in performance improvements consistent with the long-term targets. At the same time, provide the visibility and stability on expected developments that are required for investment decisions, while taking care not to worsen the housing crisis and add to the difficulties in accessing and maintaining housing.

Context - The current requirements for renovation relate to the performance of surfaces and systems. Minimum requirements for the energy performance of surfaces, if they are ambitious, can prevent one-off renovations – undertaken independent of a comprehensive assessment for improving the building – from resulting in a lock-in effect, preventing the achievement of a long-term target consistent with the targets of the Region.

However, ambitious mandatory minimum levels for the energy performance of surfaces can, for certain construction methods, be environmentally counter-productive due to the quantity of insulation materials they require. To avoid this, it seems wise to **promote** a minimum level of overall performance to be achieved by renovation projects. This overall vision would motivate citizens while involving them in an overall process in which the appropriate performance levels for surfaces are linked from the start to a comprehensive assessment of the building's energy performance, including at least primary energy consumption. In addition, to avoid implementing solutions that are environmentally counter-productive overall, actions could focus on **taking embodied energy into account**¹³⁸ in compliance with European rules in this area. Finally, an ambitious performance level for surfaces can, in the short term, be considered an incentive to establish a renovation roadmap to determine the priorities and approaches appropriate to the specific characteristics of the building.

Wallonia will adapt its legislation in order to comply with the evolving European regulations, primarily articulated through the amended Energy Performance of Buildings Directive (2018/844), Energy Efficiency Directive (2012/27/EU) and Renewable Energy Directive (2018/2001/EU).

The consultations carried out in updating the long-term renovation strategy (LTRS) consistently demonstrated the **need for a regulatory framework** to trigger the required volume and quality of renovations. The 2017 version of the LTRS indicated that the 2020 update should propose the timely introduction of energy performance obligations for existing buildings.

Any change in regulations (whether binding or incentive) governing the energy performance of buildings must meet the following criteria:

- **stability** of the support and performance monitoring mechanisms;
- **progressiveness** in the performance levels required;
- **transparency** in policies and measures implemented, along with predictability as far as possible;
- **technical feasibility** as regards technological developments.

It is very important that beneficiaries, as well as professionals in the sector, can anticipate the progressiveness of the measures. In addition, a medium- and long-term timetable will clearly indicate to everyone where regulation is heading, enabling people to make the right decisions when making investments in buildings under their responsibility.

¹³⁸ Embodied energy refers to the total energy required to produce a material, throughout the production chain, including its extraction, processing and transport.

SHORT-TERM INITIATIVES (2024)

Cross-cutting

- [Action 1.1]* Develop EPB regulations to bring them into line with the global approach recommended in the audit and the roadmap, and achieve the right balance between energy efficiency and renewable energy and between exemptions and incentives for renovation.
- Accelerate replacement of the stock of boilers fired by solid, liquid and gaseous fuels and implement the strategy of phasing out old, inefficient heating systems to reduce the carbon intensity (GHG) of the heat supply.
 - a. [Action 1.2]* Legislate on fuel-fired heating installations, domestic hot water installations and decentralised installations.
 - b. [Action 1.3]* Gradually build a database of boilers and HVAC installations. The legislation on heating includes the creation of a register, but this has not yet been implemented. This database will be facilitated by digitalisation and by the introduction of the building passport.
 - c. [Action 1.4]* Determine how to replace the stock of boilers fired by solid, liquid and gaseous fuels, taking into account particular challenges for the most energy-poor and specific situations in which the burden would be disproportionate, and accompany the measure with dissemination of information to households and installers.
 - d. [Action 1.5]* Define better and reduce particulate emissions from fuel-fired heaters and improve their energy efficiency.
 - e. [Action 1.6]* Establish an administrative system to monitor obligations in relation to domestic fuel installations.

Residential buildings

Plan a gradual and transparent tightening of requirements.

- [Action 1.7]* Develop and introduce appropriate energy performance obligations for existing buildings.
 - a. Set progressive obligations for improving the energy performance of existing buildings, while ensuring effective transitional measures encouraging proper renovation of the stock. These obligations may relate to a minimum overall performance level or to gradual implementation of the roadmap.
 - b. Define obligations for improving the energy performance of buildings at key moments in their life cycle (purchase/sale, change of tenant, donation/inheritance, other renovation work). In particular, an obligation will be introduced to carry out the work within 5 years of purchase¹³⁹. To enable this, it is crucial to have an estimate of the cost of work required to achieve A rating prior to purchase through the EPB certificate (see Actions 15.1 and 15.2). The implementation details need to be worked out; in particular, the role of the housing audit and the renovation roadmap which identifies the works to prioritise.
- [Action 1.8]* Regularly assess the socio-economic impacts of the minimum energy performance requirements for new and existing buildings. This assessment will be included in the annual evaluation report on the implementation of the strategy ([Action 10.1]). In particular, assess the impacts on the low-rent housing stock to identify and introduce the associated measures required.
- [Action 1.9]* Define monitoring methods, exemptions and penalties (to be carried out in parallel with [Action 1.7]).
 - a. Introduce a monitoring mechanism:

¹³⁹ For example, a reduction in registration tax could be dependent on submission of proof that the work has been carried out. The strategy includes the introduction of measures and support to enable delivery of the works.

- establish a working group on implementing an exemption procedure and assessing the various options and their consequences.
- b. Develop the appropriate and limited exemptions as required.
 - Establish a working group on implementing a monitoring procedure and setting penalties.

Non-residential buildings

- [Action 1.10]* Define a framework for transposing the long-term targets to (sets of) non-residential buildings, with a timetable. Incremental deadlines will be set for improving performance moving towards the long-term targets. These deadlines will apply to sets of buildings, organised by geographical area, level of authority, activity sector or property manager. Property managers will thus be able to plan their investments to both meet requirements and reflect their own priorities.
- [Action 1.11]* Specify the minimum energy performance level for non-residential buildings based on knowledge of the stock, and possibly differentiate by category of public building (offices, schools, hospitals, etc.).
- [Action 1.12]* **Long-term comprehensive property strategy**¹⁴⁰. Within the framework established in [Action 1.10], encourage and subsequently force any manager of non-residential public¹⁴¹ or private buildings of more than 250 m² to develop a long-term comprehensive property strategy, including an action plan for energy performance and management of the buildings. This strategy must be established by the end of 2021 for public authorities and by 2025 at the latest for private actors.

¹⁴⁰ For further explanations, see 'Long-term comprehensive property strategy', p. 89.

¹⁴¹ An exemption system could be developed later.

Mesure 2. Improve coherence between different regulations in terms of energy efficiency criteria

Objective - Ensure coherence between different regulations in terms of energy efficiency criteria.

Context -

Different regulations are developed by different government departments depending on the topic: spatial planning, housing, energy, heritage, etc. There must be improved coherence between these different regulations to increase the energy performance of renovations.

SHORT-TERM INITIATIVES (2024)

Cross-cutting

- [Action 2.1]* Create an **intergovernmental working group**¹⁴² to assess the feasibility of integrating into the various policies energy efficiency criteria in line with the targets in the renovation strategy.
 - a. Establish cross-cutting working groups of stakeholders to ensure coherence between regulations as part of implementing the strategy.
 - b. Enforce the Territorial Development Code (CoDT) with the objective of improving the energy performance of the building stock.
 - c. Implement more cross-cutting analysis of applications for subsidies (involving Heritage, Spatial Planning, Housing, etc.) and for developing public housing through renovation, by providing advanced energy expertise and organising working meetings and consultations. Processes will be enhanced to ensure greater synergy when a project relates to Housing and/or Heritage and/or Urban Renewal and, almost inevitably, Planning.¹⁴³
- [Action 2.2]* There will be a comprehensive analysis of all regional taxation in order to identify incentives contrary to climate and environmental targets and to propose alternatives.
- [Action 2.3]* Consider the significance of the location of buildings¹⁴⁴ in developing incentives for energy renovation (tax incentives and bonuses). The aim will be to encourage renovation in line with the zone scheme defined in the Regional Development Plan.

Residential buildings

- [Action 2.4]* Continuously assess and improve the provisions in the Walloon Sustainable Housing Code relating to energy efficiency criteria.
- [Action 2.5]* Update the energy safety criteria in line with the new regulatory requirements, and where there are discrepancies adjust the text of the Walloon Sustainable Housing Code.
- [Action 2.6]* Ensure compliance with energy performance requirements (e.g. roof insulation as a minimum for top-floor housing) in the development of housing, division of existing housing or the transformation of tertiary buildings into housing, including through the use of public support and rental permits for small homes.

¹⁴² For further details, see p. 82.

¹⁴³ In terms of synergies, collaboration with actors from the Department of Energy could help to achieve optimal efficiency (costs/cost-effectiveness/comfort of renovated housing). Advanced energy expertise would help to inform the operator's decisions about the options available. In this way, more rational housing could be planned and developed (perhaps smaller in size but more energy-efficient). In addition, it would seem appropriate for applications to develop public housing through renovation requiring a planning permit to be subject to close examination (by Department of Energy actors) with regard to compliance with legal energy provisions, as part of the permit procedure. This would provide an additional guarantee that public housing, once developed, will be energy-efficient.

- [Action 2.7]* In line with the Regional Development Plan, **assess the potential for increasing the density of housing** (for example by transforming a large investment property into an apartment building) **and plots** to increase the supply of energy-efficient housing in areas under population pressure. While maintaining tight control over the quality of housing to avoid an increase in slum landlords, there should be encouragement to increase density in the following areas:
 - a. Gap sites (both horizontal and vertical)¹⁴⁵.
 - b. Internal courtyards (while retaining playgrounds and gardens and creating links to allow ‘soft mobility’).
 - c. Storeys above shops, especially in town centres (creation of passageways serving the residential floors via the rear elevations).
 - d. When renovating large apartment complexes, reconsidering spaces and thus ‘ways of living’, would enable more housing to be created since the surface area would be distributed differently, in particular with shared living spaces. Clustered housing seems to be becoming a model for enabling easier access to housing¹⁴⁶.
- [Action 2.8]* Develop an action plan to improve coherence between town planning, spatial planning and energy efficiency. This will include the following actions.
 - a. Establish a cross-cutting working group on town planning, bringing together the different levels of authority, to develop and implement this action plan.
 - b. Building on the conclusions of this working group, encourage and subsequently enforce the development of a **municipal master plan for town planning** consistent with the targets of the renovation strategy. The aim, in particular, is to ensure consistency between town planning regulations and to give municipalities a clear vision and appropriate tools.
 - c. Enhance linkages between PAEDCs and the various municipal plans, programmes and tools (cross-cutting strategic plan, municipality and multi-municipality development plans, municipal rural development and nature development plans, municipal mobility plan, urban renewal and revitalisation tools, municipal commercial development plan, etc.). This will be against the background of a move to simplify these, designed to make it easier for towns and municipalities and to reduce costs while still achieving the regional targets.
 - d. Incorporate provisions conducive to energy performance and energy renovation into the Region's forthcoming town planning guide.

¹⁴⁵ Boffe, P. (2017-2018), *Les toitures bruxelloises: de nouveaux espaces à investir*, TFE Specialised Masters in Architecture, UCL, 193 pages.

¹⁴⁶ Pukacz, S. (2017-2018), *Du véhiculaire au Vernaculaire – L’architecture vernaculaire au travers de l’habitat des grands ensembles de logements*, TFE Specialised Masters in Architecture, LOCI Tournai - UCL, 170 pages.

OBJECTIF 2. ENSURE KNOWLEDGE OF ENERGY EFFICIENCY IS CONSTANTLY UPDATED, REGULARLY ASSESS THE RENOVATION STRATEGY IN RELATION TO THE INDICATORS SET AND ADAPT IT THROUGH A COLLECTIVELY NEGOTIATED PROCESS

Mesure 3. Improve the knowledge of the building stock

Objective - Ensure good understanding of the stock to enable prioritisation of renovation measures and communication on the development of the stock and its performance.

Context -

To be able to implement the strategy both efficiently and effectively, it is essential to have a good understanding of the building stock. This understanding is still insufficient and the information is not centralised. The measure proposed is to centralise all information relating to the building stock in a database managed by the government. **The building passport will be the tool at the heart of the process** [Action 15.4].

SHORT-TERM INITIATIVES (2024)

Residential buildings

- [Action 3.1]* To identify the most obsolescent buildings to be prioritised, the Government will move ahead with the register¹⁴⁷ of public utility housing and will provide financial support for municipalities and social welfare centres (CPAS) in establishing a register of vacant public housing.
- [Action 3.2]* Based on micro-data and variables from the Census, track changes in ownership, profiles of buildings, ownership and occupancy of homes and owner profiles. This is achieved by:
 - monitoring the actions of the working group on the 2021 Census SLA for Housing at the Interfederal Statistical Institute;
 - supporting the work of IWEPS and the CEHD in establishing a regional observatory for residential stock, rental housing and home ownership, the capacities of which would include utilising data from the 2011 Census and future versions, improving them and cross-referencing them with other regional administrative databases (e.g. EPB certificates).

Tertiary buildings

- [Action 3.3]* The Government will establish a register of public buildings in order to identify buildings presenting opportunities for cost-effective energy savings, to be renovated as a priority.

MEDIUM-TERM INITIATIVES

Tertiary buildings

- [Action 3.a]* Continue to develop a methodology and tools to **monitor the energy consumption** of tertiary buildings.

¹⁴⁷ This register will reflect the general condition and the energy performance of housing specifically.

Mesure 4. Monitor the results of the renovation strategy

Objective - Monitor proper implementation of the renovation strategy to ensure that the targets are achieved, and monitor changes in the condition of the building stock.

Context - It is essential to monitor the strategy in order to provide the necessary adjustments. This will only be possible through well-defined monitoring which must be implemented.

SHORT-TERM INITIATIVES (2024)

Cross-cutting

- [Action 4.1]* Refine the indicators and quantified targets for different time horizons, for each of the measures, to enable monitoring of the strategy.
- Establish information channels and processes to monitor renovation activity.
 - [Action 4.2]* Establish a formal definition of the types of renovation according to their depth.
 - [Action 4.3]* Centralise the information currently available, although imperfect – figures for town planning permits, incentives and loans issued under the former Ecopack and Rénopack, new Ecopack, Accesspack (mortgage loan) and Rénoprêt schemes – to improve monitoring, which can already be conducted on this basis. This is achieved by:
 - a. identifying the officials involved in managing or handling these data, involving them in establishing a procedure for centralising this information and designating an official responsible for monitoring this procedure;
 - b. identifying (among the existing tools within the Walloon Public Service) the most appropriate tool for centralised information gathering, and defining the terms and permissions for accessing this information.
 - [Action 4.4]* Define the additional data to be collected at least before and after works.
 - [Action 4.5]* Involve professionals and feed back information by establishing an action plan with federations and clusters of construction companies to collect data relating to their activities.
 - [Action 4.6]* Create a specific code to identify the trades or activities of the construction sector specific to renovation to facilitate monitoring of renovation activity.
 - [Action 4.7]* Involve and pass on information through citizens through surveys. An annual household survey could be carried out (perhaps online).
 - [Action 4.8]* Work with the Federal Public Service Finance to analyse VAT data in relation to renovation activity.
 - [Action 4.9]* Consult with financial actors to establish agreements with banks on communicating summary data on funding for renovation.
 - [Action 4.10]* Define a methodology to determine the rate and depth of renovation based on changes to the EPB (by analysing the certificate database)¹⁴⁸.
 - [Action 4.11]* Formulate a procedure for updating the EPB certificate (via the renovation roadmap) after the works.
- [Action 4.12]* Develop a strategy and action plan to monitor the wider benefits of energy renovation.
- [Action 4.13]* Gradually make an EPB certificate compulsory for all existing buildings, not just on changing ownership, while ensuring there is a reasonable period between the provision of the tool and introduction of the requirement for non-residential buildings.

¹⁴⁸ As proposed for social housing in the Netherlands in this article: Filippidou et al., 2017, *Are we moving fast enough? The energy renovation rate of the Dutch non-profit housing using the national energy labelling database* [\[link\]](#)

Residential buildings

- [Action 4.14]* Assess methods of gathering data on performance pre- and post-renovation.
- [Action 4.15]* Develop indicators to monitor the rate and depth of renovation to ensure they are in line with the targets of the strategy (in connection with [Action 4.3]).
- [Action 4.16]* Include the methods of gathering data on performance pre- and post-renovation, in order to assess outcomes in all renovation support programmes, by means of a database enabling the monitoring of building passports.
- [Action 4.17]* Reduce the period of validity of EPB certificates for the most energy-intensive properties.

Mesure 5. Assess and regularly update the renovation strategy for buildings

Objective - Adjust the short-, long- and medium-term targets based on outcomes from implementing the strategy and on the impacts of social, technical, economic and budgetary developments.

Context -

An initial version of the strategy was submitted in 2014. The Region took careful note of the Commission's recommendations to significantly improve this strategy, which was re-submitted in 2017. Since 2016, Wallonia has undertaken stakeholder consultation to review the different sections of the strategy and support it in developing the content.

The Commission's current requirement is to report on progress in implementing the strategy as part of reporting on the NECP, i.e. no later than 15 March 2023 and every 2 years thereafter. More regular review by the Region will enable efforts to be adjusted based on outcomes achieved.

SHORT-TERM INITIATIVES (2024)

Cross-cutting

- [Action 5.1]* From 2020, annually review the methods deployed for proper implementation of the strategy and check their impacts on the indicators for the strategy in order to adjust efforts required to achieve the long-term targets, in connection with [Actions 4.1 and 4.4].
- [Action 5.2]* At the time of each report on the strategy to the European Commission, identify whether social, technical, economic and budgetary trends allow strengthening of ambition in the long-term targets and/or intermediate milestones.
- [Action 5.3]* Monitor changes in the cost-effectiveness of renovation measures to achieve the long-term targets, and enhance the assessments in cost-optimum studies by better incorporating the multiple benefits of renovation.

OBJECTIF 3. MOBILISE PUBLIC AUTHORITIES, INCLUDING LOCAL, REGIONAL AND SUPRA-REGIONAL BODIES, AS PRIMARY DRIVERS AND LOCATIONS FOR ENERGY RENOVATION OF BUILDINGS

Mesure 6. Set an example when renovating public housing

Residential buildings

Objective -Lead by example and prime the market for deep renovation.

Context -

Two consecutive programmes have enabled almost 47 000 public housing units, or 47% of the stock, to be upgraded in accordance with energy standards and health and safety requirements:

- the Exceptional Investment Plan, approved in 2003 and completed in 2007 and 2009;
- the Green Investment Programme (PIVERT), the first phase of which was approved in 2012 and the second in 2014.

These programmes targeted both the most energy-intensive homes and homes non-compliant with health and safety requirements. The latest programme, PIVERT 2, aimed to improve the energy efficiency of public housing, with a view to both significantly reducing costs for tenants (given that most are under financial pressure) and improving their comfort.

In the province of Liège, more than €38 million have been awarded in energy performance contracts for public buildings and a hospital. Lessons learned through this pilot project can inform its expansion to other types of public buildings, including public and social housing.

According to the Walloon Housing Company¹⁴⁹, of the 104 000 Walloon public homes, 43 000 have undergone energy renovations; 25 000 are still in need of this work to meet energy standards. While the entire stock must be brought up to a minimum A rating, the latter will be considered a priority.

SHORT-TERM INITIATIVES (2024)

- [Action 6.1]* Formulate a **public housing renovation plan to achieve an average decarbonised EPB A rating by 2040** (~ 5 000 homes/year) and a **strategy for funding this plan**, maximising the leverage effect of the public budgets invested. The Government will adopt a plan for renovation by 2030 of the 55 000 public homes not already renovated, based on optimised administrative and budgetary mechanisms enabling rapid delivery of the works.
- [Action 6.2]* Link all public housing renovation programmes to the long-term energy performance targets.
 - a. Identify housing to prioritise for renovation using a common methodology based, in particular, on tools such as the public housing register, the guidelines on sustainable buildings and the housing audit. Empty dwellings will be included in these priority buildings.
 - b. Aim for at least EPB A rating in any energy renovation of public housing, whether done in one go or in stages.

By 2025, carry out the initial renovation stages towards the A rating as effectively as possible, initially ensuring effective achievement of at least the B rating. This will be implemented systematically for each renovation, based on a comprehensive assessment that should enable the A rating to be achieved from 2035, partly through the use of renewable energy production systems even more efficient than those currently available on the market.

¹⁴⁹ Walloon Housing Company Memorandum 2019-2024: <https://www.swl.be/images/memorendum/memorandum-web.pdf>

- c. Design a consultation process with all actors to identify how to remove barriers to deep renovation.
- d. Assess the benefits of testing the energy performance contract model, in particular through pilot projects.

Mesure 7. Reinforce the exemplary role of public buildings

Tertiary buildings

Objective -Strengthen the exemplary role of public authorities in stimulating the market for deep renovation and set an example by demanding a comprehensive assessment for projects to renovate public buildings, achieving an annual renovation rate for public buildings of at least 3% in line with the long-term targets, and monitoring this.

Context -

The Energy Efficiency Directive (Article 5) imposes an obligation to renovate 3% of the total floor area of heated and/or cooled buildings owned and occupied by the central government each year. However, Member States may use other solutions to achieve equivalent energy savings, such as deep renovations. The renovation of public buildings, in addition to being an opportunity to save on energy costs, is an opportunity to stimulate the market for deep renovation and set an example by demanding a comprehensive assessment for renovation projects. Extending this renovation rate to all public buildings will give a strong political signal.

In its regional policy statement 2019, the Walloon Government indicates that it will introduce a plan to insulate public buildings over a 10-year period in order to improve the efficiency of buildings (schools, public authorities, nurseries and public utility housing) and promote the energy transition.

SHORT-TERM INITIATIVES (2024)

- [Action 7.1]* Rapidly improve understanding of the stock of public buildings ([Action 3.3]), which is key to formulating a coherent regulatory framework. All the different levels of public authorities must contribute to this, within a structured regional framework ([Action 0.2], [Action 1.10], [Action 1.12]). The register of public buildings, aggregated at regional level and based on property strategies (local, comprehensive and long-term), must be accessible to all.
- **Develop a comprehensive regional approach**
 - [Action 7.2]* Converge on a holistic definition of efficient infrastructure and integrate performance targets into the long-term public vision, and the resulting policies and measures.
 - [Action 7.3]* Set up a Task Force for the renovation of public buildings, bringing together the entities concerned and decision-makers to ensure coherence between policies and action plans at different levels.
- **Encourage and support public authorities**
 - [Action 7.4]* Provide public contracting authorities and decision-makers with information, awareness-raising and advocacy on energy renovation. The priority is to make public authority investments in energy renovation more attractive and visible. This will involve:
 - developing a communication campaign on the multiple benefits of the energy renovation of public buildings: local economic stimuli; improved well-being, health, service quality, budget control, etc.;
 - communicating on good practices and inspiring examples.
 - [Action 7.5]* Develop, introduce and coordinate an integrated support service for the renovation of public buildings (one-stop shop), such as RenoWatt, by building on existing initiatives and improving coherence and coordination of initiatives. This service will have responsibility for: raising awareness and conducting advocacy towards local public authorities, disseminating tools and good practices, training local officials in using tools to monitor consumption and in using and

- controlling installations and ensuring there is onsite monitoring (by the regional service or a local service where applicable) to support users and detect any possible misuse (see insert below).
- [Action 7.6]* Clarify and introduce the role of Energy Manager within public buildings to ensure there are sufficient resources available to carry out the renovation projects and to provide a link to users. This will involve funding local officials who know the users, the decision-makers and the realities of the buildings concerned, for example by increasing a 0.5 FTE post to 1 FTE per 10 buildings or 10 000 m².
 - [Action 7.7]* Identify and make available the tools and information needed for coaches and Energy Managers (existing or to be developed). Also work at supra-municipal level.
 - [Action 7.8]* Identify and assess wording of public contracts that enables a performance-based approach according to several criteria: total usage cost, energy consumption, CO₂ emissions, air quality, etc.
 - [Action 7.9]* Adjust subsidies to make them conditional on the expected performance after renovation.
 - **Establish a coherent regulatory framework**
 - [Action 7.10]* Formulate a framework and deadlines for the compulsory renovation of public buildings (see actions under Measure 1).
 - [Action 7.11]* Require that any major renovation (to be defined) of a public building meets minimum overall energy performance requirements.
 - [Action 7.12]* Require, for all new rentals and purchases of existing and new buildings, that the buildings be energy self-sufficient by 2024 or have a roadmap and an investment plan to achieve this self-sufficiency by 2040.
 - **Facilitate funding of projects** (see also chapter on Financing)
 - [Action 7.13]* Organise and disseminate information on the range of financing solutions available; in particular, improve knowledge of the potential of non-consolidated, private third-party finance.¹⁵⁰
 - [Action 7.14]* Determine current budgets, their use and possible avenues for optimisation.
 - [Action 7.15]* Ring-fence savings made to finance long-term investments, i.e. ensure that savings achieved through energy efficiency can be used to finance subsequent investments.
 - [Action 7.16]* Organise mechanisms to mobilise additional funding (public-private partnerships, individual financing, etc.), in particular through the aggregation of projects and reduction in (perceived) risk.
 - [Action 7.17]* Maximise the leverage effect of public funding, in particular by mobilising European funding sources.
 - [Action 7.18]* Connect project leaders with investors, for example via a platform for funding the renovation of public buildings.
 - **Stimulate the market for renovation towards high energy performance¹⁵¹ and carbon neutrality**
 - [Action 7.19]* Carry out pilot initiatives to enhance and demonstrate the feasibility of renovation towards high energy performance and carbon neutrality (see Section II.B.4 Pilot initiatives).
 - [Action 7.20]* Stimulate innovation through competitions promoting innovative design, integrated holistic approaches and optimisation over the life cycle of the building.
 - [Action 7.21]* Disseminate results, lessons learned and good practices.

¹⁵⁰ It is key to identify investments for which private finance can be mobilised so that public funds (regional funds or local actors' own funds) can be utilised for investments that will need to be borne by the public sector. Where cost-effective investments are made using public funds, it is crucial to safeguard the financial returns to fund longer-term renovation investments.

¹⁵¹ Performance level corresponding to the long-term target.

MEDIUM-TERM INITIATIVES

- [Action 7.a]* Implement a building passport with renovation roadmap for non-residential public buildings, including a 20-year investment plan incorporating short-, medium- and long-term actions.

A regional or more local public service needs to perform the role of market facilitator. This facilitation should help to stimulate and structure demand to a level where private operators see economic opportunities. The challenge will be in ensuring that the service(s) has the capacity to define and monitor these market facilitation functions. The Region has a role to play by creating a support unit for other public operators that will, for example, publish reference specifications or organise pooled procurement, and by supporting the establishment of an Energy Manager in the various public institutions. A key focus is cooperation between public and private services (for facilitation or delegated project management). In addition to support with technical choices in relation to renovation, there is a need for support with the financial package, or even the provision of alternative funding solutions.

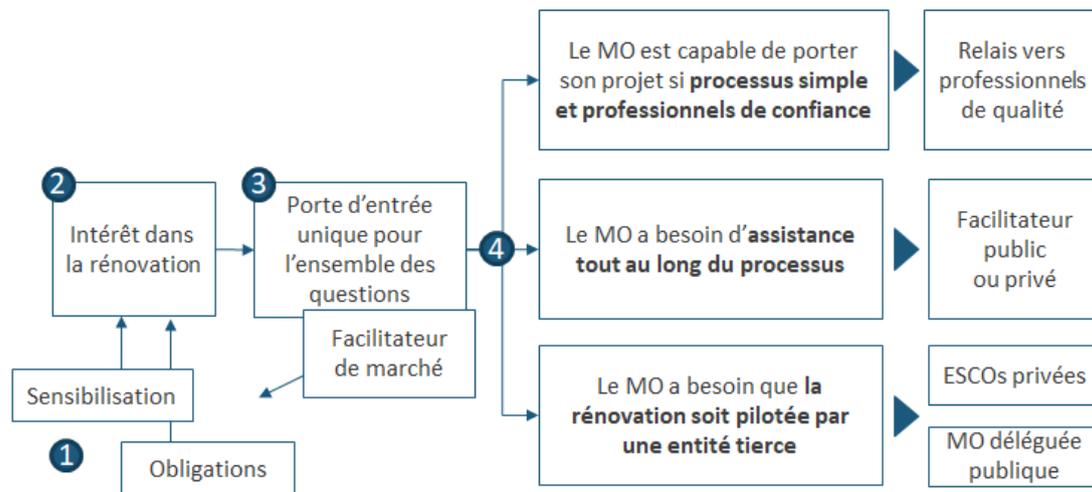


Figure 31 – Model for ‘à la carte’ support for public contracting authorities.

Le MO est capable de porter son projet si processus simple et professionnels de confiance	CA capable of managing project with a simple process and trusted professionals
Relais vers professionnels de qualité	Refer to quality professionals
Intérêt dans la rénovation	Interest in renovation
Porte d'entrée unique pour l'ensemble des questions	Single gateway for all enquiries
Le MO a besoin d'assistance tout au long du processus	CA needs assistance throughout the process
Facilitateur public ou privé	Public or private facilitator
Sensibilisation	Awareness-raising
Facilitateur de marché	Market facilitator
Le MO a besoin que la rénovation soit pilotée par une entité tierce	CA needs the renovation to be managed by a third party
ESCOs privées	Private ESCOs
MO déléguée publique	Delegated public CA
Obligations	Requirements

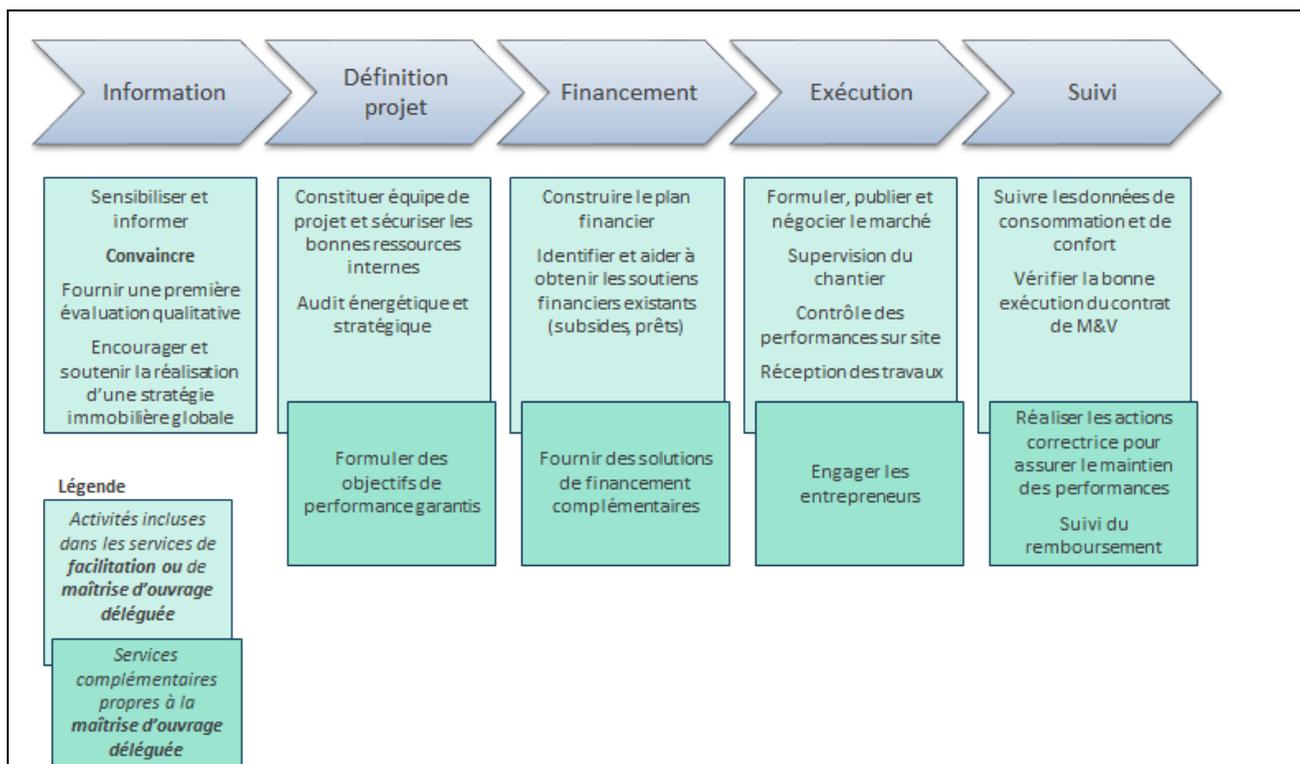


Figure 32 – Services provided throughout the renovation process.

Information	Information
Définition projet	Project definition
Financement	Finance
Exécution	Delivery
Suivi	Monitoring
Sensibiliser et Informer	Raise awareness and inform
Convaincre	Encourage
Fournir une première évaluation qualitative	Provide initial qualitative assessment
Encourager et soutenir la réalisation d'une stratégie immobilière globale	Encourage and support implementation of a comprehensive property strategy
Constituer équipe de projet et sécuriser les bonnes ressources internes	Build project team and secure the right internal resources
Audit énergétique et stratégique	Energy and strategy audit
Construire le plan financier	Develop financial plan
Identifier et aider à obtenir les soutiens financiers existants (subsidés, prêts)	Identify and help to obtain existing financial support (subsidies, loans)
Formuler, publier et négocier le marché	Draft, publish and negotiate contract
Supervision du chantier	Supervise building works
Contrôle des performances sur site	Monitor performance on site
Réception des travaux	Sign off works
Suivre les données de consommation et de confort	Monitor consumption and comfort data
Vérifier la bonne exécution du contrat de M&V	Check proper delivery of M&V contract
Formuler des objectifs de performance garantis	Set guaranteed performance targets
Fournir des solutions de financement complémentaires	Provide complementary finance solutions
Engager les entrepreneurs	Hire contractors
Réaliser les actions correctrice pour assurer le maintien des performances	Carry out corrective actions to maintain efficiency
Suivi du remboursement	Supervise repayment
Légende	Key
Activités incluses dans les services de facilitation ou de maîtrise d'ouvrage déléguée	Activities included in facilitation or delegated contracting authority services
Services complémentaires propres à la maîtrise d'ouvrage déléguée	Additional services specific to delegated contracting authority

Mesure 8. Incorporate social, ethical and environmental clauses in public works contracts

Cross-cutting

Objective -Strengthen the exemplary role of public authorities.

Context -

Public works contracts are a **vital lever** for enabling Wallonia to meet its current challenges: high unemployment rate, social dumping, environmental degradation, all against a difficult macroeconomic background.

Works on the renovation of buildings enable several complementary objectives to be pursued through the inclusion of social and environmental clauses in the tender specifications of these works, in particular:

- including social clauses in the specifications can facilitate an ambitious training and work experience policy by offering internship places to Walloon students/trainees;
- including ethical clauses in the specifications, in particular those relating to compliance with social and labour law, helps to limit the use of illegal practices resulting in social dumping;
- including environmental clauses in the specifications helps to limit the environmental impact of construction/renovation work over the entire life cycle of buildings. However, environmental ambitions must be defined in advance of projects through the guidelines on sustainable buildings. The tender specifications should then translate these ambitions into technical clauses.

Environmental impacts include the energy aspect, and their inclusion in the specifications will help to contribute towards the reduction in energy consumption decided at European Union level. The choice of construction materials can also have an impact on energy consumption, taking into account the impact of transport, for example. Overall, it is essential to assess the life cycle of a home or a tertiary building in order to judge both its economic and environmental impact.

Environmental impacts also include the biodiversity aspect. Including these aspects will also ensure coherence with other policies, particularly in terms of cross-cutting policies and measures (Walloon environment and health plan ENVieS 2019-2023; future biodiversity strategy mentioned in the Green Deal).

This type of action can also have a multiplier effect since public tender specifications often serve as a model for the private sector.

CURRENT ACTIONS

- [Action 8.1]* Inclusion of social clauses in public works contracts in Wallonia since May 2014. An [implementation report](#) is published every 6 months on the website of the Directorate of Sustainable Development.
- [Action 8.2]* Make granting of subsidies for works contracts **conditional** on inclusion in the specifications of anti-dumping clauses, social clauses, environmental clauses and clauses relating to the circular economy and resource management. The decree amending various other decrees by inserting environmental, social and ethical clauses into public contracts subsidised by the Walloon Region was adopted by parliament on 2 May 2019. This imposes the environmental clauses on all subsidised works and roads contracts (InfrasportPIC, etc.).
- [Action 8.3]* **Promote** widescale use of ‘**anti-social dumping**’ tools developed by the ‘sustainable public procurement’ platform in conjunction with the construction sector.
- [Action 8.4]* Develop tools to help contracting authorities integrate these environmental clauses.
- [Action 8.5]* Promote widescale inclusion of these social, ethical and environmental clauses.

OBJECTIF 4. ENSURE THAT THE COMMUNICATION AND AWARENESS-RAISING TOOLS HAVE A HORIZON OF 2050, ENSURING INVOLVEMENT OF ALL ACTORS (CIVIL SOCIETY, STAKEHOLDERS, ETC.) THROUGH APPROPRIATE COMMUNICATION

Mesure 9. Encourage municipalities to introduce an energy and climate policy in their territory

Cross-cutting

Objective -Strengthen the exemplary role of local authorities.

Context -

Municipalities play a crucial role in tackling climate change. This is because many decisions are taken at this level of power that have important implications for greenhouse gas emissions. The responsibilities include managing a very large municipal building stock, issuing environmental and town planning permits and managing mobility and waste. In addition, and largely thanks to regional funding, municipalities have human resources specialised in energy, environment, mobility, spatial planning, etc.

The municipality is therefore the ideal level for establishing climate action at local level. Through the launch of two POLLEC (Local Energy and Climate Policy) campaigns, Wallonia is giving the municipalities financial support to carry out a carbon assessment for the territory and to develop an action plan for sustainable energy to be submitted to the Covenant of Mayors¹⁵². Wallonia is also providing participating municipalities with support in methodology, facilitation and administration. In practice, this involves running workshops for partner municipalities, supra-local structures and consulting firms, and providing free access to data (municipal energy balance), monitoring tools (AwAC calculator for the carbon footprint of the municipal estate) and planning and development of the action plan for sustainable energy.

Given the success of these initiatives, a POLLEC 3 was launched in 2016 to enable new municipalities to take part. The development of municipal Action Plans for Sustainable Energy and Climate (PAEDCs) provides municipalities with a target vision for GHG emissions in their territory, and helps them to define a costed strategy for reducing them. By focusing a large part of these action plans on their estate, municipalities are encouraged to position themselves as exemplary leaders in the move towards energy transition. Municipalities that have such an action plan will place themselves in the best position to respond to future Walloon and European mechanisms for supporting energy investments.

SHORT-TERM INITIATIVES (2024)

- [Action 9.1]* Make the eligibility of municipalities for UREBA financial support conditional on commitment to the Covenant of Mayors and commitment to deliver a PAEDC within the timescale set by the municipalities (POLLEC campaigns).
- [Action 9.2]* Monitor the implementation of PAEDCs.
- [Action 9.3]* Require municipalities to introduce PAEDCs (POLLEC campaigns) in line with the targets of the region. PAEDCs can also be delivered at supra-municipal level.
- [Action 9.4]* Provide financial support to the municipalities for implementation of their PAEDC.

