BEreel!

BELGIUM RENOVATES FOR ENERGY EFFICIENT LIVING

BE REEL! Sustainable Home Renovations: Guidelines for Upscaling Energy Renovations

LIFE IP CA 2016 BE-REEL!

BE REEL! Action – E9

Guidelines Upscaling best practices

Code of the deliverable: E9D3.2

Title of the deliverable: Guidelines upscaling (English)

Associated Partner: VEKA

WWW.BEREEL.BE

LIFE IP CA 2016 BE-REEL!
With the contribution of the LIFE financial instrument of the European Union

Colofon

BE REEL! Sustainable HomeRenovations: Guidelines for Upscaling Energy Renovations

Authors

Baptiste Gaasch, Victoria Schreck, Jeanne Dumoulin, François-Olivier Devaux, Quentin Jossen (CLIMACT nv)

Responsible Publisher

Samir Louenchi
Administrateur-generaal
Vlaams Energie- en Klimaatagentschap (VEKA)
Koning Albert II-laan 15 bus 460,
1210 Brussel
veka@vlaanderen.be
www.vlaanderen.be/veka

Deposit Number

D/2025/3241/043

Partners

Document information

Project Title	Belgium Renovates for Energy Efficient Living
Project acronym	LIFE IP CA 2016 BE-REEL!
Project Number	LIFE16 IPC/BE/000005
Action Code	E9
Action Title	**Guidelines for Upscaling Best Practices**
Deliverable Code	E9D3.2
Title of Deliverable	**Guidelines for upscaling – English version**
Actual date of completion	12/01/2025

Authors:

Lukas Theunis (CLIMACT nv)

Reviewers:

Eddy Deruwe (VEKA)

Cover Phot:

Photo by Priscilla Du Preez CA on Unsplash

This report is realised on behalf of:

VEKA - Flemish Energy and Climate Agency in the framework of:

This report was produced by the contractor

CLIMACT nv

The specification number

[D4]_Phase3_ LIFE IP CA 2016 BE REEL! D4_fase1 - uitbreiding

Detailed Summary of Deliverable

Deliverable Code	**E9D3.2**
Title of Deliverable	**Guidelines for upscaling - Dutch version**

Purpose

This deliverable provides a guide for large-scale energy-efficient renovations in residential buildings, aiming for climate neutrality by 2050. It supports municipalities and stakeholders by offering structured guidelines focused on innovative solutions, financial tools, and collaborative models to promote sustainable investments, reduce energy use, and improve living standards. The report emphasizes combining technological progress with financial accessibility and social inclusion to ensure equitable energy transitions.

Outcome

The deliverable outlines key outcomes, including tools like 'Woningpas,' 'Quickscan,' and 'Passeport Bâtiment,' which streamline renovation processes and improve information access. It advocates for collective renovation models to boost energy efficiency through community involvement and highlights targeted support for low-income households. Additionally, it provides municipalities with strategies for policy alignment, stakeholder collaboration, and financing tailored to local needs.

Results

Pilot projects across regions validated the success of various renovation models and tools, demonstrating the value of innovative financial mechanisms like zero-interest loans and green bonds in lowering barriers. The guidelines have helped align local efforts with national energy targets and fostered collaborative renovation projects in cities such as Ghent, Antwerp, and Mechelen, significantly increasing renovation rates and community participation.

Conclusions

Key insights include the importance of integrated, scalable solutions combining technical, financial, and social aspects. Strong partnerships between public, private, and community stakeholders are essential for success. Accessible support through digital platforms, personalized advice, and one-stop-shop models is critical for simplifying renovations and boosting participation. Financial innovation and sustained policy support are crucial for achieving zero-emission buildings by 2050. This deliverable offers practical tools and strategies for accelerating sustainable housing renovations and supporting national and European climate goals.

TABLE OF CONTENT

TABLE OF CONTENT 2
CHAPTER 1 - Introduction 6
CHAPTER 2 - Tools to boost renovation 9
CHAPTER 3 - Renovation Advice 18
CHAPTER 4 - Collective approach 31
CHAPTER 5 – Apartments 43
CHAPTER 6 - Renewable energy-integrated buildings 53
CHAPTER 7 - Vulnerable households 62
CHAPTER 8 - Local renovation strategies 70
CHAPTER 9 - Construction sector 79
CHAPTER 10 - Sustainable building renovation 86
CHAPTER 11 – Conclusion 96

CHAPTER 1 - Introduction

The BE REEL project, a LIFE-supported initiative that ran from 2018 to 2024, aimed to demonstrate the feasibility of large-scale energy renovations and support policy measures within the long-term strategy for building renovations. Initially, the project focused on achieving energy label A for homes (maximum 100 kWh/m²/year). During the project's duration, European legislation evolved, targeting zero-emission buildings by 2050. Many of the measures developed under the BE REEL project have since been incorporated into European guidelines.

Despite significant efforts, both financially and organizationally, the annual renovation rate remains below 1%. The introduction of a renovation obligation – requiring a minimum energy label D (more than 400 kWh/m²/year) – and subsequent tightening of standards have disrupted the real estate market. These changes brought political consequences, including the relaxation of original targets. Meanwhile, the value of energy-efficient homes has risen significantly, while poorly performing properties have declined in value, sparking renewed momentum in the renovation sector. Support measures, both financial and advisory, remain essential.

Experiences from the BE REEL project confirm that renovations are a complex and slow process, requiring substantial support for both single-family homes and apartments. Without this support, private homeowners face significant challenges in initiating renovations. While the measures taken have had positive effects, they also require substantial resources to achieve large-scale impact.

As part of the project, various pilot and demonstration projects were set up to test and improve renovation processes. Much of the effort focused on providing individual renovation advice, with the ambition to make these services more widely available through digital channels, such as the home passport and quick scan tools. This guide offers guidelines to build on BE REEL's experiences and supports municipalities and other stakeholders in developing effective renovation strategies.

Energy renovation is not only an environmental imperative but also a catalyst for profound social and economic transformation. As municipalities face mounting pressure to achieve ambitious climate and energy goals, their role in enabling sustainable urban development has never been more critical. This guidebook is designed to empower local governments with actionable strategies, proven tools, and inspiring case studies to lead this transformation. By fostering collaboration, leveraging innovative approaches, and addressing systemic challenges, cities and municipalities can drive the deep renovations needed to combat energy poverty, enhance living conditions, and lay the foundation for a resilient, equitable future.

Structure of guide

Organized systematically, this guidebook unfolds into distinct chapters, each delving into specific thematic areas pertinent to the objectives of the BE REEL initiative:

- **Chapter 2: Tools to boost renovation** presents five innovative tools such as Quickscan, Passeport Bâtiment, and Feuille de Route to simplify renovation processes, address financial and informational barriers, and guide stakeholders toward achieving energy-efficient renovations.
- **Chapter 3: Renovation advice** highlights comprehensive support services like technical guidance, financial assistance, and project coordination, emphasizing their role in reducing complexity and motivating households to undertake energy-efficient renovations.
- **Chapter 4: Collective approach** discusses how mobilizing groups of homeowners or residents can lead to cost-effective and impactful renovations. Examples from Ghent, Antwerp, and Mechelen illustrate collective strategies.
- **Chapter 5: Apartments** explores the unique challenges of renovating apartment buildings and introduces tools like Renovation Master Plans, Multiannual Maintenance Plans, and renovation coaches to guide stakeholders through the process.
- **Chapter 6: Renewable energy-integrated buildings** focuses on integrating renewable energy systems into buildings, showcasing actionable strategies and inspiring examples for local governments to support sustainable transitions.
- **Chapter 7: Vulnerable households** addresses the challenges faced by low-income families, single-parent households, and others struggling with energy poverty, emphasizing tailored support, innovative financial tools, and community-driven approaches to ensure safe and energy-efficient housing.
- **Chapter 8: Local renovation strategy** focuses on empowering municipalities to align regional goals with local realities, leveraging tools like backcasting and data-driven analysis to create effective energy renovation strategies.
- **Chapter 9: Construction sector** focuses on the vital role of construction professionals in scaling energy renovations, emphasizing the need for specialized training, capacity building, and collaboration to meet the growing demand for skilled workers and sustainable building practices.
- **Chapter 10: Sustainable building renovation** delves into practices and strategies for achieving energy-efficient, climate-resilient buildings through innovative materials, techniques, and holistic approaches to reduce carbon footprints and enhance living standards.
- **Chapter 11: Conclusion** synthesizes the lessons learned throughout the guide, emphasizing the critical importance of scaling energy renovations, fostering collaboration among stakeholders, and leveraging innovative tools and strategies to meet ambitious climate and energy goals by 2030.

Each chapter in this BE REEL! guidebook follows a clear structure: it begins by defining the topic's focus (**What**) and explaining its relevance to energy and climate goals (**Why**). It then provides actionable steps and practical tools to guide implementation (**Steps and tools**) and highlights concise, actionable insights to overcome challenges (**Key takeaways**). Finally, **Use Cases** from the BE REEL! initiative illustrate successful applications of the strategies, offering inspiration and lessons learned for municipalities and stakeholders.

CHAPTER 2 - Tools to boost renovation

This chapter proposes an overview of five tools to boost renovation developed under the BE REEL! initiative. After a first overview section, the tools are explained in greater detail through in-depth infosheets, which are structured sections detailing each tool's objective, usage, strengths and challenges. The chapter concludes with a set of recommendations highlighting how these tools can be effectively leveraged at the local level.

Overview of the tools developed in the BE REEL! project

To accelerate energy-efficient renovations and meet ambitious climate goals, a range of innovative tools are available to municipalities, cities and their citizens, aiming to simplify the renovation process, enhance accessibility to information, and empower stakeholders to make informed decisions. These tools are designed to overcome barriers such as fragmented information, financial constraints, and a lack of long-term planning, which often hinder deep renovations. By targeting various stages of the renovation journey, they seek to engage and empower homeowners, municipalities, and energy advisors while aligning with the broader objectives of decarbonizing the building stock by 2050.

The tools presented in this chapter address three subsequent needs in the journey towards the renovation of the building stock: (1) **raise awareness** among citizens and trigger the decision to renovate (*Energy bill as a tool* and *Quickscan*), (2) **inform on the current state** of the building (*Passeport bâtiment* and *Woningpas*), and (3) **offer a clear roadmap** of the actions to be undertaken to reach the target EPC-level (*Feuille de route Wallonne*).

The *Quickscan* aims to raise awareness and trigger renovations by offering quick and online energy assessments and standardized recommendations to trigger renovation decisions. Pilots for the *Quickscan*, involving thousands of users in Wallonia, have shown its effectiveness as an entry point for deeper audits and renovation support systems. The *energy bill as a tool* in Mechelen leverages the energy bills to provide personalized feedback on energy consumption, comparisons with similar households, and targeted incentives through quarterly informational folders to encourage behavioural changes and reduce energy use.

The Housing Passport, known as *Woningpas* in Flanders and *Passeport Bâtiment* in Wallonia, consolidates essential data about a property, such as energy performance, renovation history, and legal requirements into a digital platform. The *Woningpas* is already operational but continues to expand functionalities, while the *Passeport Bâtiment* is still in pilot phase.

The roadmap tool (*Feuille de route*), integrated to the Audit Logement provides a phased renovation strategy tailored to achieve energy efficiency goals, helping homeowners plan works coherently and avoid inefficient investments.

These tools are primarily targeted at homeowners, municipalities, and first-line energy advisors, with pilot projects demonstrating their potential to simplify processes, foster engagement, and support informed decision-making. However, full-scale implementation is still underway, and challenges such as awareness and accessibility are being addressed through iterative testing and refinements.

The following tools are further described below through in-depth infosheets. Insights are then given on how to leverage them to boost energy renovation at the local level.

Table 1 - Tools addressed in this chapter

Tool	Region	Objective
Woningpas		**Centralize property information** to support renovation planning and decision-making.
Passeport Bâtiment		**Centralize property information** to support renovation planning and decision-making.
Feuille de route		Provide households with a **personalized renovation trajectory**, showing prioritized steps and costs to achieve energy efficiency goals.
Quickscan		Offer a quick and free **online energy assessment** to encourage initial renovation actions.
Energy Bill as a Tool (Mechelen)		**Motivate energy-saving behaviour** by integrating consumption insights and incentives into energy bills.

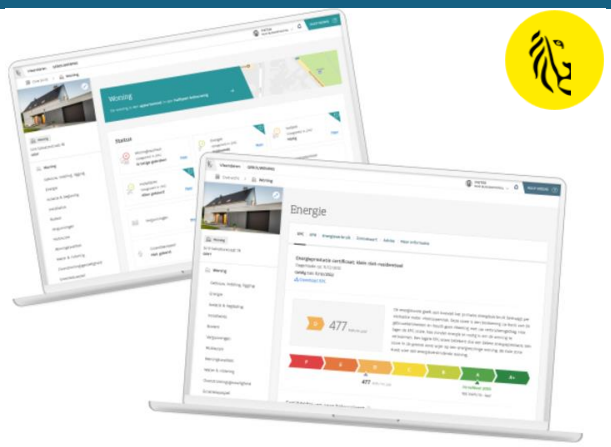
Woningpas

Maturity

★★★☆

Objective

The *Woningpas* is a digital building passport providing Flemish homeowners with centralized information about their property, including energy performance certificates (EPC), renovation history, and tailored renovation advice. Accessible via an online platform, it streamlines access to data for renovations, grant applications, and compliance with regional energy targets



Key Strengths

- **Centralized platform**: Provides a single digital hub for homeowners to access energy performance data, renovation history, and financial incentives, simplifying renovation planning.
- **User accessibility**: Freely accessible to all homeowners with secure login and sharing options, facilitating communication with contractors and advisors.
- **Modular and scalable:** Designed to accommodate future enhancements such as additional themes (e.g., heritage advice) and integration of non-residential buildings.

Key Challenges

- **Feature gaps:** Key planned functionalities, including integration with non-residential buildings and new thematic modules like environmental permits, are still under development.
- **Adoption and awareness:** Requires increased promotion and user guidance to ensure broader adoption by homeowners and municipalities.
- **Data integration:** Aligning and linking various regional databases (e.g., energy data, permits) remains a technical and administrative challenge.

How to leverage this tool?

- **Integrate to local services**: Use the *Woningpas* as a centrepiece for promoting energy renovation by making it part of your municipal renovation advice services.
- **Integrate into local policies**: Embed in your building permit application process and publicize it through local campaigns.
- **Facilitate access:** Organize workshops or tutorials to show citizens how to use the tool to access EPCs, track renovations, and find financial incentives.
- **Promote use**: Highlight its value as a digital document that simplifies renovation planning and grant applications.

Expected improvements

- **Expansion to non-residential buildings**: The *Woningpas* will be extended to include non-residential properties such as offices, schools, cultural venues, and healthcare facilities
- **Thematic expansions**: Add new themes, including central heating inspections, heritage energy advice, and environmental permit links.
- **Improved user experience:** Improve user guidance and streamline processes like automatic grant and premium assignment to enhance adoption.

Accessible at *https://woningpas.vlaanderen.be*

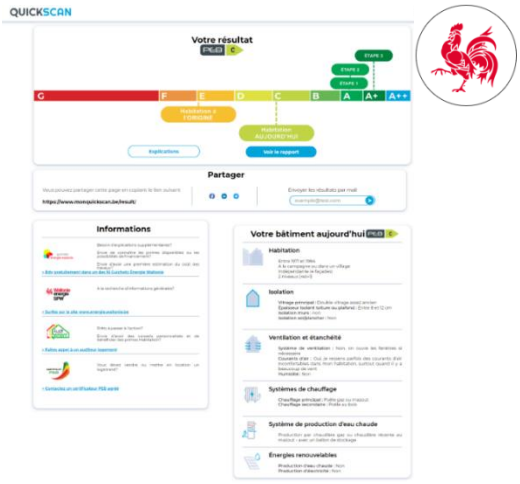
Quickscan

Maturity

★★☆☆

Objective

The *Quickscan* is an online tool designed to provide Walloon homeowners with an accessible and fast assessment of their home's energy performance. It generates standardized recommendations for energy renovation, acting as a first step to raise awareness and guide citizens toward deeper renovation actions, such as energy audits or tailored roadmaps. The tool aims to simplify the entry point into the renovation process and bridge the knowledge gap for Walloon citizens.



Key Strengths

- **Ease of access:** Simple and user-friendly, allowing citizens to quickly assess their home's energy performance without technical expertise.
- **Awareness creation:** Effective at engaging homeowners and motivating them to explore further renovation actions.
- **Scalable solution**: Free, digital format makes it easy to deploy across the region and reach a wide audience.

Key Challenges

- **Limited depth:** The recommendations provided are general and lack the customization required for more complex renovation projects.
- **Maintain engagement:** Maintaining consistent and broad use of the tool requires regular promotion

How to leverage this tool?

- **Promote as a starting point:** Use community newsletters, websites, and events to publicize the *Quickscan* as the first step toward energy renovation.
- **Integrate with local programs:** Link *Quickscan* results to municipal renovation services to encourage follow-up actions.
- **Partner with local organizations:** Collaborate with energy advisors or local renovation platforms to guide users from *Quickscan* results to actionable renovation steps.

Expected improvements

- **Improve recommendation specificity**: Add more tailored recommendations based on specific building types and renovation priorities.
- **Develop integration pathways**: Connect *Quickscan* directly to tools like the *Feuille de Route* or *Passeport Bâtiment* for a cohesive user journey.
- **Add progress tracking**: Enable users to monitor and update their renovation progress directly within the tool.

Accessible at *https://www.monquickscan.be*

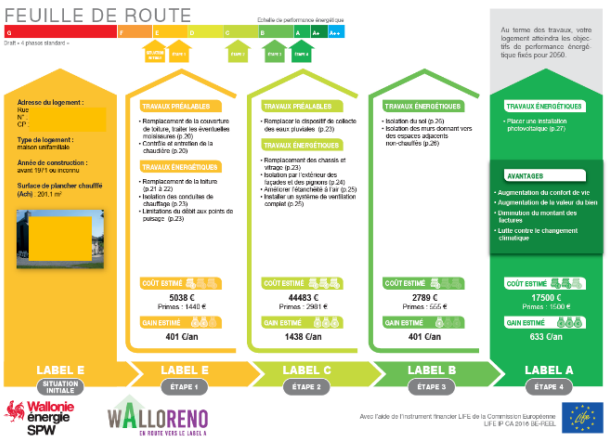
Feuille de route

Maturity

★★☆☆

Objective

The *Feuille de Route* provides Walloon homeowners with a long-term, step-by-step renovation roadmap integrated into the Audit Logement. It guides citizens towards achieving the region's energy performance goal of a decarbonized "PEB A" energy label by 2050. By prioritizing actions and estimating costs, it helps prevent lock-ins and facilitates phased, coherent renovations.



Key Strengths

- **Clearplanningtool:** Offers a phased renovation trajectory with detailed cost estimations and priorities tailored to individual homes.
- **Integration with existing tools:** Built into the PACE "Audit Logement" software, ensuring synergy with existing processes and higher adoption rates.
- **Proven effectiveness:** Successfully piloted with 300 citizens, leading to continuous improvements based on real user feedback.

Key Challenges

- **Cost barrier:** The audit and roadmap, costing approximately €1,000, can deter participation despite available subsidies.
- **Policy instability:** Adjustments in grant systems and renovation incentives require frequent updates to maintain tool relevance.
- **Professional capacity:** Increasing demand for audits requires expanding and continuously training the network of accredited auditors.

How to leverage this tool?

- **Promote accessibility**: Rationalize the cost of the *Audit Logement* and strengthen the subsidy to reduce upfront costs for citizens, ensuring more households adopt the roadmap.
- **Embed in local programs**: Include the *Feuille de Route* in municipal renovation initiatives, linking it to local grants and support systems.

Expected improvements

- **Broaden outreach**: Implement targeted campaigns to inform citizens about the roadmap's benefits and available financial assistance.
- **Ensure professional growth**: Expand training programs to meet rising demand for audits and roadmaps while maintaining quality.

More info https://www.be-reel.be/a6-c19-developpement-et-mise-en-uvre-de-la-feuille-de-route-fr

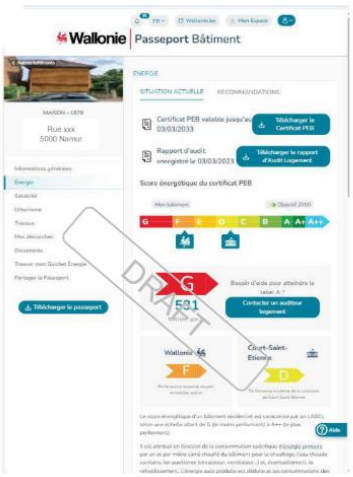
Passeport bâtiment

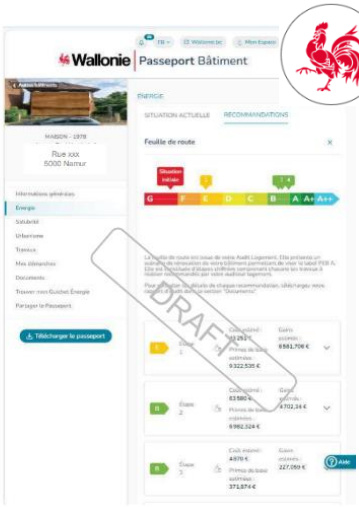
Maturity

★★☆☆

Objective

The *Passeport Bâtiment* aims to centralize and simplify access to all building-related data, support homeowners in planning and executing energy-efficient renovations, and ensure continuous management of building information throughout its lifecycle. By equipping citizens with tailored recommendations and a comprehensive overview of their property, the tool facilitates informed decision-making and accelerates progress toward Wallonia's long-term energy renovation goals.





Key Strengths

- **Centralized data**: brought together, on a digital platform, all administrative and energy information relating to buildings (situation, PEB certificate, energy roadmap, etc.)
- **Secure and personalized**: automatically created for any single-family home in Wallonia, Passeport Bâtiment offers unique and secure access to sensitive building data.
- **User-friendly foundation**: Offers a solid base for future enhancements, such as integrating urban planning or solar potential mapping.

Key Challenges

- **ow adoption**: Limited public awareness and engagement during the pilot phase will require significant and sustained efforts to promote the tool.
- **Legal and technical barriers**: Linking building and ownership data securely, while adhering to privacy laws, proved challenging during development.
- **Data completeness**: Ensuring the tool contains all relevant building information remains an ongoing task.

How to leverage this tool?

- **Promote adoption**: Raise awareness among residents about the *Passeport Bâtiment* through large promotion and renovation events.
- **Partner with renovation platforms**: Collaborate with local energy renovation initiatives to integrate the *Passeport Bâtiment* into their services.

Expected improvements

- **Expand data integration**: Add urban planning information, to enhance the tool's utility.
- **Enhance user interface**: Improve the platform's usability and accessibility based on pilot feedback.
- **Develop advanced modules**: Include features like solar potential analysis and automatic grant calculation to further support renovation planning.

Accessible at https://www.be-reel.be/a7-c20-dveloppement-et-mise-en-uvre-du-passeport-btiment-wallon-fr

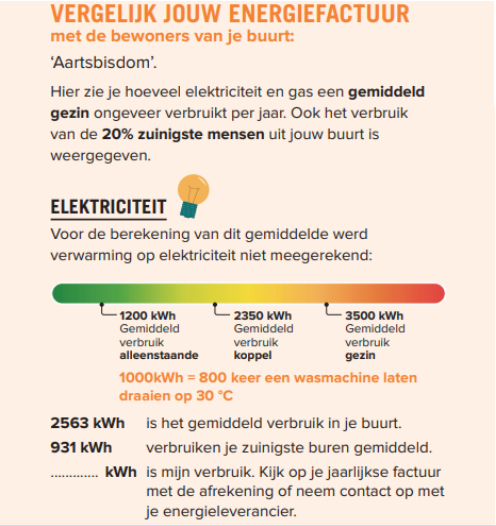
Energy bill as a tool

Maturity

★☆☆☆

Objective

The *Energy Bill as a Tool* initiative leverages personalized energy bills to encourage behavioural changes and reduce energy consumption. By including comparisons of usage with similar households, actionable energy-saving tips, and progress tracking, the tool aims to engage citizens and motivate them to adopt more sustainable energy practices. This experimental approach is being piloted to assess its impact on energy awareness and consumption habits in Mechelen.



VERGELIJK JOUW ENERGIEFACTUUR

met de bewoners van je buurt:

'Aartsbisdom'.

Hier zie je hoeveel elektriciteit en gas een **gemiddeld gezin** ongeveer verbruikt per jaar. Ook het verbruik van de **20% zuinigste mensen** uit jouw buurt is weergegeven.

ELEKTRICITEIT

Voor de berekening van dit gemiddelde werd verwarming op elektriciteit niet meegerekend:

1200 kWh Gemiddeld verbruik **alleenstaande**

2350 kWh Gemiddeld verbruik **koppel**

3500 kWh Gemiddeld verbruik **gezin**

1000kWh = 800 keer een wasmachine laten draaien op 30 °C

2563 kWh is het gemiddeld verbruik in je buurt.

931 kWh verbruiken je zuinigste buren gemiddeld.

..... **kWh** is mijn verbruik. Kijk op je jaarlijkse factuur met de afrekening of neem contact op met je energieleverancier.

Key Strengths

- **Behavioural motivation:** Engages citizens directly by using relatable, personalized data to encourage energy-saving actions.
- **Scalability potential:** Easily replicable across municipalities with partnerships from utility providers.
- **Low cost for engagement:** Cost-effective way to reach a broad audience and stimulate awareness without requiring significant upfront investment from users.

Key Challenges

- **Validation of impact:** Results from the pilot phase are modest (1.5%-3.5% energy reduction) and require broader testing to confirm effectiveness.
- **Limited reach:** Currently confined to Mechelen, with scalability and adaptation for diverse demographics yet to be explored.
- **Behavioural sustainability:** Maintaining long-term engagement and measurable impact remains a challenge.

How to leverage this tool?

- **Promote partnerships**: Collaborate with local utility providers to replicate the approach, tailoring it to local demographics.
- **Raise awareness**: Use community campaigns to explain the personalized features and benefits of energy bills to citizens.
- **Incorporate incentives**: Pair energy bills with local grant programs or challenges to reward progress in reducing energy usage.
- **Monitor impact**: Work with researchers to gather data on the tool's effectiveness and identify ways to enhance user engagement.

Expected improvements

- **Enhance data accuracy:** Integrate more granular energy consumption data to provide precise comparisons and feedback for households.
- **Add targeted advice**: Develop customized energy-saving recommendations for specific user profiles, such as families or seniors.
- **Incorporate gamification elements:** Include progress tracking and rewards to sustain user engagement and motivation.
- **Expand testing scope:** Pilot the tool in other regions or demographic groups to validate scalability and improve its design.

More info *https://klimaatneutraal.mechelen.be*

How to leverage these tools for your citizens?

Not all tools are available to the same extent, and regional tools are accessible only to people residing in the region where the tool was developed. Walloon citizens have access to the *Quickscan*, *Passeport Bâtiment*, and *Feuille de Route*. Flemish citizens can access the *Woningpas*, which provides centralized information about their property, including EPC, renovation history, and tailored renovation advice. In the introductory section, Table 1 summarizes the regions for which the different tools were developed.

Municipalities and cities play a key role in driving energy-efficient renovations by bridging the gap between regional tools and citizens. By effectively leveraging these tools and promoting their use, they can help initiate more renovations at the local level. Beyond promoting the use of regional tools, municipalities and cities can also develop their own tools to address specific local challenges, as exemplified by Mechelen with its innovative energy bill project.

Below are key recommendations for local governments on how to deploy and promote these tools effectively to benefit residents and achieve climate goals.

Key recommendations

Empower households with accessible and personalized support

- ✓ **Ensure broad accessibility:** Set up free, easily accessible advice centres offering guidance on technical, financial, and regulatory aspects to all households. Train staff to provide clear, unbiased advice and make service hours flexible to accommodate working residents.

Promote awareness among citizens

- ✓ **Organize local campaigns:** Launch communication campaigns (via social media, newsletters, or local events) to inform residents about tools like the Housing Passport, Roadmap, and *Quickscan*. *Example*: Highlight real-life benefits through testimonials or case studies during town hall events.
- ✓ **Leverage existing channels:** Use municipal websites, utility bill inserts, or neighbourhood associations to disseminate information about the tools. *Tip*: Include links to online platforms (e.g., *Woningpas*.be, Mon*Quickscan*.be) for easy access.

Provide direct support

- ✓ **Set Up Info Points:** Establish "Renovation Info Desks" or support them to assist residents in navigating these tools. *Example*: Train staff to help citizens use the Housing Passport or interpret their Roadmap.

Partner with local stakeholders

- ✓ **Engage energy advisors:** Work with regional energy advisors to integrate these tools into their consultations with homeowners.
- ✓ **Involve real estate agents and notaries:** Encourage these professionals to promote the Housing Passport during property transactions, emphasizing its utility for buyers and sellers.

Incentivize use

- ✓ **Link tools to local programs:** Keep tools like the Roadmap prerequisites for régional grants or subsidies. **Reward early adopters:** Strenghten financial incentives for residents who use the tools and take the first steps toward renovation.

Monitor and evaluate impact

- ✓ **Track adoption rates:** Use surveys or analytics (in partnership with regional agencies) to measure how many residents are using these tools and their effectiveness. *Example*: Work with tool developers to get anonymized usage data for your municipality.
- ✓ **Collect feedback:** Gather resident feedback on challenges and improvements needed for these tools.

CHAPTER 3 - Renovation Advice

Renovation Advice is a comprehensive service designed to address the complexity and administrative challenges of home improvement projects, with a special focus on energy efficiency and sustainability. By providing technical advice, financial assistance, project coordination, and regulatory guidance, this service helps households and property managers prioritize actions, overcome obstacles, and maintain momentum throughout the renovation process. Implemented by municipalities, regional authorities, or private-public partnerships, Renovation Advice fosters sustainable improvements in communities, accelerates renovation rates, and promotes deeper renovations. In addition, it is essential to bridge the gap between the current pace of renovations and the levels required to meet climate targets, emphasizing the urgency of adopting and scaling such services.

This chapter highlights the importance of renovation advice and explores the various forms it can take. It presents inspiring case studies from municipalities, such as Guichets Énergie Wallonie, the Renocity project in Haine-Saint-Pierre, and Reno Mouscron. The chapter concludes with key recommendations, derived from successful initiatives and best practices across cities and regions.

Why is it necessary? Reducing complexity and financial barriers

Renovating homes to improve energy efficiency has become increasingly important for both environmental, economic and public health reasons. However, households face several challenges that make this process difficult:

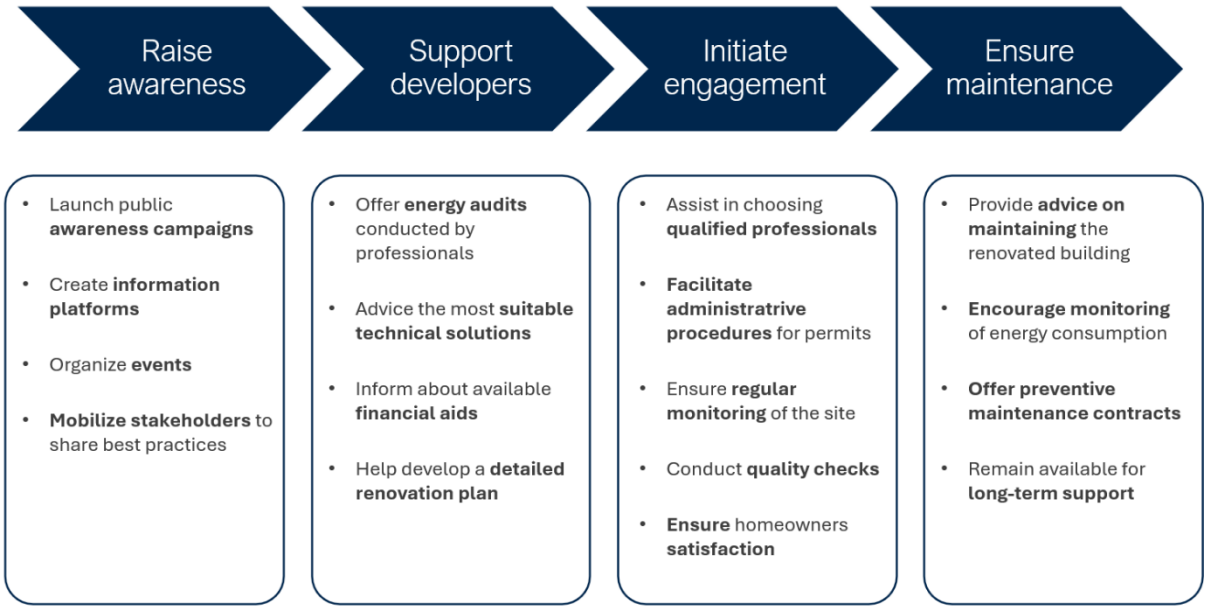
- **Complexity of renovations**: From identifying priorities and knowing what to do first to selecting materials and contractors and understanding the legal and technical requirements, the renovation process can be overwhelming for households.
- **Financial barriers**: While accessing grants, loans, and subsidies for energy-efficient renovations can be complicated, the primary challenge often lies in navigating the administrative and procedural complexities rather than the financial solutions themselves.

Cities and municipalities can play a key role in addressing these challenges by implementing effective renovation advice services. Through such services, cities and municipalities not only can help reduce household energy consumption but can also contribute to broader sustainability goals, improve the housing stock, and enhance the well-being of their residents.

What are the steps to guide the *Renovation Advice* process?

Renovation Advice can take various forms depending on the needs of households and the specific context of the city or municipality. However, a structured methodology can ensure the process is both efficient and impactful.

This approach provides tailored support for households throughout the renovation journey, emphasizing not only motivation but also clear solutions to prevent discouragement and maintain momentum. It is based on a renovation project cycle comprising four key stages: develop a strategy, support developers, initiate engagement and ensure maintenance. While some initiatives may concentrate on certain stages of this cycle, a comprehensive approach helps address diverse challenges and ensures a cohesive and effective renovation process.



Raise awareness: For a homeowner to embark on a renovation journey, it is crucial to highlight the importance and impact of renovations, while tailoring the approach to their specific context. This can involve diverse strategies, such as optional thermographic analyses of homes, clear demonstrations of energy savings, or personalized consultations. Engaging citizens through various channels—such as events, workshops, or digital platforms—ensures a broad reach while maintaining flexibility. Partnerships with key stakeholders like banks and energy suppliers can act as intermediaries, directing homeowners to relevant information. Importantly, while some tools may be optional, the focus should remain on providing clear, accessible, and motivating information to encourage action.

Support developers: Effective renovation advice involves providing tailored support to help homeowners navigate the renovation process efficiently and confidently. This includes conducting professional energy audits to assess potential improvements, recommending the most appropriate technical solutions, and guiding homeowners through available financial aids and funding options. Additionally, creating a detailed renovation plan ensures clarity and structure, helping households move seamlessly from planning to implementation. By combining digital tools and personalized consultations, this approach balances efficiency with individualized support, empowering homeowners to make informed decisions and successfully complete their renovation projects.

Initiate engagement: Engaging homeowners effectively requires simplifying and organizing the renovation process while maintaining clear communication and quality assurance. This involves assisting households in selecting qualified professionals and facilitating administrative procedures, such as obtaining permits, to reduce barriers. Regular site monitoring and quality checks are essential to ensure progress and adherence to standards, while homeowner satisfaction must be prioritized through continuous support and open communication. This holistic support not only enhances the homeowner experience but also fosters trust and long-term commitment to energy-efficient renovations.

Ensure maintenance: To guarantee the long-term success and sustainability of renovations, it is crucial to provide homeowners with clear guidance on maintaining their renovated properties. This includes not only practical advice on the upkeep of installations and systems but also promoting energy-efficient usage practices. Regular monitoring of energy consumption should be encouraged to optimize performance and identify inefficiencies early. Preventive maintenance contracts can further minimize the risk of costly repairs. Additionally, empowering homeowners to understand their systems and adopt rational energy usage behaviours is essential. Effective follow-up and availability for long-term support ensure that households continue to benefit from their renovations while fostering a culture of proactive maintenance and energy awareness.

Key takeaways on renovation advice

Engage customers and partners

- ✓ Extend outreach to reach households locally: Organize local consultations and workshops within various neighbourhoods, bringing information directly to residents. Promote these events through community groups, local media, and online channels to ensure strong attendance and awareness.
- ✓ Boost awareness through targeted campaigns: Use community-wide initiatives, such as neighbourhood energy assessments, to raise awareness about energy efficiency. Combine these with informative sessions, printed materials, and digital outreach to reinforce the importance of sustainable home improvements.
- ✓ Build effective partnerships for comprehensive support: Establish strong collaboration with local governments, financial institutions, and contractors to create an integrated network of support. Formalize these partnerships with clear agreements to ensure smooth referral processes and shared service goals.

Empower households with accessible and personalized support

- ✓ Ensure broad accessibility: Set up free, easily accessible advice centres offering guidance on technical, financial, and regulatory aspects to all households. Train staff to provide clear, unbiased advice and make service hours flexible to accommodate working residents.

- ✓ Provide continuous, personalized support: Assign each household a dedicated advisor who can follow their renovation process from planning to completion. Offer regular check-ins, both in person and remotely, to keep households informed and engaged at every stage.

- ✓ Simplify processes through a one-stop-shop model: Consolidate all services into a single platform or location where households can manage renovation planning, financing, and execution in one place. Designate staff to guide residents through each step, simplifying the renovation journey.

Streamline process and ensure quality

- ✓ Standardize advice for quality and consistency: Develop comprehensive guidelines and training for advisors to ensure consistent, high-quality support across all centres. Regularly evaluate advisors' performance, using feedback mechanisms to continuously enhance service quality.

- ✓ Facilitate access to financial support: Streamline funding applications by creating clear instructions and providing direct assistance with application processes. Offer options like zero-interest loans or local grants to cover project costs, making financial support straightforward and accessible.

- ✓ Utilize digital tools for accessible advice: Implement an online platform where households can assess potential energy savings, view tailored recommendations, and explore available funding opportunities. Ensure that the platform is user-friendly, mobile-accessible, and regularly updated with new resources and information.

- ✓ Gather feedback for continuous improvement: Regularly collect feedback from households on the renovation support they received. Use this data to refine services, addressing common challenges like budgeting and contractor delays, to continually improve satisfaction and outcomes.

Use-cases: Insights into how Renovation Advice was successfully implemented in Belgium

A regional service close to households: Guichets Énergie Wallonie

The "Guichets Energie Wallonie" are 16 energy information desks located in Wallonia. Their primary objective is to provide residents with advice and assistance on energy efficiency and renewable energy. They offer a range of services, including energy efficiency advice, renewable energy information, financial aid and incentives, regulatory information, personalized consultations, and educational workshops and events.
In addition, decentralized consultation services are organized monthly in certain municipalities, allowing a broader audience to be reached and providing tailored advice directly on-site.

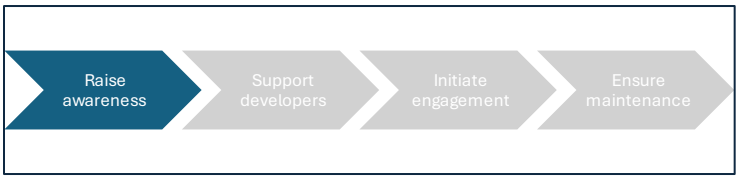


Table 2. Simplified Business model Canvas of the Guichet Energie Wallonie

Providing free, accessible and personalized expert guidance and support to optimize energy efficiency and access financial aids for home improvements	
HOW?	***FOR WHOM?***
Services • Energy efficiency advice • Renewable energy information • Information on financial aid and incentives • Regulatory information • Personalized consultations • Educational workshops and events **Resources** • Trained personnel • Informational materials • Digital platforms • Consultation spaces	**Customer Segments** • All households **Customer Relationships** • Personalized consultations • Community engagement • Follow-up support • Feedback mechanisms **Channels** • Physical locations (16 in Wallonia) • Workshops and events • Printed materials

FINANCIAL ELEMENTS
Cost structure: Operational costs, personnel salaries, marketing and outreach, infrastructure and technology maintenance, and workshop/event organization. **Revenue streams**: Government funding

Recommendations drawn from the Guichets Energie Wallonie

- Establish free and accessible service centres: Create energy information desks providing personalized consultations, financial aid information, and regulatory advice, ensuring services are accessible to all residents without cost.
- Decentralize consultations to reach more households: Organize regular consultation events in various municipalities to expand reach and offer on-site tailored advice away from fixed helpdesks.