¹⁵² This is a European initiative bringing together more than 6 000 local authorities who have made a commitment to reduce their greenhouse gas emissions by at least 20% by 2020, and 40% by 2030 for those who have signed up since the end of 2015.

Mesure 10. Engage all actors (civil society, stakeholders, etc.) through appropriate communication

Objective -Raise awareness of all actors of renovation issues and maximise their commitment to the actions in the long-term renovation strategy.

Context -

The challenges surrounding energy renovation affect the future of society as a whole; this cannot be reduced to the sole question of cost-effectiveness. Citizens have a role to play and must feel involved in order to do so. There are various ways of encouraging this citizen involvement, such as new models for the local economy and economic development of the region. It is important to make citizens aware of these various aspects and of the impact of energy renovation on these different issues.

CURRENT INITIATIVES

- [Action 10.1]* Plan annual communication on the outcomes of the strategy, in particular by presenting progress based on the indicators set in [Action 4.1].
- [Action 10.2]* Develop a **guide to raise awareness of the targets** and challenges of the long-term renovation strategy for households, and the role of the building passport (underway as part of the Walloreno campaign).
- [Action 10.3]* Develop a **communication plan based on the Walloreno campaign building on the determining factors for deep energy renovation**, that diversifies the arguments for undertaking the work, highlighting in particular the issue of comfort and health. The messages and communication channels will be tailored to the different profiles and types of buildings.

SHORT-TERM INITIATIVES (2024)

Residential buildings

- [Action 10.4]* Establish a 'public' database displaying the energy performance of existing buildings and the information required to undertake deep renovation. This will involve creating public access to (some of) the information currently contained in the EPB certificate database. The information contained in this database will be linked, or even integrated, into the building passport [Action 15.4].
- [Action 10.5]* Alongside [Action 10.4], develop an observatory for deep energy renovation to gather, organise and communicate feedback from energy renovation initiatives carried out in the region.¹⁵³
- [Action 10.6]* Communicate the findings of the socio-economic impact study on introducing requirements for the energy performance of existing buildings (see [Action 1.8]).

OBJECTIF 5. PROVIDE FINANCIAL STABILITY FOR THE DEEP ENERGY RENOVATION OF BUILDINGS

See Chapter IV.

¹⁵³ This could take inspiration from the French observatory for low energy buildings (OBBC): <http://observatoirebbc.org/>

**2. CONTRIBUTE TO STRUCTURING AND STRENGTHENING THE MARKET
SUPPLYING QUALITY GOODS AND SERVICES DESIGNED TO IMPROVE
ENERGY EFFICIENCY, TAKING ADVICE FROM SKILLED PROFESSIONALS**

OBJECTIF 6. SUPPORT THE DEVELOPMENT OF INNOVATIVE ENERGY-EFFICIENT SOLUTIONS (SYSTEMS, MATERIALS, PROCESSES), WITH A PARTICULAR FOCUS ON THE QUALITY AND SUSTAINABLE USE OF RESOURCES

Mesure 11. Develop the sectors offering innovative and sustainable construction materials and systems in Wallonia

Objective - Stimulate demand for sustainable construction materials and support the development and strengthening of supply chains consistent with a circular economy approach, in a way that boosts local employment.

Context -

Many Walloon SMEs producing innovative and sustainable construction materials and systems choose to use local raw materials. These companies, committed to a circular economy approach, are motivated by environmental considerations and by a desire to improve their resilience. Some of these companies are also social enterprises. They are often in a vulnerable position, with demand remaining too low.

Walloon SMEs that develop innovative and sustainable construction materials and systems prefer to use local raw materials, and who would like to be able to use them exclusively, find that certain resources or tools needed to process raw materials are unavailable in Wallonia. The gaps in Walloon supply chains are compelling these SMEs to turn to other regions or other countries.

Innovative and sustainable materials, e.g. bio-based, are currently imported. Support for the use of these materials is a prerequisite for creating an environment conducive to establishing local production units. One example is the exponential development over the past 10 years of the use of cellulose flakes, generally from Germany and Austria, for the insulation of roofs, timber frame walls, floors, etc. This development of the local market has recently led to the creation of two production units in Wallonia. One of them exports to France and Germany, among other countries. The same could happen for insulation made from wood fibre, linen, wool, hemp, recycled cotton, straw, etc.

The wood industry is expanding throughout Europe, in particular to meet the targets for decarbonising the construction sector. It is addressing the greatest technological challenges such as the construction of very tall buildings, prefabrication, large-scale renovation, etc. Two significant qualities are being emphasised: wood is an abundant renewable resource and it stores CO₂. The Walloon wood industry boasts great potential and considerable expertise; it could play a major role in meeting the targets for decarbonising the construction sector.

SHORT-TERM INITIATIVES (2024)

Cross-cutting

- [Action 11.1]* Conduct a study of the sector, by category of materials, in order to identify the most promising supply chains.
- [Action 11.2]* Launch a call for projects to support the roll-out of these supply chains. This would also help to identify the most relevant companies. Based on the projects proposed, Greenwin and the clusters responsible for supporting sustainable construction will assess the applications, which will then be submitted to a jury. The clusters and Greenwin will then support the implementation of the projects to ensure their consistency. These supply chains must be developed and strengthened based on an assessment of the life cycle of products, so that the new tools developed in Wallonia contribute to improving the environmental performance of the construction materials and systems produced. These projects should integrate an employment and training aspect at the earliest opportunity, so as to ensure proper implementation of these innovative construction materials and systems in Wallonia.

- [Action 11.3]* Stimulate demand for sustainable materials, through incentives and through their systematic inclusion in calls for projects and pilot projects, and in tools.
- [Action 11.4]* Investigate the potential for creating new manufacturing companies in our region, promoting partnerships and synergies.
- [Action 11.5]* Support the development of technical advice and tip sheets to manage and encourage their use, also drawing on technical advice, 'professional rules' (France), etc. issued in other European countries.
- [Action 11.6]* Communicate the medium-term intention to take full account of the overall environmental balance in developing energy efficiency ratings, as included in this strategy.

MEDIUM-TERM INITIATIVES

- [Action 11.a]* Build on the short-term actions

Mesure 12. Promote innovative Wallonia-sourced materials for sustainable design

Cross-cutting

Objective -Strengthen demand for innovative Walloon construction materials and systems of sustainable design.

Context -

Manufacturers of innovative Walloon construction materials and systems of sustainable design need to meet a demand that is growing, but must be further strengthened.

CURRENT INITIATIVES

- [Action 12.1]* Support the use of short-cycle sustainable materials:
 - on the basis of a meeting with the sector (in particular the eco-construction and cap-construction clusters), draft technical clauses on 140 innovative Walloon materials of sustainable design;
 - include these technical clauses in standard specifications for buildings;
 - grant additional incentives to individuals when using bio-based insulating materials for home renovation.
- [Action 12.2]* Encourage manufacturers of innovative construction materials and systems of sustainable design to **provide their products with the technical approvals and validations required** by contracting authorities and project developers to guarantee their performance.
- [Action 12.3]* Encourage these manufacturers to **conduct life cycle assessments** for their products, leading to environmental product declarations (EPD).
- [Action 12.4]* Raise awareness among public contracting authorities and consultants to encourage them to stipulate more innovative and sustainable products in their works contracts.
- [Action 12.5]* Highlight public projects using these materials and systems, particularly those produced in Wallonia.[Action 12.6] Conduct communication campaigns around these products.

SHORT-TERM INITIATIVES (2024)

- [Action 12.7]* Increase support for the use of short-cycle sustainable materials and those emerging from the wood industry.
 - Build on current actions.
 - Promote the new 'bio-based materials' label.
 - Develop a 'geo-sourced materials' label.
 - Include sustainability incentive clauses in calls for projects and pilot projects for renovation.
 - Seek international partnerships to exchange expertise in the production of sustainable materials, wood construction, bio-based and geo-sourced materials.
 - In conjunction with the clusters, monitor innovation across Europe involving new bio-based and geo-sourced materials, the use of wood in renovation, life cycle assessments, technical reports on these products, certification, recognising them in carbon assessments of building renovations, etc.
 - Investigate the potential for integrating simple criteria such as 'materials from renewable sources', 'bio-based materials' or 'reused materials' into the strategy tools and EPB ratings.
 - Indicate the value of incentives for insulating roofs, walls, floors and windows, with a reduced amount if bio-based materials are not used. Exemptions could be introduced where the use of such materials is not technically possible.

MEDIUM TERM INITIATIVES

- [Action 12.a]* Build on the short-term actions.

Mesure 13. Promote exemplary practices in terms of reuse, recycling and recovery of building or demolition materials

Cross-cutting

Objective - Promote exemplary practices in terms of reuse, recycling and recovery of building or demolition materials and waste.

Context -

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste sets a recycling and recovery rate for building and demolition waste of 70% by 2020. A study carried out by the Walloon Construction Confederation in 2015 identified and quantified, for the main waste streams in the construction sector, the various sources of waste in Wallonia and highlighted the obstacles to developing recovery channels¹⁵⁴.

Building and demolition waste is a priority waste stream in the draft Walloon Waste-Resources Plan (PWD-R) adopted by the Government on 23 March 2017. The draft plan aims to gradually make the selective demolition of buildings compulsory to stimulate the reuse of building and demolition materials through various actions to be rolled out, to improve confidence in building materials and to reinforce the exemplary role of public contracts by requiring a progressive percentage of recycled materials (up to 30%) on public building sites. An exchange for waste and materials, including those resulting from construction, is available on the regional government website (<http://environnement.wallonie.be/bourse-dechets/>). There is a need to revitalise this and raise awareness of it.

Recycling methods impose quality criteria for the waste extracted, which impacts demolition techniques (and therefore their costs). Demolition methods thus need to be adjusted to meet the quality requirements of the recycling channels, and the recycling channels need to be adjusted or developed to reflect the reality of building sites.

CURRENT INITIATIVES

The study commissioned by the Walloon Construction Confederation, in partnership with Ressources, Retrial, Rotor and the BBRI was completed at the end of 2019. This study had a dual objective: 1. prioritising reused materials in standard specifications (CCTB 2022) and 2. developing requirements to encourage the use of reused materials in renovation.

Technical clauses have been drafted for inclusion in CCTB 2022.

In addition, a method is being defined to incorporate reuse into renovation projects.

The Circular Wallonia plan is pending approval.

SHORT-TERM INITIATIVES (2024)

- [Action 13.1]* Carry out pilot projects designed to recover various streams, including pre-treatment operations (dismantling, sorting and selective collection) in order to assess the profitability and

¹⁵⁴ Although inert waste is already almost entirely recovered in Wallonia, other streams such as gypsum-based waste, plastics, wood, glass, etc. are not yet sufficiently exploited. This is because some building materials, such as gypsum, are difficult to separate from other materials (e.g. a concrete block coated with plaster), which makes onsite selective sorting difficult. There is thus a need to identify the most valuable sources of gypsum (render, plasterboard, blocks) which correspond to the quality requirements for recycling. For each of the streams, there is thus a need to identify and optimise compatibility between the characteristics of the materials collected and the quality requirements of the recovery channels.

feasibility of dismantling and sorting these various streams on the construction site (for example, gypsum comes in different forms and is sometimes amalgamated with other materials, making sorting difficult). These various pilot projects will identify good practices in the reuse, recycling and recovery of construction materials, depending on the different streams analysed, but will also identify the actors in the sector that should be supported in Wallonia.

- [Action 13.2]* Run a communication campaign and training on good practices in demolition and in the reuse and recovery of building materials, drawing on existing guides and tools (e.g. the practical handbook on the recovery and reuse of building materials developed under the first Employment-Environment Alliance).

As part of the Walloon Waste-Resources Plan and the Circular Wallonia Plan (construction sector value chain),

- [Action 13.3]* Develop a benchmark for choosing between renovation and demolition/reconstruction of an existing property¹⁵⁵.
- [Action 13.4]* In line with this benchmark, promote the deconstruction and optimised recovery of materials and limit risks in relation to waste and hazardous materials, making a waste inventory compulsory before demolition for large buildings.

MEDIUM-TERM INITIATIVES

- [Action 13.a]* Assess existing platforms promoting the recovery and purchase of second-hand materials in order to identify any actions needed to promote or update them. Depending on the needs identified, adjust the existing platforms for the recovery of building materials/components.

¹⁵⁵ Regional Development Plan: AM.5 – Ensure access to energy for all as part of the energy transition.

Mesure 14. Support and promote sustainable, high-quality and energy-efficient solutions

Objective -Support the development of innovative energy-efficient solutions.

Context -

The renovation of buildings is part of a process of the energy transition of systems, which includes the use of renewable energies, in particular for heating. The roll-out of district heating networks, and connection to these, can significantly contribute to decarbonising the residual consumption of buildings and is an appropriate way to develop the use of renewable energies in cities.

To ensure the quality of the installations, the use of certified products must be encouraged, in particular through promoting quality labels and simultaneously encouraging companies to get their products and systems certified.

Finally, the use of innovative solutions must be encouraged and promoted, in particular by supporting pilot projects. One of the most critical innovations is in improving the deep renovation of buildings: comprehensive and deep renovation of a building is currently still expensive and time-consuming. Programmes such as *Energiesprong* in the Netherlands are driving innovation to improve these aspects (prefabricated facades, cost reduction, rapid renovation, innovative finance mechanisms, etc.).

CURRENT INITIATIVES

Cross-cutting

- [Action 14.1]* Promote and support renewable energy sources for heat production, in particular by offering tailored incentives which would be granted depending on the company's accreditation.
- [Action 14.2]* Promote connection to district heating networks.
- [Action 14.3]* Reduce costs and facilitate certification procedures for products and systems.
- [Action 14.4]* Assess the potential for integrating the GRO project (sustainable building benchmark developed by Flanders) with the other Regions.
- [Action 14.5]* Develop and introduce a certification scheme for sustainable buildings, requesting collaboration with the Brussels Region and Flemish Region in order to establish a common benchmark, while taking into account the specificities of Walloon buildings.
- [Action 14.6]* Bind or adjust financial incentives (subsidies or tax incentives) to the use of efficient/certified products.

SHORT-TERM INITIATIVES (2024)

Residential buildings

- [Action 14.7]* Promote and support at least one pilot campaign for deep renovation (net zero) each year in order to test innovative technical solutions and encourage Walloon actors to innovate in removing barriers (costs, intrusiveness, sustainable innovative or reused materials, etc.). This 'renovate with energy' support could take inspiration from the 'build with energy' programme previously carried out by Wallonia. This will include supporting pilot renovation initiatives by district, with the aim of creating exemplary projects with a local link and motivating citizens.
- [Action 14.8]* Support the development of deep energy renovation solutions, which can be replicated and deployed on a large scale.
- [Action 14.9]* Include sustainability aspects when assessing renovation projects, calls for projects and pilot projects and tools in the LTRS (e.g. through the roadmap ([Actions 15.3, 16.1 and 16.3])).

MEDIUM-TERM INITIATIVES

- [Action 14.a]* Include all aspects of sustainability in assessing renovation projects (e.g. through the roadmap ([Action 15.3]).
- [Action 14.b]* Promote a system for categorising products or combinations of products or services.

OBJECTIF 7. DEVELOP TOOLS AND SUPPORT FOR PROFESSIONALS TO HELP AND ENCOURAGE THEM TO PROPOSE AND IMPLEMENT ENERGY-EFFICIENT SOLUTIONS (SYSTEMS, MATERIALS, PROCESSES), WITH A FOCUS ON THE SUSTAINABLE USE OF RESOURCES

Mesure 15. Develop and strengthen tools enabling an integrated and long-term approach to projects

Objective - Provide the essential tools to enable an integrated approach to deep renovation projects, whether carried out in one go or in stages, that is consistent with achieving the long-term targets for the Region.

Context -

The Walloon Region has developed a series of tools to assess the energy performance of buildings (EPB certificates) and to identify long-term renovation measures (roadmap integrated into the housing audit). These tools will benefit from being strengthened and/or deployed on a larger scale.

The building passport and renovation roadmap have been identified as the tools to develop as a priority to ensure that any renovation project can form part of a comprehensive assessment consistent with the long-term targets for energy performance. The housing audit provides a solid basis on which the renovation roadmap has been developed, taking care to incorporate lessons learned from the use of the audit over recent years.

The new Directive, as well as the obligation in the Decree to assess the EPB policy every 5 years, have naturally entailed significant work in evaluating the EPB ecosystem. This process started at the beginning of 2018 with advice received from regular actors in the field (Union of towns and municipalities of Wallonia, Walloon union of architects, Walloon Construction Confederation, Federation of Notaries, trainers, etc.) and continued with a diagnostic analysis of the current situation in order to identify avenues for improvement. These avenues served as a foundation for the third and final phase, which provided a long-term vision by proposing actions to increase efficiency and improve the quality of delivery and the effectiveness of regulations.

With regard to the building passport, example tools are being developed by other countries and regions. Lessons learned from these early projects will inform the work to develop the building passport. The energy component of the passport will be developed as a priority.

SHORT-TERM INITIATIVES (2024)

Residential buildings

- [Action 15.1]* Include financial projections on required/possible energy renovation pathways in the documents to be provided when selling a home¹⁵⁶.
- [Action 15.2]* Formalise processes to ensure that prospective buyers are aware of the estimated cost of work required to achieve the A rating (obligation to communicate this in sales announcements, specific mention in the deed of sale for validation by the notary).
- [Action 15.3]* Strengthen the renovation roadmap tool by responding to feedback.
 - a. Organise processes to gather feedback.

¹⁵⁶ See, for example, England where this information is available on the EPB certificate and available to everyone on an online platform: <https://www.epcregister.com/reportSearchAddressByPostcode.html>

- b. Adjust calculation methods to include indicators on health and comfort.
- c. Identify the barriers to achieving a zero emissions target.
- d. Take greater account of the specific needs of households, their life plans and their actual usage of their home.
- e. Improve support for coordinating works to ensure the quality of phased renovation approaches and avoid additional costs or defects linked to poor coordination of measures.
- f. Extend the roadmap to all typologies of residential buildings.
- g. Increase the use of sustainable materials, simplified calculation of the building's carbon footprint and circular economy materials and techniques to support the development of these new sectors and help achieve the decarbonisation targets of this strategy.
- [Action 15.4]* **Develop and implement the energy component of the building passport.**
 - a. Establish a unique identifier allowing access to the building passport.
 - b. Set the rights and access for the different users.
 - c. Carry out IT developments for the building passport.
- [Action 15.5]* Implement all components of the building passport.
 - a. Assess all data collected on buildings (firstly residential, then tertiary) by the various government departments.
 - b. Define the useful data to be included in the building passport (existing databases).
 - c. Analyse existing databases and similar IT tools to identify the most suitable tool for gathering information relevant to the passport and, after assessing the potential, carry out any IT developments needed. Respect for privacy and confidentiality of information will be ensured when setting up this system.
 - d. Set up a protocol for collaboration and data exchange between administrative departments feeding into the passport, based on the use of a unique identification code for each home.
 - e. Carry out IT developments for all components of the building passport.

Tertiary buildings

- [Action 15.6]* Within the framework established in [Action 1.12] (long-term comprehensive property strategies), develop tools for **monitoring the energy performance** of tertiary buildings.
 - Review the implementation of energy audits in order to standardise the methodology.
 - Develop an audit methodology and tools for carrying out the various types of audit (industry-wide audits, overall audits, simplified audits, etc.). These audits should address both energy efficiency and renewable energy to give the target audience a full picture of the opportunities for improving their own consumption.
 - Include in the audit a renovation roadmap for achieving a long-term EPB target (e.g. net zero energy by 2050 by improving the envelope, systems and renewable energy sources).
 - Improve the methodology and tool for **certification of tertiary buildings**.
 - Increase the use of sustainable materials, simplified calculation of the building's carbon footprint and circular economy materials and techniques to support the development of these new sectors and help achieve the decarbonisation targets of this strategy.

MEDIUM-TERM INITIATIVES

Cross-cutting

- [Action 15.a]* Develop the energy service trades, for example through energy performance and comfort contracts with guaranteed energy savings.
- [Action 15.b]* Develop specific tools to assess the potential for demolition/reconstruction.

Tertiary buildings

- [Action 15.c]* Establish a design strategy, for renovation and new construction, that aims for near zero consumption.

- [Action 15.d]* Extend the building passport to non-residential buildings.

Mesure 16. Promote tools that allow all the sustainability-related aspects of renovation projects to be assessed

Objective - Take greater account of all sustainability aspects in renovation projects.

Context -

While insulation enables energy to be saved when using a building, the increased consumption of material, particularly due to thicker surfaces, is having an increasing impact on the environment. This is because, in addition to the energy consumed in producing them, materials impact the environment throughout their life cycle (from extraction to waste management). These impacts can be measured through a set of environmental indicators (depletion of fossil and non-fossil raw materials, etc.).

Environmental impact assessment tools have been developed in other European countries – e.g. Baubook (Austria), NIBE (Netherlands), INIES (France), Ecoinvent (Switzerland) – but they are often limited to the assessment of individual materials. Moreover, these tools are not well-suited to construction methods in Belgium. For this reason, the three regions have instigated the development of a tool to assess the environmental impact of building elements¹⁵⁷ and buildings (TOTEM tool). It could be helpful to use France's experience of the E+C- rating to inform this work.

Finally, insulating a building can also have impacts on biodiversity, either negative (loss of cavities providing nests or shelters) or positive (basic habitats created during renovation¹⁵⁸). The work schedule may also need to be adjusted (to avoid the breeding season for protected species present on the site).

SHORT-TERM INITIATIVES (2024)

Cross-cutting

- [Action 16.1]* Propose a method for simplified calculation of the carbon footprint of buildings throughout their life cycle, and a strategy for gradually improving this method through the following:
 - building on the TOTEM tool and planning a gradual improvement of the method;
 - monitoring developments in methods used in neighbouring regions and countries for the simplified calculation of the carbon footprint of buildings and the promotion of renewable resources;
 - highlighting simple criteria to be defined, such as materials from renewable resources or the circular economy, etc.; integrating the simplified calculation of the carbon footprint of buildings into the LTRS tools, incentives, labels and communication tools;
 - assessing the potential for utilising the results in the EPB ratings.
- [Action 16.2]* Propose a methodology for measuring the (positive or negative) impact of the renovation work on biodiversity.

Residential buildings

- [Action 16.3]* Continue to develop the tool for calculating the environmental performance of building elements (TOTEM).
- [Action 16.4]* Promote the TOTEM tool through the following:

¹⁵⁷ 'Building elements' is used to mean the surfaces of the building (roof, facade, floor, etc.), but also structures such as windows, balconies, etc.

¹⁵⁸ <http://www.biodiversiteetbati.fr/>

<https://environnement.brussels/thematiques/batiment-et-energie/renover-et-construire/infos-et-outils-techniques/infos-et-outils--27>

https://www.swl.be/images/swl/vademecumbd/300_biodiversite/a.tdm_biodiversite.pdf

- a. conducting communication campaigns targeting project developers and public and private contracting authorities;
 - b. utilising the results of methods for the simplified calculation of the carbon footprint of buildings by integrating them into the LTRS tools and incentives.
- [Action 16.5]* Promote the guidelines on sustainable buildings (for the public residential sector) through the following:
 - a. communication initiatives;
 - b. practical training in their use;
 - c. regularly updating them to reflect government-backed plans and strategies, developments in the tools (particularly the simplified calculation of the carbon footprint of buildings) and the promotion of sustainable local supply chains, renewable resources, the circular economy, etc.

Tertiary buildings

- [Action 16.6]* Extend the guidelines on sustainable building to tertiary buildings.

MEDIUM TERM INITIATIVES

- [Action 16.a]* Ensure gradual improvement of the method for calculating the life cycle carbon footprint of buildings, including assessing the potential for automatic integration of results between the EPB tools and the TOTEM tool.

OBJECTIF 8. INCREASE EFFORTS TO TRAIN AND UPGRADE PROFESSIONALS SO THEY CAN OFFER ENERGY-EFFICIENT SOLUTIONS (DESIGN, SYSTEMS, MATERIALS, PROCESSES) THAT MEET THE NEEDS (VOLUME, QUALITY AND PERFORMANCE TARGETS) AND CAN ASSESS PERFORMANCE ACHIEVED BY BUILDINGS.

Wallonia must ensure there are energy-efficient solutions available for deep renovation of the building stock. This involves raising awareness among professionals, providing additional quality training in response to growing demand, and providing certification and monitoring to ensure that renovations are properly carried out.

Mesure 17. Raise awareness among professionals and encourage experience sharing in sustainable energy renovation

Cross-cutting

Objective - Disseminate quality information on sustainable construction to professionals and share good practices allowing the sector to gradually meet the energy performance requirements for buildings.

Context -

To contribute to the emergence and implementation of sustainable solutions for energy renovation, it is important to educate all professionals involved.

For one thing, many degree-level professions (architects, engineers, project managers, site managers, building draughtspeople, etc.) are being significantly affected by all the issues surrounding sustainable construction. Individuals working in these professions are all the more important given that they play a role in designing, specifying and inspecting, and can therefore produce multiplier effects within sustainable construction.

In addition, many trades will be involved in decision-making and in carrying out the renovation project. Through subsidies and public procurement, the Government has encouraged the **development of benchmarks and content for training** at first level (foundation), second level (required for accreditation) and third level (advanced) for professionals in the sector. This training is run by approved centres. The same applies to the training for approved auditors for housing audits and for EPB certifiers.

The approved centres also provide training for heating and refrigeration technicians in the context of implementing regulatory provisions on compulsory inspection and control.

SHORT-TERM INITIATIVES (2024)

- [Action 17.1]* Improve awareness among lecturers and students in higher education of sustainable construction issues and the EPB:
 - a. organise annual awareness-raising activities for students and lecturers on higher education courses related to sustainable construction, and broaden the topics of building renovation and sustainable construction to the circular economy and sustainable development in the wider sense. This action will be designed around the *Esprit d'Entreprendre* programme run by the Walloon SME finance and guarantee company SOWALFIN.
- [Action 17.2]* Increase the promotion of exemplary practices in sustainable construction/energy renovation:
 - a. specify the topics to be highlighted and the criteria that exemplary projects must meet;
 - b. promote sustainable practices on private initiative through visits to sites and buildings or conferences at trade fairs;
 - c. highlight exemplary practices through the competence centres in the FOREM and IFAPME networks;
 - d. look for noteworthy examples of sustainable renovation in neighbouring regions and countries; organise meetings between actors and encourage experience sharing between professionals; organise through the clusters;

- e. look for exemplary companies and producers of sustainable and innovative materials in Wallonia and in neighbouring regions and countries; organise visits and encourage experience sharing between professionals; organise through the clusters.
- [Action 17.3]* **Promote an integrated approach to renovation in training programmes:** take into account the needs of the contracting authority, the environment and the climate (protect from negative aspects and harness positive ones), limit requirements, harness internal gains, ensure thermal comfort in winter and summer, ensure air quality through the most efficient supplementary systems including RES.

Mesure 18. Provide high-quality training

Objective -Safeguard and increase employment in the construction sector in Wallonia and **further develop knowledge and skills in considering economic, environmental and social aspects** by integrating them into training programmes in the broad sense.

Context -

Accelerating the renovation of existing buildings will require both well-trained professionals and an increase in the number of professionals available to meet demand. In addition, quality of delivery is an essential factor for the execution of works on insulation, air tightness, heating and DHW systems and renewable energy installations, particularly in the residential sector. There is therefore a **need to improve training provisions for professionals and to support recognised training centres in their delivery**. This training must focus in particular on innovative techniques for insulation, heating and cooling (renewable and traditional production) for a maximum reduction in charges for purchasing fuel, but focus also on the installation of thermal and photovoltaic solar panels.

Construction and renovation works, in relation to tightened EPB requirements and the development of tools designed to steer practices in the sector towards considering economic, environmental and social aspects, **must be supported by an ambitious plan for training all actors:** those designing and specifying buildings, business employees, trainees (including job seekers on sandwich courses), apprentices, students in technical and vocational colleges.

Training is a particularly important issue because it **determines staff capacity within businesses**, opens up employment opportunities for job seekers and students and opens up opportunities for professional progression for workers. It is also a quality issue, as the level of excellence of practising and aspiring professionals is a positive differentiating factor of the Walloon workforce.

CURRENT INITIATIVES

Cross-cutting

- As part of the Interreg Renovalt project, an assessment of renovation provisions identified weaknesses in the following areas: digital tools, cross-cutting assessment, insulation-ventilation-air tightness, materials encountered/used in renovation and coordination/communication. Pilot training programmes are in development and will be tested. Four additional training modules, intended for learners already enrolled on a construction training course, are being developed: Digital tools (40 h), Cross-cutting assessment (40 h), Insulation-ventilation-air tightness (40 h), Materials encountered/used in renovation (40 h). An extended course in Coordinating energy renovation (240 h) will also be introduced. This will cover the four modules above and a fifth module in Coordination/communication (80 h). There are also plans for in-service training courses (16 h).

SHORT-TERM INITIATIVES (2024)

Cross-cutting

- [Action 18.1]* Continuously ensure that training provisions meet the needs:
 - a. audit the existing training provision;

- b. check that training profiles meet the needs of the renovation strategy;
 - c. create the missing profiles.
- [Action 18.2]* Identify ways of attracting professionals to training.
- [Action 18.3]* Identify the qualifications required:
 - a. skills profiles (renewable energies, ventilation, thermal insulation, air tightness, etc.) will be identified for the trades targeted for future professional certification and business accreditation. They will be made available to training institutions and certifying bodies. These profiles will be consulted by the various operators when creating new certified training courses.
- [Action 18.4]* Provide training for students, job seekers, apprentices and workers in sustainable construction/renovation trades:
 - a. provide a **specialised cross-disciplinary module on considering sustainable development issues in construction** and in conducting a trade (energy performance of buildings, air tightness, life cycle of materials, water and waste management, environmental impact of buildings and building sites, particularly in terms of biodiversity, etc.)
 - b. develop, within training for trades, **knowledge and skills in techniques and materials that reflect sustainable development issues** (technical achievement of air tightness, creating structural nodes to avoid thermal bridges, implementing insulation and ventilation principles/techniques, etc., but also comparing the impact of different materials used in the trade, water and waste management during works, etc.);
 - c. enable businesses to **use training vouchers** (traditional and *Ecoclimat* vouchers) to develop the skills of their workers;
 - d. ensure that the modules accredited for training vouchers include modules enabling businesses to meet the training criteria for accreditation.
- [Action 18.5]* Promote decentralised training on site:
 - a. encourage, and if appropriate require, companies to have a minimum number of apprentices (e.g. minimum percentage of the company's workforce).
- [Action 18.6]* Build the capacities of the renovation sector through an Employment-Environment-Renovation alliance that includes the following:
 - a. a support and training programme specific to deep energy renovation for businesses in the construction sector, organised by Wallonia and linked to the energy renovation platforms being developed in municipalities;
 - b. administrative support, in particular on employment assistance (information and help with grant applications);
 - c. paid training for businesses through *Chèques Entreprises* 'business vouchers':
 - mentoring approach to integrating new workers into a team,
 - whole-building deep renovation approach,
 - coordination approach between businesses on this type of site.
 - d. stimulate local actors by setting up a cluster of local businesses capable of offering citizens full deep renovation of their building, in particular through local renovation platforms.

Tertiary buildings

- Provide auditors for the tertiary sector (AMURE-UREBA) with training before certification (public + private):
 - [Action 18.7]* By 2021, introduce training.
 - [Action 18.8]* By 2022, introduce a test that auditors must pass to gain accreditation.

MEDIUM-TERM INITIATIVES

Tertiary buildings

- [Action 18.a]* Facilitate training for technical personnel in the tertiary sector.

Mesure 19. Ensure that works or services are properly executed

Objective - Ensure quality execution of renovation works by ensuring they are carried out by skilled professionals.

Context -

There needs to be an acceleration in the construction of new buildings and in the renovation of existing buildings, which will require both well-trained professionals and an increase in the number of professionals available to meet demand. In addition, quality is an essential factor for the roll-out of renewable energy installations, particularly in the residential sector.

To give consumers confidence and to guarantee the quality of their installations, Wallonia has decided to support and promote businesses installing renewable systems that commit to a 'quality' process.

The quality label for businesses has been designed for this purpose. Initially intended to cover many areas of construction (insulation work, technical installation, structural work), the first label introduced is for installers of renewable energy systems. This NRQual label has three components: NRQual PAC (heat pumps), NRQual PV (photovoltaics) and NRQual SOL (solar thermal).

This label is based on compliance with both technical criteria (design and implementation) and **quality criteria for businesses and management systems**. One of the cornerstones of the label is training for the technical staff of the business (Qualiwall certificate).

The aim of labelling is to assure consumers that the business has the qualifications and skills required to carry out works compliant with industry standards. Making use of certified professionals with these labels is one of the conditions for granting incentives, such as Soltherm and Qualiwall, meaning that beneficiaries of the incentive can be required to use a 'quality business'. This will help to increase demand for certified professionals.

This 'quality business' label could be gradually extended to construction companies working in the fields of thermal insulation, airtightness, heating, ventilation and air conditioning (HVAC).

The Walloon Construction Confederation is planning to develop tools and procedures to improve quality control for works on the thermal insulation of buildings. There are currently four quality management tools:

1. minimum content for a quote,
2. assessment sheet,
3. project monitoring sheet,
4. project completion record.

These tools were developed by the *Plateforme Wallonne de l'Isolation*.

SHORT-TERM INITIATIVES (2024)

Cross-cutting

- [Action 19.1]* Raise awareness and provide certification for professionals.
- [Action 19.2] Make the granting of financial support conditional on the work being carried out by labelled actors (cf. actions under Mesure 42).
- Implement and promote the quality label for insulation and HVAC companies (NRQual), ensuring that labelling does not lead to an increase in the price of the work:
 - a. [Action 19.3]* Gradually extend the label to construction companies working in the fields of thermal insulation, airtightness, heating, ventilation and air conditioning (HVAC). Develop the label in consultation with professionals in the sector, and develop links with certification for professionals and with training providers;
 - b. [Action 19.4]* Promote these labels to individuals and assess the legal potential for integrating them into the CCTB 2022 standard specifications.

MEDIUM-TERM INITIATIVES

- [Action 19.a]* Make professionals accountable through guaranteeing their work (assessment or implementation) by declaring it in the building passport. The guarantee would remove the need for the Region to monitor this.
- [Action 19.b]* Assess the potential for introducing (and if so, promoting) a performance-based agreement for professionals working on residential building renovation projects¹⁵⁹. The roll-out of smart meters will facilitate any monitoring required.

Mesure 20. Expand the role played by professionals in renovation work

Objective - Include the quality of delivery when assessing the quality of the works/monitor the quality of delivery.

Context -

To enable progress in a quality approach to delivery, it is important to equip every decision-maker, designer and contracting authority with resources for assessing the delivery of works and services. These resources are probably already available and used by some actors, but are currently under-utilised.

It will also be important to ensure that households use qualified professionals for energy-efficient renovation at every stage of the value chain: design, delivery and maintenance of systems.

CURRENT INITIATIVES

- [Action 20.1]* Introduce a system where a coordinator carries out a post-renovation assessment. This role could be performed by the housing auditors (cf. [Action 15.3]), who fill in a monitoring report for the works once completed and include the results in the audit.
- [Action 20.2]* Continue to provide support to professionals in the renovation sector (for example, through facilitators), and improve this by responding to feedback from the field.
- [Action 20.3]* Provide designers and developers with resources to assess delivery of the work. This could include a project file to be completed as the work progressed (key stages), project

¹⁵⁹ In this regard, see the model of a residential energy performance certificate developed by Savécom and assessed under the Energ-Ethic project: <http://dev.ulb.ac.be/ceese/CEESE/fr/projet.php?menu=1&categorie=11&projet=145>

monitoring, comparisons of good and bad examples, a checklist for professionals or householders during the work or a guide to good practices drawing on project logs.

SHORT-TERM INITIATIVES (2024)

Residential buildings

- [Action 20.4]* Introduce **tools to enable good coordination between stakeholders**. These tools are mainly intended for site managers and will provide examples of the consequences of poor coordination between the various trades.

MEDIUM-TERM INITIATIVES

Cross-cutting

- [Action 20.a]* Publish and promote the list of certified professionals and quality label businesses.
- [Action 20.b]* Link the receipt of incentives to the use of certified professionals and/or quality label businesses.
- [Action 20.c]* Make the granting of incentives conditional on successful completion of energy renovation verified by an auditor.

Residential buildings

- [Action 20.d]* Assess how to best manage and support self-renovation to ensure the quality of the result, avoid other problems emerging or worsening and highlight the savings made.
- [Action 20.e]* Improve the resources provided to designers and developers to assess delivery.

Tertiary buildings

- [Action 20.f]* Introduce a programme to **support energy managers** of businesses in developing and monitoring renovation projects (PUBLIC + PRIVATE).

Mesure 21. Monitor the proper execution of works or services

Objective - Monitor all implementation by renovation actors to improve quality.

Context -

Irregularities are currently observed in the renovation market: some EPB certificates are incorrect, for example where the owner has to prepare one to be compliant and be able to sell the property, but does not need the information to be accurate. There is therefore a need to ensure true quality in delivery of these certificates. Better monitoring of the entire system will increase public confidence in these certificates. This will require better monitoring of EPB certificates, but also of the services provided by professionals and businesses.

In the case of systems for which a label has been introduced (Measure 20), receiving and retaining the label is conditional on the business passing inspections.

However, there is a need to monitor not only the systems, but the overall performance of the building. This monitoring could be provided through the introduction of a 'commissioning' process (involving satisfactory delivery of the project by the developer to the building manager)¹⁶⁰. Progress means that buildings now

¹⁶⁰ Commissioning is a systematic process for verifying, testing and documenting the performance of a building and its energy systems in order to optimise their operation. Including it in the specifications facilitates the installation of control

incorporate an increasing number of installations and equipment to improve energy performance and other aspects related to comfort and use. Commissioning is a tool that enables the owner to ensure that the building is operated as intended, and that the operation and maintenance are compliant. This process is put in place from the design phase and it accompanies the building from construction to operation, ensuring there is optimised operation of existing installations and any problems are resolved¹⁶¹.

CURRENT INITIATIVES

Cross-cutting

- [Action 21.1]* Tighten controls for approving all professionals involved in the strategy.
- [Action 21.2]* Tighten controls for compliance with ethical and social clauses.

SHORT-TERM INITIATIVES (2024)

Residential buildings

- [Action 21.3]* Tighten controls for EPB certificates to improve their quality.
- [Action 21.4]* Ensure streamlining and coordination of tools and incentives (EPB certificates, energy audits, etc.) and introduce controls to avoid discouraging citizens from adhering to them.

MEDIUM-TERM INITIATIVES

Cross-cutting

- [Action 21.a]* Provide contracting authorities with resources to assess delivery of the works.
- [Action 21.b]* Introduce a **mechanism to monitor the proper implementation of works and systems** (commissioning).

and measuring devices, and the introduction of a defined methodology to ensure quality control in the design, start up and operation of the installations so they are truly functioning to their full potential.

¹⁶¹ See also <http://www.buildup.eu/en/events/seminaire-sur-le-commissioning-cbcpr-building-commissioning-professional-program-0>.