GUICHETS ÉNERGIE WALLONIE

Contact: For a complete overview: Energie Wallonie

For general inquiries, call the toll-free number 1718 or email at energie@spw.wallonie.be

Renovation coaches and 0% interest loans for a neighbourhood: Renocity Project in Haine-Saint-Pierre

The Renocity project in Haine-Saint-Pierre is a comprehensive initiative aimed at developing a renovation support programme for a neighbourhood of 1500 homes. This project, driven by a collaborative public-private partnership model, offers a holistic approach to renovation by leveraging a digital platform for preliminary cost estimations, providing free home visits with tailored quotes as the next step, and offering complimentary construction site monitoring. By combining these innovative tools with proactive outreach, personalized consultations, and ongoing support throughout the renovation process, Renocity ensures that every participating homeowner receives the guidance and resources needed to successfully complete their projects.

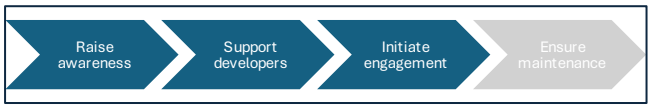


Table 3. Simplified Business model Canvas of the Renocity project

Offer homeowners free renovation support through a renovation coach helping from the initial assessment until the end of the project. Help financing the project through 0% interest loans	
HOW?	***FOR WHOM?***
Services: • Proactive outreach and info sessions, individual consultations • Free personalized coaching: renovation roadmap, permits and administrative processes, selection of contractors, monitoring construction works and facilitating communication with contractors • Securing grants and 0% interest loans **Resources & partners**: • City of La Louvière (funding and project coordination) • Walloon region (grants, tools and roadmap) • Local contractors • SWCS	**Homeowners** • From the Haine-Saint-Pierre neighbourhood • Owners of single-family homes **Customer relationship** • Advanced online platform • Home visits • One-on-one consultations • Workshops and events
FINANCIAL ELEMENTS	
Cost structure: Staffing for renovation coaches, grant co-financing (percentage required by some grants), marketing and outreach specific to Haine-Saint-Pierre, project management and administrative costs **Revenue streams**: funded by grants (Life BE REEL!, PIV, POLLEC) and potentially sponsorships. Indirect revenues: increased property tax, potential future performance-based payments from energy savings	

Recommendations drawn from the Renocity project

- Focus on a specific neighbourhood: Target a neighbourhood to centralise support and outreach efforts.
- Online platform: An advanced online platform including clear information about the price and the process allows to allocate human resources efficiently, where households already have information and are ready to continue their renovation journey
- Implement dedicated renovation coaches: Offer free personalized coaching to homeowners from initial assessment to project completion, ensuring comprehensive support throughout the renovation process.
- Secure financial facilitation: Provide access to 0% interest loans and municipal and regional grants to ease the financial burden on homeowners.
- Self-assessment: Provide self-assessment tools for households to quickly get visibility the potential energy savings, costs, availability of grants and a clear call-to-action.

'RENOCITY'-PROJECT
https://www.lalouviere.renocity.be

Projectcontact

Renocity La Louvière:
Website: lalouviere.renocitv.be

First line renovation advice - Energiehuizen in Flanders

The Energiehuizen in Flanders are accessible renovation advice centres providing personalized support to households aiming for energy-efficient home improvements. Funded primarily by the Flemish Energy and Climate Agency (VEKA) with additional support from EU and municipal sources, they operate to drive energy-efficient renovations across the region. Their core service includes energy audits, tailored renovation plans, and assistance with financial support such as "Mijn Verbouwpremie" (subsidy scheme for energy renovation) and 0% interest loans. With 20 centres covering all Flemish municipalities, they combine professional guidance, local accessibility, and integrated partnerships to help households achieve sustainable home renovations.

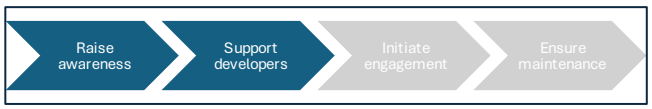


Table 4. Simplified Business Canvas of the Energiehuizen Vlaanderen

Independent and expert advice to help households achieve energy savings, access financing, and complete sustainable home renovations for improved comfort and reduced costs.	
HOW?	***FOR WHOM?***
Activities: • Energy audits • Renovation coaching • Subsidy facilitation • Educational workshops • Outreach campaigns **Resources** • Skilled energy advisors • Funding from VEKA and other sources • Digital tools • Local offices **Partners** • Local/regional governments (VEKA) • Community organizations	**Customer Segments:** • Homeowners • Landlords • Apartment associations • Social housing tenants **Customer Relationships:** • Personalized coaching • Online tools • Community engagement **Channels:** • Local offices • Digital platforms • Social media • Newsletters • Events
FINANCIAL ELEMENTS	
Revenue Structure Primarily funded through government subsidies (e.g., VEKA's €16M structural funding in 2024), complemented by project-specific funding (e.g., renovation coaches, thermography) and partnerships.	

Cost Structure
Personnel costs for advisors and staff, operational costs (office space, IT systems), marketing expenses, training activities, and financing costs for managing loans and subsidies.

Recommendations drawn from Energiehuizen

- Ensure consistent and impactful renovation advice: Energiehuizen deliver both basic and in-depth renovation guidance through house visits, digital tools, and local offices. Standardized methodologies and collaboration among centres help maintain consistent quality, though variations in interpretation and metrics remain a challenge.
- Facilitate financial access for all households: By offering tools like "Mijn Verbouwlening" and assisting with subsidies, Energiehuizen help address financial barriers. However, gaps persist, especially for households that cannot meet the eligibility requirements for loans or grants.
- Enhance outreach through community-based initiatives: Localized campaigns, such as thermography projects and neighbourhood-focused workshops, effectively engage residents and trigger interest in energy-efficient renovations. Combining digital and physical outreach maximizes accessibility and participation.
- Streamline reporting and feedback for service improvement: Energiehuizen are transitioning to more structured reporting systems to better measure their impact. Regular feedback from residents helps refine services, but delays and limited follow-up with households after initial advice are areas for ongoing improvement.

ENERGIEHUIZEN
https://mijnenergiehuis.be

Project Contact: Visit the website Mijn Energiehuis om to find the Energy House in your municipality. Enter your postal code to obtain the contact details of your Energy House.

Boosting Renovation through free Renovation Advice – Reno Mouscron

The Reno Mouscron project, part of the BE REEL! initiative, has boosted the renovation rate in Picardy Wallonia by targeting renovations of 900 pre-1980 properties in Mouscron from 2019 to 2024. For this project, the Cellule Energie of the City of Mouscron offers a range of services to households, providing technical and financial advice, assistance with the documentation required to obtain Walloon region grants, energy audits, and thermographic analyses of homes using infrared cameras. Engaging residents through events, workshops, and digital platforms, the project has recorded 1224 impulsions for renovation, 724 audits and initiated 95 renovation projects started by 2024.

Table 5. Simplified Business Canvas of Reno Mouscron

Reno Mouscron aims at increasing the renovation rate of pre-1980 properties in Mouscron by providing households with technical and financial advice, energy audits, thermographic analyses, and facilitating access to grants.	
HOW?	***FOR WHOM?***
Services • Provision of technical and financial advice. • Assistance with documentation for grant applications. • Conducting free energy audits and thermographic analyses. • Engagement through community events, workshops, and digital platforms. • Development of a guide and streamlined processes to assist residents. **Resources & partners** • Coordination by the Cellule Energie of the City of Mouscron.	Households in Mouscron, particularly owners of pre-1980 properties.
FINANCIAL ELEMENTS	
Cost structure: Staffing, training, digital tools, and marketing. **Revenue streams**: Indirect revenue through increased renovation rates and property values. Funded by the BE REEL! project. No direct payments from households.	

Recommendations drawn from Reno Mouscron

- Engage Residents through Multiple Channels: Use events, workshops, and digital platforms to raise awareness and involve the community in the renovation initiative.

- Develop User-Friendly Guides: Create guides and streamlined processes to assist residents in navigating the renovation process and accessing available resources.

- Address Administrative Barriers: Simplify administrative procedures to make it easier for households to apply for and receive grants and support.

RENO'MOUSCRON

Project contact

- **Adress**: Rue de Courtrai 63, 7700 Moeskroen
- **Telephone**: +32 (0)56 860 596
- **E-mail**: cellule.energie@mouscron.be

CHAPTER 4 - Collective approach

The collective approach to housing renovation involves organizing homeowners, residents, or communities to undertake renovation projects together and simultaneously. This method leverages the power of community to achieve economies of scale, reduce costs, and enhance the overall quality of renovations. It emphasizes mobilization, support, and customization to achieve climate and energy goals, providing effective and efficient solutions that promote societal benefits and enhance social cohesion.

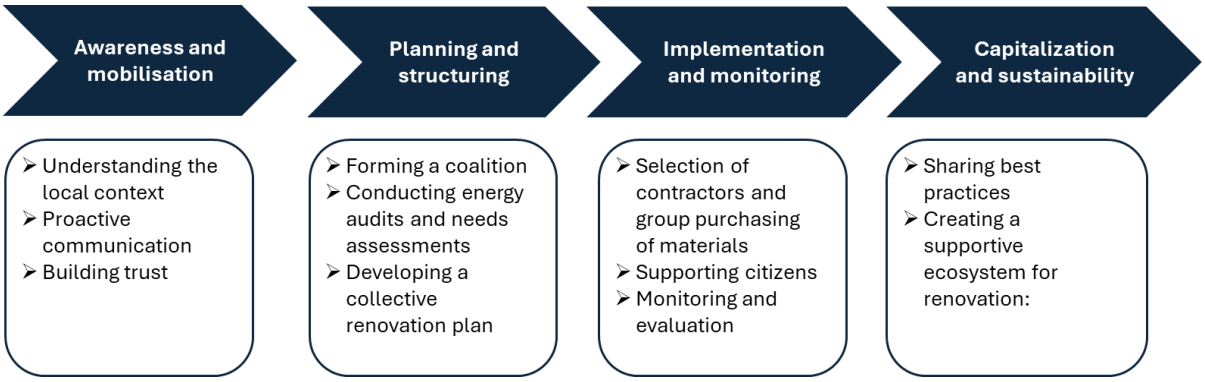
Why is it necessary?

Collective renovation is essential to address the challenges of large-scale housing renovation. Ghent, Antwerp and Mechelen highlight the benefits of a collective approach, including:

- **Cost reduction**: Through bulk purchasing and resource sharing, collective renovation enables substantial economies of scale. Collective projects can also access financing options such as government grants, loans, and group discounts from suppliers that are typically unavailable to individual homeowners.
- **Enhanced energy efficiency and sustainability**: Collective renovation optimizes energy efficiency improvements by addressing common elements across multiple buildings, such as insulation, windows, and heating systems. This approach allows for greater energy savings and reduces the community's overall carbon footprint.
- **Strengthening community bonds and social cohesion**: Working together on renovation projects can foster a sense of community and strengthen social ties among residents. It promotes democratic decision-making processes and enhances overall liveability in the community.
- **Increased property value and improved quality of life**: Collectively renovated neighbourhoods may experience an increase in property values and an overall improvement in attractiveness and quality of life.

What has to be done?

Several key steps in implementing collective renovation projects are proposed in the reports of the BE REEL projects. The main objective is to outline how a municipality can engage its citizens in a collective renovation project. The reports of the BE REEL projects provide concrete examples and general steps for such projects, and this response will synthesize them into a practical guide for municipalities.



Phase 1: Awareness and mobilization

- **Understanding the local context**: Before launching a project, it is essential to understand the specifics of the local context. This includes analysing the state of the housing stock, identifying priority neighbourhoods, understanding residents' needs and concerns, and assessing available resources. The neighbourhoods with the greatest renovation potential are the ones with high percentage of homeownership, high median income, and low number of requests for renovation advice at one-stop-shop.
- **Proactive and tailor-made communication plan**: Clear and transparent communication is crucial to inform citizens about the benefits of collective renovation, available financial incentives, and the different stages of the project. Using various communication channels, such as resident letters, door-to-door visits, neighbourhood events, and digital platforms, with the lived experience and network of people with deep knowledge of the neighbourhood, can maximize reach and engagement.
- **Building trust**: Establishing a trusting relationship with citizens is key. Initiatives such as setting up single points of contact for renovation questions, organizing visits to successful project sites, and creating discussion groups with residents can help build trust and encourage participation.

Phase 2: Project planning and structuring

- **Forming a coalition**: Building a strong coalition that includes representatives from the municipality, residents, renovation experts, and other stakeholders is essential. This coalition will define the project objectives, develop an action plan, identify funding sources, and ensure coordination among different actors.
- **Conducting energy audits and needs assessments**: Energy audits will help identify specific renovation needs and quantify potential energy savings. Surveys of residents can complement these audits by gathering information on their preferences and priorities.
- **Developing a collective renovation plan**: This plan will define the project's scope, the types of renovations to undertake, target energy performance goals, the preliminary budget, and financing options.

Phase 3: Implementation and monitoring

- **Selection of contractors and group purchasing of materials**: The municipality can facilitate the selection of qualified contractors and the group purchase of materials to obtain competitive prices and ensure work quality.
- **Supporting citizens**: Providing personalized support throughout the renovation process is essential. This may include technical advice, assistance with permits, coordinating work, and managing conflicts. Dedicated renovation coaches can play a crucial role in this process.
- **Monitoring and evaluation**: Regular monitoring of the work and evaluation of outcomes will help ensure the quality of renovations, measure energy savings achieved, and identify areas for improvement in future projects.

Phase 4: Capitalization and sustainability

- **Sharing best practices**: The municipality can share lessons learned and best practices from the project with other municipalities and stakeholders, contributing to the spread of the collective renovation approach.
- **Creating a supportive ecosystem for renovation**: Encouraging the formation of local networks, such as renovation cooperatives, crowdfunding platforms, or training centres, can help sustain the momentum of collective renovation.

Important notes:

- **Adaptation to context**: The steps described above should be adapted to the specifics of each project and community.
- **Importance of citizen participation**: Active participation from citizens at all stages of the project is fundamental to ensuring its success and sustainability.

Tools for collective approaches

The BE REEL projects mention various tools and methods used by municipalities to carry out collective renovation projects, to mobilize and support residents throughout the process. It is important to note that this list of tools is not exhaustive, and specific choices will depend on the local context, project objectives, and community needs.

Tools for communication and awareness

- **Tailor-made communication plan for each neighbourhood**: Using a variety of communication channels allows for reaching a broader audience. Personalized letters to residents, informational brochures, articles in the local press, dedicated websites, social media, and newsletters can be used to present the benefits of collective renovation,

available financial support, and the project stages. In the WIJKWERF project in Ghent, letters and door-to-door visits were used to raise awareness and support renovations.

- **Community events**: Organizing public meetings, participatory workshops, visits to renovated buildings, and information booths at neighbourhood events or markets allows for direct contact with citizens and addresses their questions.
- **Testimonials and concrete examples**: Sharing testimonials from residents who participated in collective renovation projects can be a powerful motivator. Case studies illustrating tangible benefits, such as energy savings, comfort improvements, and property value increases, can also convince sceptics.

Tools for support and guidance

- **Single point of contact and digital platform**: A single contact point simplifies the process for citizens and provides easy access to information. A digital platform centralizing resources, professional contacts, financial aid calculators, and project tracking tools can also facilitate the management of the renovation process.
- **Renovation coaches**: Dedicated experts can support citizens through all phases of the project, from the energy audit to final inspection. They can provide technical advice, help with preparing grant applications, assist in selecting contractors, and coordinate the work. Social and technical renovation coaches are well described in the Chapter 5.
- **Training sessions and practical workshops**: Offering training and workshops on topics related to energy renovation, such as insulation, ventilation, or renewable energy, empowers citizens and involves them more in technical choices.

Tools for facilitation and financing

- **Bulk purchasing**: Negotiating preferential rates with suppliers of materials and equipment reduces costs for participants and simplifies the procurement process.
- **Renovation fund**: Creating a renovation fund financed by public subsidies, participant contributions, or private investments can ease access to funding, particularly for low-income households.
- **Administrative and financial support**: Assisting citizens with preparing applications for grants and loans and navigating administrative procedures can remove a significant barrier to participation.

Additional tools could include:

- **Digital platforms**: Online platforms can facilitate communication, information sharing, and coordination among stakeholders.
- **Energy assessment tools**: Energy modelling tools can help evaluate renovation needs and simulate potential energy savings.
- **Financing calculation tools**: Financial tools, such as grant and loan calculators, can help homeowners identify available funding options.

In conclusion, combining these tools allows municipalities to create a supportive environment for collective renovation by mobilizing citizens, guiding them, and facilitating their access to necessary resources.

Key Takeaways for a collective approach to energy renovation

The BE REEL! projects aiming for collective approaches in Mechelen, Ghent, and Antwerp, and presented below, provide valuable insights for municipalities looking to promote collective renovation. Here are the key takeaways, structured into the topics of communication and engagement, personalized support, strategic implementation, and sustainability and scaling.

Communication and Engagement

- ✓ **Targeted communication**: Design communication strategies for specific groups, such as tenants, owner-occupiers, and vulnerable populations. Use testimonials and case studies to demonstrate tangible benefits, like energy savings and improved comfort.
- ✓ **Multi-channel strategies**: Use a combination of outreach methods, including door-to-door visits, personalized letters, local events, neighbourhood banners, and digital platforms like social media and dedicated websites. This ensures messages reach a diverse audience.
- ✓ **Community involvement**: Organize participatory workshops, public meetings, and neighbourhood events to foster a sense of ownership and collective effort. These activities strengthen trust and create opportunities for residents to share their experiences.

Personalized Support

- ✓ **Renovation coaching**: Provide dedicated experts to guide residents through all phases of the renovation process, including energy audits, contractor selection, permit applications, and quality checks. This hands-on support addresses technical and administrative barriers.
- ✓ **Single point of contact**: Establish one-stop shops or single-service points to centralize all renovation-related information and services, simplifying the process for residents. This reduces confusion and increases participation rates.
- ✓ **Attention to vulnerable groups**: Offer tailored support for groups facing financial or language barriers, such as helping with funding applications, providing translated materials, and offering additional guidance during the renovation process.

Strategic Implementation

- ✓ **Neighbourhood selection**: Use data-driven tools to identify high-potential neighbourhoods, focusing on factors like homeownership rates, median incomes, and energy savings potential. Target areas with strong community ties for better engagement.
- ✓ **Group purchasing**: Negotiate bulk discounts for materials and services to reduce costs for participants and streamline procurement. This can include insulation, windows, and heating systems.
- ✓ **Iterative approach**: Implement projects on a neighbourhood-by-neighbourhood basis, collecting feedback and adapting methods based on lessons learned. This ensures continuous improvement and scalability.

Sustainability and Scaling

- ✓ **Integration with energy goals**: Align renovation efforts with broader municipal energy and climate plans, such as reducing carbon emissions and improving energy efficiency at a community level.
- ✓ **Knowledge sharing**: Share best practices, tools, and lessons learned from pilot projects with other municipalities and stakeholders. This fosters collaboration and accelerates adoption of collective renovation strategies.
- ✓ **Building professional networks**: Engage contractors, architects, and energy experts in training programs to improve the quality and availability of renovation services. This creates a sustainable ecosystem for future projects.

Use-cases on collective approaches

Neighbourhood renovation for enhanced cohesion in Mechelen

This project, led by the city of Mechelen and spanning from 2019 to 2024, focused on the energy renovation of entire neighbourhoods, promoting a collective approach and strong social cohesion. The targeted neighbourhoods—Huyghebaert, Arsenaal, and Nekkerspoel—had a total of over 1,600 homes. Huyghebaert is a homogeneous neighborhood, whereas Nekkerspoel is anything but. The strength of our neighborhood renovation lies precisely in the fact that it is not limited to homogeneous neighborhoods. Preliminary results show an encouraging participation rate, with 34 homes renovated in the Nekkerspoel neighbourhood and 43 in Huyghebaert (through advice, and 12 through group purchases and collective permits).

Table 6. Simplified business model canvas of the mobilisation in collective approach

Encourage and facilitate the collective renovation in Mechelen	
HOW?	***FOR WHOM?***
The project is based on a neighbourhood selection tool, which prioritizes areas for renovation. This process identified Huyghebaert as an ideal starting point: a homogeneous neighbourhood built in the 1960s with a strong sense of community. Lessons learned in each neighbourhood were used to refine the approach for subsequent neighbourhoods, creating a dynamic of continuous learning and improvement. • The city of Mechelen used a selection tool to identify neighbourhoods suitable for collective renovation, considering factors like building homogeneity and social cohesion. • Targeted communication was deployed at multiple levels: neighbourhood, street, and individual home. This included personalized letters, home visits, neighbourhood events, and poster campaigns. • A single service point was established in collaboration with external partners and municipal services, providing a single point of contact (SPOC) to facilitate residents' involvement. • Group purchasing arrangements with a local contractor helped to reduce costs for residents. • A collective environmental permit was established to streamline administrative procedures and reduce costs for residents.	The project primarily targets owner-occupiers of relatively similar homes in neighbourhoods with an existing sense of social cohesion. Special attention was given to vulnerable groups by facilitating access to financial aid.

Recommendations drawn from the Mechelen project

The emphasis on careful neighbourhood selection, considering building type and social context, appears to be a key element of the project's success.

- **Thorough preparation and tight planning**: The complexity of collective renovation requires meticulous preparation and precise planning to minimize delays.
- **Targeted communication is essential**: Tailored communication for different resident profiles is needed to maximize participation, using various channels to address the specific needs of each audience. A motivational communication is necessary, with for example, thermal scans, deadlines, and strengthening community spirit. Involving neighbourhood stakeholders beforehand: schools, businesses, religious communities, etc., is essential for this latter.
- **Collaboration across municipal departments**: Smooth communication and effective collaboration between municipal departments are essential to streamline processes and improve renovation quality.
- **Identify facades that may or may not be insulated**: Identifying façades to preserve in advance allows for balancing energy renovation with heritage conservation, preventing potential conflicts and inappropriate renovation choices.
- **Intensive personal guidance**, especially for non-native speakers and vulnerable groups with a maximized support (obtaining permits, public space occupation, waste disposal, contractor coordination, etc.)
- **Single service point and single point of contact**: Simplifying the resident journey by providing a single contact and centralized access to information and services is essential to encourage engagement.
- **Rapid processing times**: Ensuring quick processing of permit applications and financial aid reimbursements is crucial to maintain participant motivation and avoid additional financial strain.
- **Group discounts or financial incentives necessary** (limited in time), with a prior coordination with contractors and a defined group offer (1 specification and individual quotation).
- **Offer for non-owner residents**: tenants, vacant properties, uninhabitable properties, landlords, emergency housing fund, etc., to link with loans and grants.

The Mechelen project highlights both the challenges and opportunities of neighbourhood-scale collective renovation. It underscores the importance of careful planning, targeted communication, effective interdepartmental collaboration, and particular attention to vulnerable groups to ensure the success of such projects.

COLLECTIVE RENOVATION IN MECHELEN

contacts:

- **Adress**: Stadhuis, Grote Markt 21, 2800 Mechelen
- **E-mail**: klimaatneutraal@mechelen.be
- **Website**: Mechelen Klimaatneutraal - Wijkrenovatie

The WIJKWERF, as a collective renovation project in Ghent

The "WIJKWERF" project in Ghent, led by the City of Ghent in collaboration with the citizen cooperative Energent, ran until the end of 2023. It aimed to improve energy efficiency in the housing of six neighbourhoods, impacting about 65,804 residents, or 24.4% of Ghent's population. 691 renovations were initiated over 6 neighbourhoods, while 91 finished renovations with
step by step coaching.

Table 7. Simplified business model canvas of the mobilisation in collective approach

Encourage and facilitate the collective renovation in Ghent	
HOW?	***FOR WHOM?***
6 steps towards collective renovation: • Negotiating group prices with contractors for specific renovation interventions (roof renovation and isolation, attic floor isolation, façade isolation, super isolating glass, PV panels and solar water heater installation). • Selecting a neighbourhood with the greatest renovation potential like high percentage of homeownership, high median income, and low number of requests for renovation advice at One-Stop-Shop. • Developing a tailor-made communication plan with the neighbourhood manager, with lived experience and network of people with deep knowledge of the neighbourhoods: • Letters to all households, repeated door-to-door visits to streets with the most home-owners with first volunteers (too time-consuming) then job students (with a training manual) • Promotion of the collective renovation in local newspapers and social media group, banner in the centre of the neighbourhood, local events, etc.	Residents of the selected neighbourhoods: The project focused on six specific neighbourhoods, likely chosen based on factors like building age, housing types, social housing presence, and energy poverty levels. Special attention was given to vulnerable groups by facilitating access to financial aid.

• Providing renovation long-term advice and guidance, with a maximum support for the citizens by the renovation coach (as a single point of contact), through every step of the renovation process. • Evaluating the results by keeping track of the achieved number of actual renovations, changing the approach for the next neighbourhood according to the results, and also keeping track of why people are not interested in the offer.	

Recommendations drawn from the Ghent project

- The success of focused interventions: Promoting specific interventions, such as cavity wall insulation, was the most effective approach in a neighbourhood level campaign due to their clear benefits and relatively straightforward implementation. These targeted approaches simplified the decision-making process for residents, leading to higher uptake and satisfaction.

- The right communication mix: After experimenting with different communication plans in six different neighbourhoods, it became clear that door-to-door-visits combined with letter campaigns where the most effective communication mix.

- Effectiveness of digital media and broad communication methods: City-wide campaigns leveraging digital media effectively reached more residents, increasing overall participation. with a high conversion rate (1 in 3). Indeed, after WIJKWERF for which volunteers and then job students were used to make door-to-doors, the Ghent project shifted towards this type of communication. The letter campaigns strategy, used for WIJKWERF has been replicated easily to new neighbourhoods and seems also very promising, with a significantly higher renovation rate. In conclusion, broader communication methods, such as letter campaigns, proved to be cost-effective and had a significant impact.

WIJKWERF

Project contact

Adress: Beverhoutplein 7, 9000 Gent
E-mail: info@energent.be
Telephone: +32 (0)493 08 44 41

Collective renovation in Antwerp

The collective renovation project in Antwerp, led by the city, spanned several years with the goal of achieving 500 low-energy homes and 250 nearly zero-energy homes. The project was designed around a tailored approach for different target groups (from 8 to 10), including owner-occupiers, tenants, and vulnerable groups.

Table 8. Simplified business model canvas of the mobilisation in collective approach

Encourage and facilitate the collective renovation in Antwerp	
HOW?	***FOR WHOM?***
• **Creation of a one-stop shop:** The city established the Ecohuis, a one-stop shop for Antwerp residents, playing a crucial role in the client journey for energy renovations by supporting and accompanying from A to Z. • **Personalized support:** External renovation coaches were hired to provide comprehensive support, from start to finish, to meet the objectives of the BEREEL project. This service included energy renovation advice for a wide range of households, financial support, and activation of households through events and webinars. • **Multi-channel communication:** A multi-faceted communication strategy was deployed to reach a broad audience. Campaigns, brochures, and advertisements were distributed, along with info panels at 12 different locations. Dedicated websites for energy renovations were created, and a helpline was set up to answer information requests. The rise in energy prices also fuelled greater interest in energy renovations. • **Mobilizing residents:** Various events and webinars were organized to raise awareness among residents about energy renovations. Campaigns and advertisements were launched to promote the city's advisory and support services. The launch of the "Antwerpen voor klimaat" climate plan provided additional momentum to the communication campaign. The use of testimonials and communication tailored to specific neighbourhoods proved to be more effective.	• **Owner-occupiers:** The project targeted owner-occupiers of individual homes. • **Tenants:** Specific efforts were made to support tenants in the energy renovation of their homes. • **Vulnerable groups:** The project sought to include vulnerable groups by adapting communication and support services.
FINANCIAL ELEMENTS	
Costs: Antwerp's approach, featuring a one-stop shop and external renovation coaches, demonstrated a higher return on investment with limited staff and communication expenses.	

Challenges Encountered:

- **Difficulties reaching vulnerable groups:** General communication efforts were ineffective in reaching certain target groups, particularly vulnerable groups and tenants. Additional communication actions were needed to engage them.
- **Complexity of collective renovation in a metropolitan context:** Issues like co-ownership, the large number of landlords, the diversity of the housing stock, and the financial challenges of various groups made collective renovation difficult to implement.

Recommendations drawn from the Antwerp project

- **Targeted communication is key:** Antwerp's experience confirms the importance of adapting communication to different audiences, using various channels and addressing the specific needs of each group.
- **Personalized support facilitates participation:** The use of external renovation coaches provided citizens with comprehensive, tailored support, making it easier for them to engage in the renovation process.
- **A one-stop shop simplifies the client journey:** The establishment of Ecohuis, a one-stop shop for energy renovations, centralized information and services, simplifying the citizens' process.
- **Collective renovation in a metropolitan context requires a specific approach: T**he diversity of the housing stock, stakeholders, and target groups in a large city like Antwerp complicates the implementation of collective renovation projects.
- **Upscaling collective renovation requires enhanced economic conditions:** New business models and new financial products will have to be developed.

COLLECTIVE RENOVATION IN ANTWERP

Project contact

Veva Roesems
City of Antwerp
veva.roesems@antwerpen.be
EcoHuis I Turnhoutsebaan 1391
2140 Antwerpen
www.antwerpen.be www.antwerpenvoorklimaat.be

CHAPTER 5 – Apartments

Municipalities could take a significant role in the massification of apartment renovation. This chapter focuses on the different challenges citizens are facing, and how municipalities could enhance their motivation and power to overcome them. Stakeholder dynamics and voting, financing, the capacity of professionals and other aspects of apartment renovation are discussed in this chapter and are illustrated by existing initiatives.

Why is it necessary?

The renovation of apartments is an imperative to achieve the objectives of reducing greenhouse gas emissions and to improve the quality of the housing stock.

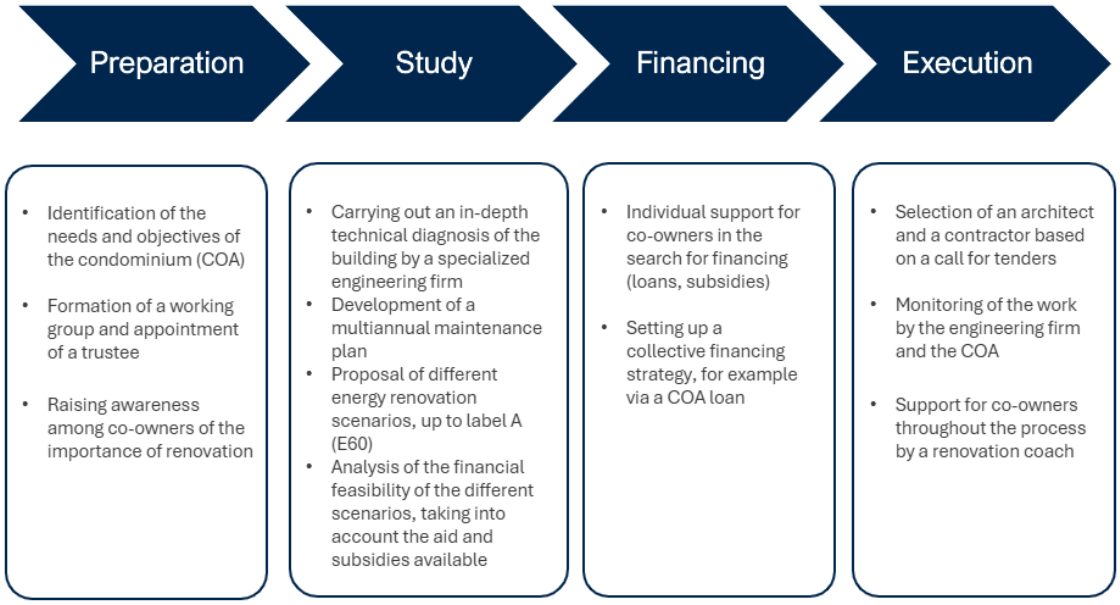
Apartments represent a **significant part of the housing stock** in cities. In Brussels, for example, apartments represent 62% of the total housing stock, while in Antwerp, 73% of households live in apartments.

Moreover, most of the **vulnerable households** live in apartments rather than houses. Because of their poverty and/or their low power as tenants to engage in renovation, their housing should remain on the radar of the municipalities.
Apartment renovations is also **complex due to the various stakeholders dynamics** and interests, and will not be carried out without support in terms of information transmission, stakeholders involvement and renovation process.

Through its various projects, BE REEL! has developed tools for municipalities that can be used to empower and support those who own or rent apartments to get through the renovation process.

What has to be done?

The process of renovating an apartment is complex and requires a structured approach.



How is it done? (tools)

Several tools have been developed and experienced in BE REEL! to facilitate the renovation process of apartment buildings. These tools, combined with the involvement of appropriate stakeholders, can contribute to a successful energy transition.

The Renovation Master Plan (RMP) sets scenarios to reach label A through a one-stage deep renovation or through multiple renovation steps. The Master Maintenance Plan (MMP) define all the work to be done in the apartments building on a midterm period and is nourished by the RMP. The renovation coaches rely on the MMP (and therefore the RMP) to feed the collaborative discussion between the different stakeholders (both technically and socially). They support by making the link with the financing solutions and with administrative procedures.

Renovation Master Plan (RMP)

This tool allows the owners to develop a customized renovation strategy, adapted to the specificities of each building. The RMP is an essential document that provides a detailed roadmap for the technical renovation steps and the financial implications, developing a customized renovation strategy, adapted to the specificities of each building. It includes:

- **A technical assessment of the building's condition**: This assessment, also called a condition survey, identifies renovation needs and potential problems by visually inspecting building components such as windows, walls and roof, as well as technical installations like heating and ventilation. Stakeholders involved in this phase are the property manager, a specialized engineering firm, and potentially a renovation coach to guide the process.
- **Energy renovation scenarios**: The RMP proposes different energy renovation scenarios, aiming to achieve the energy label A whether it could be reached with a one-stage deep renovation or in different steps. These scenarios consider the measures to be taken, the order in which they should be implemented, and the investment cost for each scenario. Stakeholders are the engineering firm, the condominium owners' association, and the renovation coach.
- **A financing plan**: This plan explores the available financing options, including grants, condominium owners' association loans, financial aid such as the "*MijnVerbouwPremie*" for private and collective elements, and possibilities for third-party financing. Stakeholders are the renovation coach, the VME, the property manager, and financial institutions.

Municipalities can provide grants for master plan studies. For example, the Vlaams Energie- en Klimaatagentschap (VEKA) subsidises masterplan studies for large apartment blocks (more than 15 units), up to 60% of the total cost, with a ceiling of €12,000. More locally, the City of Antwerp offers a subsidy of up to €7,500, or 50% of the total cost, for masterplan studies for medium-sized flat blocks (less than 15 dwellings). These studies assess the condition of the building, identify renovation needs and propose technical and financial solutions.
So far, master renovation plans have been developed for medium or big apartments. It should be developed for smaller buildings in the future.

The Renovation Master Plan nourish the Multiannual Maintenance Plan, if this latter includes renovation processus (see following section).

Multiannual Maintenance Plan (MMP)

The Multiannual Maintenance Plan (MMP) defines the necessary maintenance work, the replacement investments, and the legally mandated investments, taking into account sustainability and energy objectives. A quality MMP should include a time perspective of at least 10 years, include all costs, and spread costs over several years. In other terms, the MMP is an integral vision in terms of maintenance and renovation for the common parts of the condominiums.
The conclusions of the Renovation Master Plan (RMP) are included into the MMP. The MMP helps ensuring that energy renovation work is consistent with other maintenance work to avoid conflicts and useless costs and guarantees the quality of the work. **Stakeholders** involved are the condominium owners' association (COA), the property manager, and an engineering firm.

The Multiannual Maintenance Plan is already a regulatory obligation. The law on the MPP is a first step but is yet not sufficient and should evolve to become more adequate.

Renovation coach

The renovation coaches are independent experts who guide and support the condominium before and throughout the renovation process. Two layers of coaches are defined by BE REEL!: the technical renovation coach and the social renovation coach.

- **The technical renovation coach** supports and helps to understand the technical aspects of the renovation process. This technical coach is necessary but not sufficient to convince people which is made possible by the social coach. Therefore, this coach intervenes as a second line.
- **The social renovation coach** supports the households to embark citizens into the process. This coach helps to convince, facilitates discussions, supports the citizens to understand and to set the global needs of the home, the ambiance, the living conditions, the feelings in the buildings. This coach allows building trust between the stakeholders. He or she organises an assembly with the condominium's owners and prepares it with a core group (to be created if not already existing). He or she collaborates with other city services.

Municipalities have a role to play to provide renovation coaches for the citizens within their territory, by financing and implementing the coach services and establish trust between the citizens and these coaches. For example, the city of Antwerp has a team of 'renovation coaches' who support COAs in their energy renovation projects. These coaches help homeowners understand the issues involved in renovation, choose the most suitable solutions for their building and access the financial aid available. The city of Ghent offers a similar service via "De Energiecentrale", which offers personalised advice to flat owners, including help in obtaining premiums and "Mijn VerbouwLening".

Financing tools

Municipalities could play a facilitating role by putting COAs in touch with **third-party financiers, guaranteeing loans or investing directly in renovation funds**.

- Currently, different levels of government (regional, communal) offer **financial assistance** to encourage energy renovation of apartments. Various grants and financial aids are available to encourage the energy renovation of apartments, such as the "MijnVerbouwPremie" and the "MijnVerbouwLening" in Flanders. The amount of aid can be income-related, and additional bonuses may be available for social housing or low-income individuals. Stakeholders involved in accessing this aid are the COA, the property manager, and the renovation coach, who can help identify applicable grants and navigate the application process.
- **Specific loans** allow for collective financing of renovation work, simplifying financial management for co-owners. Specific loans, such as the "VME-lening" in Flanders, are available to finance renovation projects for condominiums. These loans can cover the costs of energy renovation, overdue maintenance, and preliminary studies. Stakeholders involved are the COA, the property manager, and financial institutions.
- The BE REEL projects explore the possibility of municipalities supporting **third-party financing models** for the energy renovation of flat blocks. These models allow the initial cost of the renovation to be borne by a third party (ESCo, investment fund), which is then repaid by the energy savings achieved.

Use-cases: Insights into how apartment renovation was successfully implemented around Belgium

Collective renovation of apartment buildings in Antwerp

The city of Antwerp has introduced a renovation strategy focusing on large flat blocks (with more than 15 units) built in the second half of the last century. Aware of the technical and social complexity of these projects, the city has developed a 'masterplan' approach to support co-owners in their efforts.

Table 9. Simplified business model canvas of the accompaniment of apartment renovation

Encourage and facilitate the energy renovation of large flat blocks in Antwerp	
HOW?	***FOR WHOM?***
1. Application and selection: • Co-ownerships (COA) of blocks of flats with more than 15 units and more than 20 years old can apply to benefit from the city's support. • The application is generally submitted by the managing agent, after approval by the general meeting of co-owners. • The city selects buildings based on criteria such as the age of the building, its energy status and the motivation of the co-owners. 2. Accompaniment by a renovation coach: • A renovation coach is assigned to each building selected. • The coach informs the COA and the property manager about the renovation process and the financial aid available. • He or she facilitates collaboration between the various players involved in the project (co-owners, managing agent, design office, architect). 3. Drawing up a masterplan: • A design office is commissioned to carry out a technical study of the building and draw up a renovation masterplan. • The study includes: ▪ A technical inventory of the building conditions (*Conditiestaat*). ▪ A 20-year multi-annual maintenance plan (MMP). ▪ An ambitious energy renovation scenario (E60) aiming for energy label A. ▪ A financial scenario, including cost estimates and possible sources of funding. 4. Decision-making and financing: • The renovation coach presents the masterplan to the co-owners and helps them understand the technical and financial aspects of the project.	The project is aimed at condominiums of apartment buildings in Antwerp that meet the following conditions: • A building with more than 15 dwellings. • Building more than 20 years old. • Motivation of co-owners to undertake an ambitious energy renovation.