3. INCREASE DEMAND FOR ENERGY-EFFICIENT BUILDINGS

OBJECTIF 9. RAISE AWARENESS AMONG OWNERS (CITIZENS AND LEGAL ENTITIES) ABOUT THE ENERGY PERFORMANCE OF HOUSING, ON AN ONGOING BASIS AND DURING THE INITIAL STAGE OF PROJECTS, AND ENCOURAGE AND SUPPORT CITIZENS IN THEIR RENOVATION PROJECTS

There must be short-, medium- and long-term support for owners of housing (individuals and legal entities). This begins with understanding the circumstances and (life) plans of owners and raising awareness of energy efficiency as a way to improve comfort and quality of life, as an occupant or a landlord. It then involves making any renovation project part of a comprehensive assessment for renovation of the building, consistent with Wallonia's long-term targets. The tools needed for this assessment must be made available, in versions specific to individuals and to legal entities.

Mesure 22. Raise awareness among owners of the energy performance of their housing and encourage them to carry out sustainable energy renovations

Residential buildings

Objective - Raise public awareness of the multiple benefits of energy renovation, make these investments more attractive and in particular raise awareness of the benefit of energy renovation at key moments in the life cycle of a building.

Context -

To achieve a significant increase in the rate of renovation and ensure that renovations are carried out in line with the long-term targets for performance of the building stock, citizens must be supported throughout the renovation process. Firstly, encouragement for households to improve the quality of their home will be continued and increased. This support should ensure that any renovation project – often undertaken for various reasons other than energy efficiency – is accompanied by an assessment for improving energy performance. This should be achieved through raising the awareness of households about the wider benefits of improving the energy performance of their home, in particular improved comfort for them and their children. In addition to work related to building maintenance, other key moments such as the sale or rental of buildings present unique opportunities to encourage households to undertake work to improve the energy efficiency of buildings.

It would thus be useful to reflect on the tools to be put in place and the resources and actors to be mobilised in order to trigger the decision to renovate in the sense of improving the energy efficiency of buildings. These tools should be tailored to the various profiles involved: owner-occupiers, landlord-occupiers, 'traditional' landlords, jointly-owned properties, etc.

SHORT-TERM INITIATIVES (2024)

- [Action 22.1]* Identify appropriate solutions for raising awareness of energy renovation at key moments in the life cycle of buildings:
 - a. as early as possible in the decision-making chain and from an overall perspective,
 - b. in any decision related to the building (planning permission, rental permit, sale/purchase, etc.).
- [Action 22.2]* Mobilise local public and voluntary actors, including municipalities, social welfare centres and district authorities, to facilitate contact with occupants.

- [Action 22.3]* Collect and disseminate testimonies from households who have renovated their homes and from the actors involved in these renovations¹⁶².
- [Action 22.4]* Run public mobilisation campaigns in all municipalities of Wallonia, in particular in POLLEC municipalities.
- [Action 22.5]* Introduce appropriate solutions for raising awareness of energy renovation at key moments in the life cycle of buildings.
- [Action 22.6]* Provide communication on the overall cost of housing to occupants, especially tenants.
- [Action 22.7]* Develop tools and processes to make energy costs more transparent (e.g. develop an online tool¹⁶³ to estimate standard consumption based on climatic variations, equipment, household composition, occupancy habits, etc.).

MEDIUM-TERM INITIATIVES

- [Action 22.a]* Assess how to facilitate temporary accommodation during deep renovation works (in conjunction with [Action 22.4]). Uncertainties about the duration of deep renovation projects (and their impact on occupants' quality of life during the works) is one of the biggest barriers to deep energy renovation.
- [Action 22.b]* Make all actors aware of techniques to enable occupancy during the works and consider potential systems to compensate for inconvenience caused, disseminate good practices in communicating with and involving occupants remaining on site.
- [Action 22.c]* Establish 'life-long comfort' contracts, where energy-saving works are planned jointly between the occupant and the owner and cover the lifetime of the eldest party (in conjunction with [Action 22.4]).

Mesure 23. Encourage owners to make their renovation project part of a comprehensive assessment by encouraging the creation of a renovation roadmap

Residential buildings

Objective - Ensure that any renovation project forms part of a long-term comprehensive assessment to avoid lock-in effects.

Context -

Renovation measures carried out in isolation and independent of a comprehensive assessment can result in additional costs, or even lock-in effects.

The existing mechanisms and tools (housing audit, incentive scheme) have been strengthened to encourage any renovation project to be part of a comprehensive assessment consistent with the long-term targets of the Region.

Many residential buildings, sometimes under joint ownership, accommodate not only housing, but also other types of premises such as shops, offices, doctors' surgeries and sports halls. It is important to simplify

¹⁶² See in particular the Interreg programme FAI-Re (*Former, Accompanyer, Inspirer la Rénovation Efficente*) which publishes '20 renovation stories'.

¹⁶³ See, for example: <https://www.socialenergie.be/fr/consommation/consommations-de-reference/comparer-aux-consommations-de-reference/>

incentives and support for energy renovation to ensure the building is considered as a whole and to promote an alignment of interests between the various occupants and owners involved. since June 2019 since June 2019

Since June 2019, **renovation incentives** have been called **housing incentives** and cover renovation (for energy and health). Obtaining incentives involves carrying out a **housing audit**, but the cost of this is sometimes a barrier and renovations are carried out without reference to a comprehensive assessment.

The **roadmap has been integrated into the housing audit** since May 2020 and is automatically generated based on the auditor's analysis and the overall renovation project. It also includes an estimate of the work to be done and the cost.

CURRENT INITIATIVES

- [Action 23.1]* Develop practical tools (handbooks) to promote housing renovation:
 - a. update the handbook *Rénover pour consommer moins d'énergie* ('renovate to cut your energy consumption') to reflect the new regulations (incentives, loans, renovation strategy) and rename it to better communicate the wider benefits;
 - b. produce the Walloreno handbook, similar to the NZEB handbook, to raise public awareness of the long-term targets, comprehensive assessment and the benefits of deep renovation;
 - c. develop and produce the *Mon logement et moi* guidance in the form of factsheets (currently 17) through a grant to FUNOC (Open University of Charleroi). FUNOC has been developing a range of training provisions for young people and adults in the Charleroi region with little education or few qualifications since 1977. Production of factsheets completed. Guidance currently being printed and distributed to housing referral platforms;
 - d. second wave of factsheets planned under a new grant application.
- [Action 23.2]* **Ensure that housing audits and the roadmap remain accessible** to avoid people being discouraged from accessing incentives.

SHORT-TERM INITIATIVES (2024)

- [Action 23.3]* **Communicate on the advisability of a housing audit and renovation roadmap to encourage their use.**
- [Action 23.4]* **Promote the building passport, which will incorporate the roadmap** and ensure information is conveyed, monitored and updated.
- [Action 23.5]* **Simplify the incentive for roofs and minor renovation works** while retaining an overall perspective on renovation.
- [Action 23.6]* Assess the potential for including a roadmap in the EPB certificate.

MEDIUM-TERM INITIATIVES

- [Action 23.a]* Assess whether it would be appropriate to, and if so do, link the granting of planning permission for energy renovation works to possession of **a housing audit and a renovation roadmap.**
- [Action 23.b]* Assess the potential for completing a **roadmap** independent of the housing audit in the case of simple works.
- [Action 23.c]* **Develop Quickscan** by also integrating a summary estimate for the works and thus encourage completion of the **housing audit and roadmap.**

Mesure 24. Develop and promote tools to support households, with preference being given to integrated support solutions

Residential buildings

Objective -Provide appropriate and comprehensive support (technical, social and financial) to households in their renovation projects.

CURRENT INITIATIVES

- [Action 24.1]* Continue to repeat communication on the availability of technical support.

SHORT-TERM INITIATIVES (2024)

- [Action 24.2]* Update and promote existing renovation guides. This action involves, in particular, recurring updates to the Energie+ tool and the creation of a version for housing.
- [Action 24.3]* Coordinate advisers on sustainable housing information (energy and housing information points, energy and housing advisers, eco-advisers) to simplify the landscape of actors.
 - a. Establish a ‘generalist’ role at each support point, who could consult more specialist staff in the various reference organisations.
 - b. Continue to organise biannual information sessions for advisers.
 - c. Review the role of sustainable housing advisers to assess the advisability of the following:
 - **setting up joint local hotlines** to facilitate access to information for all citizens on questions relating to their homes;
 - **organising local group awareness sessions** for households on topics such as insulation priorities, choice of materials, health criteria for housing, regional support (incentives and loans, etc.), energy savings, health in the home, biodiversity in the home, etc.
 - **Tailoring information and support to different profiles:** owner-occupiers, landlord-occupiers, landlords, joint owners, tenants, etc.
- [Action 24.4]* Move ahead with development and financial support for **pilot project one-stop shops (comprehensive support) in line with the stakeholder-defined benchmarks presented in the section ‘II.B.3.a) Comprehensive support for households in the form of a one-stop shop’, and including streamlining of existing frameworks. The one-stop shop is identified as a key tool for the success of the renovation strategy. Analysis and pilot projects to identify and test the best solutions will be prioritised as follows.**
 - a. Expanding and sustaining the initiatives for local renovation platforms through financial support for their activities and support for the investments they generate (e.g. in the form of purchasing project bonds).
 - b. Continuing to reflect on business models for integrated energy renovation services, moving towards solutions offering a variety of gateways to a single point of contact.
 - c. Continuing to support the creation of citizen cooperatives for energy efficiency through the Brasero mechanism.
- [Action 24.5]* Roll out the most appropriate one-stop shop solutions (social, technical and financial solutions) developed under [Action 24.4].

MEDIUM-TERM INITIATIVES

- [Action 24.a]* Provide contracting authorities with resources to assess overall delivery of the works **through regular updating of the roadmap.**

Mesure 25. Raise awareness among legal entities of the energy performance of their buildings and encourage them to take decisions on sustainable energy renovation

Tertiary buildings

Objective - Increase the awareness of tertiary sector actors of the benefits of energy renovation, make these investments more attractive and help decision-making by making tools available.

SHORT-TERM INITIATIVES (2024)

- [Action 25.1]* Implement an awareness and communication campaign (information and feedback) for the following target audiences.
 - a. Occupants/users (public and private tertiary sector)

- Educate on the proper use of energy-efficient buildings to avoid the rebound effect (many energy-efficient offices have no better consumption than ones that are not due to the way they are used).
 - Encourage the use of a logbook to record periods of occupation of the building(s) (in hours/year, month, week) to identify determining factors in terms of use/occupation.
 - Develop a framework to manage users in maintaining buildings (through internal means such as an energy manager, or external means).
 - Through communication about the benefits, encourage the use of performance contracts for energy consumption and comfort from the design stage of renovation projects. In the case of rentals, encourage owners to engage management professionals who will use an energy performance approach.
 - Encourage feedback from occupants of energy-renovated buildings to raise awareness among designers and installers (designing FOR the occupant rather than forcing the occupant to adapt, etc.).
- b. Investors (private tertiary sector)
- Encourage the use of performance contracts for energy consumption and comfort from the design stage of renovation projects.
 - Provide tools enabling them to measure up to competitors (e.g. comparison tables similar to Greenpeace classifications of energy suppliers). In particular, this will be on the basis of the EPB certificates to be developed for the tertiary sector.
- c. Designers (public and private tertiary sector)
- Ensure the Energie+ website is updated and promoted.
 - Highlight the tools needed to scale projects properly in relation to needs (e.g. avoid full glazing, which results in significant cooling needs).
 - Develop and highlight tools for scaling on the basis of comfort (visual, sound, thermal) to understand the link between comfort needs and sustainable building design.
 - Organise the communication of feedback: guidelines, workshops, etc. to educate designers to consider the occupants.
- [Action 25.2]* **In communication/awareness raising**, focus on the wider benefits: comfort, increased productivity in offices and schools, reduced absenteeism due to illness, etc.

OBJECTIF 10. STRENGTHEN PUBLIC DEMAND FOR HIGH QUALITY, SUSTAINABLE AND ENERGY-EFFICIENT SOLUTIONS (SYSTEMS, MATERIALS, PROCESSES), ENSURING THAT THIS COVERS ALL STOCK AND TYPES OF AUDIENCE

Most Walloon housing is owner-occupied. However, it is important to ensure that the renovation strategy targets all profile types. In particular, the policies implemented must support the most disadvantaged households, propose solutions stimulating renovation projects led by owner-landlords and facilitate group renovation of housing.

Mesure 26. Help the most disadvantaged in society to access quality housing

Residential buildings

Objective - Ensure that the most disadvantaged populations are among the priority groups for the renovation strategy in order to reduce energy poverty in Wallonia.

Context -

Improving living conditions is a priority. It is vital to prioritise measures that enable synergy between the objectives of addressing unhealthy housing and combating energy poverty in households. Without this dual perspective, there is a risk of implementing measures that are beneficial under one objective, but not

necessarily the other. Energy poverty affects around 25% of Walloon households. Improving the energy performance of buildings occupied by these households is key to improving their living conditions. The energy renovation strategy will only go hand in hand with an improvement in living conditions if clear targets are formulated to combat energy poverty. For example, in its renovation strategy, France proposes that half of the renovations will target households in energy poverty.

Improving the energy performance of rental housing in the private sector requires a focus on support mechanisms for landlords as part of an approach involving agreements with the public authorities. In this way, non-profit organisations (such as social housing agencies or housing advocacy associations) could consistently apply energy performance criteria for their various agencies in renovating properties they manage. These properties, once renovated in accordance with energy efficiency principles, are then rented out to households with insecure or low incomes, at a lower rent than the private market.

The issue of help with financing for energy-poor households is covered in the chapter on financing.

CURRENT INITIATIVES

Under the **MEBAR** initiative, Wallonia grants a **subsidy to low-income households (owner-occupiers or tenants)** to carry out work in their homes that will enable them to use energy more rationally. This can take the form of replacing windows or exterior doors, adding insulation, installing a stove, lining a chimney, fitting a boiler or water heater, etc.

SHORT-TERM INITIATIVES (2024)

- [Action 26.1]* Mobilise public actors and voluntary organisations to identify situations of energy poverty and create an extensive network of 'whistle-blowers' where it is suspected that a household is suffering from energy poverty.
- [Action 26.2]* Assess the potential for developing a mechanism giving temporary beneficial rights for a property whose owners have a low income and are not in a position to make energy renovation investments (due to a lack of awareness/knowledge, lack of support and/or lack of financial solutions available to them). This will involve identifying or establishing a framework that can compensate them by taking responsibility for energy improvement of the building on the basis of a remuneration mechanism yet to be determined. These low-income individuals ultimately remain the owners of their homes.
- [Action 26.3]* Set the criteria for energy poverty in which renovation should be fully financed, identify those in these circumstances and finance their renovation¹⁶⁴. The aim is to develop support for vulnerable owners. If the circumstances of a household detected to be in energy poverty mean that they cannot generate a financial margin through energy savings and/or they have insufficient financial means, a subsidy will be provided.
- [Action 26.4]* Provide quality housing support (particularly in relation to energy performance), in addition to current energy poverty support accessible to tenants (rental support) and to owner-occupiers (renovation support), or even replacing current home ownership support.
- [Action 26.5]* Consider priority zoning for granting aid and incentives to avoid a scatter-gun approach.
- Increase support for households in energy poverty.

¹⁶⁴ Ireland's Warmth and Wellbeing Scheme could be useful in informing delivery of this action. This programme provides extensive energy efficiency upgrades to the homes of those in energy poverty who are living with chronic respiratory conditions. See: <https://www.seai.ie/grants/home-energy-grants/free-upgrades-for-eligible-homes/warmth-and-wellbeing/2018-10-WarmthWellbeingA5Booklet.pdf>

- a. [Action 26.6]* Integrate into the responsibilities of comprehensive support services social responsibilities to give energy-poor households appropriate support with decisions and procedures to improve their living environment.
 - b. [Action 26.7]* Expand the remit and the resources allocated to social support actors – including social welfare centres (e.g. remove the freeze on resources granted to the Energy Fund) and energy mentors (e.g. one mentor per municipality) – in order to increase the support and education aspects to enable occupants to take ownership of skills, their capacity to act and responsibility. This support is also important in energy-efficient housing to ensure good understanding and proper long-term usage.
- [Action 26.8]* Develop and apply a framework to provide feedback to designers to continuously improve solutions taking usage into account.
 - [Action 26.9]* Facilitating access to credit for households with low or very low incomes is an incentive to use with great caution. Firstly, as the households concerned will find themselves locked into a repayment obligation over a fairly long period¹⁶⁵. Secondly, as the Region will increase its risk and debt. Even with a guarantee from the Region, banks will not exceed their risk limit. For this reason, a pilot project of **low-interest credit with a guarantee from the Region** will be developed to target the category of owners just below the bank's acceptance threshold, and not those with insufficient solvency.
 - [Action 26.10]* Loans secured against the building rather than against individuals are a much more promising solution than setting criteria for adverse selection¹⁶⁶. These loans against the building are paid back via the property tax in the United States, as an example, but we prefer the option of repayment through utility bills, which has the advantage of involving the occupant, whether owner or tenant, for the duration they are living there.

Mesure 27. Stimulate and facilitate energy renovation of housing managed by social housing agencies

SHORT-TERM INITIATIVES (2024)

- [Action 27.1]* Stimulate rental management through social housing agencies to promote renovation without an excessive increase in the overall cost (rent + energy charges).
- [Action 27.2]* **Encourage social housing agencies to improve the energy efficiency** of the buildings they manage by consistently applying energy performance criteria for their various agencies in renovating the properties they manage. A good balance needs to be achieved retaining the attractiveness for owners of using social housing agencies by balancing the requirements for the 'traditional' private sector and homes under rental management through social housing agencies.
- [Action 27.3]* **Provide more resources to social housing agencies** to promote energy renovation of the homes they rent out, while ensuring there is balanced (energy) renovation aid granted to landlords who place their housing under rental management via social housing agencies. Care will be needed to ensure, for example, that the amount of public aid granted is appropriate to the duration of the rental management, and to provide for repayment of aid in the event of early resale of the property, etc.
- [Action 27.4]* Assess the potential for **adjusting the rent of homes managed by a social housing agency to reflect the proven energy performance of the homes**. For example, the indicative rent scale (improved in particular to emphasise the impact of the energy efficiency of housing) could be used as a basis for the calculation so landlords with energy-efficient property could be offered slightly higher

¹⁶⁵ Interest-free credit does not mean it is free, and 'credit for all' is not to be recommended.

¹⁶⁶ Adverse selection here consists of offering credit to those who are refused credit elsewhere because of the risk they represent. This results in a credit portfolio with a much higher than average risk of default. Thus, instead of seeking to mitigate the risk, it consolidates it.

rent. An EPB criterion could be (temporarily) enforced (not based on market prices alone) in calculating the baseline rent.

- [Action 27.5]* **Introduce monitoring of energy consumption after renovation** in social housing companies and compare actual performance with the theoretical gains expected.

Mesure 28. Support and encourage **owner-landlords** in making overall improvements to the energy performance of their buildings

Residential buildings

Objective - Ensure that rental housing is included in the drive for energy renovation, improvement of the overall quality of housing and alleviation of energy poverty.

Context -

Currently, owner-landlords – especially where they are individuals (cf. the property tax) – do not have sufficient incentive to make investments in energy efficiency in the housing they rent out, as it is generally the tenants who benefit from the improved comfort and potential reduction in the utility bill. Discussion is needed on the introduction of a coherent policy to balance obligations and incentives for owner-landlords to ensure the proper energy renovation of the stock of rental buildings, while taking care to avoid an increase in the overall cost of housing¹⁶⁷ (resolving the 'split incentive' between landlord and tenant; aligning the interests of the two parties).

Better understanding of the profiles of owners would enable support and incentive tools to be tailored appropriately. Owner-occupiers are a specific category of owners because they can derive direct benefits from energy renovation. However, to be effective and ambitious, the works need to cover the entire building stock and thus also rented properties (this requires standardisation of aid and eligibility requirements). For landlords who do not live in the same building as the accommodation they are renting out, several other advantages of energy renovation can be highlighted. These include an increase in the value of the property, potential decrease in disturbance/breakdowns, etc., tenant satisfaction and loyalty, potential increase in the financial capacity of the tenant (reduced energy costs) reducing the risk to the landlord of default on rent or having to advance charges in jointly-owned properties, etc. These arguments, which are still seldom recognised or used, have a different impact on landlords depending on their profile (e.g. type of owner, motivation, size of portfolio, etc.). There is a need for a more in-depth study of these arguments, as well as a collection of real-life cases showing both the advantages and the possible risks to be avoided ('good practices').

In 2017, the Region launched an indicative rent scale in the form of an online tool¹⁶⁸. This enables the calculation of indicative rent for a home based on six types of criteria: type of housing, surface area, construction period, number of potential bedrooms, energy efficiency and location. This indicative rent scale enables the housing rental to reflect the energy works carried out.

SHORT-TERM INITIATIVES (2024)

- [Action 28.1]* Identify and implement methods to encourage the energy renovation of rented housing (public and private) (in particular, promotion of the renovation roadmap). In particular, carry out a study into the determining factors for renovation for the various profiles of landlords, as well as a collection of real-life cases showing both the advantages and the possible risks to be avoided ('good practices').
- [Action 28.2]* Develop communication specifically targeting landlords, through various media and intermediaries (property managers, financial institutions, social housing agencies, EPB certifiers,

¹⁶⁷ Rent + charges (for energy).

¹⁶⁸ Available at: http://spw.wallonie.be/dgo4/site_grilleloyers/.

auditors, etc.). Highlight the fact that vacation of the property and a change of tenant represent key moments, so they can prepare a renovation project for the appropriate moment. Develop an argument and specific advice for landlords for use by EPB certifiers.

- [Action 28.3]* Enable and promote the provision of **'heated rent'** where the rent for housing is adjusted based on energy performance, but the combined rent + heating costs remain more or less constant before and after the energy renovation (cf. [Action 26.4]). Several key considerations need to be taken into account:
 - a. **controlling the behavioural risk** of increased consumption (if the tenant no longer pays charges for energy consumed, there is a risk they will not be encouraged to behave in an energy-efficient way);
 - b. **controlling the rebound effect** (overall increase in heated rent due to certain renovations not always resulting in reduced energy consumption, only increased comfort);
 - c. **raising awareness of rent adjustments based on the energy quality of the home**, while avoiding the risks of energy-efficient housing being made inaccessible to low-income individuals;
 - d. highlighting the **calculation of heated rent in housing audits**;
 - e. **organise feedback to designers** whose projects do not take sufficient account of occupants and their needs. Promote skills transfer to professionals responsible for service and maintenance of renovated buildings (experience has shown that significant overconsumption of energy can be caused by incorrect adjustment of technical systems).
- [Action 28.4]* Continue to improve the indicative rent scale so it can serve as a basis for setting a range of rents for financial support granted to owner-landlords.
- [Action 28.5]* Facilitate temporary relocation of tenants in the event of major works (at municipal level, via the Housing network, etc.).
- [Action 28.6]* Raise awareness of and promote the use of techniques for renovation of occupied sites; disseminate tools and good practices for improving communication and involving occupants in the project.
- [Action 28.7]* Ensure more systematic control of the registration of leases and apply sanctions in the event of non-compliance with the registration obligation.
- [Action 28.8]* Develop and implement procedures for analysing registered leases in order to monitor the energy performance of the rental stock.
- [Action 28.9]* Assess potential improvements to the renovation lease.
- [Action 28.10]* Open up access to aid to any type of owner OR at least specify a period of time during which the registered address must be the property concerned.
- [Action 28.11]* Encourage owner-landlord cooperatives to open up to tenants so that the latter can be involved in decisions affecting their housing and participate financially if appropriate, and to promote balancing the needs and interests of both parties.

MEDIUM-TERM INITIATIVES

- [Action 28.a]* **Encourage owner-landlords to join management cooperatives** and provide these management cooperatives with tools enabling them to improve the energy performance of their building portfolio. Such cooperatives will enable housing to be grouped to achieve economies of scale on renovation projects and to ensure professional renovation work for small-scale owners.

A series of actions presented in Chapter IV on mobilising investments will help to encourage owners to renovate the homes they rent out:

- the introduction of favourable tax treatment for energy-efficient housing will enable owners to see the benefit;

- assessing the potential for imposing legal restrictions which will mean that, under certain conditions, the landlord will no longer be able to rent out a property until the necessary work has been undertaken, based on health and safety regulations. It will then be in the owner's interest to bring the property up to standard in order to continue to collect rent. It may be helpful to encourage a switch to a social housing agency to achieve this.
- Promoting loans secured against the building, as already discussed, will mean that the burden of repayment does not affect the owner's future borrowing capacity.

Mesure 29. Encourage and facilitate grouped renovation projects

Residential buildings

Objective - Remove barriers to renovation of groups of housing, and encourage this to take advantage of economies of scale and other benefits, also facilitating and promoting renovation by district or by typology of similar buildings.

Context -

The renovation of buildings under joint ownership – apartment buildings and other multi-family housing – presents the following challenges, among others.

- The multiple owner profiles result in different interests and access to aid. To be able to align the interests of joint owners, aid and incentives for (energy) renovation must be accessible to both owner-occupiers and owner-landlords, and to both individuals and legal entities.
- Jointly-owned properties require specific support for renovation work due to their mix of owners but also ownership – individual for homes, joint ownership under the co-owners' association (legal entity) for shared facilities.
- Property managers are the key actors for educating and convincing joint owners to renovate their joint property, but they are not currently encouraged to undertake energy renovation. To enlist property managers in ambitious renovation projects, there is a need to identify a method of remuneration for the additional services entailed (a percentage of the works contract may make the joint owners suspect collusion with the provider). In addition, the property manager must be able to rely on a specific contact (e.g. architect, one-stop shop, local renovation platform) responsible for setting up the project for ambitious renovation of the jointly-owned property. This is not the role of the property manager, who does not have the necessary skills to perform this.
- There is a lack of specific help (information or financing) for property managers or management committees.
- It is difficult to take out a loan in the name of the co-owners' association as it is difficult to assess solvency. This results in a demand for a guarantee, a higher rate, etc.
- A loan for works is of limited duration. The joint ownership cannot apply for mortgage loans and therefore only has access to consumer loans, which have a duration of no more than 10 to 12 years. There is a need to work with the banking sector to identify the types of guarantees necessary to be able to extend the duration of the renovation loan and thus reduce the monthly repayment amount. For example, this could be done in conjunction with the one-stop shop or through a potential regional guarantee fund.

Various initiatives are underway in Wallonia. These include the Interreg North-West Europe project ACE-Retrofitting, which the city of Liège is taking part in. The project aims to raise awareness of the energy challenge in jointly-owned properties and to convince owners to develop actions to reduce their energy losses. In particular, the project provides joint ownerships with the CoachCopro tool, a free collaborative tool developed by the Paris Climate Agency, which facilitates support for joint owners (demand side) and building professionals (supply side) through an interactive process that cultivates trust relationships.

On a broader scale than jointly-owned properties, pooling buildings brings certain advantages.

- Achieving critical market size and reducing transaction costs.
- For a public authority and for an ESCO, grouping buildings within the same pool and the same energy performance contract spreads the risk in guaranteeing energy performance and results in a better price, as the guarantee and the risk are based on the buildings as a whole and not just on one.

In July 2012, the Walloon Government launched a call for projects to renovate public housing districts. The projects had to address four specific challenges: social cohesion, economic development, town planning and architectural treatment of the district and diversification of functions represented in the district. In March 2014, nine projects were selected by the Government based on the advice of a selection committee. These projects open the way for rethinking, reconstructing and revitalising spaces regrouping more than fifty public homes. Delivering actions focused on sustainable housing (social and functional mix, social activity and support, energy and environmental performance, etc.) can provide a powerful lever for improving the living environment, social fabric, well-being and safety. Under the refocused Alliance, these nine projects for districts in transition will be continued and monitored until completion.

The groups of housing include multi-dwelling buildings, in some cases incorporating other types of premises, which the tools implemented must be able to address.

CURRENT INITIATIVES

- [Action 29.1]* Adapt energy audit tools to allow comprehensive assessment of the whole building (jointly-owned properties).

SHORT-TERM INITIATIVES (2024)

- Provide better support and facilitation in complex situations such as jointly-owned properties.
 - a. [Action 29.2]* Develop tools and contacts (e.g. coaches, facilitators) specifically for jointly-owned properties where there is a mix of private and common property, different types and profiles of owners and different actors (joint owners, management committee, property manager).
 - b. [Action 29.3]* Open up the system of aid and loans to legal entities, at least to co-owners' associations, and adjust the maximum amounts if necessary.
 - c. [Action 29.4]* Promote insurance mechanisms for collective loans.
 - d. [Action 29.5]* Set up a working group with property managers or their representatives to reflect on a scale for remuneration based on the work planned.
 - e. [Action 29.6]* Mobilise joint owners to ensure that the property manager provides an annual consumption report, showing progress in comparison to previous years, as required by law.
- [Action 29.7]* Update the guidelines on sustainable building to incorporate the idea of district management, to guide public contracting authorities when creating new housing integrated into existing buildings.
- [Action 29.8]* Promote, facilitate and support renovation projects for a whole street or district through a pilot programme and the development of appropriate tools (see Section II.B.4 Pilot initiatives).

MEDIUM-TERM INITIATIVES

- [Action 29.a]* Include support for jointly-owned properties among the responsibilities of pilot one-stop shops in order to test models such as Energie Posit'If (France).

OBJECTIF 11. ENSURE THAT REDUCTIONS IN ENERGY CONSUMPTION ARE MAINTAINED

Energy renovation aims to reduce primary energy needs by improving the performance of the building envelope and systems, and by producing part of the energy needs from renewable energy sources. For the resulting reductions in consumption to be effective over the long term, the systems must be maintained at optimum performance and used in accordance with optimum operating conditions.

Mesure 30. Encourage the maintenance of buildings and installations

Objective - Ensure that buildings and installations deliver optimum performance through regular and effective maintenance.

In addition to the actions set out below, promoting the use of energy performance contracts helps to maintain reductions in energy consumption (see Measure 34).

SHORT-TERM INITIATIVES (2024)

Cross-cutting

- [Action 30.1]* Legislate on the maintenance of systems (HVAC, lighting, etc.) (in progress).
- [Action 30.2]* Introduce tools to monitor compliance with legislation on the maintenance of systems.

Residential buildings

- [Action 30.3]* Encourage documentation of the work carried out (and initial performance) with a view to proper operation, and its inclusion in the building passport.
- [Action 30.4]* Develop practical tools (guides) to promote the maintenance and renovation of housing.
 - a. Develop a tool, complementary to the handbook *Rénover pour consommer moins d'énergie* ('renovate to cut your energy consumption') on the sustainable management of housing. This guide will bring together all the government services that have already produced tools on an aspect of housing.
- [Action 30.5]* Set up collective workshops to raise awareness of the sustainable management of housing, to guide households in the right actions to adopt to keep their homes healthy, safe, clean and energy-efficient.

MEDIUM-TERM INITIATIVES

Cross-cutting

- [Action 30.a]* Assess the potential for introducing an incentive for maintenance¹⁶⁹.
- [Action 30.b]* Extend legislation on the maintenance of systems (HVAC, etc.).
- [Action 30.c]* Set a requirement for regular maintenance and a periodic declaration of performance.
- [Action 30.d]* Develop tools to encourage optimum adjustment during each intervention.

Mesure 31. Implement a strategy aimed at mitigating the rebound effect

Objective - Ensure that buildings and installations are utilised in such a way so as to achieve optimum performance.

Context -

The actual consumption of energy-efficient buildings is often significantly higher than the theoretical consumption for use under standard conditions (the consumption of highly energy-efficient office buildings is sometimes up to five times greater than their theoretical consumption¹⁷⁰). To harness the full potential for energy savings, occupants must be supported to understand how the systems work and adjust how they use them.

¹⁶⁹ Modelled on tax relief for having an annual maintenance contract for a boiler.

¹⁷⁰ Stakeholder consultation.

In addition, buildings are becoming increasingly complex and difficult to manage. To address this problem, better commissioning of projects is proposed, along with a period of support for maintenance companies following completion.

Another course of action is to ensure renovation projects use building approaches compatible with user behaviour. This is because imposing approaches that require too much adjustment of behaviour will naturally bias outcomes. This makes it important to include users from the start of the project or to at least limit behaviour changes induced by the approach.

Social housing and social housing agencies have started to include this support and to consider certain 'classic' behaviours in their projects (for example: ensuring that ventilation is powered from the shared electricity supply rather than the individual meter to prevent occupants from turning it off to reduce their bill; avoiding placing air vents above places where occupants sit still (table, sofa) or there is a risk they will block the flow due to the draughts created).

MEDIUM-TERM INITIATIVES

Residential buildings

- [Action 31.a]* Develop tools to monitor consumption.
- [Action 31.b]* Identify, promote and encourage the use of monitoring tools.
- [Action 31.c]* Establish support in how to use the building and its installations.
- [Action 31.d]* Enable feedback on good practices from projects that incorporate the 'occupant' perspective from the design stage.

Tertiary buildings

- [Action 31.e]* Provide for a period of support for maintenance companies following completion.

IV. FINANCING THE ENERGY RENOVATION OF BUILDINGS

The long-term building renovation strategy presents the necessary mechanisms to **support the mobilisation of investments**, as well as proposals to move towards achieving these very ambitious targets.

These mechanisms have been developed to cover the various aspects under Article 2a(3) of the EPB Directive, and thus promote:

- **the aggregation of projects**, including by investment platforms or groups, and by consortia of small- and medium-sized enterprises, to enable investor access as well as packaged solutions for potential clients;
- **the reduction of the perceived risk** of energy efficiency operations for investors and the private sector;
- **the use of public funding to leverage** additional private-sector investment or address specific market failures;
- guiding investments into an energy-efficient public building stock;
- the introduction of accessible and transparent **advisory tools and energy advisory services**.

The success of this strategy does not depend on adequate funding alone, as the availability of the money needed for the works is only one aspect of decision-making in energy renovation. Non-financial costs must be taken into account, as these are determining factors. Where there's a will, there's a way. There is therefore a significant psychological dimension to this funding strategy, which skilfully mixes incentives and constraints to create a coherent, humane and feasible public policy while complying with very ambitious targets.

The mobilisation of investments obviously involves a variety of complementary instruments and many of the measures and actions presented in Chapter III.C of the strategy also help to facilitate the mobilisation of investments by addressing the five aspects above. For example, the aggregation of projects is addressed for the residential sector in [Action 24.4] on introducing one-stop shops which can facilitate such aggregation, and especially in Measure 29 designed to 'Encourage and facilitate grouped renovation projects', and for public buildings in [Action 7.16]. The measures and actions under priority 1 (strengthening the framework) and 2 (strengthening supply) will help to reduce the perceived risks. The measures listed under Objectif 3 designed to 'Mobilise public authorities, including local, regional and supra-regional bodies, as primary drivers and locations for energy renovation of buildings' will help to guide investments into an energy-efficient public building stock. Many of the actions under priority 3 of the strategy (strengthening demand) are designed to introduce and deliver accessible and transparent advisory tools and energy advisory services.

This chapter of the strategy specifically describes the financial mechanisms designed to mobilise public and private investments in renovation of the residential and tertiary building stock, in line with the principles of the Walloon Government, confirmed in particular in the regional policy statement 2019-2024.

1. BREAKDOWN BY SEGMENT

The funding strategy is structured around three distinct ‘segments’, defined by the method of investment in energy efficiency works: public, private (private owners, occupants or landlords) and professional (businesses). This distinction helps to explain the different options within each segment. For example, a private beneficiary will not finance the work in the same way as a municipality or a business.

Based on surveys available, the Walloon stock of buildings to be renovated can be described as below (Figure 33):

- nearly 75% of the stock consists of housing held by **private owners**;
- more than 15% of buildings have a component that gives the **public authority** (in the broad sense) the power to decide to undertake the work needed;
- the remaining 10% comprises buildings belonging to **private beneficiaries**, classified in categories other than those above (offices, factories, etc.).

This illustration clearly shows that the group to enable progress in achieving the targets is that of **private homes, since it represents 75% of all buildings in the Region.**

However, there is an overwhelming array of owners and beneficiaries who will need to be convinced to undertake the work needed. There is thus a need to create a dynamic that will cause a ripple effect to facilitate communication with this wide variety of decision-makers. The measures involving them must be tailored to the reality of beneficiaries’ circumstances (we are purposely avoiding the term ‘owners’ because other types of beneficiaries, e.g. tenants, may want to undertake energy efficiency work on their home).

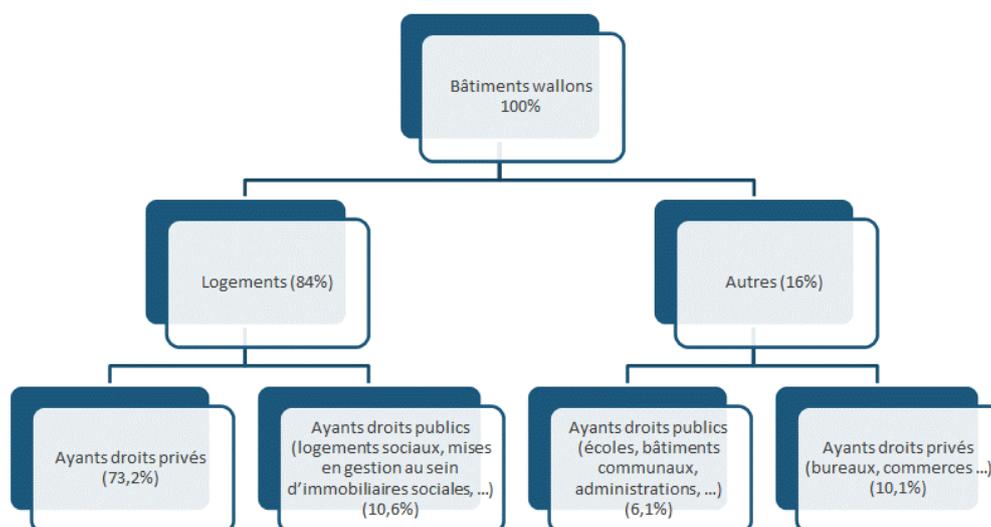


Figure 33. Breakdown of Walloon buildings by segment¹⁷¹.

Bâtiments wallons 100%	Walloon buildings 100%
Logements (84%)	Housing (84%)
Autres (16%)	Other (16%)
Ayants droits privés (73,2%)	Private beneficiaries (73.2%)
Ayants droits publics (logements sociaux, mises en gestion au sein d'immobilières sociales, ...) (10,6%)	Public beneficiaries (social housing, managed by social housing agencies, etc.) (10.6%)
Ayants droits publics (écoles, bâtiments communaux, administrations, ...) (6,1%)	Public beneficiaries (schools, municipal buildings, authorities, etc.) (6.1%)
Ayants droits privés (bureaux, commerces ...) (10,1%)	Private beneficiaries (offices, shops, etc.) (10.1%)

¹⁷¹ Source: Own analysis of Statbel data cross-referenced with figures from electricity meters.

A) PUBLIC BUILDINGS

Buildings for which public authorities, at all levels, have decision-making power over whether to undertake work represent nearly 17% of the total. In one way or another, the decision to undertake the work is in the hands of the public authority. The potential for launching a huge project to renovate these buildings comes down to triggering widespread momentum throughout the Region.