• The co-owners vote at the general meeting to approve or reject the renovation project. • The work can be financed by individual loans, group loans (COA), grants and the co-owners' own funds.	
COSTS & REVENUES	
Costs: • Renovation costs vary depending on the extent of the work and the technical choices made. • The masterplan study is subsidised up to 50% by the City of Antwerp (up to €7,500) for medium-sized buildings and up to 60% by VEKA (up to €12,000) for large buildings. • The co-owners must finance the rest of the costs, usually through loans and own funds. **Income:** • Energy savings thanks to the improved energy performance of the building. • Increase in the value of the property. • Improved comfort and quality of life for occupants. • Opportunity to enhance the spatial potential of the building (extension, raising) to generate additional income.	

Difficulties encountered:

- The high uncertainty of the consumption profiles.
- The complexity of the decision-making process within COAs.
- The difficulties in mobilising all co-owners and obtaining a consensus.
- The high cost of renovation work, which can act as a brake for some co-owners.
- The lack of innovative financial models and third-party financing solutions tailored to COAs.

Recommendations drawn from the Antwerp project

The Antwerp Project, focused on expediting energy renovations in apartment buildings, has produced valuable recommendations for public policy aimed at advancing these efforts. This summary presents key points beneficial for policymakers to encourage energy renovations in multi-family housing.

Streamline the Renovation Master Plan (RMP)

- **Simplify and clarify**: The masterplan process, while effective, can be complex, especially for small co-owned buildings. Simplifying procedures, using clear language, and tailoring approaches based on building size will encourage greater co-owner participation.
- **Proactive communication**: Early, transparent communication on financial aspects, available support, and renovation benefits is essential. Customized communication tools for stakeholders (e.g., building managers, owners, study offices) are also recommended.
- **Strategic targeting**: Given limited resources, cities should prioritize supporting complex, large-scale projects that need specialized expertise, while simpler projects can be managed by building managers and study offices.

Regulatory and financial incentives

- **Legislative adaptation**: Legislation should address the unique challenges of apartment renovations, including complex decision-making processes within homeowners' associations. Incentives, like added building rights for renovated buildings, could motivate co-owner engagement.
- **Investment stimulation**: Access to financing is a significant barrier. Easier credit access for condominium owners' associations (COAs), third-party financing options (e.g., Energy Service Companies ESCOs, investment funds), and income-adjusted subsidies are crucial.
- **Enhancing the role of building managers**: Building managers play a key role in renovation success. Strengthening their energy renovation skills and incentivizing proactive support for COAs is vital.

Integrated, Long-Term Approach

- **Comprehensive vision**: Energy renovation should align with a city-wide strategy integrating energy, spatial, and social considerations and linking renovation projects with urban renewal initiatives.
- **New economic models**: Exploring collective or semi-public ownership models can improve shared space management, making renovation more appealing.
- **Innovative partnerships**: Forming partnerships among public entities, private companies, and HOAs is essential for creating appealing renovation and financing solutions tailored to owner needs.

COLLECTIVE RENOVATION OF APARTMENT BUILDINGS IN ANTWERP

Contacts:
E-mail: info@antwerpenvoorklimaat.be
Telefoon: 03 338 60 66
Adres: EcoHuis Antwerpen, Turnhoutsebaan 139, 2140 Antwerpen

Accompaniment of COAs in Ghent

The city of Ghent has developed an approach centred on dialogue and co-construction with co-owners. This approach, implemented by 'De Energiecentrale', aims to create a climate of trust and encourage the commitment of COAs to ambitious renovation projects.

Table 10. Simplified business model canvas of the accompaniment of apartment renovation

Encourage and facilitate the energy renovation of large flat blocks in Ghent	
HOW?	***FOR WHOM?***
1. **Making contact and assessing needs**: The first step is to organise a meeting with the COA, the managing agent and possibly a small group of co-owners who are driving the project. The aim is to present 'De Energiecentrale', explain the issues involved in energy renovation and identify COAs' needs and expectations. 2. **Developing a shared vision**: Particular emphasis is placed on defining a shared vision for the renovation of the building. Rather than proposing technical solutions from the outset, Ghent's approach is to support COA in thinking about its long-term objectives: what level of energy performance does it want to achieve? What other aspects are important to co-owners (comfort, aesthetics, accessibility, etc.)? 3. **Setting up a steering group**: Once the vision has been defined, a steering group is set up, made up of COA members, the managing agent and experts (architects, design consultants, financial advisers, etc.). The task of this group is to draw up a concrete renovation plan and monitor its implementation. 4. **Personalised support**: 'De Energiecentrale' provides personalised support throughout the renovation process. This support can take a variety of forms: technical advice, help in finding funding, organisation of information meetings, mediation between co-owners, etc.	The Ghent approach is aimed at all VMEs in the city, regardless of the size of the building or the profile of the co-owners.
COSTS & REVENUES	
The costs and income involved in renovating flats depend on several factors: the initial state of the building, the level of energy performance targeted, the work carried out, the grants available, etc. It is therefore difficult to give general estimates.	

Recommendations drawn from the Ghent project

- **Importance of communication**: clear, transparent communication tailored to different audiences is essential to create a climate of trust and encourage the commitment of co-owners.
- **Gradual and realistic approach**: It is important to propose a gradual and realistic approach, taking into account the financial constraints of co-owners. Renovation in stages makes it easier to spread costs and facilitate decision-making.
- **Involvement of co-owners**: The commitment of co-owners is an essential condition for the success of renovation projects. It is therefore important to involve them from the start of the process and give them the means to participate actively in decision-making.
- **Working with property managers**: Property managers play a key role in flat renovation. It is therefore important to make them aware of the issues involved in energy renovation and to train them so that they can effectively support VMEs in their approach.

ACCOMPANIMENT OF COAS IN GHENT

Contact "Energiecentrale" Ghent:
Adres: Botermarkt 1, 9000 Gent
E-mail: energielening@stad.gent
Telefoon: 09 266 52 00
Website: www.energiecentrale.gent

Key Takeaways for apartment renovations

Engaging co-owners and stakeholders

- ✓ **Ensure specific and clear communication**: Tailor communication to build trust and commitment among co-owners.
- ✓ **Involve co-owners from the start**: Their active participation is crucial for project success.
- ✓ **Integrate and engage other stakeholders**: Include local authorities, energy agencies, and financial institutions to enhance strategies.

Capacity building and strategic planning

- ✓ **Train property managers**: Equip them with energy renovation expertise to support efficient decision-making.
- ✓ **Facilitate the design of a Renovation Master Plan (RMP)**: Simplify processes, explore better financial solutions, and public-private cooperation models.
- ✓ **Push for financial planning within RMP**: Ensure robust financial plans and access to diverse funding sources for large-scale renovations.

Policy and community impact

- ✓ **Support with policies:** Advocate for frameworks that sustain renovation efforts locally and nationally.
- ✓ **Integrate community benefits into KPIs**: Highlight broader advantages like improved living conditions, property value growth, and urban resilience.

CHAPTER 6 - Renewable energy-integrated buildings

Buildings designed with renewable energy integration prioritize minimizing energy consumption while leveraging renewable energy sources to meet their needs. This can be achieved through strategies such as energy sharing, on-site renewable energy generation using technologies like solar panels and heat pumps, and integration with district heating systems. The future of our cities hinges on the widespread adoption of sustainable energy solutions. Renewable energy-integrated buildings play a crucial role in this transition, offering significant economic, environmental, and societal benefits. Local governments have a pivotal role in driving this change, transforming urban areas into models of sustainability and resilience.

This chapter highlights the critical role of integrating renewable energy into building design and outlines actionable steps local governments can take to promote its adoption and accelerate the transition to sustainable energy systems. It features some inspiring use-cases that already have been done by municipalities (the Buurzame Stroom project in Ghent and the collective power project in Mechelen) and concludes with key recommendations.

Why is it necessary?

Considering the climate emergency and current energy challenges, integrating renewable energy into buildings has become an essential necessity for local authorities in cities and municipalities. This energy transition represents a critical issue that encompasses the ecological, societal, and economic dimensions of our territories. Thus, **redefining our energy consumption habits and advancing sustainable solutions** are pivotal steps toward building a future that respects the environment and fosters social equity.

Reducing our dependence on fossil fuels is imperative to limit the impact of buildings on the climate and to preserve natural resources. At the same time, **the transition towards renewables offers an opportunity** to boost the local economy and create new jobs in this energy sector. Finally, it is crucial to ensure that this transition is **inclusive and benefits all citizens**, particularly the most vulnerable, to guarantee fair access to clean and affordable energy.

The remainder of this report will shed light on the various aspects of this transition and the specific challenges local decision-makers face.

What are the steps towards a renewable energy-integrated building?

This section outlines key practical actions that municipalities can implement to encourage the adoption of renewable energy buildings and accelerate the energy transition in their cities.

Supporting the assessment of building energy performance and potential. Municipalities should support conducting thorough analysis of current energy consumption, insulation quality, buildings orientation, and available roof area. This evaluation will help identify actions to improve the building's energy efficiency, evaluate potential renewable technologies and properly size the installations.

Enhancing a building's energy efficiency is essential before integrating renewable energy solutions. Measures such as insulating the building, installing double-glazed windows, and implementing efficient ventilation systems significantly reduce overall energy consumption, thereby making investments in renewable energy more economically viable. Prioritizing energy efficiency upgrades is a necessary first step toward successful renewable energy integration.

Choosing the most appropriate technologies is critical. Several options are available:

- **Photovoltaic solar panels** are an ideal solution for producing electricity locally. They can be installed on building roofs, and crowdfunding initiatives can be developed to improve accessibility to this technology.
- **Heat pumps** are an efficient solution for heating and domestic hot water. They can be powered by various renewable energy sources, such as geothermal, aerothermal, or aquathermal energy.
- **District heating networks** are particularly suited for dense urban areas. They enable shared heat production and the use of renewable sources like geothermal energy or waste heat from industry.
- **Energy sharing initiatives** allow for example residents without suitable roofs to invest in solar panels installed in their neighbourhood and benefit from the electricity generated.

Financing is a fundamental aspect of energy transition. Local authorities should seek to mobilize European and national funds, establish local financial aid programs, and facilitate access to green loans for individuals and businesses.

Citizen and business engagement is crucial. Awareness campaigns are necessary to inform the public about the benefits of renewable energy and available solutions. Technical support to guide project developers and encourage the creation of energy communities is also essential.

Adapting the regulatory framework is key to facilitating the transition. Simplifying authorization procedures, updating urban planning regulations, and collaborating with grid operators are crucial measures to ensure the smooth integration of renewable energy.

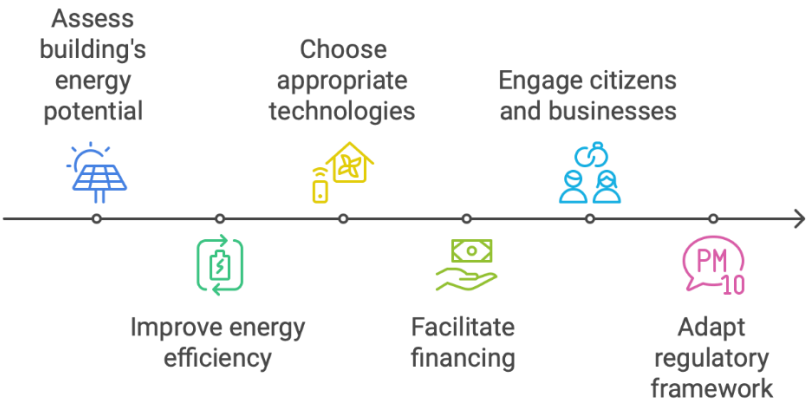


Figure 1 - Steps to integrate renewable energy in buildings

Use-cases: Insights into how renewable energy buildings were successfully implemented around Belgium

Buurzame Stroom: Collective power through solar panels in Ghent

Buurzame Stroom is a collaborative project in Ghent focused on maximizing neighbourhood solar energy production. This project achieved the installation of 2,535 solar panels, generating a total capacity of 720 kWp[1] within a single neighbourhood. The initiative emphasized inclusivity by offering tailored financing solutions to vulnerable families. A key goal was to balance local energy production and consumption to ensure grid stability.

Table 11 - Simplified Business Model Canvas of the Buurzame Stroom project in Ghent

Creating collective power through the installation of solar panels	
HOW?	***FOR WHOM?***
Communication and awareness: A comprehensive communication campaign was conducted to inform and persuade residents, businesses, and organizations to install solar panels. Various methods were employed: • Home visits • Participation in neighbourhood events • Informative events • Posters and flyers • Dedicated website • Social media • Solar caravan • Local contact point in the neighbourhood **Supporting financial initiatives** Two financial mechanisms were used to encourage people to install solar panels: • **Group solar panel purchases:** Simplifies the process and ensures quality and fair pricing. • **Alternative financing solutions:** Provides options for individuals with low incomes.	Households with a roof unfit for solar that can invest in solar panels on schools/companies/houses or other neighbourhood buildings that do have a roof suitable for solar. 2,535 solar panels were installed on: • 102 family homes • 2 apartment buildings • 8 rental homes • 2 schools • 8 buildings of companies and organizations In order not to destabilize the distribution network, the electricity generated by these solar panels would be used for consumption in the neighbourhood itself as much as possible. **Partners** The project was a collaboration between citizen cooperative EnerGent, Samenlevingsopbouw, the City of Ghent, De Energiecentrale (the One Stop Shop of the city of Ghent), grid operator Fluvius,

[1] Kilowatt peak (kWp) is the unit of measurement for the output of a photovoltaic system

	energy supplier Ecopower, Ghent University and the citizen cooperative Partago.
FINANCIAL MECHANISMS	
• **Group purchase**: The group purchase of solar panels helped reduce costs for participants and simplify the installation process. This approach was particularly effective for families who owned their homes. • **Energy loans**: Energy loans with a minimum term of 10 years were offered to vulnerable households. These loans enabled the installation of solar panels despite limited financial means. The savings on electricity bills often exceeded the monthly loan repayments, making the investment profitable for households. • **Landlord-tenant agreement**: For rental properties, a specific agreement between landlords and tenants was trialled. The tenant agreed to a slight rent increase in exchange for benefiting from the solar panels installed by the landlord. This solution allowed the landlord to recover their investment while offering the tenant an overall reduction in costs (rent + electricity).	

Project challenges:

- Solar panels couldn't be installed on roofs with structural problems or roofs that were not (properly) insulated. In those cases, families had to first be convinced to renovate and/or insulate the roof.
- **Installing solar panels on rental properties was difficult because of the "split incentive".** Split incentives relate to the reluctance of owners to invest in solar panels as the benefits of energy production mainly go to the tenants.
- **Tenants of apartment blocks are a challenging target group.** Because the roof of an apartment block is considered a collective good, any changes (including the instalment of solar panels) must always be approved through the association for co-owners (VME), where a two-thirds majority is required. Apartment blocks also only have a small communal energy consumption. And the legal and technical objections to connecting solar panels to the consumption in individual flats are numerous.
- The profitability of solar panels on large roofs of companies or organizations depends almost entirely on the extent to which the solar production is consumed locally (self-consumption) and of the electricity price the building paid before the installation of the solar panels.
- **Vulnerable target groups** did not have financial means to install solar panels.

Lessons learned from the project:

- **Communication campaigns, facilitation and long-term loans can achieve a lot.** Buurzame Stroom informed local residents about solar panels at neighbourhood meetings and events, via flyers, websites and information markets. They were also offered the possibility of joining a group purchase, installation support and, if necessary, an energy loan. This convinced a lot of people and organizations to have solar panels installed.

- **Solar panels can provide the tenant with a net profit.** Buurzame Stroom experimented with specific agreements between landlord and tenant. Tenants thereby gave up part of the benefit received from the solar panels to landlords in the form of a slightly increased

rent. This proved advantageous for both parties: the total monthly cost of rent and electricity for the tenant decreased, while the landlord recouped the investment.

- Energy loans provide a practical financial solution for citizens with suitable roofs but insufficient means to invest in renewable energy systems. Loans with a term of at least 10 years allowed vulnerable households to install solar panels on their roofs. The savings on the electricity bill was often greater than the monthly repayment of the loan.

BUURZAME STROOM: COLLECTIVE POWER THROUGH SOLAR PANELS IN GHENT

Contacts:

- **Energent** (coordinator project):
  - **Adres:** Beverhoutplein 7, 9000 Gent
  - **E-mail:** info@energent.be
  - **Telefoon:** +32 (0)493 08 44 41
- **Stad Gent**:
  - **Adres:** Woodrow Wilsonplein 1, 9000 Gent
  - **E-mail:** milieuenklimaat@stad.gent
  - **Telefoon:** 09 268 23 00
- **SAAMO Gent**:
  - **Adres:** Dendermondsesteenweg 1, 9000 Gent
  - **E-mail:** info@saamo.be
  - **Telefoon:** 09 225 22 22

Collective power through solar panels for vulnerable families in Mechelen

This project aims to promote sustainable energy in Mechelen by installing solar panels on the rooftops of social housing, generating over 1 million kWh annually (1,139 kWp, 302 units). The project addressed the challenge of the "split incentive"[2] by exploring various solutions, including third-party financing, energy sharing, and financial support for tenants.

Table 12 - Simplified Business Model Canvas of the collective power initiative in Mechelen

Creating collective power for vulnerable families through the installation of solar panels	
HOW?	***FOR WHOM?***
• **Selecting the partner and pilot neighbourhood**: The project began by identifying the ideal partner among social housing companies. Woonland, the largest in Mechelen, was selected. Otterbeek was chosen as the pilot area. • **First call for tenders and obstacles:** A tender framework was developed with the Flemish Energy Company to secure third-party financing. However, the 2018 tender failed due to several issues: doubts about the legal framework, additional costs for the housing company, lack of digital meters, and disputes over administrative fees. • **New approach - energy sharing:** In 2021-2022, a new tender focused on energy sharing was launched. The city committed to buying surplus electricity at a fixed price, digital meters were installed, and the project was refocused on Otterbeek. • **Collaboration with a cooperative:** The pilot project was carried out with Klimaan CVSO, an energy cooperative. This partnership enabled a swift installation of solar panels and the implementation of energy sharing. • **Evaluation and new challenges:** The evaluation highlighted that energy providers' fees made energy sharing economically unviable. Additionally, connecting individual owners proved costly, and the local electricity grid was insufficient for the generated output. • **Project expansion:** In 2023, the ASTER project was launched, building on lessons learned. Woonland continued working with Klimaan CVSO for Otterbeek but opted for ASTER CV for other properties, excluding energy sharing, to ensure faster deployment. • **Communication and awareness:** A campaign raised tenant awareness about their electricity consumption and encouraged them to use solar energy. Energy advice was provided during the installation process.	Primarily intended for social housing tenants, the project also encourages the installation of solar panels on other types of buildings, including private homes, businesses, and public buildings. The project benefits both tenants and social housing companies by helping them overcome financial and administrative barriers to installing solar panels.

[2] Split incentives relate to the reluctance of owners (social housing organizations in this case) to invest in solar panels as the benefits of energy production mainly go to the tenants.