The implementation strategy described in the following chapters will address:

- regional budgetary alignments
- low-interest loans
- performance contracts, in particular facilitating the mobilisation of investments
- third party investors
- public-private partnerships
- support for the renovation of public housing (discussed under Measure 6 on p. 117)
- subsidies for the renovation of public tertiary buildings
- ring-fencing savings made.

B) PRIVATE RESIDENTIAL BUILDINGS

The most important segment for achieving the target comprises private beneficiaries in housing, for whom the vast majority will use mortgage loans to finance the works. Considering mortgage loans (and other forms of property loan) as a cornerstone will lead into various topics, such as:

- low-interest loans
- loan arrangements that favour deep renovation
- regional guarantees to increase access to financing
- tax instruments
- incentives
- loans secured against the building
- cooperatives.

The following topics are covered in Chapter III of the strategy:

- facilitation services (Objectif 9 and more specifically Measure 24);
- specific support for households in energy poverty (Measure 26);
- the development of specific solutions to encourage and manage owner-landlords in improving the quality of the housing they rent out (Measure 28).

C) PRIVATE TERTIARY BUILDINGS

The third segment, private tertiary buildings, will cover instruments favourable to professionals and businesses in order to address the remaining 10% of the target, involving:

- professional loans
- tax relief for businesses
- regional support programmes
- binding regulations
- industry agreements.

La Figure 34 gives an illustrative overview of options for funding the renovation strategy.

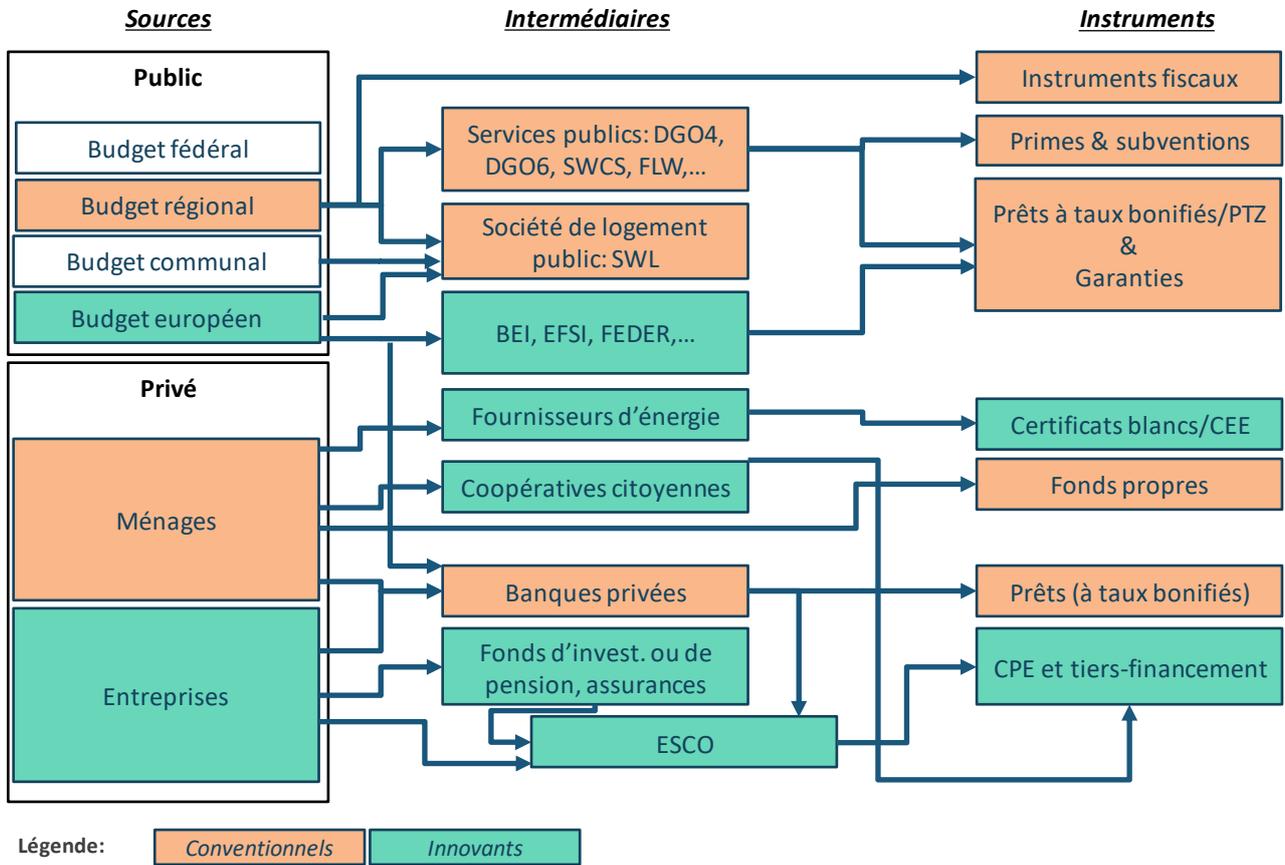


Figure 34: Overview of sources, intermediaries and finance instruments that could be mobilised for the energy renovation of buildings.

Sources	Sources
Public	Public
Budget fédéral	Federal budget
Budget régional	Regional budget
Budget communal	Municipal budget
Budget européen	European budget
Privé	Private
Ménages	Households
Entreprises	Businesses
Intermédiaires	Intermediaries
Services publics: DGO4, DGO6, SWCS, FLW,...	Public services: DGO4, DGO6, SWCS, FLW, etc.
Société de logement public: SWL	Public housing company: SWL
BEI, EFSI, FEDER,...	EIB, EFSI, ERDF, etc.
Fournisseurs d'énergie	Energy providers
Coopératives citoyennes	Citizen cooperatives
Banques privées	Private banks
Fonds d'invest. ou de pension, assurances	Investment or pension funds, insurance
ESCO	ESCOs
Instruments	Instruments
Instruments fiscaux	Tax instruments
Primes & subventions	Incentives and grants
Prêts à taux bonifiés/PTZ & Garanties	Preferential/zero-interest loans and guarantees
Certificats blancs/CEE	White/energy saving certificates
Fonds propres	Equity
Prêts (à taux bonifiés)	Loans (preferential)

CPE et tiers-financement	Energy performance contract and third-party finance
Légende:	Key:
Conventionnels	Conventional
Innovants	Innovative

This diagram illustrates the multitude of actors involved in the major project of funding energy renovation of the Walloon building stock. It is clear that the targets will only be achieved by combining public and private financing, and by developing mechanisms targeting each category of investors according to their needs.

B. SIGNIFICANT INVESTMENT NEEDS FOR THE FUNDING STRATEGY

The **investment needs** for the renovation strategy have been reassessed, following additional work carried out by the Government and stakeholders¹⁷², at:

- €120 billion for housing between 2020 and 2050,
- €34 billion¹⁷³ to €57 billion¹⁷⁴ for non-residential buildings, between 2020 and 2050, including €16-27 billion for public buildings.

In addition to the overall total to be mobilised, the development over time in investments to be mobilised between 2020 and 2050, shown in the implementation scenarios presented in the section ‘I.C.5 Timetable for implementing the renovation strategy’, provides information on the short- and medium-term needs.

For the residential sector (see Figure 35), €3.5 billion will need to be mobilised annually over the next 5 years, with this figure doubling for the following 5 years in line with the increase in the number of buildings to be renovated. Although higher investments need to be mobilised in the short and medium term than in the long term, phased renovation approaches will tend to harness the most cost-effective investments first. Subsequent investments, although potentially lower, will therefore be less attractive in terms of cost-effectiveness. It is thus critical, firstly, to promote complete renovation in one go wherever possible, and secondly, to develop mechanisms to ensure that savings made through the initial investments are used to finance the final stages of investment.

For non-residential buildings, this means that €1.3 billion (low estimate, see Figure 37) to €2.2 billion (high estimate, see Figure 38) will need to be mobilised annually over the next 5 years, with this figure increasing by 75% for the following 5 years in line with the increase in the number of buildings to be renovated. This illustrates the importance of having a strategy to mobilise this level of investment within the limits of available public resources by mobilising other sources of finance, where appropriate, including European funds linked to the Green Deal and private savings.

Given the current average leverage ratio of 1:4, public investment needs from 2020 to 2050 to mobilise the necessary investments would amount to €30 billion for the renovation of residential buildings¹⁷⁵, and between €8.5 billion and €14 billion for the renovation of non-residential buildings. However, the leverage effect is a

¹⁷² The assumptions and calculation methodology are presented in Annex 3-G.

¹⁷³ Assuming an average cost of €600/m².

¹⁷⁴ Assuming an average cost of €1 000/m².

¹⁷⁵ The management costs for the various instruments, and the budgets and human resources necessary for implementation of the various measures, are not included in these estimates, which only cover the cost of the renovation itself. A detailed study of these issues is needed as part of a practical action plan.

parameter that can (and must) be influenced, with a direct effect on public funding needs. This is the aim of the various mechanisms proposed below.

The cost of the renovation strategy to the public authorities is not a fixed figure to be accepted or rejected, but rather the result of a calculation involving variables which can be influenced by policy decisions¹⁷⁶.

If Wallonia manages to increase the leverage effect of public mechanisms to an average ratio of 1:10 by 2030, or even 2025, it will significantly reduce the public budgets required to achieve the targets in the renovation strategy. Improving this leverage effect is a priority task.

The public budgets required over the coming years are summarised in Table 15 and detailed in Figure 39 to Figure 41.

	2020-2025	2025-2030
<i>Leverage ratio of 1:4</i>	1 207	2 393
<i>Leverage ratio increased to 1:10 by 2030</i>	805	1 084
<i>Leverage ratio increased to 1:10 by 2025</i>	613	957

Table 15. Average annual public budgets (in million €) per 5-year period corresponding to different leverage ratios achieved by public mechanisms.

The selection of measures/actions to be implemented as a priority should be informed by two criteria:

- the applicability of the measure or action throughout the Walloon Region for the segment considered;
- the improvement it would generate in the leverage effect.

The following chapter describes the measures and actions to be implemented as a priority to achieve the long-term performance target for the Walloon property stock at a reasonable cost to the public purse.

¹⁷⁶ Annex 7-A presents a formula and how it was developed, as well as an overview of methods that can have a considerable influence on the cost of public policies in this area.

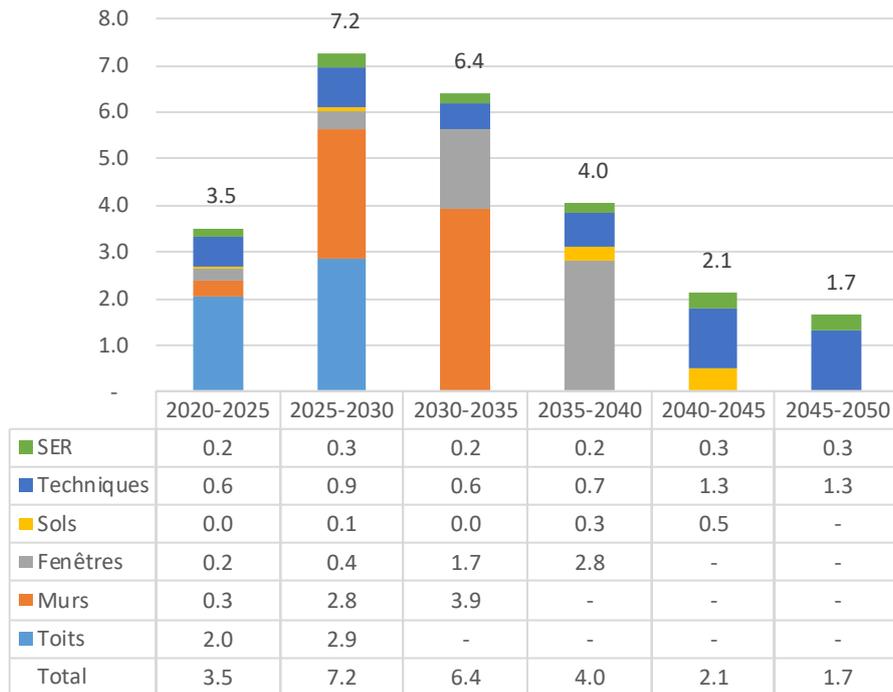


Figure 35. Investments needed for the renovation of residential buildings, broken down by type of measure, to achieve the decarbonised A rating by 2050 and meet the -55% target by 2030.

SER	RES
Techniques	Technologies
Sols	Floors
Fenêtres	Windows
Murs	Walls
Toits	Roofs

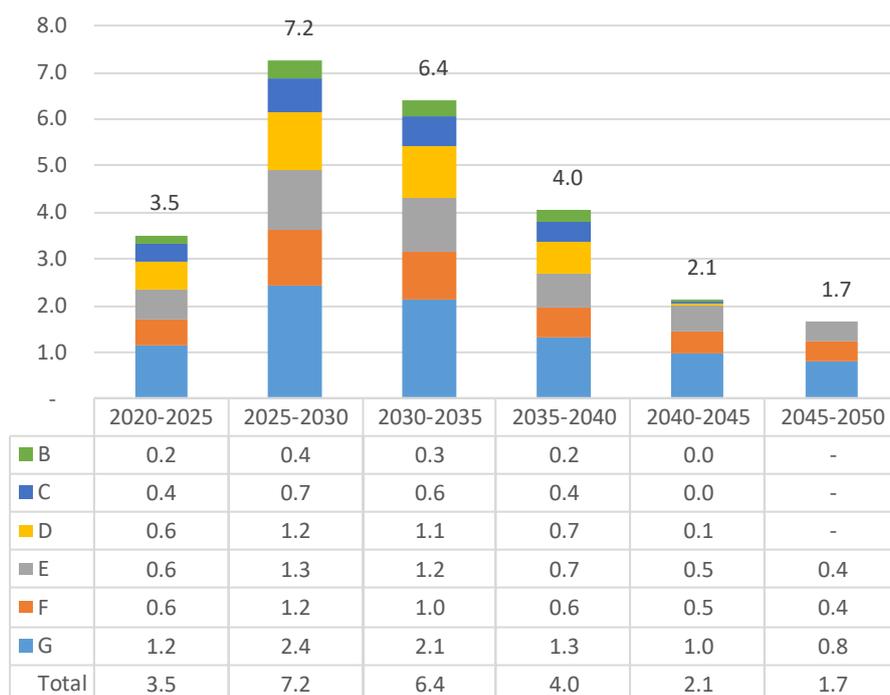


Figure 36. Investments needed for the renovation of residential buildings, broken down by segment of the stock (EPB label), to achieve the decarbonised A rating by 2050 and meet the -55% target by 2030.

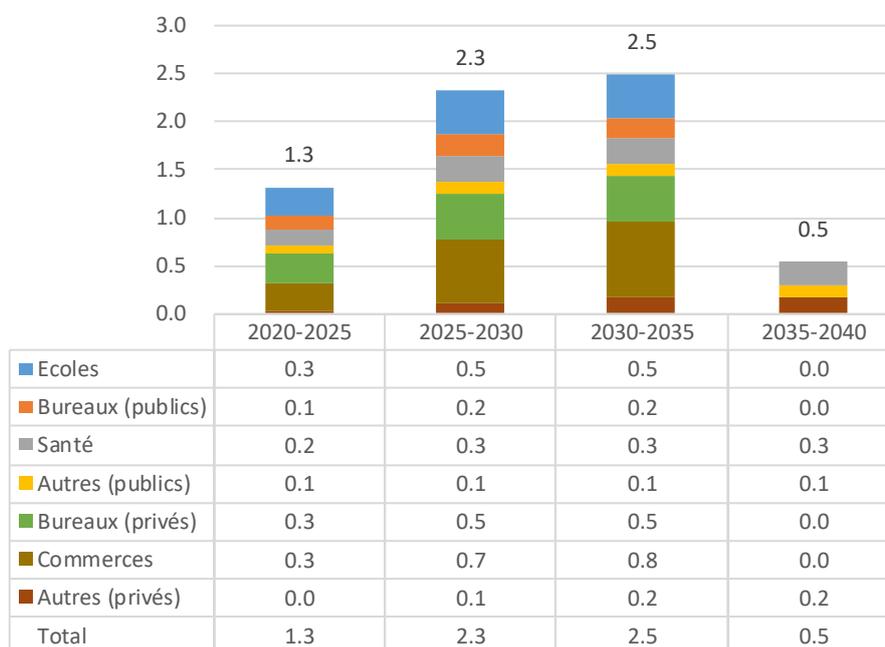


Figure 37. Trajectory of investment needs for the renovation of non-residential buildings at an average cost of €600/m² ¹⁷⁷ (€ bn/year averaged over 5 years) Source: CLIMACT analysis.

Ecoles	Schools
Bureaux (publics)	Offices (public)
Santé	Health
Autres (publics)	Other (public)
Bureaux (privés)	Offices (private)
Commerces	Shops
Autres (privés)	Other (private)

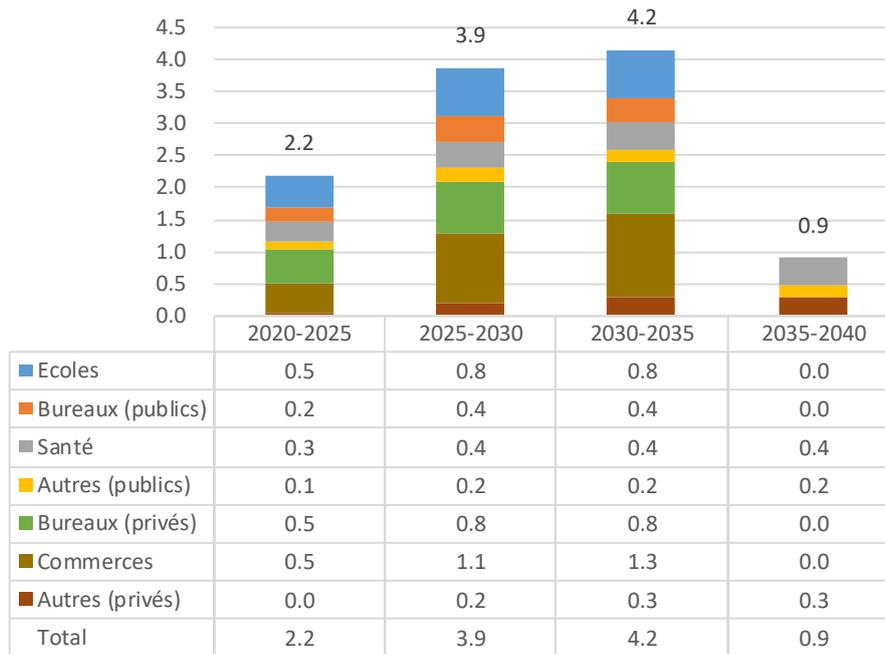


Figure 38. Trajectory of investment needs for the renovation of non-residential buildings at an average cost of €1 000/m² (€ bn/year averaged over 5 years) Source: CLIMACT analysis.

Ecoles	Schools
Bureaux (publics)	Offices (public)
Santé	Health
Autres (publics)	Other (public)
Bureaux (privés)	Offices (private)
Commerces	Shops
Autres (privés)	Other (private)

¹⁷⁷ The funding needs per m² (between €600 and €1 000) are estimates from the UREBA programme for the renovation of public buildings. The needs must be identified more accurately, as there is significant variation and this hinders proper planning of needs.

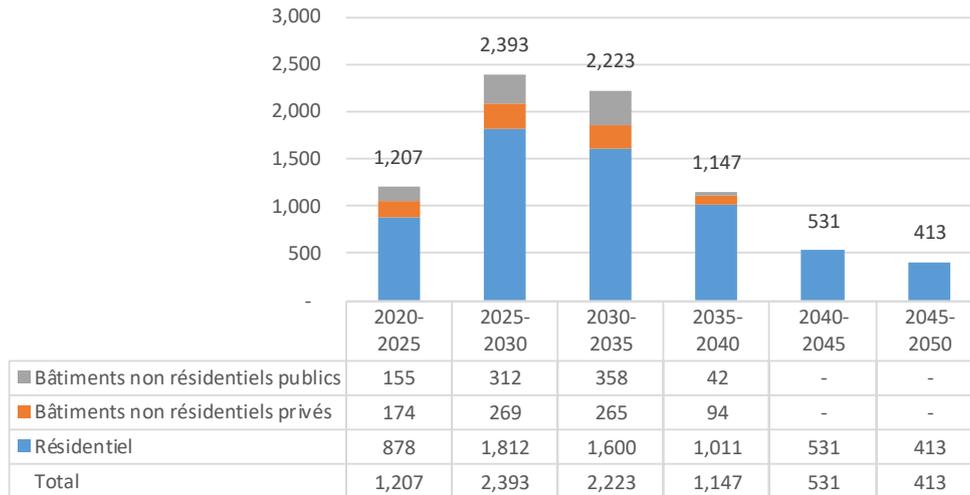


Figure 39. Public budget required to mobilise investments needed, with leverage ratio of 1:4 currently observed for public mechanisms.

Bâtiments non résidentiels publics	Public non-residential buildings
Bâtiments non résidentiels privés	Private non-residential buildings
Résidentiel	Residential

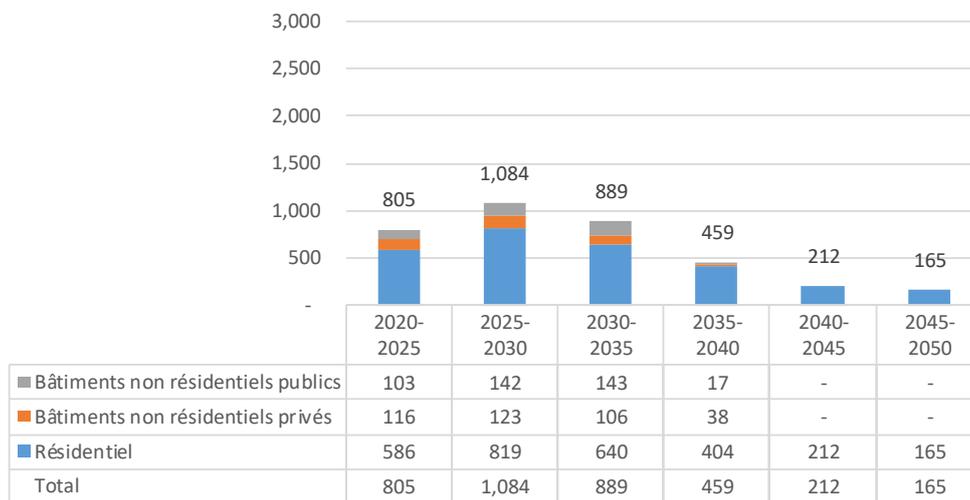


Figure 40. Public budget required to mobilise investments needed, with an increase in the leverage ratio public mechanisms to 1:10 by 2030.

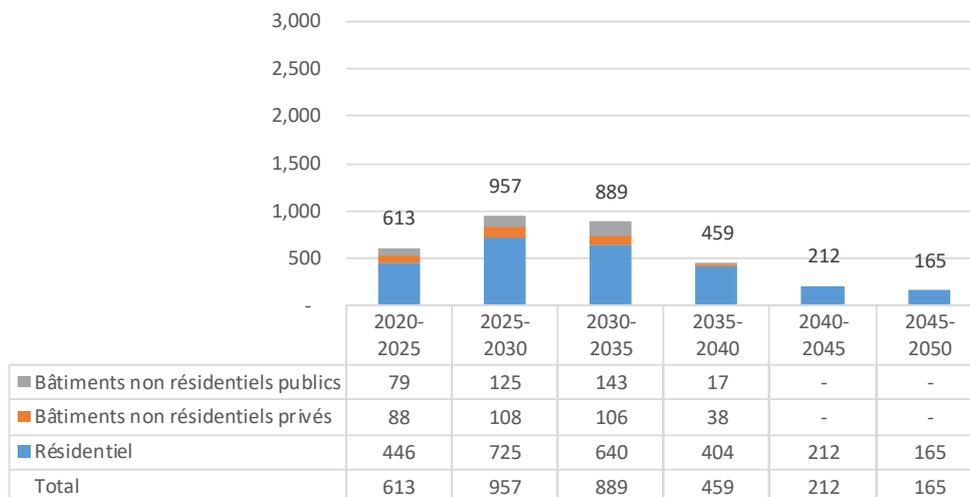


Figure 41. Public budget required to mobilise investments needed, with an increase in the leverage ratio of public mechanisms to 1:10 by 2025.

C. PRIORITY MEASURES/ACTIONS IDENTIFIED FOR FUNDING THE WALLOON RENOVATION STRATEGY

Section III.C of the strategy presented the cross-cutting policies to be pursued by the authorities in order to:

- **encourage the motivation and interest** of stakeholders in improving their living or working environment;
- **increase the stability, progressiveness and visibility of regulatory frameworks (EPB, etc.) and incentives** designed to improve the energy performance of buildings;
- simultaneously encourage the development of tailored services on the supply side and an aware and informed public on the demand side; in other words, **stimulating the market** for both contractors and for owners and other beneficiaries of buildings.

For the success of the renovation strategy for the Walloon building stock, it is crucial to carry out a coordinated set of complementary actions to:

- **ensure availability of the financial** resources needed to make long-term investments in the renovation of buildings;
- **guarantee access to these financial resources** via mechanisms tailored to the different customer segments.

The funding strategy to be developed in Wallonia in order to guarantee access to renovation work, and the capacity to finance this work, should be built around two pillars:

- the **mobilisation of private funds** and the finance mechanisms offered by private banks. The role of the SPW consists of framing the initiatives and, if necessary, determining the nature and framework of regional guarantees for 'REP' mortgage loans (*Rénovation Énergétique Profonde* – deep energy renovation);
- the **mobilisation of public funds**, with the dual aim of making investments efficient and creating the highest possible leverage.

This section aims to provide a comprehensive and coherent picture of all the actions to be conducted – in relation to financing and mobilisation of investments – in order to maximise the chances of achieving the long-term renovation target.

These measures and actions are presented in more detail below, according to the segment targeted, namely:

- **public bodies** holding or managing:
 - public housing (social housing, etc.),
 - public service buildings (public authorities, schools, etc.);
- **households** (owners or tenants of private housing);
- **businesses and private bodies** (owners of businesses, corporations, non-profit organisations, etc.).

According to the figures of the needs assessment for the renovation of existing buildings, households hold the rights needed for decision-making on renovation in the case of 75% of the Region's total stock. This is clearly the specific segment where we need to focus our efforts. However, public buildings, or buildings under public management (15% of buildings), are numerous enough to trigger widespread momentum, raise awareness, set an example and encourage supply by addressing demand. For this reason, this segment will be studied first.

1. RENOVATION OF BUILDINGS BELONGING TO PUBLIC AUTHORITIES

Depending on their size, the powers assigned to them and the size of the building stock they manage, public bodies may have privileged access to certain sources of public funding (such as European funds) and/or private funding via ESCO third-party investment companies.

Discussions with stakeholders show that it is crucial to facilitate the funding of renovation projects for public buildings, in particular:

- **organising and disseminating information on the range of financing solutions available**, in particular, improving knowledge of the potential of non-consolidated, private third-party finance – i.e. outside of public debt according to Eurostat's ESA (European System of Accounts) standards;
- **connecting project leaders with investors**, for example via a platform for funding the renovation of public buildings.

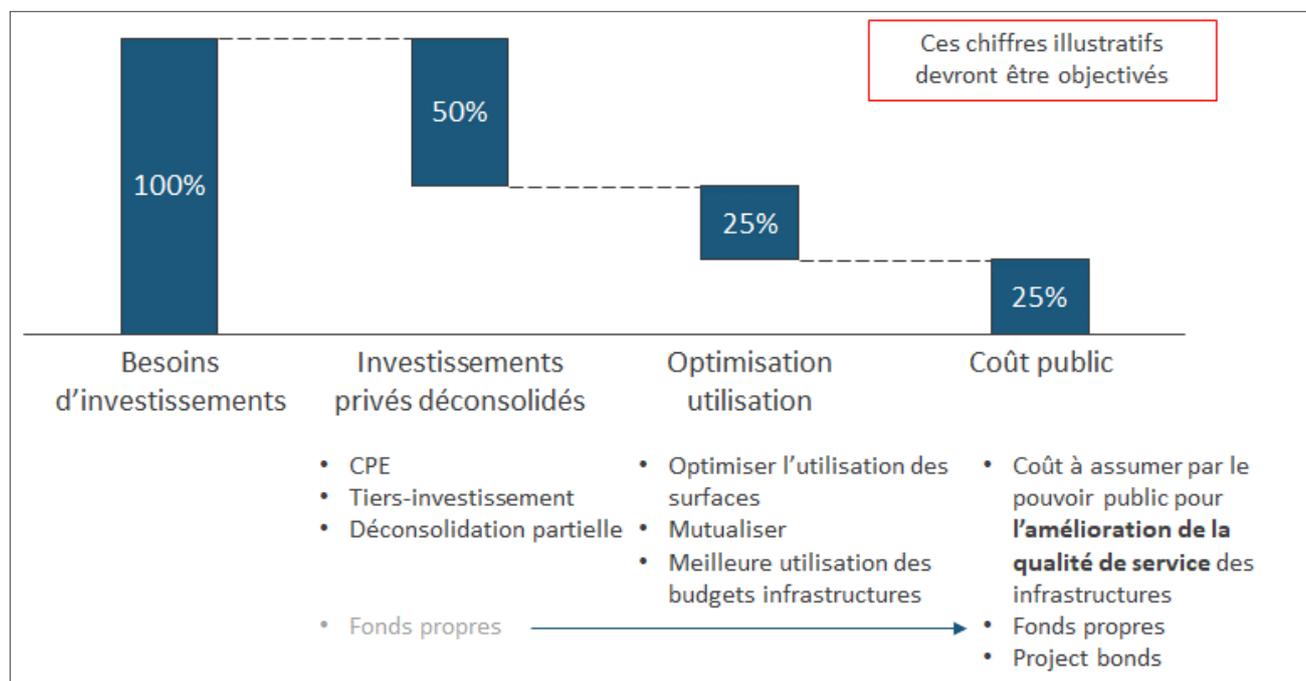


Figure 42. Potential breakdown of investments available to finance the renovation of public buildings.

Ces chiffres illustratifs devront être objectivés	These illustrative figures need assessing
Besoins d'investissements	Investment needs
Investissements privés déconsolidés	Non-consolidated private investments
Optimisation utilisation	Use optimisation
Coût public	Public cost
• CPE	• Energy performance contract
• Tiers-investissement	• Third-party investment
• Déconsolidation partielle	• Partial deconsolidation
• Optimiser l'utilisation des surfaces	• Optimise use of area
• Mutualiser	• Pool resources
• Meilleure utilisation des budgets infrastructures	• Make better use of infrastructure budgets
• Coût à assumer par le pouvoir public pour l'amélioration de la qualité de service des infrastructures	• Cost incurred by public authorities for improving the quality of service of infrastructure
• Fonds propres	• Equity
• Project bonds	• Project bonds
• Fonds propres	• Equity

The specific measures and actions for funding the renovation of public buildings are described below.

Mesure 32. Ensure coherence between regional budgets and the long-term targets in the renovation strategy

Bringing the building stock up to standard does not just represent a cost for the public authorities, an expenditure required to comply with European regulations. For good measure, we must also consider that:

- **energy efficiency will allow the Region to save on its budget**, through decreasing calls for certain types of expenditure;
- some current budget items are already intended to improve the energy efficiency of buildings, such as the incentives, which amount to around €50 million a year, the UREBA programme, Ecopack/Rénopack and budgets to improve public housing. **The Government and policy will ensure that these budgets form a coherent part of the overall effort**, in particular by focusing on deep energy renovation measures;
- **lower energy dependency** – through lower consumption and renewable production – enables substantial savings;
- **the increase in economic activity**, generated by a drive to achieve 45 000 annual renovations on average¹⁷⁸, goes hand in hand with an increase in the employment rate and in tax revenues, as well as a reduction in the costs associated with underemployment.

The aim is not to propose reducing or eliminating any existing budget item. These few examples show that the budgetary needs to carry out the renovation strategy are not always additional budgets to be found for new sources.

SHORT-TERM INITIATIVES (2024)

- [Action 32.1]* **Assess coherence between regional budgets and the long-term targets in the renovation strategy** and ways to improve this. Rather than creating a new tax or increasing an existing charge, it will be more a question of combining current commitments to ensure all measures are directed towards the achievement of a common goal.

Mesure 33. Encourage overall energy renovation through low-interest loans

A range of existing initiatives will need to be strengthened.

SHORT-TERM INITIATIVES (2024)

- [Action 33.1]* Introduce an interest-free loan instrument to complement the UREBA grants¹⁷⁹ for public buildings¹⁸⁰.
- [Action 33.2]* **Assess the potential for action by the CRAC** (Regional Municipal Aid Centre) to pool access to credit, especially for smaller entities.
- [Action 33.3]* **Facilitate access to European funding for municipalities, towns and provinces**. If the entity investing is not large enough or does not have a sufficiently substantial investment plan to approach the European Investment Bank, it still has the option to enter into a finance agreement through an EIB-partner intermediary bank. It would negotiate budgets and targets with this intermediary, which offers low-interest loans thanks to the conditions offered by the EIB. These

¹⁷⁸ Number of annual renovations to aim for, if the renovations result in an A rating.

¹⁷⁹ To improve efficiency, the UREBA programme will be reviewed after a decade in existence. It would be beneficial to use this instrument as municipalities are familiar with it, although the procedures will need to be updated.

¹⁸⁰ Certain expenditure required for the works but that is not eligible for UREBA must nevertheless be financed. This credit instrument is intended to provide a solution.

programmes are evolving over time and new ones are appearing on the market, but two that are currently running are Smart Cities and Private Finance For Energy Efficiency (PF4EE)¹⁸¹.

Mesure 34. Establish a framework for energy performance contracts and promote them

NB: This measure applies to all public and private segments.

An energy performance contract (EPC) is a contract between a beneficiary and an energy service company (generally an ESCO) where monthly instalments are paid proportional to the performance level achieved through the energy efficiency measure. The energy service company is responsible for guaranteeing the energy performance of a building and thus guaranteeing a reduction in energy consumption.

There are already various innovative initiatives in Wallonia, particularly for large commercial buildings (EPC, ESCO). Although these models take time, overall they work and have proved effective in certain situations.

- The **RenoWatt** programme uses the concept of an 'energy performance contract' in renovating groups of public buildings. RenoWatt acts as a central market, **drafting and awarding all energy performance service contracts on behalf of public authorities**. This centralised function **allows small contracting authorities** managing a limited number of buildings to **take advantage of these performance contracts**. The pilot programme, launched by the Economic Redeployment Group of Liège (GRE-Liège) for various types of public buildings (schools, hospitals, swimming pools), mobilised €40 million in investments (€60 million including maintenance). The programme has been renewed and extended to the entire Walloon Region, with a target of mobilising €100 million in investments over 3 years. To date, around 100 beneficiary contracting authorities have joined the RenoWatt project. The RenoWatt project will be continued, strengthened and provided with sufficient resources to achieve the European target of renovating 3% of public buildings a year, and to meet the commitments it has made under the ELENA programme.
- There are also initiatives in place at a more local level. The intermunicipal consulting firm **IGRETEC** is also strategically positioned as an energy services supplier (ESCO) to its partner towns and municipalities. Thanks to the creation of a potential working capital of €75 000 000 excluding subsidies, which will be replenished as investments are amortised, IGRETEC can provide an analysis of the energy performance of the municipal building stock, identifying the priority buildings (the most energy-intensive). IGRETEC can then design, implement and finance energy-saving solutions (investments in energy efficiency and renewable production, as well as behavioural advice).
- **Belesco** is an existing national entity which could be an integral part of the Walloon policy to stimulate energy services. Belesco creates networks between ESCOs (operational and partial). Belesco positions itself as a catalyst for the development of professional energy services in Belgium and in the three Regions¹⁸².

SHORT-TERM INITIATIVES (2024)

- [Action 34.1]* **Test several EPC models**. Financing can be done through the utility bill: the contract is linked to the building (the energy meter) and not to its owner. For jointly-owned properties, the co-owners' association acts as an intermediary and binds the EPC to the building and not to the various owners.
- **Develop the legal and regulatory framework for ESCOs and EPCs in Wallonia**. Management of energy service companies (ESCOs), which is currently operational for public services, will be improved and its remit expanded. These companies provide skills, human resources and certain guarantees (energy performance contracts or even third-party investors) facilitating the investments needed to reduce

¹⁸¹ See Measure 51: Mobilise European funds.

¹⁸² The list of Belgian ESCOs can be accessed on the Belesco site: <http://www.belesco.be>.

energy consumption. The Walloon Energy and Climate Plan (see Section 3.2.3) includes addressing the following.

- [Action 34.2]* **Point of contact.** Set up a regional point of contact. Its task will be to pool skills and information and support stakeholders so that the private and non-market sectors can adopt professional processes and implement them effectively. Digitalisation and performance monitoring of organisations benefiting from energy services will be stepped up.
- [Action 34.3]* **Develop a technical toolbox.** This will involve the following.
 - Develop simplified EPC forms and frameworks tailored to SMEs in the tertiary sector.
 - Establish a technical framework and a performance measurement and verification standard that is both simple and tailored to SMEs in the tertiary sector (e.g. based on the International Performance Measurement and Verification Protocol (IPMVP)).
 - Set up a technical certification centre providing access to specialists (qualified staff) and standard ‘test beds’ for key processes to be improved in the tertiary sector, schools and hospitals. The techniques covered can be gradually added to this register so that the focus is always on proven results.
 - After 2020, develop an ESCO accreditation framework (once the market has been established).
 - Set up a technical certification centre (potentially involving extremely simplified monitoring, reporting and verification (MRV)), for example based on registers of techniques with proven performance and results validated by the technical centre (see above). The catalogues of Standard Qualifying Actions discussed in the ‘Article 7’ note in the NECP 2030 must serve as the basis.
- [Action 34.4]* **Disseminate the tools.** This will involve the following.
 - Launch an information campaign on energy services and the regional energy strategy.
 - Promote and publicise incentives for energy efficiency investments tailored to the tertiary sector and the available ESCO solutions/Publish model EPCs and a list of ESCOs that are recognised (or accredited in the medium term) via the facilitation agencies.
 - Publicise success stories/Develop an educational portal on EPCs for energy managers and legal professionals.
 - Include energy efficiency funding and ESCO models in energy audit findings and renovation roadmaps. Promote facilitation agencies among equipment suppliers, energy service-providers and energy/building managers.
- [Action 34.5]* **Train the actors.** This will involve the following.
 - Establish a training programme for the banking sector, including the promotion of the European Commission’s De-Risking Energy Efficiency Platform (DEEP).
 - Set up a training course on performance monitoring and verification techniques/Develop interdisciplinary higher education training focused on ESCOs and EPCs.
- [Action 34.6]* **Reduce the risks associated with funding mechanisms.** Study various mechanisms providing access to funding and reducing funding risks through banks, such as the following.
 - For the tertiary sector, use an Energy Transition Fund¹⁸³ for revolving-type financing to allow access to capital for small ESCOs (or final beneficiaries in the bank guarantee model). The fund must be fed by various sources (public, municipal, community, green bonds, income from CO₂ allowances, suppliers’ obligations under Article 7, etc.) and

¹⁸³ A measure approved in the Walloon Energy and Climate Plan, the Energy Transition Fund is an instrument compatible with the requirements of Article 7 of the European Directive.

will be topped up through energy savings or loan interest rates. The fund will in particular offer subordinated debt at attractive rates. The total fund will be between €250 million and €300 million.