FINANCIAL MECHANISMS
Third-party funding: The project initially sought third-party funding through a call for tenders. While common for public buildings, this approach proved complex for social housing. Housing associations were hesitant to invest, as the benefits (energy production) went to the tenants. This "split incentive" was a major barrier to the initial rollout. **Energy sharing:** Energy sharing was considered as a solution to overcome the "split incentive" and maximize the use of solar energy produced. However, the evaluation revealed that the administrative fees imposed by energy suppliers made this solution unprofitable. **Maximizing profitability:** The project demonstrated that the profitability of solar installations is maximized when the energy produced is consumed locally, through energy sharing or self-consumption. Injecting excess energy into the grid was less profitable due to unattractive buyback rates. **Negotiating with energy suppliers:** Mechelen's experience shows the importance of negotiating with energy suppliers to reduce administrative fees related to energy sharing. Regional legislation on energy sharing could be strengthened to limit these fees and promote the profitability of this model. **Financial support for tenants:** The municipality introduced a 1% loan for solar panels, allowing tenants to finance the installation without affecting their budget. The savings generated by the solar panels cover the loan repayment.

Project challenges:

- **Maximizing solar panels on rooftops has low profitability if surplus energy is injected into the grid.** The new legislation on energy sharing offered opportunities, but these were hindered by "administrative fees" imposed by energy suppliers. It can be explored whether a case regarding grid balancing is viable in this context.
- **Engaging with social tenants is highly time-consuming.** Implementing a comprehensive communication campaign on energy requires significant time investment. However, solely installing solar panels is feasible.
- **The grid is not prepared for the simultaneous connection of numerous private installations.** While individual installations do not require a separate grid study, in practice, the grid is insufficiently robust to accommodate them.
- Motivating the private rental market to invest in energy-efficient housing and renewable energy is a problem in itself. Besides incentives to invest, a legal phase-out of energy-wasting housing is also necessary.

Lessons learned from the project:

- **Adaptation and innovation as keys to success**: The project demonstrated the need to tailor solutions to the specific needs of the local context. Facing challenges with the initial tender, the team showed flexibility by exploring new avenues, such as energy sharing and collaborating with a third-party provider. This adaptability and innovation were crucial for the project's success.
- **Communication as a driver of change**: The project highlighted the importance of transparent and effective communication with social housing tenants. Efforts to inform them about the benefits of solar panels, how they work, and energy-saving tips helped foster project buy-in and contributed to its success.
- **Maximizing impact and benefits**: By adjusting solutions and optimizing roof space for solar panel installation, the project was able to achieve energy production levels above initial forecasts. This optimization increased the positive impact of the project and maximized benefits for tenants and the community.

- **A reproducible and adaptable model**: The model developed in Mechelen, combining collaboration among local stakeholders, innovative solutions, and targeted communication, demonstrated its potential to be replicated and adapted to other contexts. The initiative was extended by ASTER CVSO to all Flemish social housing corporations, showcasing its scalability and positive impact.
- **Tangible social and environmental benefits**: The project generated over one million kWh of electricity annually, contributing to CO2 emission reductions and the energy transition. Additionally, the installation of solar panels had positive social outcomes, particularly in fostering social cohesion within the affected neighbourhoods.

Key takeaways for renewable energy-integrated buildings

Infrastructure and technology development

- ✓ **Encourage solar adoption**: Municipalities can mandate solar panel installations on new constructions and offer financial incentives like subsidies, low-interest loans, and tax exemptions for existing buildings. Simplifying permitting processes and establishing one-stop energy information centres can ease the adoption process. Collaboration with energy cooperatives can further amplify impact through collective solar projects and neighbourhood solarization programs.
- ✓ **Support heat pump deployment**: Providing subsidies, especially for low-income households, can increase the adoption of heat pumps. Municipalities can also facilitate the development of renewable energy-powered district heating networks, such as geothermal systems. Public awareness campaigns highlighting the economic and environmental benefits of heat pumps can drive broader acceptance.
- ✓ **Expand district heating networks**: Investing in district heating infrastructure is crucial for sustainable urban growth. Strategic planning based on population density and renewable energy availability can optimize development. Municipalities can collaborate with public and private entities for funding and encourage buildings to connect to existing networks. Promoting fifth-generation low-temperature networks enhances energy efficiency and ecological impact.

Community engagement and empowerment

- ✓ **Facilitate energy sharing**: Local governments can support energy-sharing communities where citizens produce, consume, and exchange renewable energy. Simplified regulations and fair compensation frameworks for producers are key. Digital platforms can streamline energy exchanges, enabling surplus energy to benefit nearby users.
- ✓ **Engage citizens and local stakeholders**: Public engagement is vital for successful energy projects. Organizing workshops, public events, and dialogue platforms educates citizens and fosters participation in local energy policies. Collaborations with schools can raise awareness among younger generations, while professional training programs

enhance renewable construction skills. Providing technical and financial resources to citizen-led initiatives encourages innovation in the energy transition.

COLLECTIVE POWER THROUGH SOLAR PANELS FOR VULNERABLE FAMILIES IN MECHELEN

Contactgegevens van de betrokken organisaties:

Stad Mechelen

- **Adres:** Frederik de Merodestraat 1, 2800 Mechelen
- **E-mail:** info@mechelen.be
- **Telefoon:** 015 29 55 55
- mechelen.be

CHAPTER 7 - Vulnerable households

*Addressing the challenges faced by **vulnerable households** is critical in the context of renovation. These households often struggle with multiple layers of difficulties, including financial instability, inadequate housing conditions, and exposure to energy poverty. Such challenges disproportionately affect low-income families, single-parent households, migrants, and those with limited access to financial and administrative resources. Ensuring that these groups have access to affordable, safe, and energy-efficient housing is not only a matter of social justice but also a key prerequisite for achieving broader climate and energy objectives.*

This chapter explores the concept of vulnerable households, the barriers they face in accessing quality housing and energy solutions, and the innovative approaches developed to support them within the framework of the BE REEL! Project. It aims to provide municipalities with actionable insights and practical frameworks to implement similar initiatives or draw inspiration from the project's successful dynamics.

Understanding vulnerable households and their diverse situations

Vulnerable households are those facing significant obstacles in meeting their basic needs, particularly in terms of housing, energy, and financial stability. These households often experience a combination of hardships, including low income, unstable employment, or reliance on social benefits. Their homes are frequently in poor condition, with inadequate insulation, outdated heating systems, and structural issues, leaving them particularly exposed to energy poverty and health risks.

While the term "vulnerable households" encompasses a broad group, their situations can vary significantly:

- **Structural precariousness**: Households in buildings requiring urgent repairs.
- **Energy poverty**: Families spending a disproportionate share of income on heating and electricity due to inefficient systems.
- **Multi-dimensional vulnerability**: Those who combine financial instability with health issues, such as respiratory conditions exacerbated by damp or moldy homes.

Vulnerability often arises from a combination of economic, social, and structural factors, which can intersect to create compounded challenges for households. By identifying these factors, municipalities and stakeholders can better target interventions to address the specific needs of these groups.

1. **Economic factors**: Vulnerability is often linked to financial instability. Low-income families, unemployed individuals, or those relying on social benefits struggle to afford basic living expenses, let alone significant home improvements. Rising energy prices further exacerbate this situation, as vulnerable households often live in energy-inefficient homes with high heating and electricity costs. Access to affordable financing for renovations remains a critical gap for these groups.
2. **Social and demographic factors**: Certain demographic groups are disproportionately represented among vulnerable households. Single-parent families often manage on a single income, making it difficult to afford adequate housing. Migrants face language and cultural barriers that limit access to financial resources and government programs. Elderly individuals and people with disabilities may lack both the physical ability to maintain their homes and the financial means to hire help, leaving their properties in disrepair.
3. **Housing issues**: Vulnerable households frequently occupy homes that are old, poorly maintained, and energy inefficient. In cities like Antwerp, 90% of homes in vulnerable neighbourhoods required extensive renovations, such as roof repairs or electrical upgrades. These conditions not only increase energy bills but also contribute to health risks, such as dampness and poor indoor air quality. Inadequate access to social housing further pushes vulnerable families into substandard private rentals.
4. **Administrative barriers**: Many vulnerable households struggle to navigate complex administrative procedures to access aid or grants. Limited awareness of available resources, combined with bureaucratic hurdles, often excludes the most in need from benefiting. This is particularly true for migrants and elderly individuals who may lack digital literacy or access to information.

Actions by local governments to support vulnerable households

Financing renovation of vulnerable households

In Flanders, early initiatives like the Flemish Energy Loans had limited impact. However, improvements have been made in mid-2022 to the program **Mijn VerbouwLening**. This program allows a broad range of citizens to borrow up to €60,000 for energy renovation measures, repayable over 25 years. The loan's interest rate is 3% below market rates, making it an accessible and attractive option for many households.

Despite these advances, it is clear that loans alone are not a universal solution. The BE REEL! project demonstrated that while solutions to address the challenges of vulnerable households exist, **betting only on the financing of energy renovations through energy savings** is often not an option. Vulnerable populations, such as low-income families or elderly homeowners, often lack the financial capacity to take on debt, even under favourable terms. These groups require additional layers of support, including grants, administrative guidance, and technical expertise.

The project explored specific solutions through two focused use cases in Mechelen and Antwerp, which are detailed in the next section. These case studies emphasize that **creative approaches at the community level can often be more effective**. By combining financial tools with localized support, such as renovation advisors and tailored assistance, municipalities can better address the complex needs of vulnerable households while promoting inclusive renovation practices.

The following figure outlines a five-step process for supporting vulnerable households through renovation, from identification and assessment to planning, implementation, and long-term follow-up.

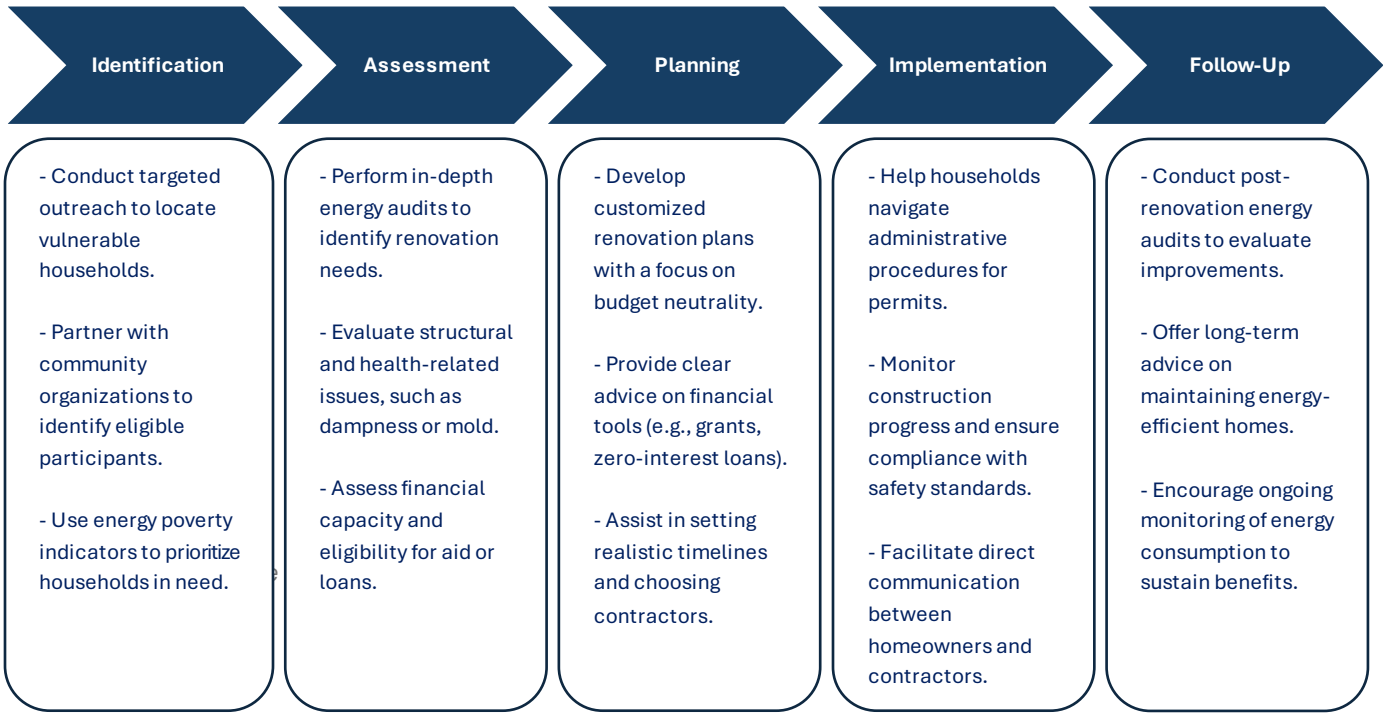


Figure 2- Steps for vulnerable households renovation support

Use-cases: Insights into successful renovation advice for vulnerable households in Belgium

Energy investments for vulnerable households in Antwerp

The renovation support project in Antwerp focused on supporting vulnerable households, particularly emergency buyers and emergency dwellers, who often lived in severely deficient homes with issues like damaged roofs and outdated electrical systems. These groups were identified as being unable to afford essential renovations due to financial constraints or sudden changes in circumstances. The initiative combined energy scans to assess needs, tailored renovation advice, and innovative financial tools such as the *Noodkoopfonds* and the *Mijn VerbouwLening*, which offered deferred repayments and long-term loans. Despite significant progress in improving housing quality and energy efficiency, challenges included the poor condition of many homes and the administrative barriers faced by vulnerable populations. This use-case demonstrates the critical role of accessible financial solutions and intensive guidance in enabling vulnerable households to overcome renovation barriers and improve their living conditions.

Table 13. Simplified Business Model Canvas of the renovation support project in Antwerp

Energy investments for vulnerable households in Antwerp	
HOW?	***FOR WHOM?***
Key activities • Conduct energy scans to assess housing deficiencies • Provide tailored renovation advice and guidance • Facilitate access to contractors for quality renovations • Ensure compliance with Flemish housing and energy efficiency standards **Resources** • Expertise of renovation advisors (technical, administrative) • Partnerships with local entities such as NGOs, and community organizations • Tools for financial management and monitoring (e.g., application support systems) **Processes** • Streamlined application for financial tools (e.g., Rolling Fund, Mijn VerbouwLening) • Continuous follow-up with beneficiaries for effective renovation implementation • Collaboration with small contractors to ensure affordability.	**Primary beneficiaries** • **Emergency Buyers:** Homeowners with limited financial resources who purchased low-quality housing. • **Emergency Dwellers:** Individuals unable to finance renovations after buying a home. **Key segments** • Low-income households • Migrants facing language and administrative barriers • Elderly individuals in need of home upgrades for safety and energy efficiency

FINANCIAL MECHANISMS
Key Instruments • Noodkoopfonds: Deferred repayment loans targeted at vulnerable homeowners. • Mijn VerbouwLening: Low-interest loans up to €60,000, repayable over 25 years, with interest rates 3% below market levels. • Grants and subsidies from local and Flemish governments. **Affordability Strategies:** • Deferred repayments to reduce upfront financial burdens. • Combining loans with grants to maximize accessibility for vulnerable groups.

Recommendations drawn from the project

➔ **Enhance financial and administrative accessibility:** Expand support mechanisms beyond loans by combining them with grants or hybrid financing models to reach households unable to take on debt. Simplify administrative procedures with user-friendly, streamlined processes and provide hands-on guidance to reduce barriers for vulnerable populations.

➔ **Offer comprehensive renovation and advisory support:** Provide tailored technical and financial advice throughout the renovation process, addressing not only energy efficiency but also structural issues like roofing and electrical systems. Skilled advisors are crucial for helping households navigate the complexities of renovation and achieve long-term improvements in living conditions.

➔ **Leverage local partnerships and community-level innovation:** Collaborate with local entities such as NGOs, community organizations, and contractors to develop solutions tailored to the specific needs of vulnerable groups. Incentivize contractor participation through frameworks that ensure fair compensation and high-quality work.

➔ **Monitor and promote impact for sustainability:** Establish systems for tracking project outcomes, including energy savings, housing quality improvements, and social benefits. This data can inform policy decisions, showcase the effectiveness of initiatives, and drive continuous improvement to meet the needs of vulnerable households.

ENERGY INVESTMENTS FOR VULNERABLE HOUSEHOLDS IN ANTWERP – CONTACT

Energie Advies aan Huis

Adress: Energiehuis Antwerpen, Turnhoutsebaan 139, 2140 Borgerhout

Telephone: 03 217 08 56

E-mailadres: info@antwerpenvoorklimaat.be

Budget neutral retrofitting for vulnerable families in Mechelen

The "*Mechelen knapt op*" initiative project focused on empowering vulnerable homeowners to address critical housing and energy inefficiencies. Targeting owner-occupiers unable to invest in necessary renovations, the project utilized innovative financing tools, including budget-neutral loans like the *Noodkoopfonds*. Through partnerships with local organizations such as *Natuurpunt* and the *Klimaan* association, the project provided energy scans, technical support, and guidance throughout the renovation process. This holistic approach not only improved housing conditions but also alleviated energy poverty, delivering long-term savings and enhanced living comfort for financially vulnerable households.

Table 14. Simplified Business Model Canvas of the renovation support project in Mechelen

Budget neutral retrofitting for vulnerable families in Mechelen	
HOW?	***FOR WHOM?***
Key activities • Conduct energy scans to identify housing inefficiencies. • Provide renovation advice, from technical guidance to financial planning. • Facilitate access to reliable contractors and ensure quality control. • Pre-finance grants like Mijn Verbouwpremie to accelerate renovations. **Resources** • *Energiepunt Mechelen* as a central hub for advice and loan facilitation. • Partnerships with organizations like *Natuurpunt*, *Klimaan*, and the *Social House*. **Processes** • Multidisciplinary support, including social, financial, and technical advisors. • End-to-end customer journey assistance, from application to renovation completion. • Collaboration with local stakeholders, such as NGOs and contractor networks, for efficient execution.	**Primary beneficiaries** • **Vulnerable homeowners**: Owner-occupiers with financial constraints unable to fund renovations independently • **Emergency buyers**: Households that purchased substandard homes due to limited housing options **Key segments** • Low-income families • Households with migration backgrounds or single parents • Elderly individuals and those with limited mobility

FINANCIAL MECHANISMS
Key Instruments • *Noodkoopfonds*: Budget-neutral loans with deferred repayments of up to 20 years. • *Mijn VerbouwLening*: Low-interest loans (0% for eligible groups) repayable over 25 years. • Grants and subsidies, such as Mijn Verbouwpremie, integrated into financial plans. **Affordability Strategies:** • Loans structured to ensure repayments are offset by energy savings. • Deferred repayments and 0% interest rates to minimize financial strain. • Comprehensive support for grant applications to maximize financial aid.

Recommendations drawn from the project

➔ **Enhance financial accessibility for vulnerable households:** Expand the range of financing options, such as combining budget-neutral loans with grants or subsidies, to accommodate households that cannot take on loans, even under favourable terms. Ensure that financial tools like the *Noodkoopfonds* remain tailored to the most vulnerable groups, offering deferred repayments and flexibility to address their specific needs.

➔ **Simplify administrative processes and provide tailored support:** *V*ulnerable homeowners often face barriers in navigating complex renovation programs. Providing clear, accessible guidance, along with end-to-end support from social, financial, and technical advisors, is crucial for improving participation rates and ensuring successful renovations.

➔ **Strengthen partnerships with local organizations and stakeholders:** Collaborate with NGOs, community organizations, and contractors to streamline renovation efforts. For example, partnerships with groups like *Natuurpunt* and *Klimaan* proved effective in delivering energy scans, technical advice, and quality assurance during the renovation process.

➔ **Focus on holistic renovation solutions:** Address not only energy efficiency improvements but also structural issues like roofing, plumbing, and electrical systems. This comprehensive approach ensures long-term benefits for households by enhancing living comfort, reducing energy costs, and improving housing quality.

➔ **Promote community-level outreach and engagement:** Develop targeted communication strategies to reach vulnerable groups more effectively, such as leveraging trusted intermediaries like social workers and local organizations. Raise awareness about available support options through dedicated campaigns, mobile offices, and workshops to increase participation and engagement.

BUDGET NEUTRAL RETROFITTING FOR VULNERABLE FAMILIES IN MECHELEN

Energieloket Mechelen
Contact via Sociaal Huis: 0800 20 800 or **Energieloket Mechelen** **T** 015 29 80 15
energiepunt@mechelen.be
Website: Budgetneutrale renovaties

Key takeaways for vulnerable households

1. Enhancing financial accessibility

- ✓ **Expand and diversify funding mechanisms**: Combine deferred payment loans, such as the *Noodkoopfonds*, with grants or subsidies to make renovation accessible for low-income households who cannot assume debt.
- ✓ **Incentivize private sector engagement**: Encourage contractors and developers to invest in renovations by offering tax incentives or co-funding opportunities.
- ✓ **Focus on affordability post-renovation**: Ensure that renovated housing remains affordable, particularly in the rental market, through regulatory measures or social rental agreements.

2. Streamlining administrative and technical support

- ✓ **Create one-stop-shop services**: Establish central hubs where households can access technical advice, financial guidance, and contractor recommendations in a simplified manner.
- ✓ **Simplify application processes**: Reduce bureaucracy by offering easy-to-navigate platforms and proactive outreach to vulnerable groups.
- ✓ **Provide comprehensive renovation guidance**: Assign dedicated advisors to support households throughout the renovation process, ensuring timely and effective implementation.

3. Addressing socio-technical challenges

- ✓ **Promote community-driven initiatives**: Empower local organizations and NGOs to implement tailored solutions, such as community-based retrofitting programs.
- ✓ **Encourage innovative business models**: Explore new approaches, such as third-party financing and public-private partnerships, to overcome barriers like the split incentive in rental housing.
- ✓ **Integrate health and safety improvements**: Ensure renovation projects address not only energy efficiency but also critical health-related issues, such as dampness or mold.

4. Scaling and monitoring impact

- ✓ **Measure and report outcomes**: Regularly evaluate the social, environmental, and economic impacts of renovation programs to identify best practices and areas for improvement.
- ✓ **Strengthen collaboration across stakeholders**: Foster partnerships between governments, private entities, and communities to ensure resources are effectively allocated and shared.

CHAPTER 8 - Local renovation strategies

Local renovation strategies are vital tools for municipalities aiming to address the dual challenges of energy efficiency and sustainable urban development. By tailoring broader regional and national goals to local contexts, cities and towns can effectively mobilize resources and engage stakeholders to achieve significant energy savings and improve living conditions.

This chapter provides an overview of innovative approaches adopted by municipalities such as Gent, Menen, Turnhout, Harelbeke, and Wevelgem, illustrating the practical design and application of strategies through real-world examples. These cases highlight the critical steps, tools, and collaborative frameworks that have been developed to bridge the gap between ambitious climate objectives and the unique challenges faced by local governments.

Why is it necessary?

Achieving European and regional climate goals requires a local, integrated approach to renovating residential buildings. Local governments, with their close ties to citizens and existing expertise, are pivotal in translating overarching objectives into tangible actions and ensuring progress towards the 2050 targets. To support this, the Flemish Energy and Climate Agency (VEKA) is guiding municipalities in adapting the Flemish Long-Term Renovation Strategy into localized versions (LLTRS). This support includes providing tools, data, and strengthening local energy hubs, all while addressing specific municipal needs through collaborative problem-solving.

What are the key actions for local governments?

The LIFE integrated project BE REEL!, led by VEKA, has been a cornerstone of this support, resulting in a comprehensive guide developed through an extensive research process involving numerous partners. This guide builds on pilot projects with eight municipalities and was later enriched through a backcasting methodology tested in cities like Antwerp, Leuven, and Mechelen. In 2024, insights from a six-session masterclass involving local policymakers further refined this roadmap. Together, these efforts aim to equip municipalities with the frameworks

and strategies needed to address the significant challenge of designing their own Local Long-Term Renovation Strategy (LLTRS).

Cities like Gent, Menen, Turnhout, Harelbeke, and Wevelgem have led the way in developing LLTRS through the BE REEL! project, showcasing how municipalities can align local needs with broader climate goals. These pilot projects aim at empowering other municipalities to follow their example, leveraging existing tools like **Inspiration maps for renovation policy**, **Neighbourhood renovation tool** and building on the knowledge and methods developed in these pilots.

Table 15. Examples of cities participating in the project, key insights of their actions and contact person

Municipality	Key Insights	Project contact person
Ghent	Gent integrates its renovation strategy with heat zoning plans, leveraging the "Energiecentrale" to provide tailored advice to homeowners. The city focuses on collective renovation projects, targeting neighbourhoods with older buildings for energy efficiency improvements. Synergies between sustainable heat planning and renovations are central to its approach.	**De Energiecentrale city of Ghent** • **Adress:** Woodrow Wilsonplein 1, 9000 Gent • **Telephone:** 09 266 52 00 • **E-mailadres:** energiecentrale@stad.ge • **Website:** De Energiecentrale
Menen	Menen implemented two impactful measures: the **mandatory conformity certificate**, ensuring rental properties meet quality standards, and the **Social Management Right**, targeting neglected and vacant properties. These measures emphasize improving housing stock, protecting vulnerable groups, and engaging stakeholders such as housing services and welfare organizations.	**Dienst Huisvesting city of Menen** • **Adress:** Volkslaan 302/0001, 8930 Menen • **Telephone:** 056 527 270 • **E-mailadres:** huisvesting@menen.be **Website:** Dienst Huisvesting Menen
Turnhout	Turnhout conducted a detailed analysis of its housing stock using EPC labels and socio-economic data. This screening identified priority areas and housing types for targeted renovations, emphasizing the city's ability to tailor interventions to its unique urban and demographic challenges.	**Dienst Milieu & Groen of the city of Turnhout.** • T +32 14 44 33 28 www.turnhout.be
Harelbeke	Harelbeke used tools like the Wijkrenovatietool to define local tasks, identifying five neighbourhoods with low renovation rates that contribute to 25% of the city's energy savings potential. By focusing on these areas, the municipality effectively targets 70% of its renovation energy-saving potential.	**Woonloket Harelbeke** • **Adress:** Marktstraat 29, 8530 Harelbeke • **Telephone:** 056 73 33 80 (Mijn VerbouwLening) • **E-mailadres:** info@woonwijs.be

		• **Website:** Woon- en Energieloketten | Warmer Wonen
		Woon- en Energieloket Wevelgem
Wevelgem	Wevelgem employed *backcasting* to establish renovation targets. The municipality plans to triple its annual renovation rate to achieve 4,300 upgraded homes by 2030, prioritizing impactful renovations that can improve homes by several EPC labels, such as upgrading from F directly to A.	• **Adres:** Vanackerestraat 12, 8560 Wevelgem • **Telephone:** 056 43 34 77 • **E-mailadres:** wonen@wevelgem.be • **Website:** Woon- en Energieloket Wevelgem

5 steps towards a local renovation strategy

VEKA published a comprehensive roadmap to guide local authorities in designing their long-term renovation strategy. This roadmap builds on 5 key steps.

The following section looks at each of these phases and describes the objective, the rationale, the points of attention as well as use-cases of implementation of this stage by a local government. Some tools are available to support the development of a LLTRS and will be described in steps relevant to their use.

1. Screening: understanding the current situation

Objective: To accurately map the housing stock, energy performance, and socio-economic characteristics to identify areas and groups requiring immediate attention. This foundational step ensures that all subsequent actions are evidence-based and targeted. Without clear data, municipalities risk allocating resources inefficiently, neglecting critical areas, or underestimating the scope of the challenge.

- **Key focus areas**:
  - Housing types (e.g., single-family, apartments).
  - Distribution of energy performance labels (EPC).
  - Socio-economic demographics (income, homeownership rates).

Use case: Turnhout leveraged the *Provincies in Cijfers* database and local EPB label distributions to pinpoint neighbourhoods with the most urgent energy performance issues. For example, areas with a high concentration of EPB E and F homes were prioritized for immediate action. To later integrate their energy strategy in their renovation strategy, they also leveraged the *Warmtezoeringskaart*, a regional map identifying zones for optimal collective or individual sustainable heating solutions based on heat demand and cost analysis of street segments.

2. Backcasting: setting long-term goals

Objective: To envision the desired future (e.g., all homes EPB label A by 2050) and work backward to establish actionable interim targets that bridge the gap between current realities and long-term objectives. Backcasting transforms abstract goals into concrete steps, making it easier to track progress and adjust as needed.

- **Key focus areas**:
  - Develop a "monitoring path" showing annual progress.
  - Set milestones for each legislative cycle.
  - Align local targets with regional and European goals.

Use Case: In **Wevelgem**, backcasting was used to establish a clear and ambitious roadmap for achieving energy renovation targets by 2050. Approximately 40% of the housing stock currently holds an EPB label E or F, highlighting the urgency of short-term interventions. Using the monitoring path, the municipality set detailed interim targets, projecting that by 2030, the number of homes with EPB label A must increase sevenfold, from 302 in 2023 to 2,175. Simultaneously, homes with label F must decrease dramatically, from 4,057 to just 1,077.
To meet these objectives, the municipality calculated that 4,300 homes, or 30% of the total housing stock, must be renovated by 2030—equivalent to 600 renovations per year, triple the current rate. The strategy focuses on impactful actions, as 80% of planned renovations are expected to result in significant EPB label improvements, with 16% achieving upgrades of five labels or more (e.g., from F directly to A). By using backcasting, Wevelgem has laid out a clear path linking long-term energy efficiency goals with practical, measurable short-term milestones, ensuring steady progress toward a sustainable housing stock.

3. Defining Local Tasks

Objective: To break down broad goals into specific, actionable tasks tailored to the municipality's unique challenges, such as housing type, demographics, and existing infrastructure. Local tasks ensure alignment with ground-level realities, turning ambitious goals into practical policy initiatives.

- **Key focus areas**:
  - Tailor strategies for different housing types (e.g., rentals, heritage homes).
  - Focus on high-impact neighbourhoods.
  - Coordinate with existing initiatives like mobility or energy plans.

Use Case: in **Harelbeke**, local tasks were defined by analysing renovation potential across neighbourhoods using data-driven tools like the Wijkrenovatietool. The city identified five

neighbourhoods with exceptionally low renovation rates, contributing to 25% of the city's theoretical energy savings potential. These areas were prioritized due to their high concentration of poorly performing buildings. Additionally, 25% of the potential lies in outdated closed and semi-detached housing in the city centre and adjacent areas, while another 20% comes from village cores like Bavikhove and Stasegem. By focusing efforts specifically on these neighbourhoods and building typologies, the municipality strategically targets 70% of its total energy savings potential

4. Implementing Measures

Objective: To roll out programs and interventions that directly address identified gaps, encouraging homeowners and stakeholders to act. This step includes launching pilot projects, providing support mechanisms, and engaging the public. Practical implementation is where plans meet reality. A well-executed rollout ensures that strategy translates into tangible outcomes.

- **Key focus areas**:
  - Leverage policy instruments to trigger renovations
  - Test innovative solutions in pilot neighbourhoods.
  - Use targeted communication campaigns to engage homeowners.

Use case : In **Menen**, the **mandatory conformity certificate** introduced in 2020 requires rental properties to meet minimum quality standards. This has led to an increase in market-conforming rental prices as non-compliant properties are sold or renovated, with poorly performing homes triggering a renovation obligation upon sale. Private investors have improved the housing stock by purchasing inexpensive properties for total renovations. To prevent poorly maintained properties from being acquired by "noodkopers" (vulnerable buyers with limited resources), Menen collaborates with housing associations to pre-emptively purchase these homes, balancing market forces with public housing needs and improving energy efficiency. The **Social Management Right** targets neglected and vacant properties unused for over two years by notifying owners, offering tailored support through hearings, and involving a multidisciplinary working group (OCMW, housing services, renovation coaches, and policymakers) that meets bi-monthly to resolve cases. It protects vulnerable groups, such as tenants of uninhabitable homes and low-income buyers, through actions like temporary housing support, visits to elderly residents (75+) to provide downsizing or home adaptation advice and using pre-emptive purchase rights to stop substandard housing transactions.

5. Embedding and Iteration

Objective: To ensure the long-term success of the strategy by embedding it within municipal policy plans through broad political and stakeholder alignment, while ongoing monitoring and periodic updates enable adjustments based on the evolving local context, new data, or technologies. This involves defining clear measures, budgets, and timelines, supported by measurable indicators, and conducting regular evaluations to refine objectives and actions at least every three years or at the start of each legislative term.

- **Key focus areas**:
  - Establish a robust monitoring system to track progress.
  - Review and refine measures based on results.
  - Link the renovation strategy with other local policies (e.g., mobility, energy).

Use Case: Turnhout Turnhout embedded its renovation strategy into its broader climate and energy policies, ensuring alignment with regional goals. More specifically, the city is working on the coupling of its local renovation strategy with its local energy strategy. To do so, they leveraged the *Warmtezoneringskaart*, a regional map identifying zones for optimal collective or individual sustainable heating solutions based on heat demand and cost analysis of street segments.

Note: The start of a new legislature is an ideal momentum for setting up or updating a local renovation strategy. Major breakthroughs must be made between now and 2030, otherwise the 2050 targets will be unachievable.

Key take-aways for local renovation strategies

To help municipalities effectively implement their own local renovation strategies, here are key insights derived from the experiences of other cities. These lessons highlight both successful approaches and challenges to avoid.

Strategic planning and prioritization

- ✓ **Data-driven decision-making**: Municipalities should start by comprehensively mapping their housing stock, energy performance, and demographics. Tools like Provincies in Cijfers and the Inspiratiekaart Renovatiebeleid can help identify neighbourhoods with the greatest need and potential. For example, Turnhout successfully used energy performance data to prioritize interventions, while Gent integrated socio-economic data to tailor strategies for specific groups.
- ✓ **Backcasting to translate vision into action**: Establish a clear long-term vision aligned with regional and EU targets. Break this vision into realistic, phased milestones for each legislative cycle, ensuring interim goals are specific and achievable. For example, Gent and Turnhout effectively used backcasting to link their 2050 targets to actionable short-term steps. Clear communication of these targets ensures stakeholder alignment and accountability.
- ✓ **Pilot projects to showcase feasibility:** Begin with small, focused pilot projects in high-impact areas to test innovative approaches. For instance, Harelbeke and Mechelen demonstrated the viability of collective renovations through the Wijkrenovatietool. The lessons learned from pilots can refine strategies and build momentum for scaling up efforts city-wide.

Stakeholder engagement and collaboration

- ✓ **Engage stakeholders early and often**: Involving stakeholders—residents, landlords, and experts—at every stage builds trust and ensures inclusivity. Gent's workshops and support groups fostered co-designed goals and actions, minimizing resistance and increasing cooperation. Public consultations and focus groups provide additional insights and create a sense of shared ownership.
- ✓ **Leverage partnerships to amplify impact**: Collaborating with neighbouring municipalities and regional agencies allows for resource-sharing and more cohesive strategies. Harelbeke and Mechelen benefited from intermunicipal frameworks for collective planning. Shared tools and platforms can simplify coordination and enhance efficiency, though careful planning is needed to manage complexity.
- ✓ **Link renovation strategies with broader policies**: Aligning renovation efforts with other municipal policies, such as heating, mobility, and spatial development plans, ensures coherence and avoids missed opportunities. For example, Gent integrated its heating

strategy with renovation plans, creating a synergistic approach to energy efficiency and renewable energy goals.

Implementation and support mechanisms

- ✓ **Create accessible support systems:** One-Stop-Shops that guide homeowners through technical, financial, and regulatory challenges are key to removing barriers. Menen's tailored support for low-income households ensured inclusivity. Accessible and user-friendly systems, combined with financial incentives, reduce complexity and boost participation.
- ✓ **Address financial and social barriers:** Develop financing tools like low-interest loans, grants, and subsidies to alleviate high upfront costs. Menen focused on vulnerable homeowners with tailored subsidies, while Turnhout targeted financing barriers for apartment renovations. Clear communication about long-term savings and benefits increases homeowner confidence.
- ✓ **Embed iteration and adaptability:** Include regular monitoring and feedback loops in renovation strategies. Turnhout's annual reviews allowed for iterative improvements, ensuring strategies stayed relevant amidst changing technologies, regulations, and stakeholder needs. Flexibility ensures long-term effectiveness and resilience.

CHAPTER 9 - Construction sector

This chapter underscores the pivotal role of the construction sector, especially contractors, in advancing building renovations toward climate neutrality by 2050. It outlines essential actions and policy recommendations for local governments to facilitate this transition. Additionally, it showcases how BE REEL! in association with Buildwise effectively addressed sector challenges through training and knowledge platforms. Buildwise, formerly known as the Belgian Building Research Institute (BBRI), is an organization in Belgium that supports the construction sector through research, innovation, and knowledge dissemination. This chapter then concludes with key take-aways.

What are the challenges of the construction sector?

The construction sector's path towards climate-neutral building renovations is a critical component of achieving broader climate goals. There is an urgent need to drastically increase the renovation rate to at least 3% per year to reach climate neutrality by 2050. Currently, the **renovation rate is only around 1% per year**. This involves transitioning from shallow to deep renovations, with a focus on achieving label A energy performance or 100kWh/m^2/year. This transition necessitates a skilled workforce capable of implementing energy-efficient technologies and circular building practices.

A key challenge is the **workforce shortage** the sector already faces, which is projected to be exacerbated by the increased demand for workers for climate renovations. It is estimated that 130,000 sustained jobs will be needed until 2050 to renovate the Belgian building stock, with 59,000 of these jobs in the construction sector, representing 20% of the current workforce. The remaining 71,000 jobs will be in the construction supply chain. This demand for workers is in a context where the sector already has a shortage of around 20,000 workers per year.

Even if the sector attracts enough workers, there is the further challenge of **upskilling and reskilling** them to meet the demands of climate renovation.

Several factors contribute to this skills gap:

- **Emerging climate renovation jobs:** These are new jobs created specifically for climate renovation, such as deep climate renovation coordinator, district renovation coaches, and jobs related to heat network development. These jobs require new skills and knowledge, which may not be readily available in the existing workforce.
- **Transformation of existing jobs:** Many existing jobs in the construction sector will require additional skills to adapt to climate renovation practices. For example, roofers will need to learn how to ensure water and air tightness during the installation of pre-constructed roofing elements.
- **Outdated training curricula:** Many training programs do not adequately cover the skills and knowledge needed for climate renovation. This is particularly concerning for the Francophone community in Belgium, where most job profiles in the construction sector have not been updated since 2011-2013.

The need for new green skills and the workforce shortage are significant obstacles to achieving climate-neutral buildings by 2050. Addressing these challenges will require a concerted effort from all stakeholders, including policymakers, training institutions, and industry leaders.

What are the key actions for local governments?

To support the construction sector in achieving climate neutrality, local governments can implement key actions and policies focusing on workforce development, regulatory improvements, and promoting innovation:

Workforce development is key

- **Upskilling and reskilling initiatives are vital.** Local governments should support and promote training programs, potentially through financial incentives, that focus on climate renovation techniques. Courses should cover practical skills like insulation, ventilation, and energy-efficient device installation and monitoring.
- **Attracting new talent to the sector is crucial.** This can involve collaborating with educational institutions to develop curricula and apprenticeships focused on sustainable building practices. Offering scholarships or grants can further encourage young people to join the field. Local governments can promote construction careers at events, emphasising the sector's positive environmental and societal impact. Showcasing successful green building projects and the individuals involved can also inspire interest.

Policy and regulatory improvements to incentivise change

- **Incentivising deep renovations over shallow, single-step approaches is essential.** Policies could include subsidies, tax breaks, or grants for renovations that achieve high energy labels or incorporate renewable energy sources. Simplifying the permitting process for deep renovations can further encourage their adoption.
- **Promoting circular economy principles in construction is key.** This encompasses promoting the use of recycled and reclaimed building materials, as well as establishing local markets for the reuse and recycling of construction waste. Setting targets for waste reduction and encouraging sustainable management practices further support these principles.
- **Supporting the digitalisation of the construction sector is crucial.** This can involve providing training and resources on using digital tools like Building Information Modelling (BIM). Facilitating the use of drones for inspections and monitoring and supporting platforms that share best practices and facilitate collaboration among stakeholders are also key actions. As an example, BE REEL! in collaboration with BUILDWISE, has developed a learning platform to address the need for a shared exchange space. Within this platform, Buildwise (BBRI) has established the "Buildwise Renovatieacademie!" section, dedicated to technical training courses.
- **Ensuring decent working conditions in the construction sector is paramount.** Local governments should enforce existing labour laws, promote fair wages and benefits, and ensure safe working environments. Providing access to training and development opportunities for construction workers further contributes to a just transition.