- Establish other mechanisms to reduce the financial risk (and interest rate) for SMEs, e.g. additional public guarantee, subsidised interest rates (or tax relief), co-investment by sources other than the fund, etc.
 - Secure energy efficiency revenue streams: if the price of energy for the tertiary sector or public buildings is not increased through fiscal measures, financial support may be needed to supplement energy savings and guarantee a return for ESCOs, as well as to make the scheme sufficiently attractive for final beneficiaries. This should be consistent with measures taken under Article 7.
 - At regulatory level, develop green bonds at regional or municipal level, in line with the European framework, to raise new dedicated sources of finance.
- [Action 34.7]* **Support EPC pilot projects** for (1) selected tertiary sector businesses, (2) a panel of five or six local authorities and (3) a pool of Wallonia Public Service buildings. Monitor and publicise the results.
 - [Action 34.8]* **Public energy governance.** Review management procedures and regulations restricting the adoption of EPCs by public organisations (especially hospitals and schools), including the adaptation of management agreements and the inclusion of energy performance concepts (EPC, MRV, future energy savings, etc.) in multi-annual investment plans. Review existing maintenance agreements to allow the future adaptation or integration of EPCs (or energy efficiency improvements in general).
 - [Action 34.9]* **Monitor development of the market for ESCOs and EPCs.** Monitor the effects of the actions implemented. Reassess their relevance every year and make any modifications needed. Conduct the necessary studies to refine them (e.g. for financial de-risking measures and legal support actions, development of MRV standards, etc.).

Mesure 35. Promote the development of third-party investor mechanisms

According to the new Eurostat rules, under certain strict conditions, third-party financing by ESCOs in the context of EPCs may fall outside the scope of regional debt. It is key to identify investments for which private finance can be mobilised, so that public funds (regional funds or local actors' own funds) can be utilised for investments that will need to be borne by the public sector. Where cost-effective investments are made with public funds, it is crucial to safeguard the financial returns to fund longer-term renovation investments (see Mesure 38 below).

SHORT-TERM INITIATIVES (2024)

- [Action 35.1]* **Identify the investments for which private finance can be mobilised**, so that public funds (regional funds or local actors' own funds) can be utilised for investments that will need to be borne by the public sector.

Mesure 36. Promote the use of public-private partnerships

There are two types of public-private partnerships (PPPs) mobilising private investments to finance projects: **contractual PPPs**, and **institutional PPPs** requiring the creation of mixed-ownership companies. A **public-private partnership harnesses the expertise of private partners in developing property projects, while minimising the contribution and mobilisation of public financial resources.**

SHORT-TERM INITIATIVES (2024)

- [Action 36.1]* Organise and disseminate communication to local authorities on existing PPP solutions.
- Improve knowledge, understanding and use of innovation partnerships through the following.
 - [Action 36.2]* Set up standard documents (CSC/contracts) to facilitate the use of innovation partnerships.
 - [Action 36.3]* Set up a programme to support the use of innovation partnerships: appoint a team of legal, financial and technical experts to assist public authorities wishing to launch an innovation partnership project in preparing and implementing innovation partnership contracts.

Mesure 37. Improve the efficiency of grants for the renovation of public tertiary buildings

There is a range of initiatives organised by sector to subsidise investments in infrastructure.

- The UREBA scheme, which has been running since 2003, is a mechanism to **subsidise energy-saving works for buildings in the public and non-profit sectors**. It is intended for both administrative buildings and schools or hospitals. The UREBA programme organises subsidies for the public sector and non-profit sector to implement energy accounting, conduct energy audits and pre-feasibility studies and carry out works to improve a building's energy performance.
- The **School Buildings Fund** contributes financially to the cost of property investments in school buildings under the Wallonia-Brussels Federation. An annual budget of €40 million is allocated in the form of grants for new constructions and renovation, including improvements to the external envelope of buildings or their technical equipment.
- The **Infrasport** mechanism subsidises the construction, extension, renovation and acquisition of **sports infrastructure** in Wallonia, up to 60-75% of the total investment (€40 million annually in subsidies).
- The **swimming pool plan** provides a regional subsidy covering 50% of investments in the renovation of public swimming pools; the other 50% can be borrowed via an interest-free loan. A significant part of these investments will be allocated to improving the energy performance of 33 swimming pools, at a total cost of €11 million.

SHORT-TERM INITIATIVES (2024)

- Build on existing initiatives, particularly the following.
 - [Action 37.1]* **Strengthen the UREBA scheme** in force since 2003 by establishing a schedule for calls for proposals for 'UREBA exceptionnel' – more thematic than the generalist classic UREBA – so that eligible applicants can focus on deep energy renovation measures in planning the work needed.
 - [Action 37.2]* **Improve coordination between the Region and the Wallonia-Brussels Federation**, in particular to facilitate the use of UREBA/'UREBA exceptionnel' and the School Buildings Fund subsidies in conjunction with additional loans needed to complete the budgets.
- Make subsidies more efficient, namely through the following.
 - [Action 37.3]* Convert the subsidies into a fund with drawing rights to improve visibility and predictability.
 - [Action 37.4]* Make subsidies (potentially partially) conditional on the target performance, focusing on deep energy renovation measures.

- [Action 37.5]* Make subsidy mechanisms conditional on carrying out a comprehensive assessment of the building and on target performance to make them more consistent with long-term targets.

Mesure 38. Ring-fence savings made to finance longer-term investments (revolving fund)

In phasing renovation measures, the savings generated through cheap energy-saving investments should be made available to finance larger investments as part of a longer-term process. Since 2013, the budgetary rules for municipalities have stipulated that income should offset expenditure in the same financial year, which prevents the savings generated being used in this way. There is thus a structural problem preventing re-injection of the cash saved through building renovation, which **requires action on budgetary rules (non-interconnecting budgets)**.

SHORT-TERM INITIATIVES (2024)

- [Action 38.1]* Conduct a joint review with the Court of Auditors on potential changes to budgetary rules and/or to identify how administrative procedures for accounting reporting could be optimised to allow local authorities to re-inject the cash saved through energy-saving investments into building renovation.

The segment comprising owners (and tenants) of private housing accounts for three quarters of the buildings to be renovated. The vast majority of Walloon private owners use mortgages or other loans to finance their renovation work.

The specific measures and actions for funding the renovation buildings in this segment are described below.

Mesure 39. Encourage low-interest loans and other credit arrangements to encourage deep renovation

A low-interest loan is expected to be provided as a classic tool to encourage desired behaviours on the property market. However, in these periods of low interest rates, for both mortgages and consumer loans, preferential rates offered by the public authority do not have a significant effect on repayments for borrowers. At the moment, the benefit is more in the communication and in encouragement to initiate works.

The Walloon Government currently offers several categories of loans through the Walloon Social Credit Society (SWCS) and the Walloon Housing Fund for large families (FLW).

SWCS is a social lender, focused on clients who require personalised support and who do not have the borrowing capacity to carry out deep renovations in the short term. It targets a gap in the current financial market by offering an alternative.

The SWCS offers alternative financing to enable home ownership and renovation with a view to energy efficiency. This provision comes in two packages:

- Accesspack: mortgage to finance the purchase, construction or renovation of a home;
- Rénopack: interest-free instalment loan to carry out renovation work with or without pre-payment of incentives.

The social purpose of the SWCS is therefore to enable access to home ownership and renovation while avoiding the risks associated with excessive debt. In addition, it provides guidance and support for the applicant during the loan application procedures and then throughout the repayment period.

- In addition to the Accesspack for large families, the Walloon Housing Fund grants instalment loans for large families and owner-landlords to finance housing renovation work for energy savings, health, safety or adaptation to a disability.

These loans, ranging from €1 000 to €60 000, are granted at a 0% interest rate in the form of either a mortgage or an instalment loan.

A home applying for Rénopack, exclusively for works to qualify for a home renovation incentive, must first be subject to an audit report carried out by an approved auditor.

Rénoprêt is requested for all home renovation work for energy savings, health, safety or adaptation to a disability for which no incentive is or will be applied.

- An increasing number of commercial banks operating in Wallonia grant (under certain conditions) interest rates that change as the energy performance of the building improves. These initiatives are interesting in more ways than one. Firstly, the very existence of these specific loan products shows that banking institutions are interested in this emerging trend. Secondly, it clearly shows that some beneficiaries of buildings to be renovated are already finding the necessary funding to undertake the work without public support or incentives. Banking institutions are keen to adapt their products to the current regional regulations, but also to be able to anticipate future regulations and to integrate the tools developed by the Regions (housing audit incorporating the roadmap, etc.) in order to offer their customers products in line with legal requirements.

- Some institutions are offering loans to co-owners' associations specifically to finance renovation work in shared areas; the lack of this type of credit was a missing link in the options for financing the renovation of jointly-owned properties and large complexes under joint ownership. These loans, which are used for lift repairs or works to make the building airtight, are starting to be requested for works to comply with energy standards.

SHORT-TERM INITIATIVES (2024)

- [Action 39.1]* To broaden social credit activities, **at European level qualify certain items on the Region's balance sheet not as debt but as investment** to remove the constraint linked to Wallonia's borrowing capacity.
- [Action 39.2]* **Assess the terms of low-interest loans** with a view to potentially **modifying** them to emphasise finance for deep renovation: **limits and repayment periods, scope** of eligible investments (or combined loan schemes).
- [Action 39.3]* Promote the **roll-out of loans for co-owners' associations**, to specifically finance renovation work in shared areas, to property managers and banking institutions by supplementing with insurance against default by one or more of the joint owners involved. This issue is addressed in one of the proposed pilot actions.
- [Action 39.4]* Launch, jointly with the other Regions, a **consultation with the banking sector** and relevant stakeholders (credit professionals' union, consumer protection organisations, etc.) to identify how to promote the development and deployment of measures that could be introduced by credit institutions to free up the financial resources needed for deep renovation.
- [Action 39.5]* Carry out a pilot project to mobilise private funding through contribution to crowdfunding platforms under a framework agreement between the Walloon Public Service and a financial institution. (See also Section II.B.4 Pilot initiatives, p. 93)

MEDIUM-TERM INITIATIVES

- [Action 39.a]* Depending on the outcomes of the consultation above, the Region may negotiate a **framework agreement with the financial sector** to promote the energy renovation of buildings by deploying the most appropriate finance mechanisms and arrangements.

Mesure 40. Extend access to finance through loan guarantees

Loan guarantees are a useful tool for encouraging financial institutions to grant loans to a segment of applicants who would be refused without this guarantee (elderly people, those without equity, those whose capacity to repay is considered too low, etc.). We must remember that taking risks is a bank's *core business*. Therefore, the purpose of such a guarantee is not to transfer the risk from the bank to the public authorities. A financial institution defines acceptable risk¹⁸⁴ and in effect 'draws a line' below the applicant it believes presents the maximum risk it could bear. For all applicants 'above the line', it is quite unnecessary to offer an additional guarantee, since the bank already agrees to bear the risk of default. It is for applicants located just below the line, as well as those further down (limit to be defined), that the guarantee will enable the loan needed to be provided. For segments at greater risk of default, personalised support could be provided in addition to the guarantee¹⁸⁵. The guarantee may increase public debt, so it must be used wisely and only cover the additional risk¹⁸⁶ taken by the lending institution.

SHORT-TERM INITIATIVES (2024)

Organise finance solutions for energy renovation accessible to people who currently do not have access to traditional credit through the following.

- [Action 40.1]* Assess the potential for a framework agreement with financial actors to offer finance (a public loan) to people who do not currently have access to traditional credit. To enable a larger proportion of owners to access finance for deep renovation, the Region will conduct a pilot project with one or more credit institutions to test a reduced rate credit offer accompanied by a guarantee from the Region. If the pilot project proves successful, these financial products with a regional guarantee will be rolled out. This pilot project is not intended to compete with public lending institutions.
- [Action 40.2]* Draw the attention of Belgian/local financial institutions to the PF4EE programme¹⁸⁷.

¹⁸⁴ This is a policy specific to each bank; each takes different risks and an applicant refused by one may be accepted by another.

¹⁸⁵ The financing cooperative Crédal provides support for certain borrowers and has a remarkable success rate, as attested by the very low residual default rate.

¹⁸⁶ Imagine, for example, that the bank's default rate on its traditional loan portfolio is 2% and that it anticipates that, for the special segment 'below the line', this default rate will be 3%. The public guarantee should only cover a maximum of 1% of the new portfolio, i.e. the additional risk taken by the bank. We could also consider that accessing this new customer segment, which it had previously chosen to avoid, brings benefits for the bank, which means it would be fair to share the additional risk, e.g. by covering only 80% of this additional risk.

¹⁸⁷ See Measure 51: Mobilise European funds.

Mesure 41. Mobilise tax instruments to stimulate and support energy renovation

Certain key moments are more conducive to carrying out a deep renovation project: sale, inheritance, donation, rental and planning permission. Certain tax instruments should thus be mobilised to encourage people to embark on deep renovation at these key moments.

Tax measures intended to improve the energy performance of buildings are widely used in Belgium (6% VAT and green taxation, measures in relation to property transfers in Flanders, etc.) and in Europe, but certain reforms are necessary to increase the rate of deep renovation.

SHORT-TERM INITIATIVES (2024)¹⁸⁸

- [Action 41.1]* Focus tax relief on **property transfer** events (purchase/sale, inheritance, donation) as these are key moments for the decision to invest in major renovation.
 - A) **Reduce registration tax on condition of deep energy renovation.** This measure could be in preparation for a future obligation to renovate upon purchase, and then complement this (to encourage further renovation than required). The payment of registration tax could be an obstacle in certain situations. It could be adjusted in the event of a commitment to carry out, within a period to be determined (e.g. 5 years), investments intended to improve energy efficiency (taking out a loan to carry out works, contract for supervised self-renovation, etc.).
 - B) **Reduce inheritance and gift taxes** on condition of deep energy renovation. As these taxes are currently linked to the estimated value of the house, elderly owners worry about them increasing.
 - C) Introduce **portability of registration tax**, as making it easier to move home increases the percentage of sales and thus opportunities for deep renovation¹⁸⁹. The portability of registration tax would also make it easier to move to housing better suited to the needs and size of the household.
- [Action 41.2]* Roll out the reduced VAT rate for home renovation and/or repair work: **VAT rate of 6% (instead of 21% in some cases)**. This tax relief would apply to all renovation and repair work on a private home, including demolition/rebuilding where this appears to be a better solution than deep renovation. Certain services essential to renovation, such as the services of an architect, are still subject to a VAT rate of 21%. This is a federal measure, which can however be supported by the Regions.
- [Action 41.3]* **Increase tax relief for energy renovation.**
 - a) **Continue tax relief for roof insulation costs.** The tax relief amounts to 30% of the costs of the work completed. For the 2020 tax year (costs in 2019), this relief is up to a maximum of €3 260 per home).
 - b) Design a **more comprehensive tax relief scheme** for owner-occupied and rental housing. Such a system has a potentially high leverage effect and this type of instrument is easy to manage as it is integrated into the tax system. **Aim for deep renovation** by offering relief on work on the entire housing envelope, dependent on packages of work being undertaken.
- [Action 41.4]* Regularly assess the **'housing cheque'** system, with a view to continuous improvement. This system is currently not directly linked to the energy performance of buildings.

¹⁸⁸ The impact of tax adjustments on the income of municipalities is an issue for consideration before any modification to the existing framework.

¹⁸⁹ A higher rate of turnover may also reduce the attractiveness of long-term investments if the improved energy performance does not increase the resale value. This measure will thus have a positive impact only if the overall package of measures results in the energy performance increasing the sale value of homes.

- [Action 41.5]* Adjust the payment of **property tax** and tax on rental income on the basis of the energy performance of the home. This adjustment must take into account **the impacts on the income of municipalities**, as this tax represents a significant part of the budget for Walloon municipalities (18%).
- [Action 41.6]* Clarify, quantify and communicate the potential financial implications of cadastral re-evaluation following renovation of the home.

MEDIUM-TERM INITIATIVES

- [Action 41.a]* Arrange tax relief for undertaking work on buildings not belonging to the private investor in order to mobilise private capital. This would mean offering an adequate tax incentive to investors wanting to either buy shares in a dedicated fund, or to finance works by a neighbour, cousin, sports club with which they are affiliated, etc. In other words, investing in buildings over which they have no real rights.
- [Action 41.b]* Assess the plan to introduce a federal **carbon tax on energy**.
- [Action 41.c]* Assess the potential for starting a discussion with the other Regions at federal level on the criteria used in **calculating cadastral income and options for updating them**.
- [Action 41.d]* **Harmonise** tax relief with that applied in the Brussels Capital and Flemish Regions to avoid a fiscal imbalance between the regions.

Mesure 42. Continue to simplify the incentive system and improve its effectiveness in encouraging a global and integrated approach to renovation to improve the energy performance and healthiness of housing.

Incentives constitute the other element expected from a public policy for the renovation of buildings, alongside low-interest loans.

Public policy aims to induce desired behaviour consistent with the common good. An incentive is an encouragement to adopt this behaviour.

Historically, the message communicated to the population was that energy renovation is a cost-effective choice. Additional reasons contribute to the image people have of it, but the emphasis has been on the cost-effectiveness of the investment, a perception accentuated by the incentives. Therefore, where an incentive is reduced or removed, the message conveyed – largely unintentionally – is that the benefit of the investment has gone. There is an immediate effect in a reduced incentive leading to a slump in the number of applications.

Communication should however focus on other aspects, such as increasing comfort and health, protecting the environment, reducing energy costs and increasing the value of property. This could be enabled **by making the incentive proportional to the energy savings actually measured** (not calculated). This would mean an entire paradigm shift in the incentive. It would no longer be a case of saying: ‘I have an incentive to renovate my roof,’ but ‘I have renovated my roof in line with best practice and I have a responsible lifestyle which allows me to make substantial savings for which I am rewarded with a proportional incentive.’

The incentive should be seen as part of the investment. The household invests a share and the State an additional share, which reduces the personal contribution to financing the work. However, in practice **the incentive is not taken into account by a banking institution considering a loan** since it is not a recurring increase in household income. This entails that, even without the incentive, the household must have the required minimum income. In addition, the release of the incentive after the work **makes it more of a happy surprise and not an investment aid for the claimant who has had to pre-finance the work**.

The administrative burden is another obstacle to applicants, who may be discouraged from submitting an application even though they have carried out work entitling them to an incentive. If we want to increase the impact of incentives, we must **make them easier to obtain**, which would also lead to lower costs.

Another important factor for the success of an incentive policy is the **clarity and predictability** of the policy. If this is difficult to understand, if people expect it to suddenly change direction or feel there is a risk that

applying for an incentive could attract the attention of the tax authorities and provoke an increase in property taxes, there will be fewer applications than expected and its effectiveness will be reduced.

CURRENT INITIATIVES

The Energy and Renovation incentives were merged in the reform that entered into force on 1 June 2019, giving rise to the Housing incentive scheme. This system shapes and encourages renovation using a **global and integrated** approach intended to improve the energy performance and healthiness of housing.

To receive the incentives, citizens must first carry out a housing audit. The auditor assesses the home from an energy and health perspective. The audit report establishes the list of works to be carried out, categorises them into packages of work and prioritises these based on the expected energy savings and the logical order for the renovation. In establishing the list of recommendations, the auditor aims to achieve the following:

- maximum overall energy performance in terms of technical feasibility of the works;
- overall coherence in the home renovation in terms of the order for carrying out the works;
- grouping, within a package of works, renovation and energy efficiency improvements.

This audit thus gives the citizen an overall, guided perspective on their renovation. They have 7 years from the date of registration of the audit to carry out the work.

Once the audit is registered, the citizen has 4 months to submit an application for the incentive. This application will cover the audit carried out, but also the future work. Once a package of work is fully completed, a monitoring report must be produced. This report will verify that the work complies with the recommendations made by the auditor and with the eligibility criteria for incentives. It can be carried out by the Government or an auditor.

Registering this report automatically triggers an application for an incentive for the work carried out. Consequently, if the monitoring reports are carried out by an auditor, the citizen will not need to submit any application for an incentive for the work, except for the audit. This therefore simplifies the procedure for submitting an application for an incentive.

Housing incentives also target a wider group. For example, as of 1 June 2019, owner-landlords can receive incentives provided they rent out housing in accordance with the indicative rent scale.

Lastly, incentives are now granted subject to compliance with technical criteria, but also on the work being carried out by recognised professional contractors where required, or by certified contractors (installation of solar panels and in future installation of heat pumps, boilers and biomass stoves).

CURRENT INITIATIVES

- [Action 42.1]* **Extend access to the incentive scheme to owner-landlords** applying agreed rents, for example using the rent scale.
- [Action 42.7]* **Take into account the condition of the building and its potential for improvement, in addition to the profile of the applicant, when calculating the incentive.** This correlation already occurs indirectly, as the least efficient housing is generally occupied by the lowest income categories. Weighting could however be applied based on the socio-economic profile of the applicant, without excluding any particular category of income. The amount granted should depend more on the expected performance level than on the decision to invest (outcome rather than means requirement). The incentives could also be combined with loans, which they would make more attractive, thus encouraging contracting authorities to go beyond the target they had initially set for themselves.

SHORT-TERM INITIATIVES (2024)

- [Action 42.2]* **Strengthen the comprehensive renovation incentive** with a bonus for packages of works and a bonus for the A rating if all renovation to achieve the A rating is carried out within 5 years.

- [Action 42.3]* Grant financial support subject to the **work being carried out by certified/labelled actors**.
- [Action 42.4]* Continue **simplification**, including harmonising technical and financial criteria, timescales and the duration of incentive programmes with the other financial and tax instrument programmes. Technical harmonisation helps to standardise the market on the supply side (performance to be achieved by all). Regularly assess simplicity and accessibility with a view to continuous improvement of the system in place.
- [Action 42.5]* **Communicate changes in incentives** over the short and medium term to encourage beneficiaries to invest at the right time. To be effective, an incentive system needs to declare a gradual reduction in incentives over the medium term to encourage investment before this reduction.
- [Action 42.6]* **Reduce the administrative barriers for jointly-owned properties** in applying for incentives: currently each joint owner must apply for the incentive, which increases the administrative burden for joint owners and for professionals, who have to send several separate invoices for the same work. Under certain conditions, the building manager could be authorised to submit an application for incentives for the jointly-owned property.
- [Action 42.7]* **Regularly assess the incentive programme** and ensure the stability, visibility and flexibility of the instruments in order to:
 - measure any improvement through adjustments made to the subsidy scheme;
 - avoid making changes that are too major, too close together or unexpected so managers and beneficiaries have time to familiarise themselves with the subsidy scheme.

MEDIUM-TERM INITIATIVES

- [Action 42.a]* **Increase the quality incentive for works and use of the building** by releasing the final balance of at least €500 after verifying actual consumption.

Mesure 43. Develop 'bricks and mortar' credit solutions

Two thirds of renovations to be undertaken relate to private housing. These renovations may be self-funded, but the majority of beneficiaries will be using a consumer loan or mortgage.

Loans are granted after assessing the borrower's repayment capacities. Thus, when taking out multiple loans, it becomes more and more difficult to access additional funds. In addition, it is difficult for some groups to access loans, such as those on low incomes and the elderly.

This is why it could be advantageous to secure the loan against the building needing it for renovation, rather than against the person doing the work needed.

This type of mechanism allows longer repayment periods, meaning that the repayment cost could be lower than the energy savings generated. This has been done successfully for several years in the United States. The principle is to repay the loan through a temporary increase in cadastral income until the debt is cleared. Another option could be to repay through the utility bill: it would reduce on the one hand due to the work carried out, and would increase on the other hand so the loan could be repaid using the difference. It is thus the occupant of the home who pays back the loan for as long as they live there. If they move, the next occupant takes over the repayment. If a rental property is empty, it is the owner who takes on the loan repayment. In this way, it does not affect the borrowing capacity of individuals. The objection could be raised that this is an obligation that would scare applicants away if they know that occupying this accommodation will automatically bind them to repaying the loan. However:

- without work being done, the home will deteriorate, no longer meeting standards and losing value. Ultimately, it will no longer meet comfort standards and no one will want it;
- with progressive tightening of regulations meaning there is an obligation to renovate or no longer be able to sell or rent the property, this guarantees the new occupant is buying or renting a property that complies

with these regulations and for which the price will adjust and stabilise. Rent + repayment through utility bills will come to equate to rent without repayment.

If it is the owner who is covering the difference in rent, it must be taken into account that without the work they would no longer be authorised to rent this property. However, with the works, the property will appreciate or maintain its market value and the loan will not affect their future bank borrowing capacity.

As part of the BE REEL! project, the Region is assessing the potential framework for testing the solutions developed under the EuroPACE project¹⁹⁰. This project is aiming to establish a system of technical assistance and access to finance in Spain, in particular through the use of loans secured against buildings, and proposes to support four European cities in introducing a similar mechanism.

SHORT-TERM INITIATIVES (2024)

- [Action 43.1]* Carry out a study assessing opportunities and barriers within the Belgian legal framework for the use of this type of mechanism, and identify any modifications that need be made to the legal framework to enable such a system to be implemented.
- [Action 43.2]* **Carry out a pilot project of deep renovation loans linked to the building** and paid back solely on the basis of energy saved in the building after the work. This loan will be guaranteed by the Region.
- [Action 43.3]* Set up a working group with key stakeholders to develop and implement an action plan to scale up deep renovation loans linked to the building.

Mesure 44. Stimulate and support the development of cooperatives working in energy renovation

As mentioned above, a cooperative is a helpful vehicle for carrying out the renovation strategy. This is because passing a decree or creating a new incentive does not work closely enough with those who decide whether or not to embark on the work – the beneficiaries.

A cooperative does work closely with people, can be created and managed by them and is as responsive as possible to their needs. It will help to promote the drive for building renovation across the Region. For this reason, it will be beneficial for the municipality itself to be involved. It could hold information sessions on its premises, provide the necessary information on planning permits, keep an eye on projects in development and facilitate them to the best of its ability. Local bank branches will also want to be involved as they will be concerned about losing part of their market otherwise. Energy information points will ensure, on behalf of the Region, the accuracy of information on regulations and on incentives, guarantees and other benefits. A facilitation service, such as those in Gembloux or Namur, will enable renovation candidates to come in search of information, implementation procedures, finance, etc. justifying the presence of the other actors already mentioned – banks, municipality, information points, etc.

It is also common for energy renovation projects to encounter a problem with scale: the projects are too small and the individual management costs too high. One solution to this would be to group separate projects together to achieve critical mass. Joint ownerships can lead by example, such as a residential tower (or block), but also individual houses or small joint ownerships of a few homes forming a cooperative to negotiate conditions for credit and working as a group. In this case, the property manager undertakes a group project, bringing together a number of individual owners. This type of initiative can apply for tailored loans and cover the risk of default through insurance specially designed for this purpose.

¹⁹⁰ <https://www.europace2020.eu/> is a project funded under the European Union's H2020 programme.

Lastly, the citizens' cooperative Gaume Energie offers third-party finance to individuals wishing to carry out energy renovation work on their homes, with repayment based on the energy savings generated. This mechanism is more expensive than a traditional loan, but it is accessible to people with no option for borrowing and no equity.

This tool has significant potential, but the cooperative sector in the energy renovation of buildings has yet to develop.

There is now a public authority body that contributes capital to cooperatives with projects in the fields of renewable energy production and the energy performance of buildings, in particular. This is the '**Kyoto**' mechanism **Brasero from SOWECSOM/SRIW**. As long as the cooperative has at least €30 000 in private capital, Brasero can, on request, double the capital up to a maximum of €500 000. Its exit horizon is between 5 and 10 years.

SHORT-TERM INITIATIVES (2024)

- [Action 44.1]* **Give maximum support to the emergence of cooperatives working in energy renovation.** The following actions will be considered:
 - a) carrying out a feasibility study into establishing an estimated 150¹⁹¹ cooperatives of this type throughout the Region. We aim to calculate the leverage effect of such an initiative, aware that funds mobilised in this way are largely private funds¹⁹², with the only specific requirement being to determine operating arrangements;
 - b) providing support from the Region with staff costs for launching and running;
 - c) providing support from the Region in the form of pools of experts (legal/financial/technical) to set up projects, and in the form of coaching to help a new market to emerge.

¹⁹¹ Prior to any study, we believe that the municipal level is the most appropriate for establishing such cooperatives. 150 is therefore a likely number of entities, to be confirmed or clarified by this study.

¹⁹² Funds from the beneficiaries of the buildings to be renovated, but also from private investors wishing to take part in this drive.

3. RENOVATION OF TERTIARY BUILDINGS BELONGING TO THE PRIVATE SECTOR

To finance its renovation work, the segment comprising businesses and private bodies, which accounts for around 10% of buildings, will preferably use the specific measures and actions described below.

Mesure 45. Proceed with professional loans or investment loans

As with private loans, loans where conditions can be adjusted based on the energy performance of buildings can be extended to businesses as well as to professionals. However, energy efficiency is not just about professional offices. The greatest potential for energy savings is without doubt in improving manufacturing processes, but since this aspect does not directly relate to the renovation of buildings, it will not be developed further in this report.

Mesure 46. Continue and improve the tax relief scheme for companies

Tax relief is granted for energy-saving investments in businesses. The deduction is currently 13.5% for investments made during the tax period. This is a one-off deduction. Any improvement to the existing scheme will have a ripple effect in the sector.

Through investment aid for environmental protection and sustainable use of energy (**UDE**), Wallonia currently grants an investment incentive and **exemption from property tax** as well as a guarantee for businesses investing in energy production systems (biomass boiler, cogeneration, wind, solar, hydraulic, heat pump). The current system may be assessed and improved, but the principle should remain.

Mesure 47. Continue to provide specific finance solutions for private actors wishing to invest in energy renovation and/or decarbonisation of their energy supply

NOVALLIA, a subsidiary of the SOWALFIN Group, advises, supports and finances SMEs that wish to reduce their utility bill while reducing CO₂ emissions, or who are providing innovation in these fields. It helps Walloon SMEs (in all activity sectors) to identify financial requirements for their innovation or energy renovation projects, and helps to close the funding gap by bringing SMEs into contact with other finance actors, private and/or public.

The finance allocated consists of a loan which can take various forms depending on the needs. The duration of the loan depends on the nature of the project. The interest rate for the loan is at least equal to the Euribor-IRS rate, to which is added a limited margin that depends on the risk of the project and the nature of the loan. The loan is repaid on a straight-line basis through quarterly instalments. A grace period is possible for repayment of the principal, but finance can also be provided in the form of equity investment.

MEDIUM-TERM INITIATIVES

- **Make interest-free loans accessible to service sector actors** (including private non-profit) who wish to invest in improving the energy performance of their building.

Mesure 48. Optimise, simplify and harmonise the investment aid system for SMEs and very small businesses

Through the **AMURE programme**, Wallonia has also developed financial assistance mechanisms for **small and medium-sized enterprises** to have quality energy audits and energy (pre)feasibility studies carried out by approved and independent professionals. The audit or study must be carried out, according to precise specifications, by an expert approved by the Walloon Public Service. The aim of the audit or study is to allow the company to assess the benefit of investing in more rational use of energy, the use of renewable energies, use of cogeneration or development of a comprehensive plan for energy improvement of the company. The subsidy rate is 60% for medium-sized enterprises and 70% for small businesses. Since 2020, SMEs in the hospitality sector and in wholesale and retail trade can also receive AMURE subsidies (40% of the additional cost for a medium-sized business, 50% of the additional cost for a small business) for their energy-saving investments if they exceed the standards for insulation of the envelope, ventilation or LED lighting in their buildings, or insulation of the walls of their cold rooms.

Through investment aid for environmental protection and **sustainable use of energy (UDE)**, Wallonia grants an **investment incentive** to companies carrying out an investment programme that makes a significant contribution to sustainable development.

Under the **industry agreements**¹⁹³ targeting the **industrial sector**, energy audits can be subsidised up to 50% for large, 60% for medium-sized and 70% for small enterprises. For SMEs that have signed a declaration of intention to enter into an industry agreement, the internal costs incurred in carrying out the audit are also eligible for subsidy.

Mesure 49. Increase emissions reduction for industrial buildings subject to industry agreements

Industry agreements consist of a contract between Wallonia and the various industrial sectors, represented by the most energy-intensive companies via their federation. Through this contract, the companies undertake to improve their energy efficiency and reduce their CO₂ emissions by a given deadline. Although the share of the emissions reduction that relates to the renovation of buildings is minimal compared to reductions in relation to production processes, these are still within the scope of intervention.

4. SOURCES OF FINANCE

The overall investment required is substantial. To achieve the targets, it will be necessary to use both private savings (including household capacity to borrow the budget required) and accessible public finance at municipal, provincial, regional, federal and European levels.

There is no need to create new mechanisms from scratch. There are existing programmes and funds already dedicated to energy savings; households are already undertaking work on efficiency and comfort in their homes, etc.

¹⁹³ Industry agreements consist of a contract between Wallonia and the various industrial sectors, represented by the most energy-intensive companies via their federation. Through this contract, the companies undertake to improve their energy efficiency and reduce their CO₂ emissions by a given deadline.

Mesure 50. Effective delivery of Wallonia's major energy efficiency of buildings project will require procedures to be standardised Mobilise private savings

As of 31 December 2019, Belgians held €281.5 billion in savings accounts¹⁹⁴. Some of these savings could be channelled into projects serving national and regional energy efficiency targets. Various tools will enable us to harness some of these savings and create significant leverage for public investment. Adequate return on and tax treatment of these investments will need to be established in order to encourage them.

- **Mobilise Walloon savings on behalf of SMEs.** The funds mobilised could be used, among other things, for the energy renovation of these companies' buildings.
 - Based on the observation that Belgian savings are at a particularly high level, the Walloon Government is supporting a project aiming to mobilise citizens' private savings on behalf of young SMEs through a tax-efficient loan mechanism. This mechanism is in response to the need for SMEs to strengthen their financing capacities while making them less dependent on the banking sector.
 - The citizen loan, which launched in 2016, is to be evaluated after one year of operation. Following analysis, the Government may adjust the conditions for the measure. Operational management will be entrusted to SOWALFIN¹⁹⁵.
- **Mobilise the savings of Walloon citizens to use for building renovation** within one or more **renovation funds**. This mobilisation can be stimulated by offering a public guarantee on this type of investment. Such a fund could combine a mix of different types of assets, risks and returns.

SHORT-TERM INITIATIVES (2024)

- [Action 50.1]* **Establish a working group** to assess the benefits and ways of developing various mechanisms, such as:
 - a) for the tertiary sector, an energy transition fund for revolving credit to allow access to capital for small ESCOs (or final beneficiaries in the bank guarantee model). The fund must be fed by various sources, including citizens' savings;
 - b) for private residential buildings, an investment and guarantee fund, partially funded by the EIB and by private investors, intended to provide innovative financial solutions (loans guaranteed by the Region and loans secured against buildings) developed to provide access to finance to owners excluded from traditional credit because of their age or income.
- [Action 50.2]* **Launch a 'green loan'. Develop green bonds at regional or municipal level.** The Region has received its non-financial rating enabling it to issue green bonds. Energy renovation is a use of these funds that complies with the criteria. These green bonds will be developed in line with the European framework to raise new dedicated sources of financing. However, for good management, it should be borne in mind that the duration of the investments must correspond to the duration of the loan. A loan that is repayable after 5 years cannot be used to finance an investment for which the return is not expected for 20 years.
- [Action 50.3]* **Participate in citizen platforms for financing energy renovation.** Alongside the

¹⁹⁴ These are the total Belgian savings in regulated savings accounts as of 31/12/2019, according to statistics published by the NBB on its website <https://stat.nbb.be/>. The updated amount at the end of August 2020 is €292 100 072 million. Source <https://stat.nbb.be/Index.aspx?DataSetCode=CREDISCORP#> (see line in the table 'Regulated savings deposits', column 2020M8).

¹⁹⁵ SOWALFIN: One-stop finance shop for Walloon SMEs and very small businesses, aiming to provide finance for projects to investment in and development these companies.

traditional banking system, alternative ‘crowd’ financing systems are developing (crowdlending, crowdfunding, crowdinvesting, etc.). Getting involved in these new ways of financing projects enables the public authority to make them more attractive to individual participants. Public money thus generates a beneficial leverage effect by attracting private investment. Depending on the rules for the particular platform, the project eventually repays the investment with interest, which can be used to finance other projects and thus create a snowball effect. The Region can also participate in these platforms by purchasing project bonds¹⁹⁶ on renovation platforms that mobilise citizens' savings for a specific renovation project. This solution, which has the advantage of placing the public authority intervention beyond the realm of public deficit (ESA 2010), will be explored further in the short term.

- [Action 50.4]* **Support citizen investment in cooperatives working on the energy performance of buildings.** Via the ‘Kyoto’ mechanism Braserio¹⁹⁷, the Region intends to provide equity for cooperatives with projects in the fields of renewable energy production and the energy performance of buildings, in particular. The mechanism doubles the equity capital invested in the cooperative by citizens, up to a maximum contribution of €500 000 per organisation. There is a gradual and planned withdrawal. This contribution to the capital of cooperatives by the Region increases the confidence of citizens and financial organisations investing in them.

Mesure 51. Mobilise European funds

Before entering into discussions with the European Commission on involving their various funds, subsidies and guarantees, the desired strategy first needs to be identified.

Once this stage is completed, the Region will be able to draw on several existing tools¹⁹⁸, such as those presented in Annex 7.

The variety of solutions on offer means there is a need to know the direction desired before contacting the European authorities to implement the chosen strategy.

It is sometimes possible to apply to intermediary bodies in order to take advantage of European funding without needing significant internal resources. These include the following bodies.

- Belfius has signed an agreement with the European Investment Bank (EIB) to provide a €400 million joint financing programme to support Belgian cities and municipalities with ‘**Smart Cities & Sustainable Development**’ projects. With regard to energy efficiency, Smart Cities aims to promote projects in renewable energy, renovation or construction of buildings and public lighting that are integrated into a local public framework.
- New programmes are currently being discussed for delivering private projects using European funds, which would also be open to ‘small projects’ at housing level, but these programmes require an intermediate body to be able to harness these funds.
- The **PF4EE** programme has been rolled out and is currently open to financial institutions, which can apply until September 2022. European funds are used to double the funds made available by the partner bank, at a rate that allows the bank to grant a substantial reduction to its customers. A

¹⁹⁶ Project bonds are a category of bonds issued by a company for activities relating to the financing phase for one or more projects.

¹⁹⁷ This is a function delegated by the Government to SOWECSOM in May 2019 for a 3-year period.

¹⁹⁸ An in-depth study has been carried out into European funding mechanisms; what is presented here and in the Annex is only a brief extract.

European guarantee further reduces the risk taken by the financial institution. The Region will draw the attention of Belgian/local financial institutions to this mechanism.

SHORT-TERM INITIATIVES (2024)

- [Action 51.1]* Participation in European programmes is accessible to a range of stakeholders, private or public. To ensure good coordination of efforts, the Region will provide targeted communication to invite these stakeholders to develop projects and to consult the Region on aligning their initiatives with the Region's targets.

Mesure 52. Mobilise regional funds

The **Walloon Social Credit Society (SWCS)** grants social mortgage loans or social instalment loans to households according to their income (cf. Accesspack, Rénopack, Rénoprêt) by borrowing on the capital market through calls for tenders, which is guaranteed by Wallonia. Wallonia supports the SWCS by providing it with an annual advance which covers the interest differential between the rate for finance raised on the capital market and the rate for loans granted to individuals.

The **Walloon Housing Fund for large families (FLW)** is a limited liability cooperative society with private capital. The society has the three following functions, which are recognised by the Walloon Sustainable Housing Code as being of public interest:

- providing large families with the opportunity to buy a home by granting social mortgage loans as well as loans to improve the energy performance of homes (Ecopack);
- giving large, low-income families the resources to rent accommodation;
- providing advice, monitoring, coordination and finance to housing organisations with a social purpose (social housing agencies, housing advocacy associations and district authorities).

The FLW receives funding from Wallonia to carry out its functions. The Fund's activities centre on providing social support and help with energy to its prospective borrowers and tenants.

SHORT-TERM INITIATIVES (2024)

- [Action 52.1]* Assess the socio-economic impact of an additional 'ecotax' charge on energy consumption (electricity, gas, fuel oil) to supply the fund for the energy renovation of buildings¹⁹⁹.
 - Analyse the risk of negative impact of an ecotax on the lowest income brackets.

MEDIUM-TERM INITIATIVES

- [Action 52.a]* Create a new monetary ecosystem dedicated to energy renovation.

¹⁹⁹ The Region has joined forces with the Federal Government to study the feasibility of a carbon tax to internalise the negative externalities from fossil fuels as part of the national debate conducted in 2017.

V. THE MULTIPLE BENEFITS OF THE RENOVATION STRATEGY

A. ESTIMATED ENERGY AND GHG SAVINGS

The Government stipulates in the DPR 2019-2024 that **Wallonia is aiming for carbon neutrality by 2050 at the latest, with an intermediate step of reducing greenhouse gas (GHG) emissions by 55% by 2030, compared to 1990.** These targets will require the implementation of ambitious policies.

The transformation targets, for both residential and tertiary sectors, are very ambitious and the changes required to achieve them mark a clear break with historical trends, both in terms of the number and the extent of the renovations envisaged. The business as usual scenario is not an option if Wallonia wants to achieve its targets.

The renovation strategy enables a significant reduction in the energy consumption of Walloon buildings – both housing and tertiary buildings – and at the same time contributes to the targets for reducing greenhouse gas emissions.

As well as the reductions in energy consumption resulting from the implementation of this strategy, there is a reduction in the carbon impact of the energy consumed. An initial step towards this decarbonisation would be supplying heat from renewable sources. In the longer term, several studies envisage electrification of the energy supply and the development of storage solutions for buildings. Nevertheless, this requires production to move towards 100% decarbonised electricity by 2050.

The expected impact of the renovation strategy in terms of energy savings, both by 2050 and in the short and medium term (2030 and 2040), is presented in the following paragraphs.

1. SCOPE OF ANALYSIS

The residential sector and tertiary sector together represent 38% of the final energy consumption in Wallonia (28% from residential buildings, 10% from tertiary). Most of this consumption is through heating, domestic hot water and cooling and lighting (in the tertiary sector). It is this consumption that the renovation strategy aims to specifically target. The breakdown of this consumption by usage, quoted in the figures below, indicates that the consumption included in the scope of analysis corresponds to 86% of consumption in the residential sector and 80% in the tertiary sector.

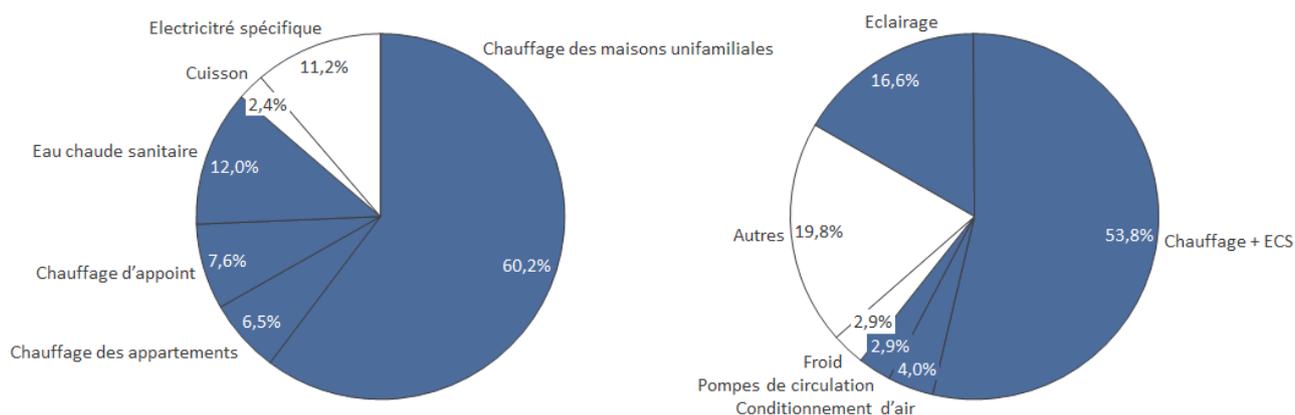


Figure 43. Breakdown of energy consumption by use, in housing (left) and in tertiary buildings (right) (Source: Energy balance 2017).

Electricité spécifique 11,2%	Specific electricity 11.2%
Cuisson 2,4%	Cooking 2.4%
Eau chaude sanitaire 12,0%	Domestic hot water 12.0%
Chauffage d'appoint 7,6%	Auxiliary heating 7.6%
Chauffage des appartements 6,5%	Heating of apartments 6.5%
Chauffage des maisons unifamiliales 60,2%	Heating of single-family houses 60.2%

Eclairage 16,6%	Lighting 16.6%
Autres 19,8%	Other 19.8%
Froid 2,9%	Cooling 2.9%
Pompes de circulation 2,9%	Circulation pumps 2.9%
Conditionnement d'air 4,0%	Air conditioning 4.0%
Chauffage + ECS 53,8%	Heating + DHW 53.8%

Targeted consumption for the renovation strategy amounted, in 2017, to 30.8 TWh for the residential sector after weather correction²⁰⁰ and 10.4 TWh for the tertiary sector²⁰¹.

Comments:

- Energy consumption and greenhouse gas emissions²⁰² related to other uses are considered constant in the figures presented below.
- Energy consumption and greenhouse gas emissions for new buildings (built after 2017) are not included in the figures presented below.

2. LONG-TERM PATHWAYS FOR A REDUCTION IN ENERGY CONSUMPTION AND GREENHOUSE GAS EMISSIONS

Reductions in energy consumption and greenhouse gas emissions within the timescales presented for residential and non-residential in the section 'I.C.5 Timetable for implementing the renovation strategy' are quantified below. The assumptions and the quantification of alternative scenarios are presented in Annex 4.

A) RESIDENTIAL BUILDINGS

The target set for the energy performance of residential buildings is to move towards an average EPB A rating for the entire stock by 2050, with the remaining heating requirements covered by a decarbonised supply. The maximum specific primary energy consumption of a building with an EPB A rating is 85 kWh_{pe}/m²/year.

Analysis of the EPB certification and declaration databases shows an average theoretical primary energy consumption of 459 kWh_{pe}/m²/year for housing. This specific consumption varies according to EPB rating, as illustrated in Figure 44.

²⁰⁰ 29.7 TWh without weather correction. Compared to the 2017 renovation strategy, energy consumption and inventories of greenhouse gas emissions in the residential sector have recently been subject to an upward statistical correction (+3 TWh) for consumption of petroleum products.

²⁰¹ Without weather correction.

²⁰² This refers to direct emissions; emissions linked to the production of the electricity consumed are not included in the quantification.

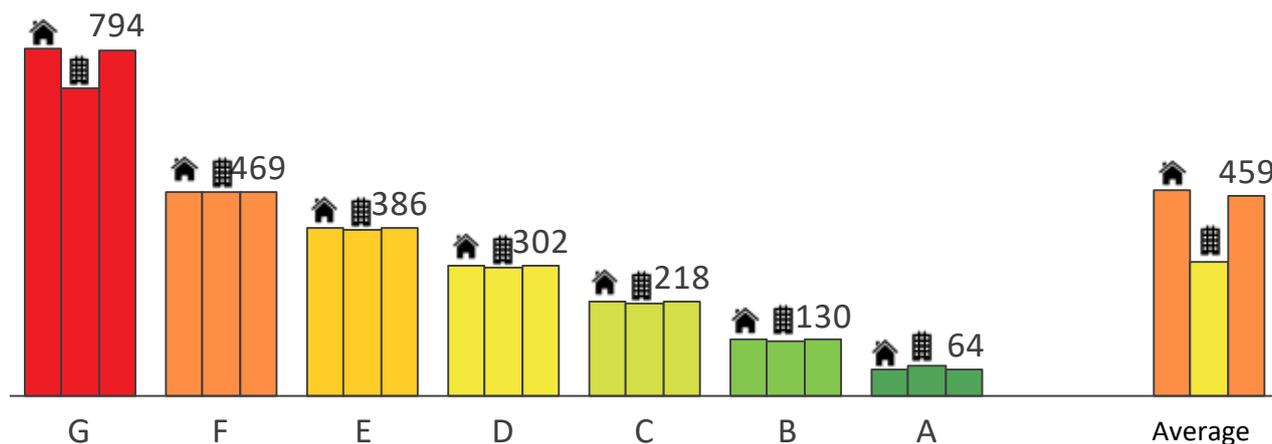


Figure 44. Average primary energy consumption (in kWh_{pe}/m²/year) of residential buildings by EPB rating, values for single-family homes, apartments and weighted average²⁰³.

Certification makes it possible to compare two buildings on the same footing. The corresponding calculation is based on verified data and assumptions on standardised use; it does not take into account the impact of the occupants' behaviour. This results in a good estimate of actual consumption for the most efficient buildings, but can result in significant distortion for older buildings. Based on the Walloon energy balance and the data available to define the building stock, the average primary energy consumption of the housing stock was 145 kWh_{pe}/m² in 2017, corresponding to specific final energy consumption of 131 kWh_{fe}/m². The basis should be actual consumption to estimate the real impact of the renovation strategy.

Timetable: as explained in the section 'I.C.5 Timetable for implementing the renovation strategy', the strategy envisages **phasing in housing renovation across Wallonia**. This phasing consists of gradual delivery of the stages in the renovation roadmap leading to decarbonised rating A. The priorities are expected to be insulation of the envelope – prioritising the roof – however taking into account the specific circumstances of each building and replacing systems reaching end of life. It is also expected that renewable heating systems will be deployed in situations where they are suitable. This assumes that the annual number of renovations of various building components (roof, floors, walls, windows, HVAC systems and renewable energy production) will increase as indicated in Section I.C.5.a), p. 38.

Improved performance, energy savings and GHG reduction: the figures below show the impacts of this timetable, on the trajectory of the average performance of the stock (

Figure 45), on the trajectory of the final energy consumption (Figure 49) and on greenhouse gas emissions (Figure 50). The figures are summarised in Table 16 for the key milestones.

The figures and their trajectories are presented in the form of ranges corresponding to different assumptions about the mix of heating technologies that the sector should be working towards by 2050. The four scenarios considered below were selected for contrast, to provide a sensitivity analysis of the results depending on the energy mix.

- Scenario **A**: the share of natural gas is maintained at 30%, with the contribution from decarbonised gas increasing to 10% by 2030 and 20% by 2050. Other fossil fuels are replaced by renewable energy. Apart from a solar thermal contribution maintained at 5%, the renewable heat supply is evenly shared between heat pumps and biomass technologies.
- Scenario **B**: the contribution from natural gas is reduced to 15% by 2050, with the same trajectory in the contribution from decarbonised gas:

²⁰³ Source: CLIMACT analysis based on databases of EPB certificates and declarations.

- **B.1:** with a greater contribution from biomass technologies than from heat pumps in the supply of renewable heat;
- **B.2:** with a greater contribution from heat pumps than from biomass technologies for the supply of renewable heat.
- **Scenario C:** heat supply in 2050 is no longer based on gas combustion. It is provided by heat pumps, biomass technologies, direct electric heating and solar thermal systems.

These assumptions are illustrated in

Figure 46 and clarified in Annex 4.

The renovation strategy triggers a genuine energy transition, and gradually reduces the annual energy consumption of Walloon buildings. Such a transition must occur gradually: the results achieved increase each year, as the rate and extent of renovations accelerate.

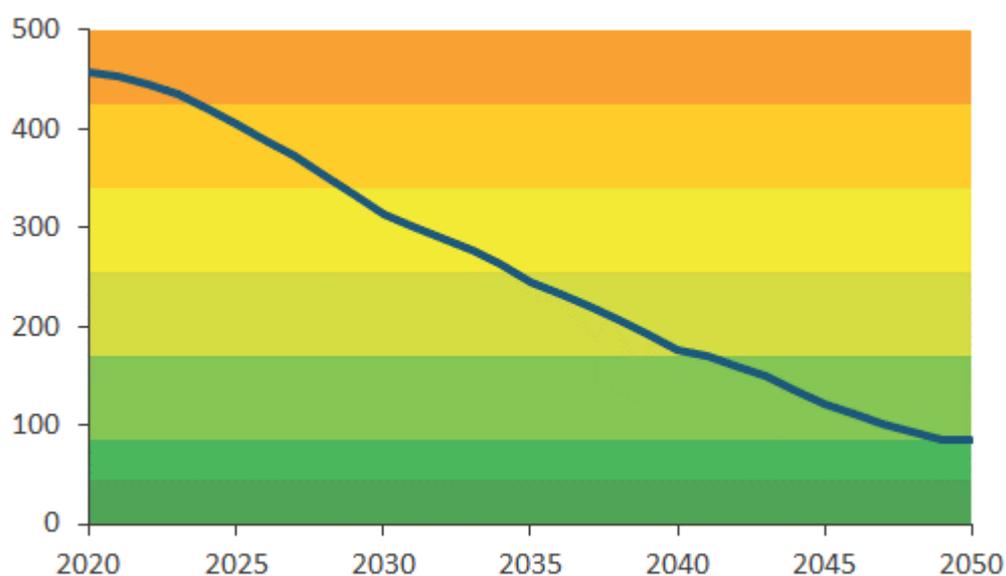
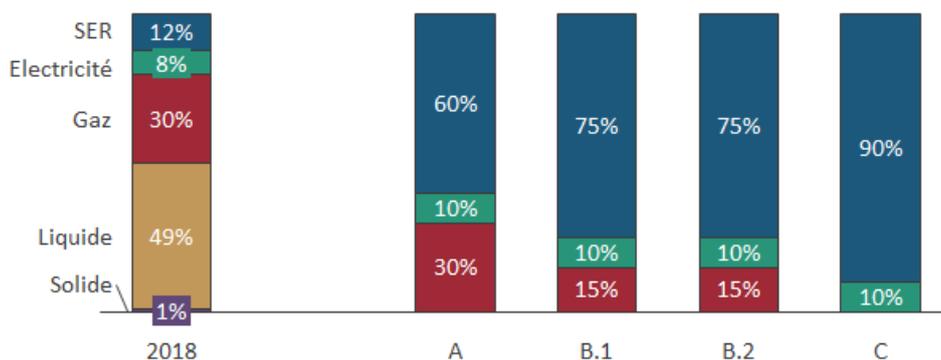
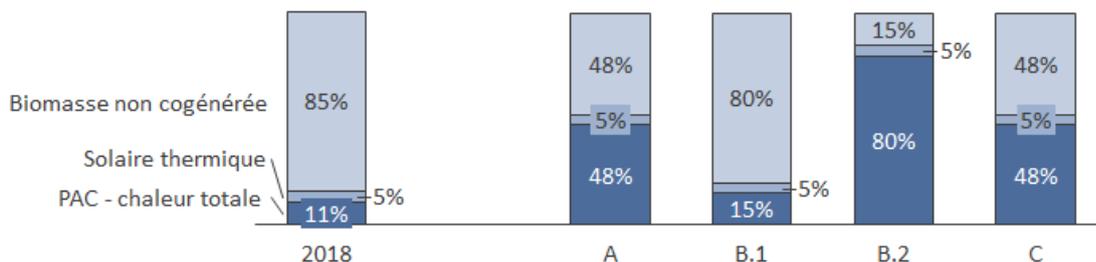


Figure 45. Trajectory of the average energy performance of residential buildings according to the timetable for implementation of the strategy (E_{spec} , kWh_{pe}/m²/year).

Hypothèses de mix énergétique de l’approvisionnement en chaleur



Contributions des technologies renouvelables



Part des gaz ‘verts’ dans la consommation de gaz et facteur d’émissions correspondant pour le gaz

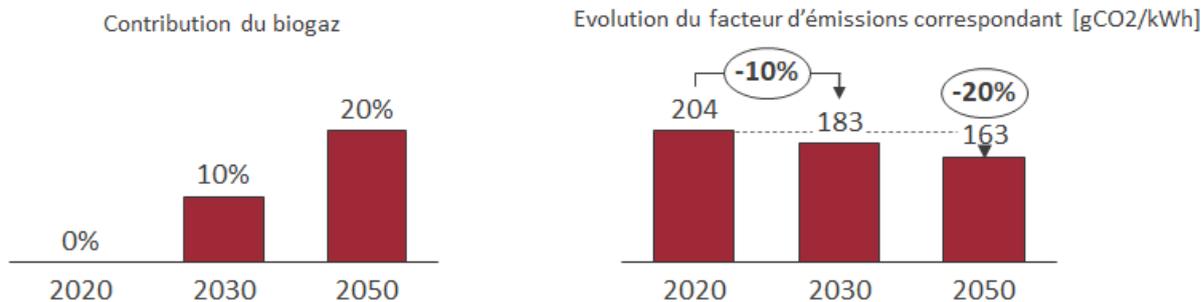


Figure 46. Contrasting scenarios considered (A, B.1, B.2, C) to provide a sensitivity analysis of the results depending on the energy mix for heating residential buildings.

Hypothèses de mix énergétique de l’approvisionnement en chaleur	Assumptions on energy mix for heat supply
SER	RES
Electricité	Electricity
Gaz	Gas
Liquide	Liquid
Solide	Solid
Contributions des technologies renouvelables	Contributions from renewable technologies
Biomasse non cogénérée	Biomass – non-cogeneration
Solaire thermique	Solar thermal
PAC - chaleur totale	Heat pump - total heat
Part des gaz ‘verts’ dans la consommation de gaz et facteur d’émissions correspondant pour le gaz	Share of ‘green’ gases in gas consumption and corresponding emissions factor for gas
Contribution du biogaz	Contribution from biogas
Evolution du facteur d’émissions correspondant [gCO2/kWh]	Change in corresponding emissions factor [gCO2/kWh]

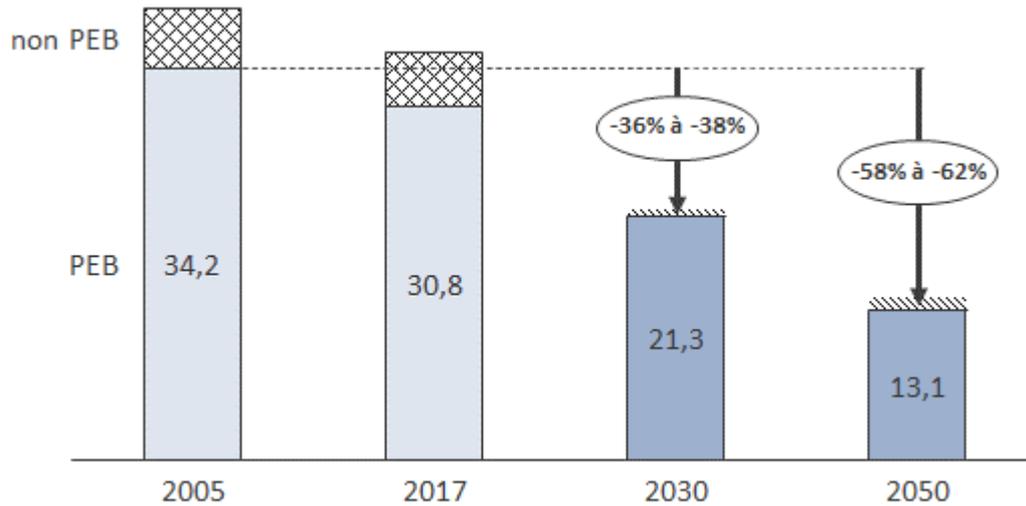


Figure 47. Trajectory of weather normalised final energy consumption for the EPB usage of existing residential buildings [TWh_{f,e}], historical and for 2030 and 2050 milestones.

non PEB	non-EPB
PEB	EPB
-36% à -38%	-36% to -38%

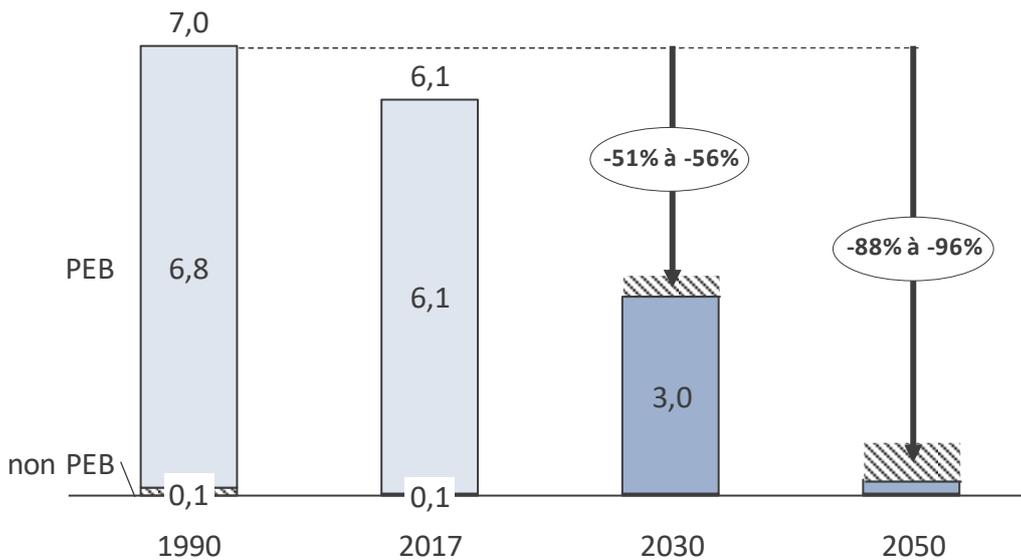


Figure 48. Trajectory of GHG emissions from existing residential buildings [MtCO₂e], historical²⁰⁴ and for 2030 and 2050 milestones²⁰⁵.

²⁰⁴ Not corrected for changes in heating degree days.

²⁰⁵ Residual emissions in 2050 (lower end of the range) partially represent (194 ktCO₂e) methane and nitrous oxide emissions from biomass as well as the (51 ktCO₂e) 2017 emissions from cooking kept constant. The upper part of the range is dependent on the contribution from natural gas remaining in the energy mix for the heating supply.

Final energy consumption		A	B.2	B.1	C
TWh _{fe}	2025	27.4	27.6	27.2	27.4
	2030	21.6	21.9	21.3	21.6
	2035	17.2	17.6	16.9	17.3
	2040	15.1	15.5	14.8	15.2
	2045	14.0	14.5	13.6	14.1
	2050	13.6	14.2	13.1	13.7

Reductions compared to 2005	2025	-20%	-19%	-20%	-20%
	2030	-37%	-36%	-38%	-37%
	2035	-50%	-49%	-51%	-49%
	2040	-56%	-55%	-57%	-56%
	2045	-59%	-58%	-60%	-59%
	2050	-60%	-58%	-62%	-60%

GHG emissions					
MtCO ₂ -eq	2025	5.0	4.9	4.8	4.8
	2030	3.4	3.3	3.2	3.1
	2035	2.3	2.2	2.0	1.9
	2040	1.7	1.6	1.5	1.3
	2045	1.2	1.1	0.8	0.7
	2050	0.8	0.6	0.4	0.2

Reductions compared to 1990	2025	-29%	-29%	-31%	-31%
	2030	-51%	-52%	-55%	-56%
	2035	-67%	-69%	-71%	-72%
	2040	-75%	-77%	-79%	-81%
	2045	-83%	-85%	-88%	-90%
	2050	-88%	-91%	-94%	-96%

Final energy consumption by carrier in 2030 (TWh)

Solid fuels - fossil	0.1	0.1	0.1	0.1
Solid fuels - biomass	3.6	5.7	2.4	4.6
Liquid fuels - fossil	7.6	7.7	7.5	7.6
Natural gas	6.5	5.6	5.6	4.7
Electricity	2.2	1.9	2.9	2.5
Renewable heat	1.5	0.9	2.9	2.2

Final energy consumption by carrier in 2050 (TWh)

Solid fuels - fossil	0.0	0.0	0.0	0.0
Solid fuels - biomass	4.3	9.0	1.7	6.4
Liquid fuels - fossil	0.0	0.0	0.0	0.0
Natural gas	4.0	2.0	2.0	0.0
Electricity	2.5	1.8	3.8	3.1
Renewable heat	2.8	1.4	5.6	4.2

Table 16. Final energy consumption and GHG emissions for EPB uses of residential buildings from before 2017.

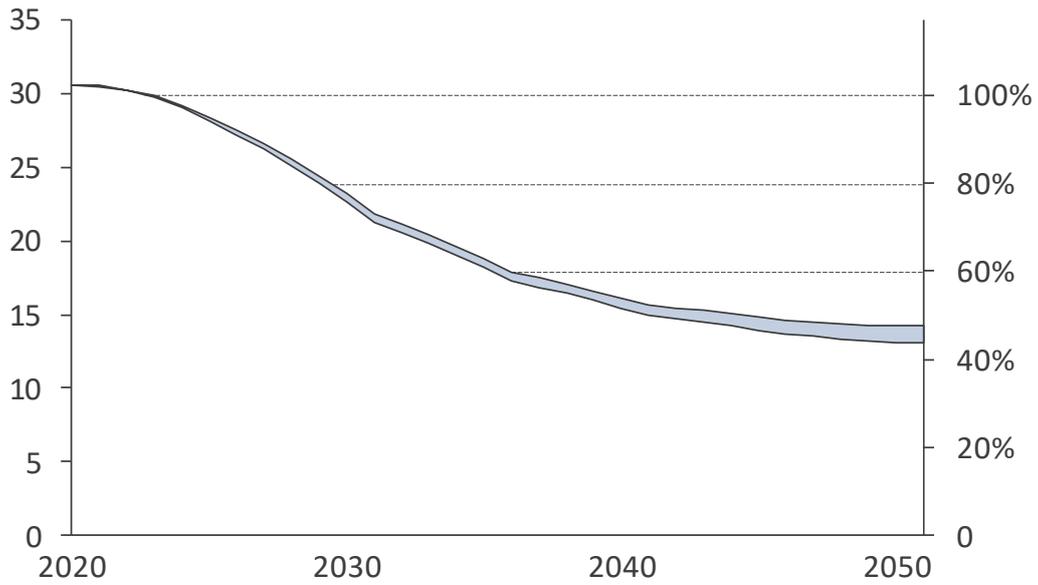


Figure 49. Trajectory range for final energy consumption (in TWh on left, % of 2005 on right) for EPB uses of existing residential buildings²⁰⁶ according to the timetable for implementation and options for the heating technology mix.

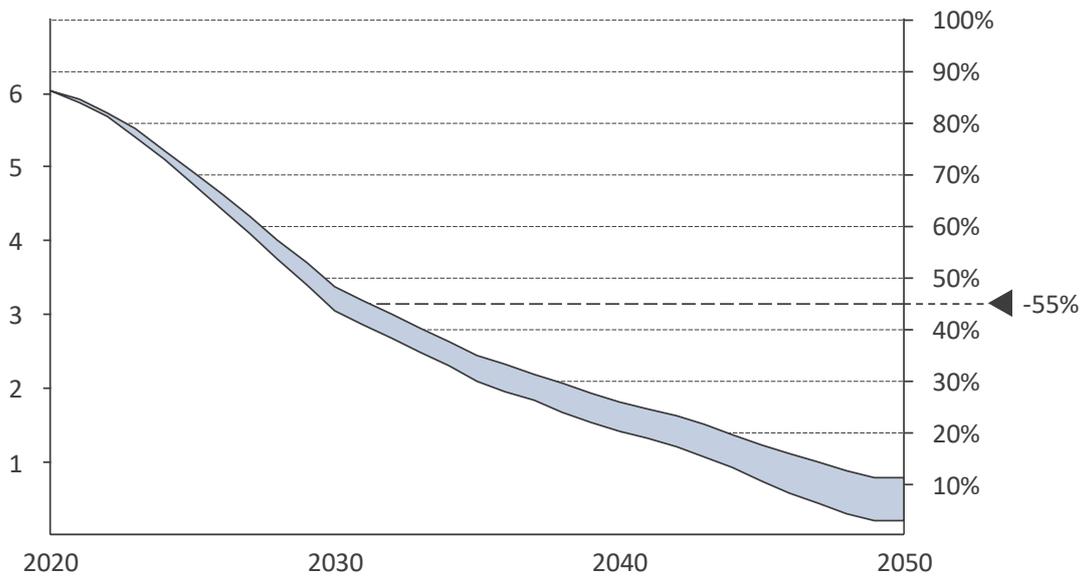


Figure 50. Trajectory range for GHG emissions (in MtCO₂-eq on left, % of 1990 on right) for EPB uses of existing residential buildings according to the timetable for implementation and options for the heating technology mix.

²⁰⁶ These figures do not include the energy consumption of new buildings constructed from 2017.

B) TERTIARY BUILDINGS

For the tertiary stock, the ambition is to work towards a building stock with a zero annual energy balance for heating, domestic hot water, cooling and lighting by 2050. These buildings will produce as much energy as they consume, taking into account that some of the production from renewable energy sources may be decentralised.

A benchmark for minimum energy efficiency needs to be established. The current intention is a final energy consumption limit of 80 kWh/m²/year. Based on the reference typologies in the COZEB II study, this represents a reduction in final energy consumption of 64%. This relative target is currently envisaged for each of the sectors. This may be subsequently refined based on an improvement in data available to describe these segments of the building stock.

The data currently available are insufficient to illustrate the energy performance of tertiary buildings and its trajectory. The Region's energy balance provides a breakdown of energy consumption by non-residential building sector, as well as an estimate of the surface area of buildings in each of these sectors. Development of the current quantification was based on this.

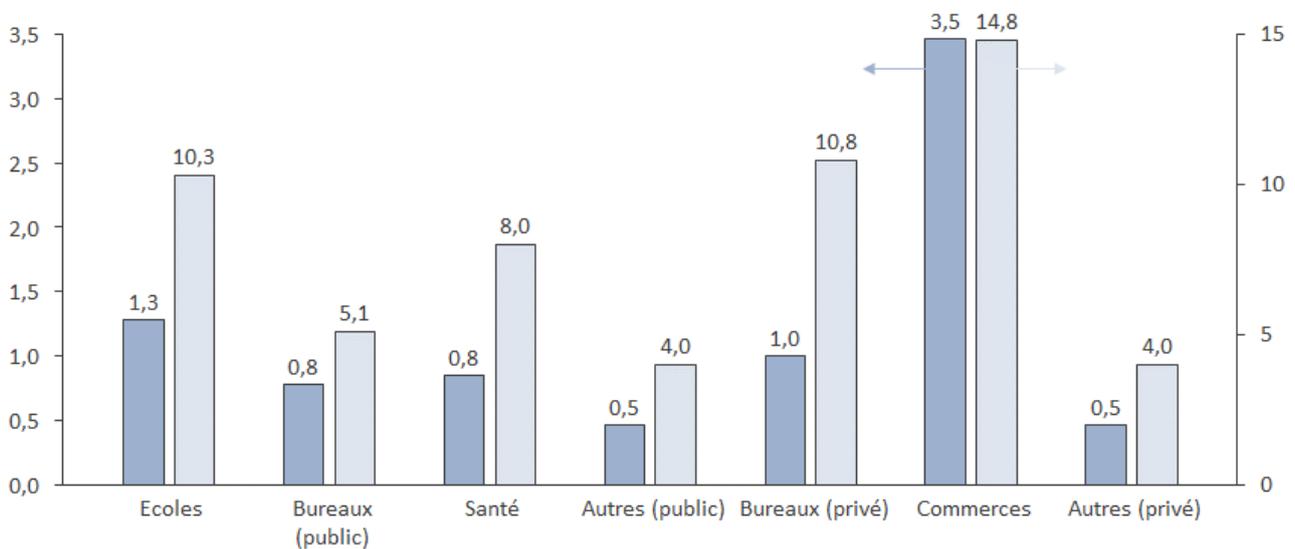


Figure 51. Data available to describe non-residential buildings by sector: final energy consumption for EPB uses²⁰⁷ (left-hand bars, in TWh_{fe}, 2017 data) and surface area of buildings (right-hand bars, in million m², 2016 data). Source: Walloon energy balance.

Ecoles	Schools
Bureaux (publics)	Offices (public)
Santé	Health
Autres (publics)	Other (public)
Bureaux (privés)	Offices (private)
Commerces	Shops
Autres (privés)	Other (private)

Timetable: as explained in Section 'I.C.5 Timetable for implementing the renovation strategy', the strategy envisages **phasing the renovation of tertiary buildings by sector (offices, schools, etc.)**. This phasing involves gradual delivery of investments to achieve the energy savings target (enabling an average reduction of 64% in final energy consumption by groups of buildings, see Table 4) and GHG reduction target (carbon neutrality,

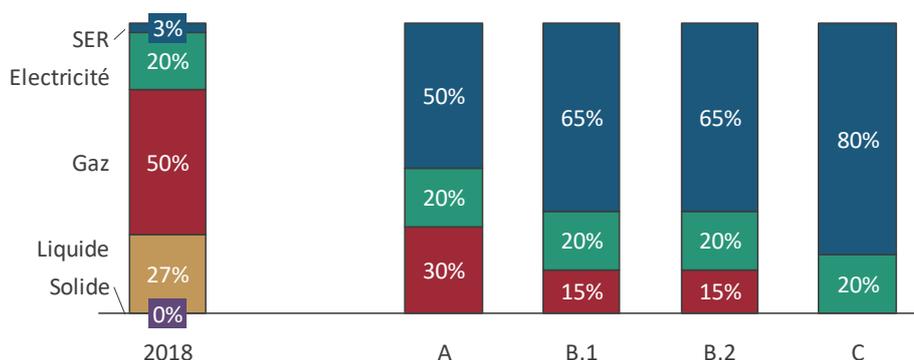
²⁰⁷ The following are deducted from the total final consumption: the categories 'kitchen' and 'other uses' under fuel consumption, and 'kitchen', 'office' and 'others' under electricity consumption units.

with energy needs supplied by renewable sources). This assumes the annual number of renovations increases as indicated in Table 5, p. 47.

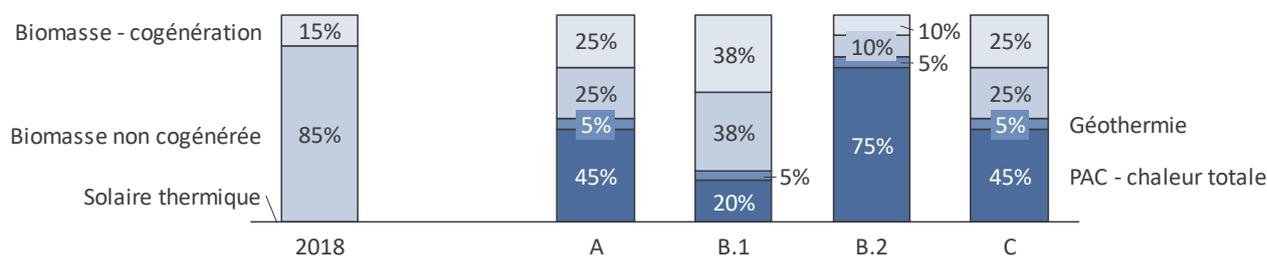
Improved performance, energy savings and GHG reduction: the figures below show the impacts of this timetable on the trajectory of final energy consumption (Figure 53) and on greenhouse gas emissions (Figure 54). The figures are summarised in Table 17 for the key milestones.

The figures and their trajectories are presented in the form of ranges corresponding to different assumptions about the mix of heating technologies that the sector should be working towards by 2050, as done for the residential sector. The four scenarios are considered on the same basis as for residential buildings, with assumptions adapted to tertiary buildings.

Hypothèses de mix énergétique de l’approvisionnement en chaleur



Contributions des technologies renouvelables



Part des gaz ‘verts’ dans la consommation de gaz et facteur d’émissions correspondant pour le gaz

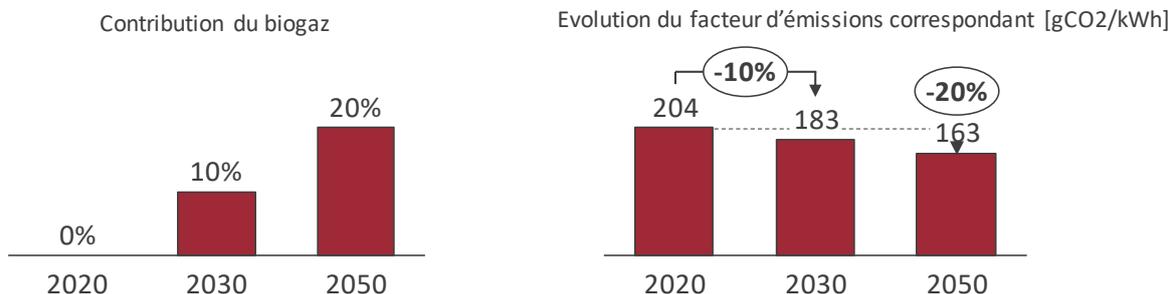


Figure 52. Contrasting scenarios considered (A, B.1, B.2, C) to provide a sensitivity analysis of the results depending on the energy mix for heating non-residential buildings.

Hypothèses de mix énergétique de l’approvisionnement en chaleur	Assumptions on energy mix for heat supply
SER	RES
Electricité	Electricity
Gaz	Gas
Liquide	Liquid
Solide	Solid

Contributions des technologies renouvelables	Contributions from renewable technologies
Biomasse non cogénérée	Biomass – non-cogeneration
Solaire thermique	Solar thermal
PAC - chaleur totale	Heat pump - total heat
Part des gaz 'verts' dans la consommation de gaz et facteur d'émissions correspondant pour le gaz	Share of 'green' gases in gas consumption and corresponding emissions factor for gas
Contribution du biogaz	Contribution from biogas
Evolution du facteur d'émissions correspondant [gCO2/kWh]	Change in corresponding emissions factor [gCO2/kWh]

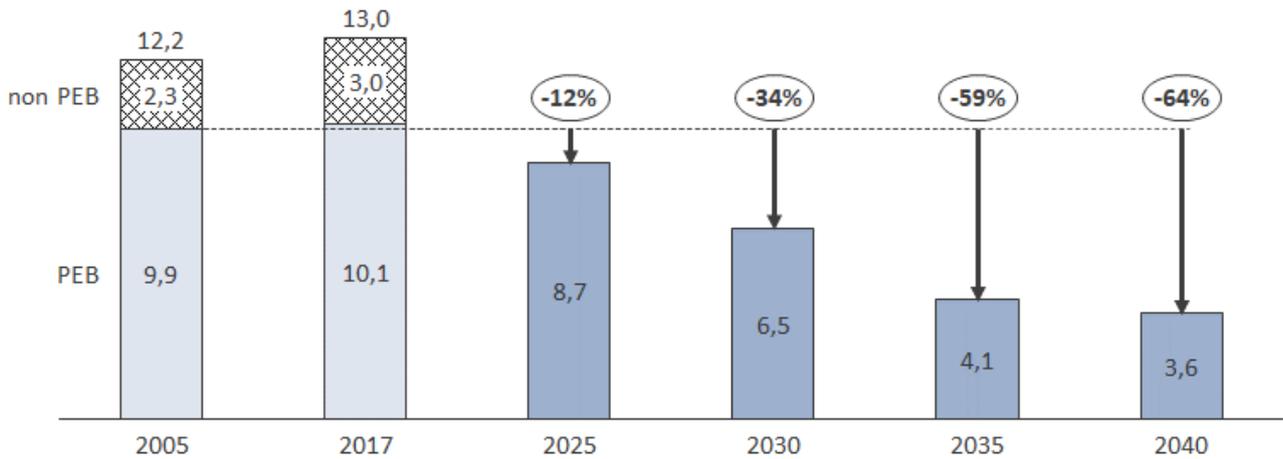


Figure 53. Final energy consumption of existing non-residential buildings (TWh), historical (all uses) and targets (EPB uses).

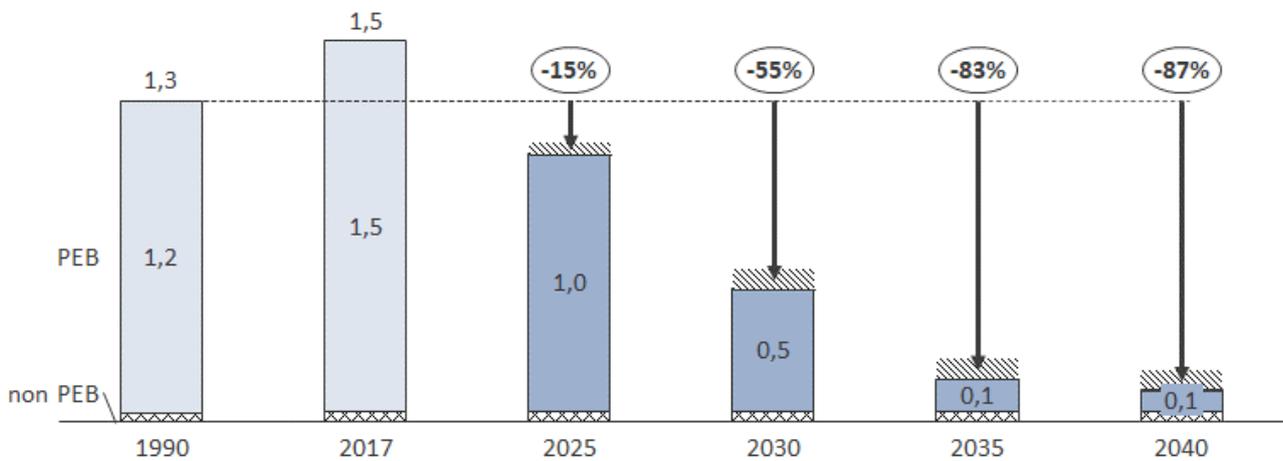


Figure 54. GHG emissions from existing non-residential buildings (MtCO2e), historical and for 2030, 2035 and 2040 milestones.

Final energy consumption²⁰⁸		A	B.1	B.2	C
In TWh	2025	8.7	8.7	8.7	8.7
	2030	6.5	6.5	6.5	6.5
	2035	4.1	4.1	4.1	4.1
	2040	3.6	3.6	3.6	3.6

Reductions compared to 2005	2025	88%	88%	88%	88%
	2030	66%	66%	66%	66%
	2035	41%	41%	41%	41%
	2040	36%	36%	36%	36%

GHG emissions

In ktCO ₂ -eq	2025	1 113	1 082	1 070	1 043
	2030	613	557	532	483
	2035	254	198	172	122
	2040	208	156	130	85

Reductions compared to 1990	2025	-13%	-16%	-17%	-19%
	2030	-52%	-57%	-58%	-62%
	2035	-80%	-85%	-87%	-90%
	2040	-84%	-88%	-90%	-93%

Final energy consumption by carrier in 2030 (TWh)

Solid fuels - fossil	0.0	0.0	0.0	0.0
Solid fuels - biomass	1.0	1.8	0.6	1.5
Liquid fuels - fossil	0.6	0.6	0.6	0.6
Natural gas	2.1	1.6	1.7	1.3
Electricity	1.2	1.0	1.5	1.3
Renewable heat	0.4	0.3	1.0	0.7

Final energy consumption by carrier in 2040 (TWh)

Solid fuels - fossil	0.0	0.0	0.0	0.0
Solid fuels - biomass	0.9	1.7	0.5	1.4
Liquid fuels - fossil	0.0	0.0	0.0	0.0
Natural gas	0.8	0.4	0.4	0.0
Electricity	0.8	0.6	1.1	0.9
Renewable heat	0.4	0.3	1.0	0.7

Table 17. Final energy consumption and GHG emissions for EPB uses of non-residential buildings from before 2019.

²⁰⁸ The potential reduction in the final energy consumption is estimated at 64% of consumption in 2017, regardless of variations in contributions between improving envelopes and improving systems. The technological mix considered therefore has no impact on the final energy consumption. This technological mix for heat supply is considered in order to assess the carbon intensity of this supply.

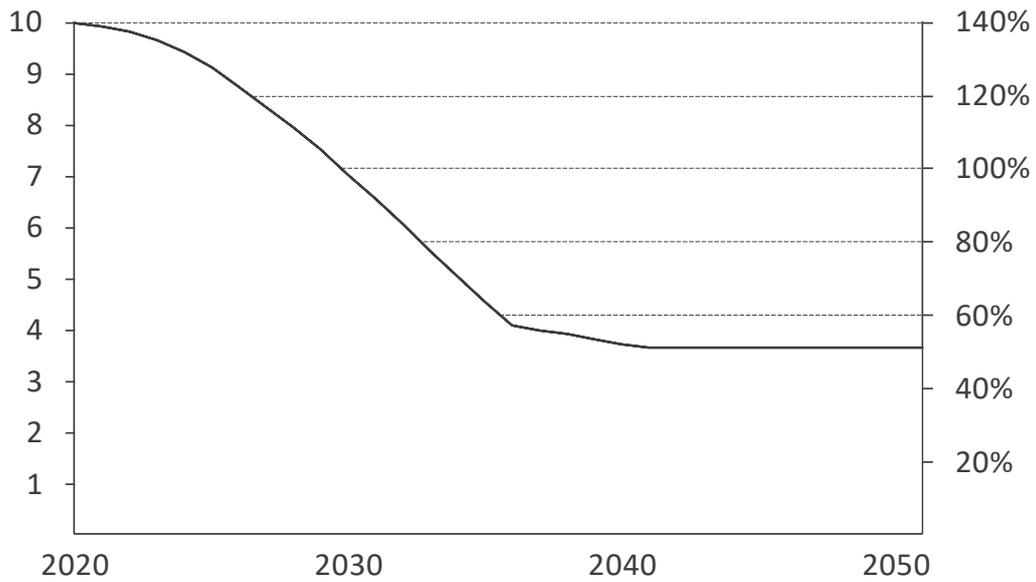


Figure 55. Trajectory of final energy consumption (in TWh on left, % of 2005 on right) for EPB uses of existing non-residential buildings according to the timetable for implementation.

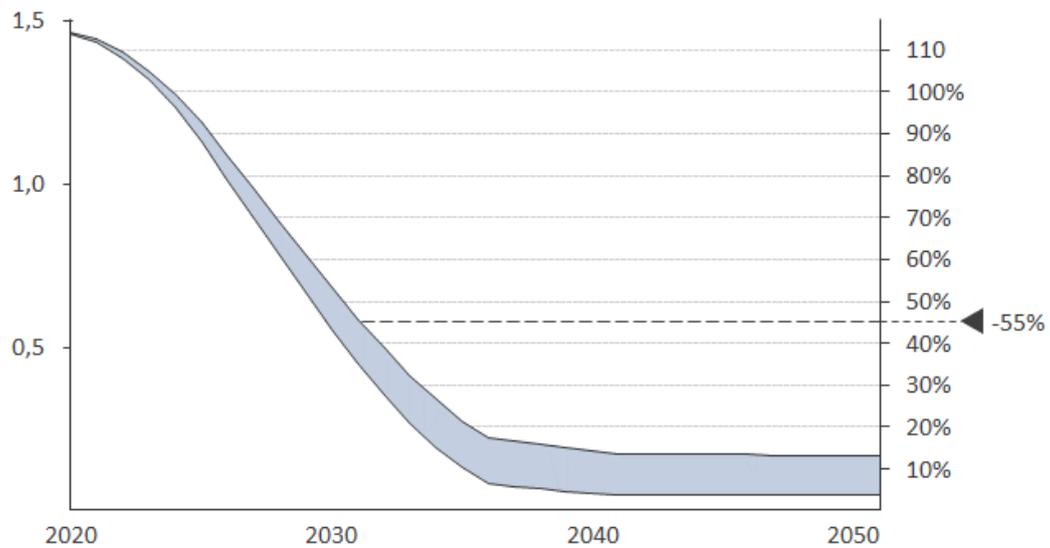


Figure 56. Trajectory of GHG emissions (in MtCO₂-eq on left, % of 1990 on right) for EPB uses of existing non-residential buildings according to the timetable for implementation and options for the heating technology mix.

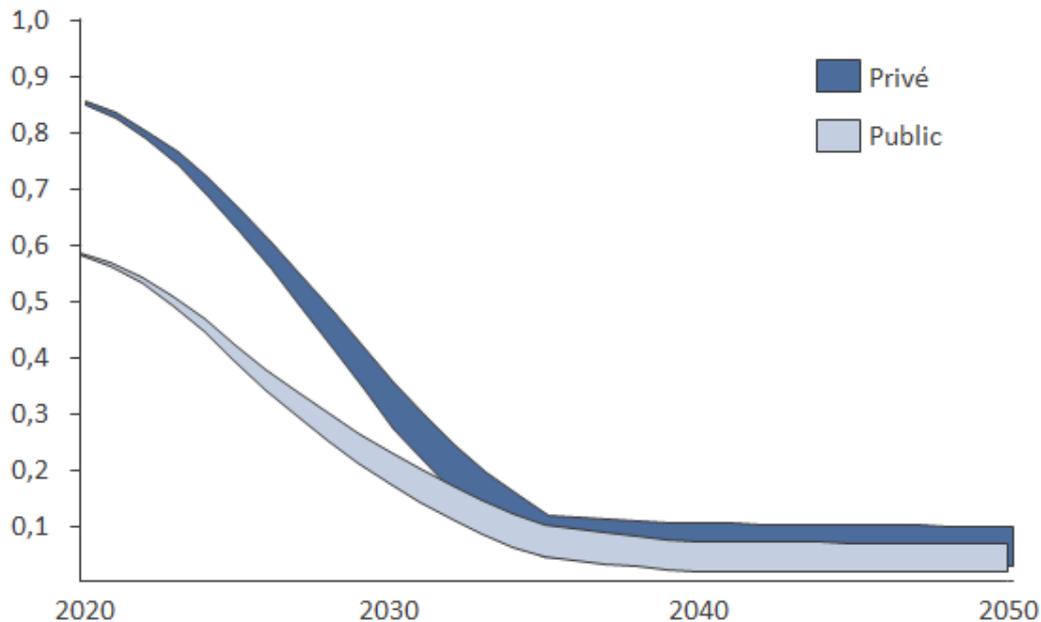


Figure 57. Contribution from public buildings and private buildings to the trajectory of GHG emissions (in MtCO₂-eq) for EPB uses of existing non-residential buildings according to the timetable for implementation and options for the heating technology mix.

3. CONTRIBUTION FROM KEY MEASURES TO ENERGY SAVINGS AND GHG REDUCTIONS IN THE RESIDENTIAL SECTOR

The renovation timetable proposed in Chapter I provides a timetable for transforming the building stock, without specifying the target audiences or key moments for triggering the renovations. This section aims to provide an assessment of the potential contribution of the measures for the key moments or segments of the stock that they target.

Of course, most of the measures and actions proposed in this strategy will only deliver results through simultaneous implementation of a coordinated and complementary set of measures and actions. It is thus difficult to isolate the impact of specific actions. The results shown below must therefore be seen as those obtained when implementing all the actions that make these key measures possible (information, support, availability of qualitative solutions, financing solutions, etc.).

The following key measures are considered:

- renovation on transfer of ownership (sale, donation, inheritance)
- renovation on change of tenants
- renovation of public housing
- for buildings not targeted by the measures above, delivery of the first stage of the roadmap by 2030
- promotion of renovation to A rating in the four measures above (in line with the levels of ambition indicated in Table 18)
- replacement of systems with decarbonised solutions where possible.

The energy savings depend on the implementation arrangements yet to be defined by the Walloon Government. Assumptions have been made to provide an estimate of the results that can be expected. These are presented in Table 18.

The results, which are illustrated in Figure 58, give rise to the following observations regarding contributions to energy savings. Stimulating deep energy renovation on transfers of ownership reduces the annual final

energy consumption by 8-10%²⁰⁹ by 2030 (i.e. 35% of the indicative target). As these key moments (which present many favourable conditions for deep renovation) will – for most properties – occur only once by 2050, it is crucial to encourage the deepest possible energy renovations. Rotation in the rental stock creates an environment conducive to phased renovations, with delivery of the different stages planned from now to 2050. Requiring landlords to deliver at least the first stage of the renovation roadmap reduces annual final energy consumption by 4-5% by 2030.

Renovation of social housing (public service housing companies and social housing agencies) can contribute 20% of the savings target in the renovation strategy by 2030 if comprehensive renovation to the A rating is rolled out in this segment. This will provide a significant boost in the deep energy renovation market and contribute to the exemplary role of public authorities.

To achieve the targets in the strategy, renovation will also need to be triggered outside of these key moments. Requiring at least the first stage of the renovation to be completed for all housing by 2030 will reduce the final energy consumption by 9-11%. This will mean ensuring, in addition to the key moments mentioned above, renovation at a rate of 4.4%/year for single-family homes and 7.2% for apartment buildings.

Favouring renovation approaches that result in the A rating in one go increases energy savings by 25%. It is considered here that, with appropriate incentive and support measures, 25% of renovations undertaken on transfer of ownership could achieve rating A, and 10% of those undertaken in the other cases. In addition, significantly reducing energy needs will enable systems to be converted to use decarbonised heating technologies, which is essential to achieve the targets by 2030.

Direct renovation to the decarbonised A rating has an even more marked impact on annual reductions in GHG emissions. It increases the impact of the measures considered by more than 70% (see Figure 59). Achieving the target of a 55% reduction in GHG emissions by 2030 compared to 1990 also requires deploying decarbonised heating technologies where possible. This measure contributes 12% of the target. Together, these two measures (promoting renovation to the decarbonised A rating in one go and replacing systems with decarbonised solutions where possible) double the impact on the reduction of GHG emissions.

It will only be possible to harness these savings through a coordinated set of measures and actions that strengthen the framework to provide transparency, stability and credibility conducive to energy efficiency investments (Pillar A of the strategy), structure and strengthen the market supplying quality goods and services to improve energy efficiency, taking advice from skilled professionals (Pillar B) and increase demand for energy-efficient buildings (Pillar C).

²⁰⁹ As a percentage of consumption for 2017.

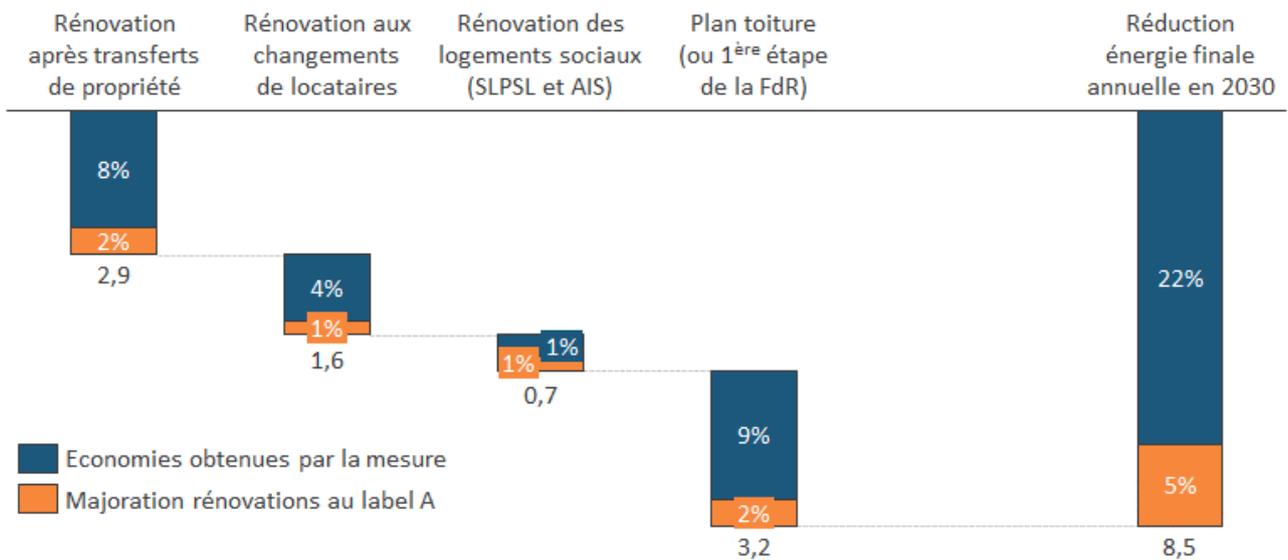


Figure 58. Final energy savings through key measures (annual TWh_e saved in 2030 and % of consumption in 2017).

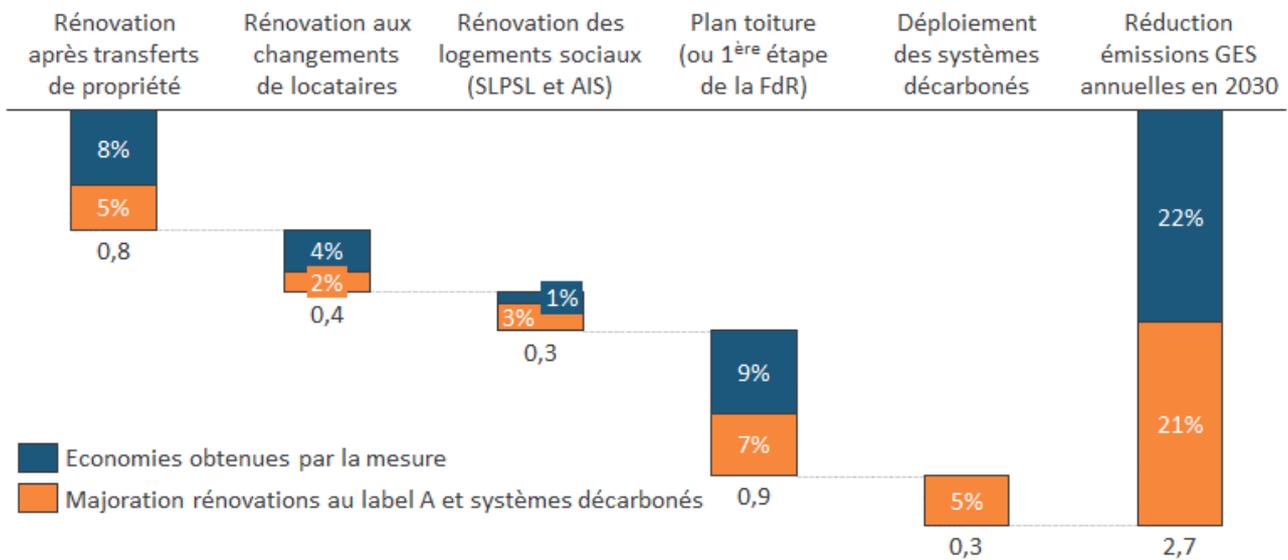


Figure 59. GHG reductions through key measures (annual MtCO_{2e} avoided in 2030 and % of GHG emissions in 2017).

Rénovation après transferts de propriété	Renovation after transfer of ownership
Rénovation aux changements de locataires	Renovation on change of tenants
Rénovation des logements sociaux (SLPSL et AIS)	Renovation of social housing (companies and agencies)
Plan toiture (ou 1 ^{ère} étape de la FdR)	Roof plan (or 1st stage in roadmap)
Réduction énergie finale annuelle en 2030	Annual final energy reduction in 2030
Economies obtenues par la mesure	Savings generated by the measure
Majoration rénovations au label A	Supplementary renovation to A rating
Réduction émissions GES annuelles en 2030	Reduction in annual GHG emissions in 2030
Majoration rénovations au label A et systèmes décarbonés	Supplementary renovation to A label and decarbonised systems

MEASUREMENT	Scenario for impact assessment	TWh _{fe} /year ²¹⁰	GHG/year
Renovation on transfer of ownership (sale, donation, inheritance)	<ul style="list-style-type: none"> Following a transfer of ownership, single-family homes are renovated within 5 years. 256 000 single-family homes are renovated by 2030. These renovations enable half the savings of renovating to rating A. 	-8%	-8%
	<ul style="list-style-type: none"> 25% of these renovations achieve rating A. 	-10%	-13%
Renovation on change of tenants	<ul style="list-style-type: none"> The first stage in the renovation roadmap²¹¹ is implemented by 2030 for all homes in the rental stock (390 000 homes). These renovations enable half the savings of renovating to rating A. 	-4%	-4%
	<ul style="list-style-type: none"> 10% of these renovations achieve rating A. 	-5%	-6%
Renovation of social housing	<ul style="list-style-type: none"> By 2030, 55 000 public homes and 6 000 homes managed by social housing agencies will be renovated. These renovations enable, on average, half the savings of renovating to rating A. 	-1%	-1%
	<ul style="list-style-type: none"> From 2025, all these renovations directly result in rating A. 	-2%	-4%
Roof plan (or first stage in the renovation roadmap)	<ul style="list-style-type: none"> Roof insulation (or the first renovation stage identified in the housing audit roadmap) is carried out for homes not covered by the measures above. This represents acting on 4.4%/year of single-family homes (60 000 single-family homes renovated a year) and 7.2% of apartment buildings (20 000 homes renovated a year). 	-9%	-9%
	<ul style="list-style-type: none"> 10% of these renovations achieve rating A. 	-11%	-16%
Deployment of decarbonised systems	<ul style="list-style-type: none"> Heating systems are replaced by decarbonised heating technologies by 2030 in 130 000 suitable homes. 	²¹²	-5%

Table 18. Scenario considered in assessing the impact of key measures on energy savings achievable through implementing the renovation strategy.

²¹⁰ Impact by 2030.

²¹¹ Estimated at 30% of energy savings from renovating to rating A.

²¹² Not calculated.

B. ENERGY RENOVATION OF THE WALLOON BUILDING STOCK PRESENTS SIGNIFICANT WIDER BENEFITS

In addition to their positive impact on reducing GHG emissions and energy consumption, most energy efficiency measures in buildings, in particular as part of deep renovation, bring many wider benefits²¹³.

The International Energy Agency²¹⁴ has attempted to identify the multiple benefits associated with energy efficiency. These are illustrated in Figure 60, and most of them are mentioned within the measures of the building renovation strategy.



Les principaux bénéfices de l'amélioration de l'efficacité énergétique

Figure 60. The main benefits of improving energy efficiency, IEA 2014.

Economies d'énergie	Energy savings
Emissions de gaz à effet de serre	Greenhouse gas emissions
Sécurité énergétique	Energy security
Approvisionnement énergétique	Energy supply
Prix de l'énergie	Energy prices

²¹³ Although these are real wider benefits, they are difficult to estimate as they depend on multiple factors (local conditions, method of implementing the measures, etc.).

²¹⁴ The IPCC Fifth Assessment Report (AR5) categorises the wider benefits according to the sustainable development priorities.

Impacts macroéconomiques	Macroeconomic impacts
Productivité industrielle	Industrial productivity
Réduction de la pauvreté	Poverty reduction
Santé et bien-être	Health and wellbeing
Emploi	Employment
Pollution de l'air	Air pollution
Gestion des ressources	Resource management
Budget publics	Public budgets
Revenu disponible	Disposable income
Valeur des actifs	Value of assets
Amélioration de l'efficacité énergétique	Improved energy efficiency

Renovations such as improvements to the envelope, more efficient heating and cooling systems, better interior lighting and better ventilation offer benefits that go beyond energy savings and GHG emission reductions:

- for the user. Improving the energy performance of buildings has a direct impact on the utility bill, but also has beneficial consequences for the health, comfort and well-being of the occupants;
- for the public authorities. Besides the advantages in terms of securing energy supply and reducing climate impact, improving the energy performance of buildings has many macroeconomic advantages, improving public finances and reducing business costs. In addition, the various tools developed and the regular evaluation of the strategy provide a better understanding of the stock, the impact of the policies implemented, etc.

Although these multiple benefits are recognised by most actors, it remains a major challenge to quantify them so they can be taken into account in managing public budgets and in the business models of market actors.

European studies show that €1 invested in energy renovation can generate between €1 and €5 in terms of economic impacts, health, climate change impacts avoided, the security of energy supply and the saving of resources²¹⁵. This societal leverage effect is even greater if we consider only the public share of funding.

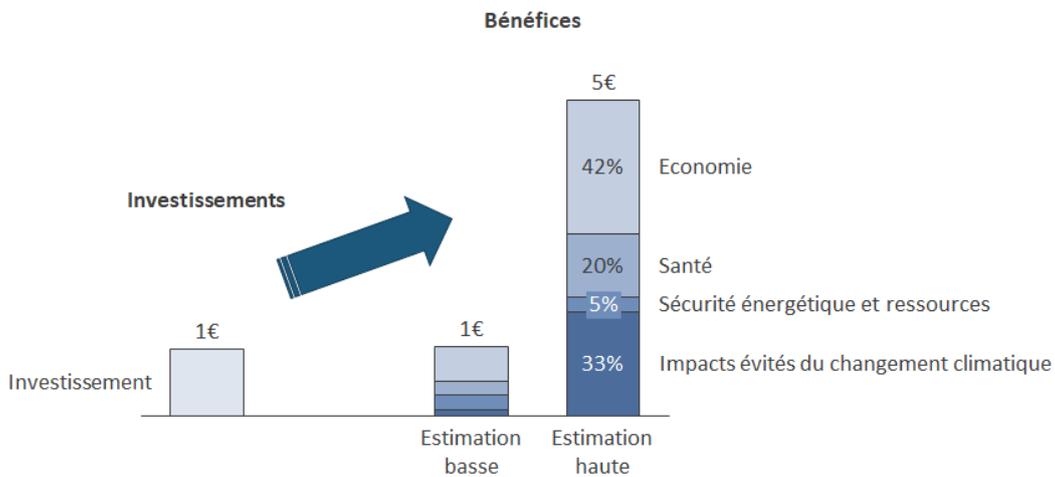


Figure 61. Orders of magnitude of the multiple benefits of the energy renovation of buildings²¹⁶.

Bénéfices	Benefits
Investissements	Investments
Investissement	Investment
Estimation basse	Low estimate

²¹⁵ CLIMACT analysis, based on CLIMACT, 2018. *The Key Role of Energy Renovation in the Net-Zero GHG Emission Challenge*.

²¹⁶ *Ibidem*.

Estimation haute	High estimate
Economie	Economy
Santé	Health
Sécurité énergétique et ressources	Energy security and resources
Impacts évités du changement climatique	Climate change impacts avoided

The greatest wider benefit is in relation to the economic impacts, which cover economic growth, job creation and impacts on public budgets. Next are the climate change impacts avoided. These include costs of extreme weather events that are avoided. The wider benefits for health include the reduction in health problems linked to energy poverty, as well as in mortality linked to poor air quality indoors (subject to good ventilation) and outdoors. Security of energy supply includes investments avoided in the electricity grid and the benefits of reduced dependency on imports of fossil fuels.

A) REDUCTION IN THE UTILITY BILL

Energy renovation of the Walloon building stock requires an initial investment, but this rapidly proves more cost-effective than current financial returns. The energy renovation of a building, whether a home or a tertiary building, significantly reduces the building's utility bill, freeing up financial resources for other priorities.

The scenarios studied indicate that the average household utility bill (in kWh) could be reduced by nearly 40% by 2030, by half by 2035 and by 60% by 2050 by implementing the strategy. The price differential between electric kWh and fossil fuel kWh remains a challenge to translating the reduction and decarbonisation of energy consumed into a reduction in the bill in euro.

Implementing the renovation strategy will also make households more resilient to fluctuations in international energy markets and to the gradual integration of externalities into final prices.

B) STIMULATION OF ECONOMIC ACTIVITY

The renovation of buildings usually involves local companies. The renovation strategy will accelerate the rate of renovation, thus helping to create activity (direct and indirect jobs) for the Walloon construction sector, which is largely made up of SMEs. Certain complementary measures could potentially increase the scale of the economic benefits for Wallonia. For example, routine inclusion of social and environmental clauses in public contracts for the renovation of public buildings could help to further stimulate more local demand for materials and thus promote development of the entire domestic value chain for the construction sector.²¹⁷

Tightening energy performance requirements will also encourage professionals to develop specialist skills in techniques related to building envelopes and systems and will contribute to the development of new trades.

The study on the macroeconomic impacts of the low carbon transition in Belgium²¹⁸ shows that the transition can lead to net employment growth of around 80 000 jobs in Belgium by 2030, compared to a scenario with no change in policy. With 27 000 additional jobs each year, the largest number of direct new jobs is expected in the construction sector, which calls for a particular focus on the issue of the posting of workers in this sector.

Construction is a job-intensive industry. In Wallonia, it directly employs around 80 000 and indirectly employs around 95 000²¹⁹. IWEPS estimates that €1 million in stimulus for new demand in the construction sector would result in the creation of 6.4 direct jobs and 7.1 indirect jobs: a total of 13.5 jobs per million euro invested in the sector. Implementing the renovation strategy could lead to the creation of several thousand jobs, while also having positive impacts on the economy. In a recent more short-term analysis (5 years)²²⁰, IWEPS estimated that implementing the policies for the energy renovation of public buildings included in the Marshall Plan 4.0 will create 8 jobs in Belgium per €1 million of Walloon public funding.

In its report, however, IWEPS draws attention to the importance of delivering public policies that are coordinated between the different levels of power in Belgium. This is because, for the measures analysed, it

²¹⁷ V. Scourneau, 2019, IWEPS, *Evaluation ex-ante des effets macroéconomiques des politiques de rénovation énergétique des bâtiments publics*.

²¹⁸ The Federal Climate Change Department has asked the researchers of CLIMACT, the Federal Planning Bureau, Oxford Economics and Prof. Bréchet (UCL) to analyse the macroeconomic impact of these scenarios on growth, employment, competitiveness and wider benefits. <https://climat.be/2050-en/scenario-analysis>.

²¹⁹ IWEPS, 2010.

²²⁰ V. Scourneau, 2019, IWEPS, *Evaluation ex-ante des effets macroéconomiques des politiques de rénovation énergétique des bâtiments publics*.

clearly emerged that the costs would be borne entirely by one level of power (the Walloon Region), while the positive impacts would be felt at a different level of power (federal/social security). Consequently, there will need to be a high degree of consultation between bodies to ensure there is still an incentive at each level of power to introduce such policies.

Implementing the measures identified would help to develop Walloon supply chains. Reducing the imported content of goods and services along the construction sector value chain helps to create additional jobs: a 5% reduction in the imported content of goods and services translates into a 10% gain in jobs.

Introducing the renovation strategy in Wallonia would also help to bring the construction sector's contribution to the GDP closer to that in other Member States (approximately 5.2% in Wallonia, compared with 5.6% in Luxembourg, 5.8% in France and 10.6% in Spain).

The impact on employment should be monitored, firstly to assess it and secondly to identify factors enabling it to be maximised. Using an *illustrative* benchmark of 10 jobs created per €1 million invested, the investment needs indicate that implementing the renovation strategy would enable 40 000 jobs²²¹ to be created over the next 30 years in the renovation of residential buildings, and 10 000 jobs²²² in the renovation of tertiary buildings. The challenge will be in managing to mobilise and train this workforce in a short period of time.

In addition, consideration could be given to utilising the tax revenue generated by this economic activity to support the transition and maximise its local benefits. An assessment could also be undertaken into how taxation on the work carried out in this sector could provide a degree of freedom to reduce investments needed and steer renovation to the decarbonised A rating towards the cost optimum.

Lastly, improving insulation and ventilation, the quality of equipment and in particular interior lighting can increase productivity, for example in offices and schools²²³. The International Energy Agency estimates that this improvement in productivity could represent around 1-2% of the GDP²²⁴.

C) IMPROVED PUBLIC FINANCES

Substantial improvement to the energy performance of buildings could have a positive impact on public finances by increasing economic activity, thereby increasing Belgium's tax revenue and reducing public expenditure.

D) SECURITY OF SUPPLY

Improving the energy performance of buildings helps to reduce energy dependency, including on fossil fuels, and dependency on the geopolitical context for the associated imports. Reducing the energy bill also improves

²²¹ Corresponding to an average annual investment of €4 billion.

²²² Corresponding to an average annual investment of €1 billion.

²²³ Performance as a function of room temperature, see *Ventilation and performance in office work*, Olli Seppänen, Helsinki University of Technology, 2006. The impact of better insulated and ventilated schools on the quality of education is illustrated on the website <https://www.renovermonecole.be/fr/objectifs-bien-etre>. It appears that high temperatures have a greater impact on children's schoolwork than on adult office work. This can be partly explained by children's greater sensitivity to temperature, and partly by the fact that schoolwork involves learning new things.

²²⁴ IEA (2014), *Multiple Benefits of Energy Efficiency*.

the energy balance in Belgium by around 2 percentage points of the GDP by 2030 for the whole set of measures enabling the transition²²⁵.

It also creates greater capacity in the energy system at lower cost as it does not require development of the electricity grid or energy storage capacities.

E) 'GREEN VALUE'

'Green value' represents the additional net value of a property resulting from better environmental performance. It equates to the energy savings and increased comfort, accessibility and durability of the home. The 'green value' is very difficult to assess due to the qualitative nature of its benefits and the multitude of variables that influence it.

Two studies published by ADEME and CERQUAL and based on international research²²⁶ conclude that on average 'green value' accounts for between 2% and 7% of the price of property around the world: 2.5% in the Netherlands, 4-6% in Germany, 5% in the United States, 3.5% and 7% in Switzerland for collective and individual housing, respectively.

2. WIDER SOCIAL BENEFITS

A) IMPROVED COMFORT

The energy renovation of a building greatly improves comfort and quality of life for the occupants.

However, these additional benefits remain difficult to quantify because they essentially depend on the perception of the occupant.

Examples of a more comfortable living environment include:

- greater thermal stability due to more efficient regulation;
- improved sensation due to eliminating cold surfaces and equalising temperatures;
- reduced noise inconvenience due to more efficient windows;
- better air quality (subject to good ventilation) improving concentration for employees and students, for example.

B) POSITIVE IMPACT ON HEALTH

Several studies²²⁷ show that energy improvements to a building and good building management improve indoor thermal comfort, which generates public health benefits, reducing respiratory and cardiovascular diseases and mortality and improving quality of life and life expectancy.

²²⁵ The specific proportion of this improvement due to deep renovation in Wallonia is not assessed in this study.

²²⁶ ADEME, *Analyse préliminaire de la valeur verte pour les logements*, September 2011. CERQUAL, *Etude économique sur la valeur verte de l'immobilier de logements*, December 2011.

²²⁷ In particular: *Multiple benefits of investing in energy efficient renovation of buildings*, Copenhagen Economics for Renovate Europe, 2012; *Ventilation and Performance in Office Work*, Helsinki University of Technology, 2006; *The Economic Consequences of Climate Change*, OECD, 2015; *Multiple Benefits of Energy Efficiency*, IEA, 2014; *The co-benefits to health of a strong EU climate change policy*, Ecometrics Research and Consulting, 2008; *Moving towards ambitious climate policies: Monetised health benefits from improved air quality could offset mitigation costs in Europe*, Schucht et al., 2015.

Hospital admissions for respiratory and circulatory diseases have been found to be reduced in better insulated homes, as temperature variations are conducive to the development of these diseases. Cold and poorly ventilated houses are likely to be damp, which can lead to this type of disease developing and worsening.

Lastly, reducing energy consumption also reduces air pollution and the emission of air pollutants (nitrous oxides, sulphur oxides and fine particles). The economic gain in terms of health costs is estimated at between 2% and 4% of the GDP²²⁸.

C) REDUCING ENERGY POVERTY

In the case of the most vulnerable households, who often rent housing in poor condition, renovation of this housing would mean they could immediately benefit from gains in quality of life and comfort, but could also reduce their costs and spend the savings on other necessities instead.

According to a study by the King Baudouin Foundation²²⁹, a collective and local approach to the thermal renovation of buildings can help to reduce household energy poverty if it includes a reflection on involving tenants, disadvantaged owners (in energy poverty) and professionals in the sector and manages social support for renovation programmes.

3. WIDER ENVIRONMENTAL BENEFITS

The combustion of fossil fuels is one of the main causes of climate change. By reducing our needs in this area, the renovation strategy contributes to reducing the impact of human behaviour on the environment and preserving natural resources.

In addition, as atmospheric pollution is largely correlated with the presence of pollutants from fossil fuel combustion (nitrous oxides, sulphur oxides, fine particles, etc.), the renovation strategy contributes to reducing these harmful emissions and reducing the resulting health impacts.

The overall environmental impact of construction and insulation materials is not limited to CO₂ emissions or to those included in the 'carbon footprint'. It also includes the possible formation of acid rain, depletion of raw materials, formation of smog, emission of fine particles, ecotoxicity or even human toxicity, and improving one aspect can have harmful consequences on another. The overall environmental impact of materials depends on multiple factors, such as their overall life cycle, the insulating quality of the products, any constraints associated with their use (for example, some materials require additional vapour barriers). In addition, the choice of materials will also depend on the type of structure to be insulated (for example, bio-ecological insulation materials that are sensitive to moisture will be technically unsuitable for use in cavity walls)²³⁰.

The promotion of sustainable construction and insulation materials, along with the recycling and recovery of construction and demolition materials, will improve the average environmental impact of renovations.

In terms of biodiversity, basic habitats for wildlife can be introduced during renovations and be included in the insulation²³¹. In addition, renovation works are a great opportunity to encourage nature into an urban setting,

²²⁸ OECD (2015), *The Economic Consequences of Climate Change*.

²²⁹ *Politiques d'atténuation du changement climatique et justice sociale en Belgique*, June 2011.

²³⁰ VITO and Federal Public Service for Health, Food Chain Safety and Environment (2014) study of the environmental impact of different thermal insulation materials for exterior walls. <https://www.health.belgium.be/en/environmental-impact-thermal-insulation-materials>

²³¹ <http://www.biodiversiteetbati.fr/>.

and thus take coordinated action for the climate and biodiversity, which this strategy should also encourage through several actions. In addition, habitats created in schools also have educational added value, and shelters are likely to become chosen locations for counts or surveys in conjunction with *Opération Combles et Clochers* ('Operation Lofts and Steeples') in the Walloon Region.

<https://environnement.brussels/thematiques/batiment-et-energie/renover-et-construire/infos-et-outils-techniques/infos-et-outils--27>
https://www.swl.be/images/swl/vademecumbd/300_biodiversite/a.tdm_biodiversite.pdf

It is crucial to have clear benchmarks and monitoring indicators for the strategy. Firstly, this is important for transparent communication with stakeholders on sector approaches proposed in the renovation strategy. Secondly, it is needed to monitor implementation of the strategy and identify improvements needed or additional measures to be undertaken.

It is essential to set clear and ambitious milestones to reduce risks and uncertainties for investors and to engage stakeholders and businesses. The availability of consistent and reliable data is a major factor in determining measurable indicators.

The regional roadmap for implementing the renovation strategy comprises the following key elements.

- **A timetable for implementation of the renovation strategy clarifying the intended schedule for renovation of the various segments of the Walloon building stock.** This timetable is presented in Section I.C.5. ‘Timetable for implementing the renovation strategy’, p. 38.
- **A set of short and medium-term measures and actions to be undertaken,** presented in Sections III.C and IV.C of the strategy. The Region will work out the details for implementing these actions in the weeks and months following publication of the strategy.
- **A workplan for implementation of the actions** specifying the priorities and the proposed sequencing. It is presented, as a provisional version, in an Excel file available on the Walloon Public Service website. It will be refined and approved by the Walloon Government in the weeks following publication of this strategy.
- **A selection of progress indicators and indicative milestones** – specifying indicative targets for 2025, 2030, 2035, 2040, 2045 and 2050 – will monitor the outcomes of the implementation of the measures and actions. These indicators and milestones are presented below.

A. SELECTING PROGRESS INDICATORS AND INDICATIVE MILESTONES

Monitoring the implementation of the Walloon long-term strategy for the energy renovation of buildings calls for relevant indicators to monitor achievement of the targets in the strategy and to take corrective action if necessary.

The objectives of these indicators are to (i) measure and report progress on the actions undertaken; (ii) identify, where applicable, corrective action needed; and (iii) facilitate communication with the various target audiences (between the various departments of the government; with parliamentarians and the political realm; with the general public).

The indicators need to be relevant, pragmatic and reliable, ideally be generated through automatic reporting and enable corrective action to be taken to achieve the targets, for both the residential and tertiary sectors.

In accordance with Article 2a(2), this section aims to complement the regional roadmap for implementation with:

- a) **measurable progress indicators** — quantitative or qualitative variables to measure progress towards the long-term 2050 goal of reducing greenhouse gas emissions in the Union and ensuring a highly energy-efficient and decarbonised national building stock. These can be revised if necessary; and
- b) **indicative milestones** — these can be quantitative or qualitative objectives. The amended EPBD requires that Member States ‘include indicative milestones for 2030, 2040 and 2050 and specify how they will contribute to achieving the Union's energy efficiency targets in accordance with [the EED].’

The table below provides an overview of the indicators and milestones considered at this stage. The data available enable some of these to be quantified. Work will be done to organise the missing information and to establish communication channels to convey it to ensure effective monitoring of the implementation of the

strategy and of its outcomes. This work is covered by the actions under Measure 4. An Excel file containing all the indicators and actions is available on the Government website²³².

The scenarios developed on a model of the Walloon building stock make it possible to establish a series of intermediate milestones reflecting the timetable for implementing the renovation strategy. These are presented in the following section.

The last column of the table shows the indicators for which milestones have been proposed.

1	Overview of the national building stock	Milestones
1.1	No of buildings/homes/m²	
	Residential	
1.1.1	Number of homes (houses/apartments)	
1.1.2	Number of homes by ownership (public/private) and occupancy (owner/tenant)	
1.1.3	Number of buildings (houses/apartment blocks)	
1.1.4	Number of buildings (houses/apartment blocks) by year of construction	
	Non-residential	
1.1.5	Total surface area of buildings by sector	
1.1.6	Number of buildings by sector	
1.1.7	Number of buildings by building size (heated floor area)	
1.2	Annual energy consumption (and reductions compared to baseline year)	
1.2.1	by building sector	v
1.2.2	by end use	
1.2.3	by energy carrier	v
1.3	GHG emissions (and reductions compared to baseline year)	
1.3.1	by building sector	v
1.4	EPB certification	
1.4.1	Number of EPB certificates by building type	v
1.4.2	Number of EPB certificates by energy class	v
1.4.3	Average performance of the stock (kWh/m ² /year)	v
1.5	Number/surface area of buildings with energy consumption in line with the 2050 target	
	Residential	
1.5.1	o Number of homes with rating A	v
1.5.2	o Number of homes with decarbonised rating A	v
	Non-residential	
1.5.3	o Number of buildings/m ² with consumption <= 80 kWh/m ² /year	v
1.5.4	o Number of buildings/m ² with consumption <= 80 kWh/m ² /year 100% RES	v

²³² <https://energie.wallonie.be/fr/strategie-de-renovation.html?IDC=9580>

2	Renovation activity	Milestones
2.1	Annual rate of renovation (by sector and type of renovation)	
2.1.1.	- Residential: number of homes renovated by year and by type of renovation	v
2.1.2.	- Residential: % of homes renovated by year and by type of renovation	v
2.1.3.	- Non-residential: number of m ² renovated by year and by type of renovation	v
2.1.4.	- Non-residential: % of m ² renovated by year and by type of renovation	v
2.2	Total homes/area renovated	
2.2.1.	- Residential: number of homes renovated by type of renovation	v
2.2.2.	- Residential: % of homes renovated by type of renovation	v
2.2.3.	- Non-residential: number of m ² renovated by year, by sector and by type of renovation	v
2.2.4.	- Non-residential: % of m ² renovated, by sector and by type of renovation	v
2.2.5.	· by size of building	-
2.2.6.	· by age of building	v
3	List of cost-effective renovation approaches	Milestones
3.1	Cost-effectiveness of main renovation measures (e.g. net present values, payback period, investment costs vs annual savings):	
3.1.1.	· by type of building	
3.2	Cost-effective renovation measures by reference typology	
3.2.1.	Investment	
3.2.2.	Overall cost	
3.2.3.	Reduction potential (in % of final energy consumption)	
4	Measures: Encourage deep renovations	Milestones
4.1	Number of buildings undergoing deep renovation in line with long-term targets	v
	Residential	
4.1.1.	Number of homes renovated annually	
4.1.2.	Proportion of homes renovated annually	
4.1.3.	Total number of homes renovated	
4.1.4.	Total proportion of homes renovated	
	Non-residential	
4.1.5.	Area renovated annually (m ²), by sector	
4.1.6.	Area renovated annually (%), by sector	
4.1.7.	Total area renovated (m ²), by sector	
4.1.8.	Total area renovated (%), by sector	
4.2	Public incentives for deep renovation	
4.3	Public and private investments in deep renovation	v
4.3.1.	Annual public investments	
4.3.2.	Total public investments	
4.3.3.	Annual private investments	
4.3.4.	Total private investments	
4.4	Energy savings generated through deep renovation	v
4.4.1.	Annual energy savings	
4.4.2.	Total energy savings	

5	Landscape: Split incentive	Milestones
5.1	Owner-landlord and tenant	
5.1.1.	· Number of homes rented	
5.1.2.	· Year of construction of building	
5.1.3.	· Age of owner(s)	
5.1.4.	· Rental management model for the property	
5.1.5.	· Owner-occupier-landlord	
5.1.6.	· Size of owner's property portfolio	
5.1.7.	· Owner's place of residence	
5.1.8.	· Type of ownership	
5.1.9.	· Type of occupancy	
5.2	Multiple owners of one home	
5.2.1.	· Number of owners of home	
5.2.2.	· Combination of owners of home	
5.2.3.	· Type of ownership	
5.3	Multiple owners of multiple homes within the same building	
5.3.1.	· Number of owners of home	
5.3.2.	· Combination of owners of home	
5.3.3.	· Type of ownership	
5.3.4.	· Building manager in place	
5.3.5.	· Registration of the jointly-owned property as a co-owners' association	
5.4	Multiple generations of one family in the context of inheritance/donation	
5.4.1.	· Number of owners of home	
5.4.2.	· Combination of owners of home	
5.4.3.	· Type of ownership	
5.4.4.	· Shared ownership of home between beneficial owner and bare owner	
5.6	Seller and purchaser in the case of a life annuity sale	
5.6.1.	· Number of owners of home	
5.6.2.	· Combination of owners of home	
5.6.3.	· Type of ownership	
6	Measures: Split incentive for owner-landlords	Milestones
6.1	Public investments in policy designed to resolve split incentives	
6.2	% of rented houses with EPBs below a certain performance level	v
7	Measures: Energy poverty	Milestones
7.1	% of people in energy poverty (measured, hidden, perceived)	
7.2	% reduction of people in energy poverty	
7.3	Proportion of disposable household income spent on energy	
7.4	Arrears on utility bills	
7.5	Population living in inadequate housing conditions (e.g. leaking roof) or with inadequate heating and cooling	
7.6	% of buildings in lowest energy classes	
7.7	% reduction of buildings in the lowest energy classes	
8	Measures: public buildings	Milestones
8.1	Area in m² of public buildings renovated:	
8.1.1.	· by type of building	
8.1.2.	· by sector	
8.1.3.	· by size of building	
8.1	Public and private investments in the renovation of public buildings	
8.2	Energy (savings) in public buildings	v
8.3	GHG (reductions) in public buildings	v

9	Measures: promoting smart technology	Milestones
9.1	No of buildings equipped with building energy management systems (BEMS) or similar smart systems:	
9.1.1.	· by type of building (focus on non-residential)	
9.2	Public and private investments in smart technologies (including smart grids)	
9.3	Citizens participating in energy communities	
9.4	No of graduate students	
9.4.1.	· university courses with focus on energy efficiency and related smart technologies	
9.4.2.	· professional/technical training (EPC certifiers, HVAC inspectors, etc.)	
9.5	No of installers skilled in new technologies and working practices	
9.6	Budget for regional research programmes in the energy efficiency of buildings	
9.7	Participation by Walloon universities in international scientific research projects (e.g. H2020) on energy efficiency in building-related topics	
10	Wider benefits	Milestones
10.1	(Reduction in) energy costs per household (average)/decrease in energy poverty	
10.2	Actual energy savings achieved	v
10.3	Average/aggregate indoor air quality indices (IAQIs) and thermal comfort index (TCI)	
10.4	Cost of avoided illnesses/reduction in health costs attributable to energy efficiency measures	
10.5	Reduction of whole life carbon	
10.6	Disability Adjusted Life Year (DALY) / Quality Adjusted Life Year (QALY) improvements attributable to the improvement of building stock and living conditions	
10.7	Labour productivity gains from better working environment and improved living conditions	
10.8	Number of jobs in the building sector Number of jobs created per €1 million invested in the sector	
10.9	(Increase in) GDP in the building sector	
10.1	Energy imports in % for the Member State (energy security measures)	
10.11	Removal/prevention of accessibility barriers for persons with disabilities	
11	Mobilising investment	Milestones
11.1	Aggregation of projects	
11.1.1.	· No of integrated/aggregated projects	
11.2	Risk reduction	
11.2.1.	· Perceived risk of energy efficiency measures (survey-based)	
11.3	Public funds to attract additional investment	
11.3.1.	· Public investments as a percentage of total investments in energy saving	
11.3.2.	· Number of public-private partnership initiatives	
11.4	Guiding investments into an energy-efficient public building stock, in line with Eurostat guidance	
11.4.1.	· Investment in energy efficiency renovation on the public building stock	v

12	Accessible and transparent advisory tools	Milestones
12.1	Quick-scan:	
12.1.1	· Number of Quick-Scans performed	
12.1.2	· Number of renovation projects initiated	
12.2	Renovation roadmap:	
12.2.1	· Number of roadmap audits carried out	v
12.2.2	· Average cost of renovation to A rating according to audits	
12.3	Building passport:	
12.3.1	· Number of building passports	v
12.4	Energy information points:	
12.4.1	· Number of energy information points	
12.4.2	· Number of households supported	v
12.4.3	· Number of renovations carried out	
12.4.4	· Energy and GHG savings achieved	
12.5	Local renovation platforms:	
12.5.1	· Number of local renovation platforms	
12.5.2	· Number of households supported	v
12.5.3	· Number of renovations carried out	
12.5.4	· Energy and GHG savings achieved	
12.6	Integrated renovation services:	
12.6.1	· Number of public or private entities offering an integrated renovation service	
12.6.2	· Number of renovations carried out	
12.6.3	· Energy and GHG savings achieved	

Table 19. List of progress indicators and indicative milestones identified for monitoring the implementation of the strategy.

B. INDICATIVE MILESTONES

Based on the model developed in drafting the renovation strategy, the following indicative milestones are required to monitor the proposed renovation timetable. All of this information is consolidated in a reporting tool enabling the indicators collected to be compared with the milestones, from which the following figures have been extracted. This tool is accessible on the Government portal.

Indicateurs	Unités	2025	2030	2035	2040	2045	2050
1.2.1	Consommation d'énergie finale - par secteur de bâtiments TWh(ef)						
	Résidentiel (hors cuisson et usages spécifiques de l'électricité, consommation réelle)						
	Maisons unifamiliale	24.7	19.5	15.5	13.6	12.6	12.3
	Appartements	2.7	2.1	1.7	1.5	1.4	1.3
	Non résidentiel (usages PEB [2], consommation réelle)						
	Public						
	Bureaux	0.8	0.5	0.3	0.3	0.3	0.3
	Ecoles	1.2	0.9	0.5	0.5	0.5	0.5
	Santé	0.9	0.7	0.5	0.4	0.4	0.4
	Autres	0.6	0.5	0.4	0.3	0.3	0.3
	Privé						
	Bureaux	1.0	0.7	0.4	0.4	0.4	0.4
	Commerces	3.5	2.6	1.4	1.4	1.4	1.4
	Autres	0.7	0.6	0.4	0.3	0.3	0.3
	[2] Usages PEB = [combustibles - "Cuisson" - "Autres usages"] + [Electricité - "Bureautique" - "Autres"]						
1.2.3	Consommation d'énergie finale - par vecteur						
	Résidentiel						
	Solid ff	0.2	0.1	0.1	0.0	0.0	0.0
	Solid bio	3.6	3.6	3.5	3.5	3.9	4.3
	Liquid	11.9	7.6	4.5	3.0	1.3	0.0
	Gaz	8.3	6.5	5.2	4.5	4.2	4.0
	Electricité	2.3	2.2	2.1	2.1	2.3	2.5
	Chaleur vapeur	0.0	0.0	0.0	0.0	0.0	0.0
	Chaleur renouvelable	1.0	1.5	1.8	1.9	2.4	2.8
	Non-résidentiel						
	Public						
	Solid ff	0.0	0.0	0.0	0.0	0.0	0.0
	Solid bio	0.3	0.4	0.4	0.4	0.4	0.4
	Liquid	0.6	0.3	0.0	0.0	0.0	0.0
	Gaz	1.4	0.8	0.4	0.3	0.3	0.3
	Electricité	0.5	0.4	0.4	0.3	0.3	0.3
	Chaleur vapeur	0.0	0.0	0.0	0.0	0.0	0.0
	Chaleur renouvelable	0.1	0.2	0.2	0.2	0.2	0.2
	Privé						
	Solid ff	0.0	0.0	0.0	0.0	0.0	0.0
	Solid bio	0.3	0.5	0.5	0.5	0.5	0.5
	Liquid	0.9	0.4	0.0	0.0	0.0	0.0
	Gaz	2.0	1.2	0.5	0.5	0.5	0.5
	Electricité	0.7	0.6	0.4	0.4	0.4	0.4
	Chaleur vapeur	0.0	0.0	0.0	0.0	0.0	0.0
	Chaleur renouvelable	0.1	0.2	0.2	0.2	0.2	0.2

Indicateurs	Indicators
Unités	Units
Consommation d'énergie finale - par secteur de bâtiments TWh(ef)	Final energy consumption, by sector of building TWh _{fe}
Résidentiel (hors cuisson et usages spécifiques de l'électricité, consommation réelle)	Residential (excluding cooking and specific electricity use; actual consumption)
Maisons unifamiliale	Single-family house
Appartements	Apartments
Non résidentiel (usages PEB [2], consommation réelle)	Non-residential (EPB use [2]; actual consumption)
Public	Public
Bureaux	Offices
Ecoles	Schools
Santé	Health
Autres	Other
Privé	Private
Bureaux	Offices
Commerces	Shops
Autres	Other
[2] Usages PEB = [combustibles - "Cuisson" - "Autres usages"] + [Electricité - "Bureautique" - "Autres"]	[2] EPB use = [fuels - 'Cooking' - 'Other uses'] + [Electricity - 'Office' - 'Others']
Consommation d'énergie finale - par vecteur	Final energy consumption – by carrier

Résidentiel	Residential
Solid ff	Solid ff
Solid bio	Solid bio
Liquid	Liquid
Gaz	Gas
Electricité	Electricity
Chaleur vapeur	Steam heat
Chaleur renouvelable	Renewable heat
Non-résidentiel	Non-residential
Privé	Private

Indicateurs	Unités	2025	2030	2035	2040	2045	2050
1.3 Emissions de GES	MtCO2e						
1.3.1 Emissions de GES par secteur de bâtiments							
Résidentiel (hors cuisson)							
Tous		4.9	3.4	2.2	1.7	1.2	0.8
Non résidentiel (usages PEB [2])							
Public		0.4	0.2	0.1	0.1	0.1	0.1
Privé		0.6	0.3	0.1	0.1	0.1	0.1
<i>[2] Usages PEB = [combustibles - "Cuisson" - "Autres usages"] + [Electricité - "Bureautique" - "Autres"]</i>							
1.4 Certification PEB							
1.4.3 Performance moyenne du parc							
Espec moyen du parc	kWh/m²/an	396	271	174	127	97	85

Indicateurs	Indicators
Unités	Units
Emissions de GES	GHG emissions
Emissions de GES par secteur de bâtiments	GHG emissions by sector of building
Résidentiel (hors cuisson)	Residential (excluding cooking)
Tous	All
Non résidentiel (usages PEB [2])	Non-residential (EPB use [2])
Public	Public
Privé	Private
[2] Usages PEB = [combustibles - "Cuisson" - "Autres usages"] + [Electricité - "Bureautique" - "Autres"]	[2] EPB use = [fuels - 'Cooking' - 'Other uses'] + [Electricity - 'Office' - 'Others']
Certification PEB	PEB certified
Performance moyenne du parc	Average efficiency of stock
Espec moyen du parc	Average E _{spec} of stock
kWh/m²/an	kWh/m²/year

Indicateurs	2025	2030	2035	2040	2045	2050
2.1 Rythme annuel de rénovation						
2.1.1 Résidentiel (# de logements rénovés annuellement par type de rénovation)						
Tous						
Toits	186,520	186,520	0	0	0	0
Murs	22,666	196,521	177,869	0	0	0
Fenêtres	22,666	22,666	193,148	86,426	0	0
Sols	22,666	22,666	21,801	172,852	83,918	0
Systèmes	56,864	56,864	55,999	21,446	92,702	0
SER	56,864	56,864	55,999	21,446	92,702	0
Rénovation au label A	18,652	18,652	17,787	17,285	8,392	0
2.1.2 Résidentiel (% de logements rénovés annuellement par type de rénovation)						
Tous						
Toits	11%	11%	0%	0%	0%	0%
Murs	1%	12%	11%	0%	0%	0%
Fenêtres	1%	1%	12%	5%	0%	0%
Sols	1%	1%	1%	11%	5%	0%
Systèmes	3%	3%	3%	1%	6%	0%
SER	3%	3%	3%	1%	6%	0%
Rénovation au label A	1%	1%	1%	1%	1%	0%
2.1.3 Non résidentiel (# de m² rénovés / an)						
Public						
Bureaux	0.8	0.8	0.7	0.0	0.0	0.0
Ecoles	1.5	1.5	1.4	0.0	0.0	0.0
Santé	0.9	0.9	0.9	0.7	0.0	0.0
Autres	0.4	0.4	0.4	0.4	0.0	0.0
Privé						
Bureaux	1.6	1.6	1.4	0.0	0.0	0.0
Commerces	1.5	2.7	2.4	0.0	0.0	0.0
Autres	0.1	0.6	0.6	0.5	0.0	0.0
2.1.4 Non résidentiel (% des surfaces rénovées / an)						
Tous						
Public						
Bureaux	15%	15%	13%	0%	0%	0%
Ecoles	15%	15%	13%	0%	0%	0%
Santé	11%	11%	11%	9%	0%	0%
Autres	11%	11%	11%	9%	0%	0%
Privé						
Bureaux	15%	15%	13%	0%	0%	0%
Commerces	10%	18%	17%	0%	0%	0%
Autres	2%	14%	14%	13%	0%	0%

Indicateurs	Indicators
Rythme annuel de rénovation	Annual rate of renovation
Résidentiel (# de logements rénovés annuellement par type de rénovation)	Residential (no of homes renovated annually, by type of renovation)
Tous	All

Toits	Roofs
Murs	Walls
Fenêtres	Windows
Sols	Floors
Systèmes	Systems
SER	RES
Rénovation au label A	Renovation to A rating
Résidentiel (% de logements rénovés annuellement par type de rénovation)	Residential (% of homes renovated annually, by type of renovation)
Non résidentiel (# de m ₂ rénovés / an)	Non-residential (no of m ₂ renovated/year)
Bureaux	Offices
Ecoles	Schools
Santé	Health
Autres	Other
Privé	Private
Bureaux	Offices
Commerces	Shops
Autres	Other
Non résidentiel (% des surfaces rénovées / an)	Non-residential (% of surface area renovated/year)

Indicateurs	2025	2030	2035	2040	2045	2050
2.2 Nombre cumulé de rénovations						
2.2.1 Résidentiel (cumul du # de logements dont mesure de rénovation réalisée)						
Toits	672,887	1,605,485	1,605,485	1,605,485	1,605,485	1,605,485
Murs	81,242	716,138	1,605,485	1,605,485	1,605,485	1,605,485
Fenêtres	81,242	194,571	817,615	1,605,485	1,605,485	1,605,485
Sols	81,242	194,571	303,574	830,158	1,605,485	1,605,485
Systèmes	219,960	504,278	784,271	977,474	1,309,914	1,605,485
SER	219,960	504,278	784,271	977,474	1,309,914	1,605,485
Rénovation au label A	57,160	150,420	239,355	292,013	369,546	399,103
2.2.2 Résidentiel (cumul du % de logements dont mesure de rénovation réalisée)						
Toits	41%	99%	99%	99%	99%	99%
Murs	5%	44%	99%	99%	99%	99%
Fenêtres	5%	12%	50%	99%	99%	99%
Sols	5%	12%	19%	51%	99%	99%
Systèmes	14%	31%	48%	60%	80%	99%
SER	14%	31%	48%	60%	80%	99%
Rénovation au label A	4%	9%	15%	18%	23%	25%
2.2.3 Non résidentiel (cumul des m² rénovés)						
Public						
Bureaux	2.7	6.5	10.2	10.2	10.2	10.2
Ecoles	5.4	13.1	20.6	20.6	20.6	20.6
Santé	3.2	7.5	11.8	16.0	16.0	16.0
Autres	1.6	3.8	5.9	8.0	8.0	8.0
Privé						
Bureaux	5.7	13.7	21.6	21.6	21.6	21.6
Commerces	5.5	16.5	29.6	29.6	29.6	29.6
Autres	0.5	2.3	5.2	8.0	8.0	8.0
2.2.4 Non résidentiel (cumul des % de surface rénovées)						
Public						
Bureaux	53%	127%	200%	200%	200%	200%
Ecoles	53%	127%	200%	200%	200%	200%
Santé	40%	94%	148%	200%	200%	200%
Autres	40%	94%	148%	200%	200%	200%
Privé						
Bureaux	53%	127%	200%	200%	200%	200%
Commerces	37%	111%	200%	200%	200%	200%
Autres	13%	59%	130%	200%	200%	200%

Indicateurs	Indicators
Nombre cumulé de rénovations	Cumulative number of renovations
Résidentiel (cumul du # de logements dont mesure de rénovation réalisée)	Residential (cumulative no of homes receiving renovation measure)
Tous	All
Toits	Roofs
Murs	Walls
Fenêtres	Windows
Sols	Floors
Systèmes	Systems
SER	RES

Rénovation au label A	Renovation to A rating
Résidentiel (cumul du % de logements dont mesure de rénovation réalisée)	Residential (cumulative % of homes receiving renovation measure)
Non résidentiel (cumul des m ² rénovés)	Non-residential (cumulative m ² renovated)
Public	Public
Bureaux	Offices
Ecoles	Schools
Santé	Health
Autres	Other
Privé	Private
Bureaux	Offices
Commerces	Shops
Autres	Other
Non résidentiel (cumul des % surface rénovées)	Non-residential (cumulative % of area renovated)

At this stage and as indicated in the previous section, no milestone has been defined for cost-effectiveness of the renovation measures (third category of monitoring indicators). Quantification of the indicators for the cost-effectiveness of renovating the various segments of the stock is provided in Chapter II of the strategy.

Indicateurs	Unités	2025	2030	2040	2050
4.1	Quantité de bâtiments faisant l'objet d'une rénovation profonde menant aux objectifs à long terme				
4.1.1	Résidentiel (Nombre de logements rénovés annuellement)				
	Tous	18,652	18,652	17,285	0
4.1.2	Résidentiel (% de logements rénovés annuellement)				
	Tous	1.1%	1.1%	1.1%	0.0%
4.1.3	Résidentiel (cumul du # de logements)				
	Tous	57,160	150,420	292,013	399,103
4.1.4	Résidentiel (Part totale de logements rénovés)				
	Tous	3.5%	9.2%	17.9%	24.5%
4.1.5	Non résidentiel (# de m² rénovés / an)				
	Public				
	Bureaux	0.1	0.1	0.0	0.0
	Ecoles	0.3	0.3	0.0	0.0
	Santé	0.1	0.1	0.1	0.0
	Autres	0.1	0.1	0.1	0.0
	Privé				
	Bureaux	0.3	0.3	0.0	0.0
	Commerces	0.2	0.4	0.0	0.0
	Autres	0.0	0.1	0.1	0.0
4.1.6	Non résidentiel (% des surfaces rénovées / an)				
	Public				
	Bureaux	2.5%	2.5%	0.0%	0.0%
	Ecoles	2.5%	2.5%	0.0%	0.0%
	Santé	1.8%	1.8%	1.5%	0.0%
	Autres	1.8%	1.8%	1.5%	0.0%
	Privé				
	Bureaux	2.5%	2.5%	0.0%	0.0%
	Commerces	1.6%	3.0%	0.0%	0.0%
	Autres	0.3%	2.4%	2.1%	0.0%
4.1.7	Non résidentiel (# de m² rénovés / an)				
	Public				
	Bureaux	0.4	1.1	1.7	1.7
	Ecoles	0.9	2.2	3.4	3.4
	Santé	0.5	1.3	2.7	2.7
	Autres	0.3	0.6	1.3	1.3
	Privé				
	Bureaux	0.9	2.3	3.6	3.6
	Commerces	0.9	2.7	4.9	4.9
	Autres	0.1	0.4	1.3	1.3
4.1.8	Non résidentiel (% des surfaces rénovées / an)				
	Public				
	Bureaux	8.8%	21.2%	33.3%	33.3%
	Ecoles	8.8%	21.2%	33.3%	33.3%
	Santé	6.7%	15.7%	33.3%	33.3%
	Autres	6.7%	15.7%	33.3%	33.3%
	Privé				
	Bureaux	8.8%	21.2%	33.3%	33.3%
	Commerces	6.2%	18.5%	33.3%	33.3%
	Autres	2.1%	9.8%	33.3%	33.3%

Indicateurs	Indicators
Quantité de bâtiments faisant l'objet d'une rénovation profonde menant aux objectifs à long terme	Number of buildings undergoing deep renovation in line with long-term targets
Résidentiel (Nombre de logements rénovés annuellement)	Residential (Number of homes renovated annually)
Tous	All
Résidentiel (% de logements rénovés annuellement)	Residential (% of homes renovated annually)
Résidentiel (cumul du # de logements)	Residential (cumulative no of homes)
Résidentiel (Part totale de logements rénovés)	Residential (total proportion of homes renovated)
Non résidentiel (# de m2 rénovés/ an)	Non-residential (no of m ² renovated/year)
Non résidentiel (% des surfaces rénovées / an)	Non-residential (% of surface area renovated/year)
Bureaux	Offices
Ecoles	Schools
Santé	Health
Autres	Other
Privé	Private
Bureaux	Offices
Commerces	Shops
Autres	Other

	Indicateurs	Unités	2025	2030	2040	2050
4.3	Investissements publics et privés dans les rénovations lourdes (rénovation menant en une fois aux p					
4.3.1	Investissements publics annuels [1]	M€/an	480	446	140	-
4.3.2	Investissements publics cumulés [1]	M€/an	1,527	3,817	6,442	7,253
4.3.3	Investissements privés annuels [1]	M€/an	1,557	1,763	1,287	-
4.3.4	Investissements privés cumulés [1]	M€/an	4,938	13,351	26,156	33,450
	[1] scénario d'atteinte d'un effet de levier de 10 d'ici 2030					
4.4	Économies d'énergie générées par les rénovations lourdes					
4.4.1	Economies d'énergie annuelles	GWh énergie finale	976	2,065	3,173	3,111
4.4.2	Economies d'énergie cumulées	GWh énergie finale	2,832	10,842	40,353	72,655

Indicateurs	Indicators
Unités	Units
Investissements publics et privés dans les rénovations lourdes (rénovation menant en une fois aux p	Public and private investments in deep renovation (renovation in one go to A rating)
Investissements publics annuels [1]	Annual public investments [1]
M€/an	Million €/year
Investissements publics cumulés [1]	Cumulative public investments [1]
Investissements privés annuels [1]	Annual private investments [1]
Investissements privés cumulés [1]	Cumulative private investments [1]
[1] scénario d'atteinte d'un effet de levier de 10 d'ici 203	[1] scenario with leverage ratio of 1:10 achieved by 2030
Économies d'énergie générées par les rénovations lourdes	Energy savings generated through deep renovation
Economies d'énergie annuelles	Annual energy savings
GWh énergie finale	GWh final energy
Economies d'énergie cumulées	Cumulative energy savings

To achieve a significant increase in the number of energy renovations (> 3%), the 2017 Walloon long-term energy renovation strategy proposed a range of actions and measures for both the residential and the tertiary stock.

Since 2017, the flagship measures have been implemented.

Three key tools were identified by stakeholders in the 2017 version of the renovation strategy: the renovation roadmap, the building passport and the one-stop shop for comprehensive support for households.

To support the development of these tools, they were included in the European LIFE Integrated Project BE REEL!, which has the objective of catalysing implementation of the actions in the regional renovation strategies.

A. ROADMAP

An initial study was carried out with stakeholders in 2017 to define the form and content of the roadmap. Various scenarios were proposed in locating the roadmap within the landscape of existing tools:

- 1) roadmap as a new tool
- 2) roadmap integrated into the EPB certificate
- 3) roadmap integrated into the audit
- 4) roadmap integrated into the audit and partly integrated into the EPB certificate. The latter scenario was selected and it was on this basis that the roadmap specifications were drafted and tested on a user panel.

A roadmap integrated into the housing audit provides a long-term vision of works to be planned to improve the building, specifying a renovation pathway as well as stages grouping the packages recommended by the auditor. The target of this pathway is to achieve rating A. If this target is not attainable, the auditor indicates the reason. The roadmap also provides indications of the cost of the work per stage and the potential savings. It is updated during the audit follow-up report.

The features of the roadmap have now been integrated into the housing audit (PACE tool) and training for auditors in these new features will be scheduled.

The partial integration of the roadmap into the EPB certificate will be developed later. It will provide an indication of the cost of the work to renovate the building to rating A, as well as a renovation pathway. When a property is purchased or rented, the purchaser or tenant will always be aware of the shortcomings of the building and of the energy renovation work needed.

B. BUILDING PASSPORT

Work is underway within the DGO4 – Energy department to implement the building passport. This has so far focused on analysing existing tools similar to the building passport (such as the *woningpas* in Flanders, the e-book in France, the iBRoad project and feedback from pilot projects), analysing the potential and feasibility of the tool, and defining its purposes and features.

The building passport will consist of an interface established by the Government for each residential building – starting with single-family homes. It is intended to give priority access to the owner, who will have the central role as user and beneficiary of the building passport. Professionals working on the building or its systems will also be given access, with limits and procedures yet to be defined. Hard copies of all documents can also be sent free of charge for inclusion in the building passport. Likewise, anyone with access to a particular passport can receive a free hard copy.

The building passport will allow viewing and consultation of the various documents included: EPB certificate, audit including renovation roadmap and documentation on the energy efficiency of the property. It is also intended that documentation by professionals is ultimately included to ensure it is communicated and retained. Although the content of the building passport is yet to be decided, the general idea is to gather data that can be used to improve the living environment of citizens.

The building passport will not be limited to energy data, but it will need to be developed gradually. Data available on energy efficiency will therefore be the first focus, but it is desirable for other information to be added (CertIBEau, various certifications and administrative documents) with the aim of pooling resources, but mainly for the sake of simplifying tools and communication for owners.

A legal framework will be established, which may make the tool mandatory depending on the policies implemented. This will clarify the nature, access rights and use of the data.

To this end, a definition of the building passport and its purposes is included in the draft amendment to the Decree of 28 November 2013 on the energy performance of buildings, to transpose EPB Directive 2018/844/EU and Article 15 of RES Directive 2018/2001/EU.

Developing and implementing the building passport will require commitment from all stakeholders. A network of resource persons within each directorate and/or department of the Walloon Government will soon be established to create synergy on the building passport project.

C. ONE-STOP SHOP

Work has been started on applying the principle of the 'one-stop shop', based on existing actions and tools and on the observation that the institutional landscape is very fragmented and there is a lack of transparency for the general public. There are numerous public bodies supporting households with their renovation work.

Advisers on sustainable housing (energy and housing information points, energy and housing advisers, eco-advisers, SWCS and Housing Fund experts, etc.) are currently networked.

A skills profile has been established for the role of the energy and housing adviser within this network, and there is a defined common core of basic information for each actor. Regular training (at least 2 days a year) updates and reinforces knowledge of the topics covered.

A pilot project to develop housing advice has enabled collaboration between the energy information point and the housing advisor in some municipalities (Arlon, Charleroi, Verviers, etc.).

Where possible, advisory services are also brought together to provide the most comprehensive and tailored provision possible in a single location (collaboration with *Espaces Wallonie*, *Maison de l'Habitat* in Liège). The collaboration is proving positive for both the public and for the advisers, who can thus offer better support, train each other and share experience.

Since January 2019, the Region has also been providing 2-year funding for a project to introduce local energy renovation platforms that are trialling some of the activities of a one-stop shop. The eight platforms involved are mobilising energy renovation professionals to develop technical, administrative and financial support for the private residential sector (with the exception of one platform aimed at the public residential sector). They are also delivering awareness-raising and communication.

An assessment of these projects should help to identify solutions that can be reproduced on a larger scale. One of the major remaining barriers is the difficulty in standardising the diverse status of staff, functions and public employers, along with the need to map out the collaboration with private actors.

D. IMPLEMENTATION OF ACTIONS PLANNED FOR THE PERIOD 2017-2020

The renovation strategy was presented to the Government in April 2017 with a significant number of actions to be instigated in the short term, in 2018 and 2019.

Chapter I of this report demonstrates the progressive changes in the building stock.

Chapter III A reviews the current Walloon renovation policies, including policies and measures in relation to energy renovation, as well as the main barriers that should be removed by the various measures included in the 2020 strategy. The actions in progress are presented in Chapter III C.

Progress on implementing the 90 actions planned in the 2017 LTRS for 2017-2020 is presented in more detail in the Excel file on monitoring the actions of the strategy, which is available on the Government website²³³.

This identifies actions completed, actions under development and implementation and actions that have not started or have been abandoned. 28 actions have been completed, 23 are in progress and 39 have not been started.

Several barriers can be identified, particularly in connection with the context for these actions.

To overcome these difficulties, certain opportunities were taken to develop and implement the priority measures, thus gradually building the toolbox and partnerships on which the measures and actions of the LTRS 2020 can build.

In order to develop the priority tools (the building roadmap and building passport) and test them using pilot housing renovation projects in partnership with Walloon cities, the Office for Sustainable Buildings joined forces with the Flemish Energy Agency to obtain a European grant by submitting a LIFE project called BE REEL!, which was accepted in 2018. The Walloren information and awareness campaign for the general public was also developed as part of this project.

Among the actions completed, several were carried out under the Employment-Environment Alliance, in particular those relating to the sustainability aspects of construction and renovation, to environmental assessment tools for materials (TOTEM), to training and to business partnerships. In addition, the Department of Energy has launched a call for pilot renovation platform projects, and several initiatives of this type are currently being supported.

In terms of financing, the incentive system for residential buildings has been reformed, merging energy incentives with incentives for renovation in connection with the mandatory housing audit (housing incentive). For the tertiary sector, a call was launched in 2017 for 'UREBA exceptionnel' projects targeting the renovation of schools. The RenoWatt project, which provides support for public authorities in implementing energy renovation projects and EPC in particular, was set up as a function delegated by the Government to the financial services company Befin. This project is receiving a European ELENA grant.

The PIVERT programme launched in 2012 for the renovation of social housing later became part of the Walloon Government's Marshall Plan 2.Green. PIVERT is essentially focused on energy renovation; the second phase of the programme, PIVERT 2, targets homes with the highest consumption. It covers innovative and sustainable renovation works. In 2018, renovation work was started on 7 881 homes. The PIVERT 2 programme covered deep renovation (minimum of 60% being energy investments) of 1 173 of these homes, at a cost of €49 994 454.

More generally, to ensure sustainable implementation of the measures and actions included in the long-term renovation strategy, in addition to governance and allocation of the necessary resources, processes need to be put in place without delay to strengthen monitoring, using the roadmap and indicators.

²³³ <https://energie.wallonie.be/fr/strategie-de-renovation.html?IDC=9580>

GLOSSARY

- AEER: Employment-Environment Alliance refocused on renovation
- CCTB: Standard specifications for buildings
- CCW: Walloon Construction Confederation
- CoDT: Territorial Development Code
- BBRI: Belgian Building Research Institute
- CWHD: Walloon Sustainable Housing Code
- DHW: Domestic hot water
- ETS: Emissions Trading System
- EED: Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency
- ESCO: Energy Service Company
- FLW: Walloon Housing Fund
- GHG: Greenhouse gas
- GRD: Distribution system operator
- HVAC: Heating, ventilation and air conditioning
- NZEB: Nearly zero-energy building
- PACE: Air Climate Energy Plan
- NEEAPs: National Energy Efficiency Action Plans
- EPB: Energy performance of buildings
- NECP: National Energy and Climate Plan
- PWEC: Walloon Energy and Climate Plan
- PM 4.0: Marshall Plan 4.0
- NZEB: Nearly zero-energy building
- SDER: Regional Spatial Development Plan
- SDT: Regional Development Plan
- RES: Renewable energy sources

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