Use-case: insights into how the challenges of the construction sector have been successfully addressed

Empowering professionals for sustainable renovations: Buildwise's training and knowledge platforms

BE REEL!, in collaboration with Buildwise, conducted two complementary initiatives aimed at enhancing the construction sector's capacity for energy-efficient building renovations in Belgium. **The first project focused on training and skill development.** It delivered training packages on retrofitting topics, transitioning from physical workshops to an online learning platform, the "Buildwise Renovatieacademie!" due to the COVID-19 pandemic. **The second project on the other hand, concentrated on knowledge sharing and best practice dissemination.** It launched a digital exchange and knowledge platform, be-renovatif.be, hosting articles, technical papers, videos, and best practice details. Both projects actively collaborated with industry stakeholders to ensure relevance and wider reach, they underscore the importance of active promotion and robust communication strategies to maximize impact.

Table 16 - Simplified Business Model Canvas of the training and knowledge platforms of Buildwise

Equipping construction professionals through training and knowledge platforms
HOW?
1. Identifying key retrofitting topics: • Both projects started by identifying promising areas within sustainable renovation that needed attention. • Existing Buildwise technical committees was consulted, which consisted of industry experts, contractors, and architects. • This ensured the selected topics aligned with industry needs and current challenges in the field. **2. Content development and format selection:** • **Live events:** In-person courses, workshops, and roadshows across Belgium, supported by industry partnerships. • **Online training:** Digital courses and webinars hosted on the "Buildwise Renovatieacademie" platform, offering flexibility and accessibility, especially during the COVID-19 pandemic. • **Train-the-trainer sessions:** Sessions provided trainers with resources to extend the training's reach, though the focus later shifted to online formats. • **Producing online content in various formats:** articles, technical papers, webinars, videos, animations, physical models, and a digital diagnostic tool: **RenoCheck**. • Emphasis was placed on addressing the diverse learning styles and preferences within the construction sector. **3. Platform development and integration:** • Online learning platform: 'Buildwise Renovation Academy' and 'Buildwise Renovation Academy' • Embedded in the digital exchange and knowledge platform 'be-reel.be'. https://www.be-reel.be/courses-en

4. Communication and promotion:

- **Proactive communication was made**, a multi-pronged approach was employed to reach the target audience.
- **Existing communication channels** was utilised like newsletters, websites, and LinkedIn.
- **Paid and non-paid social media campaigns**, particularly on LinkedIn, helped reach a wider audience.
- **Collaboration with professional federations** like Embuild, IFAPME, and Bouwunie helped disseminate information through their networks and events.

5. Adaptation and continuous improvement:

- **The COVID-19 pandemic forced both projects to adapt quickly.** A transition was made from physical training models to online learning models.

Feedback was actively sought, and the effectiveness of the platforms was monitored. Adjustments and improvements were made based on user engagement, participant feedback, and the evolving needs of the construction sector.

FOR WHOM

The project targeted a variety of professionals in the construction sector, including contractors, architects, engineers, material producers, building developers, experts, administration, renovation coaches and advisors.

Partners:

- Lead partner: BUILDWISE (former BBRI)
- Professional federations: Embuild, Bouwunie, and NAV
- Educational organisations: VDAB, IFAPME, Forem, Syntra, Constructiv, and ECAM

Lessons learned from the projects:

1. **The importance of digital learning and resources:**

- Both projects highlight the **effectiveness of digital platforms** for delivering training content and disseminating knowledge about sustainable renovation practices. This was particularly crucial during the COVID-19 pandemic, which necessitated a shift from in-person training to online formats.
- The **"Buildwise Renovatieacademie!"** platform proved successful in reaching a wider audience and offering flexibility in accessing training content. Similarly, the digital exchange and knowledge platform facilitated access to a range of resources, including articles, technical papers, and webinars.
- The **use of instructional videos and animations** was particularly impactful, garnering significant views on YouTube. The projects demonstrated that digital content, when well-designed and promoted, can effectively engage professionals and enhance knowledge transfer.

2. **The value of collaboration and targeted communication:**

- **Collaborating with professional organisations**, such as contractor and architect federations, proved crucial for both projects in reaching a broader audience and promoting wider industry engagement.
- **Targeted communication strategies**, including the use of social media platforms like LinkedIn, were instrumental in attracting participants to training courses and promoting the digital resources available. The success of the paid social media campaigns suggests that investing in targeted advertising can yield significant returns in terms of reach and engagement.

- **Actively promoting retrofitting topics and resources** emerged as a key factor for success. This included using various communication channels, engaging with stakeholders, and leveraging existing networks within the construction sector.

3. **The need for a solid technical basis and practical application:**

- Both projects emphasised the importance of grounding training content and resources in **proven scientific results and practical applications**. This ensured the credibility and relevance of the information provided, especially given the importance of liability and regulations within the construction sector.
- The **use of case studies, practical examples, and construction details** helped bridge the gap between theory and practice, enabling professionals to apply their newfound knowledge in real-world scenarios.
- The **development of the RenoCheck tool**, a practical tool for pre-renovation assessments, further illustrates the focus on providing professionals with tangible resources to support their work.

4. Adaptability and continuous improvement:

- Both projects demonstrated the need for **flexibility and adaptability** in response to unforeseen challenges, such as the COVID-19 pandemic. The quick shift to online formats and the development of digital tools demonstrated the projects' capacity to adjust to changing circumstances.
- The importance of **ongoing evaluation and improvement** was also evident. Gathering feedback from participants, monitoring platform usage, and staying abreast of industry trends and developments are crucial for ensuring the long-term effectiveness and relevance of capacity building initiatives

5. Addressing the needs of diverse stakeholders:

- The projects recognised the importance of **tailoring training content and resources to the specific needs of different professional groups** within the construction sector. This included developing specialised courses, providing relevant case studies, and addressing the unique challenges faced by different stakeholders.
- The **collaboration with various educational organisations** further facilitated the dissemination of knowledge to a wider range of professionals, ensuring the training content reached those who needed it most.

EMPOWERING PROFESSIONALS FOR SUSTAINABLE RENOVATIONS: BUILDWISE'S TRAINING AND KNOWLEDGE PLATFORMS

- **Organisatie:** Buildwise
- **Adres:** Lombardstraat 42, 1000 Brussel, België
- **Telefoonnummer:** +32 2 502 66 90
- **E-mailadres:** info@buildwise.be
- **Website:** www.buildwise.be

Key takeaways for the construction sector

Innovative training and learning approaches

- ✓ **Digital learning for flexibility and broad reach:** Digital platforms enable construction professionals to access training conveniently, offering flexibility and accommodating diverse learning styles. Initiatives like "Buildwise Renovatieacademie!" have successfully delivered technical courses on building renovation, leveraging formats such as webinars, online courses, and technical papers. These platforms proved particularly effective during the COVID-19 pandemic, when in-person sessions were not feasible.
- ✓ **Visual content to enhance engagement:** Videos and animations are powerful tools for conveying complex knowledge in an engaging and understandable manner. For example, the widespread popularity of YouTube resources underscores the effectiveness of visual content in improving retention and understanding among construction professionals. Incorporating such content into training programmes can increase their impact.
- ✓ **Practical resources for real-world applications:** Training programmes should include resources such as case studies, construction details, and tools like RenoCheck to ensure professionals can directly apply their knowledge. Grounding training in scientific results while emphasizing practical applications bridges the gap between theory and practice, making the content more relevant and actionable.

Strategic partnerships and collaborations

- ✓ **Collaborations with professional organizations:** Partnering with federations of contractors and architects ensures training programmes are tailored to industry needs and aligned with standards. These collaborations facilitate information dissemination, promote engagement, and increase the credibility and reach of training initiatives, ensuring they target the right audience effectively.
- ✓ **Targeted communication strategies:** To maximize outreach, training programmes must implement strategic communication. Leveraging social media platforms like LinkedIn and paid campaigns can attract a broader audience of construction professionals. Additionally, using existing communication channels of professional organizations amplifies the reach and ensures resources are seen by the intended audience.

Innovative dissemination methods

- ✓ **Blending digital and traditional approaches:** Combining digital resources with traditional in-person workshops or demonstrations can cater to diverse learning

preferences. Digital tools allow for flexible learning, while hands-on workshops reinforce skills through practical engagement, creating a comprehensive training approach.

- ✓ **Emphasizing scientific and technical credibility:** Highlighting the scientific basis of training content, supported by examples and expert endorsements, builds trust among participants. When professionals see clear links between training and tangible benefits, such as efficiency or quality improvements, they are more likely to adopt the techniques taught.

CHAPTER 10 - Sustainable building renovation

Sustainable building renovation is a holistic approach aimed at improving buildings' energy efficiency while considering social, ecological, and economic impacts. It goes beyond reducing energy consumption and encompasses factors like affordability, comfort, health, occupant well-being, and responsible use of materials and water. Sustainable renovation integrates circular economy principles by promoting material reuse and minimizing waste. This approach requires collaboration among public authorities, real estate developers, and financial institutions to foster investment and innovation. Local governments play a crucial role in promoting sustainable investments by setting frameworks and facilitating actions at the community level.

This chapter explores the importance of sustainable building renovation and outlines the key actions local governments should take. It features some inspiring use-cases that already have been implemented by municipalities such as the renovation of the Leopold Barracks in Ghent, the Ecoren project in Bilzen, the CLTB project in Brussels and concludes with key recommendations.

Why is it necessary?

The construction sector plays a pivotal role in shaping the natural environment, contributing significantly to ecological challenges. The buildings and construction sector generates a significant share of greenhouse gas emissions. Buildings energy-related energy demand represents around **27 % of global emissions** and a further 7-9% is estimated to be due to the manufacturing of buildings materials[3]. In Belgium, residential buildings are particularly impactful, emitting more than 1 ton of greenhouse gases per person annually, nearly double the European average.

This ecological footprint highlights the urgent need to shift toward sustainable housing renovations that not only improve energy efficiency but also embrace a broader framework for social, economic, and environmental sustainability. By adopting the "People, Planet, Profit" approach, sustainable renovations address three essential pillars.

- **People**: Creating healthy, comfortable, and accessible spaces.
- **Planet**: Minimizing environmental impacts by reducing raw material use, promoting closed material cycles, and stimulating positive environmental effects.
- **Profit**: Creating affordable and adaptable, future-oriented designs that support long-term sustainability.

[3] UNFCCC Technology Executive Committee. (2022). Buildings and construction: Addressing CO_2 emissions through energy efficiency and material innovation. Link

What are the key actions for local governments?

BE REEL! has identified key actions and policy recommendations for municipalities to embrace more sustainable approaches to building renovation, design, and urban infrastructure in their cities.

1. **Develop a long-term renovation strategy:** Establishing clear goals and timelines for building renovation aligns local projects with broader sustainability targets, providing guidance for developers. Incorporate measurable sustainability standards into building codes to align projects with environmental targets, like CO_2 reduction and renewable resources, using green certifications like LEED or BREEAM. For example, the GRO instrument has been developed to evaluate sustainability in the construction sector.

2. **Support developers:** Simplifying processes, offering incentives, and providing necessary support to developers. This can include streamlining plan approvals, offering financial incentives for sustainable projects, and removing bureaucratic obstacles that delay renovation and development efforts.
   - **Develop innovative financing models:** This can include crowdfunding platforms, sustainability-linked loans, or green lease models, where tenants and landlords share the cost savings from energy-efficient improvements. Additionally, mechanisms such as carbon credits, performance-based contracts, and investments in energy-efficient renovations can open new revenue streams. Governments and financial institutions should collaborate to develop and implement these financing models.
   - **Encourage Public-Private Partnerships for deep renovations:** Deep renovation projects often face financial barriers; PPPs offer a viable solution by unlocking the necessary financing through collaboration. Governments can partner with the private sector to create innovative financing mechanisms, such as green bonds, tax benefits, or low-interest loans, that encourage deep renovations.
   - **Revise economic and legal models for infrastructure**, exploring co-ownership or leasing to encourage sustainable resource use.

3. **Leverage key moments for synergy:** Strategic use of urban planning moments (e.g., zoning changes or master plan updates) enables integration of green spaces, public transport networks, and energy-efficient technology.
   - **Use "stamps" for operational scales in urban planning:** Use specific patterns of housing types and densities aligned with sustainable development targets. By adhering to target densities and development patterns, planners can avoid over- or underdevelopment, promote efficient land use, and meet housing demand sustainably.
   - **Use 'white spot' analysis for strategic development:** Identify underutilized areas ready for investment, infrastructure expansion, or new retail development. By focusing on these "white spots," policymakers can select regions with the greatest potential for economic and environmental gains.

4. **Adopt neighbourhood and medium-scale solutions:** A neighbourhood-focused approach to sustainability allows for more efficient implementation of infrastructure, such as district heating networks, sustainable mobility systems, and biodiversity initiatives.

- **Organize community activities** more effectively, optimizing shared resources like parking, charging stations, and public spaces.
- **Foster resident participation** by aligning sustainability initiatives with their needs and priorities for greater impact.

Use-cases: insights into how sustainable building renovation was successfully implemented around Belgium

Sustainable renovation of the Leopold Barracks in Ghent

The renovation of the Leopold Barracks in Ghent is an example of a public-private partnership that successfully transforms historic military buildings into residential units while preserving the cultural heritage of the site. This project includes extensive energy renovations and an overarching ecological strategy, aiming to achieve BREEAM certification, a globally recognized sustainability standard.

Table 17 - Simplified Business Model Canvas of the Leopold Barracks renovation project in Ghent

Transforming historic military buildings into eco-certified residential housing while preserving cultural heritage	
HOW?	***FOR WHOM?***
Sustainability measures: • **Mobility:** The project includes shared parking facilities with charging points for electric vehicles. • **Social value:** The multifunctional redevelopment respects the heritage value of the buildings and offers a mix of residential, educational, and commercial functions that strengthen the community. • **Indoor climate:** Extensive thermal comfort analyses were conducted to ensure the well-being of residents. • **Energy efficiency:** Renovated apartments are classified as IER units, utilizing internal insulation, new heating systems, photovoltaic panels, ventilation systems, solar control glass, and shading provisions where necessary. • **Materials:** A demolition analysis was conducted as part of the BREEAM certification process, using FSC-certified wood and sustainable materials selected according to NIBE class and LCA analysis. • **Water management:** Efficient water devices, rainwater harvesting systems, and designs for T100 stormwater infiltration and storage were implemented to manage water sustainably. • **Environmental consideration:** An ecologist was consulted to assess and protect the ecological value of the site, promoting biodiversity within the urban landscape.	**New functions of the building:** • Provincial house • Hotel • Daycare • Higher education • Residential units The choice to diversify functions within the complex was essential for the project's viability. The building features a living area ranging from 70 m^2 to 215 m^2, with an approximately capacity of 90 housing units.

FINANCIAL MECHANISMS
Budget for housing: Approximately €25 million (construction costs) **Financing:** The province transferred ownership of the buildings designated for the hotel and housing to the developers as part of the financing for the provincial house project. This arrangement created mutual value for both the Province of East Flanders and the private developers. **Business model:** The financial model of the project revolves around the sale of housing units within the renovated complex.

Insights and lessons learned from the project:

- ➔ **Public-private partnerships:** Collaboration between public and private sectors proved essential for realizing complex redevelopment projects while respecting heritage values.
- ➔ **Comprehensive sustainability vision:** Involving the entire complex allows for a holistic approach to sustainability, integrating multiple functions for the benefit of the community.
- ➔ **Heritage preservation vs. energy efficiency:** Emphasizing the preservation of the barracks' heritage influenced design decisions, requiring compromises in full energy efficiency. This highlights the need for innovative solutions that respect both historical integrity and performance improvement.
- ➔ **Budget management:** The project illustrates the importance of clear budget management, with a significant construction cost per apartment reflecting the complexity of renovating heritage buildings.
- ➔ **Future challenges:** More information is needed on the size of the housing units, total development area, energy performance measurements, and strategies to achieve near-zero emissions by 2050. The use of renewable energy and the long-term sustainability of the renovations remain crucial questions for the parties involved.

SUSTAINABLE RENOVATION OF THE LEOPOLD BARRACKS IN GHENT

Contactgegevens:

- **Adres:**
  - Gaspar de Craeyerstraat 2, 9000 Gent, België
  - Charles de Kerchovelaan 189, 9000 Gent, België
- **E-mailadres:** info@deleopoldskazerne.be

Achieving Nearly Zero-Energy Renovations within social housing in Bilzen

The Ecoren project in Bilzen represents a pioneering approach to achieving Nearly Zero-Energy Renovations (NZEB) within social housing. By using prefabricated modules, the renovation of four social housing units was completed in only 20 days, while residents remained in their homes. This project serves as a proof of concept for efficient, sustainable renovations that minimize disruption and provide valuable insights for both public and private developers.

Table 18 - Simplified Business Model Canvas of the Ecoren NZEB renovation project in Bilzen

<table>
<tr><th colspan="2">Achieving Nearly Zero-Energy Renovations within social housing</th></tr>
<tr><th colspan="2">HOW?</th></tr>
<tr><td colspan="2">Sustainability measures
Social value: The renovations were designed to minimize disruption for residents, a crucial factor in social housing. The project met the standards of the Flemish Social Housing Company and demonstrated that similar renovation concepts are applicable to both the social and private housing markets.
Indoor climate: The housing units were renovated to NZEB standards, ensuring improved thermal comfort and energy efficiency.
Energy efficiency: Solar panels were installed as part of the renovation, further enhancing the energy performance of the housing units.
Materials: The use of prefabricated wooden construction elements not only accelerated the renovation process but also emphasized sustainability in material choice.
Site management: Efficient site management was a cornerstone of the project, with effective coordination and communication among all involved parties, leading to a smooth renovation process.</td></tr>
<tr><th>FINANCIAL OVERVIEW</th><th>FOR WHOM?</th></tr>
<tr><td>Financing: The project was financed by the Flemish Social Housing Company, demonstrating a strong commitment to sustainable investments in social housing.

Budget: The estimated budget per housing unit was approximately €100,000. Although the ESCO model (Energy Service Company) was explored, it was not implemented at this stage. Instead, the scalability of prefabricated elements was relied upon to reduce overall costs.</td><td>Renovation of four social housing units while residents remain in their homes.</td></tr>
</table>

Insights and lessons learned from the project:

➔ **Industrializing renovations:** The use of prefabricated elements enabled a rapid, energy-efficient renovation of four housing units in just twenty days. This demonstrates the potential to industrialize the renovation process, especially in neighbourhoods with similar housing typologies.

➔ **Scalability:** Simultaneously addressing multiple housing units in the same neighbourhood leads to lower costs and less disruption. This approach can be particularly beneficial for private developers considering neighbourhood-level renovations.

➔ **Efficiency and returns:** Private developers can explore opportunities for revenue enhancement through renovation projects, especially if they can replicate the efficient methodologies demonstrated in Ecoren after the initial construction phase.

➔ **Resident-cantered approach:** Minimizing disruption for residents is crucial to maintaining community trust and satisfaction. This project shows that sustainable renovations can be carried out with minimal impact on daily life.

➔ **Collaboration is essential:** The success of the Ecoren project relied on effective collaboration among various stakeholders, highlighting the importance of communication and shared goals in realizing complex renovation projects.

ACHIEVING NEARLY ZERO-ENERGY RENOVATIONS WITHIN SOCIAL HOUSING IN BILZEN

Project contact

Project Website: www.ecoren.be

Contactgegevens:

Cordium (Sociale Huisvestingsmaatschappij):

- **Adres:** Gouverneur Roppesingel 133, 3500 Hasselt
- **Telephone:** 011 26 45 60
- **E-mailadress:** info@cordium.be
- **Website:** www.cordium.be

Machiels Building Solutions (Aannemer):

- **Adres:** Industrieweg 1425, 3583 Paal-Beringen
- **Telephone:** 011 45 00 11
- **E-mailadress:** info@machielsbuildingsolutions.be
- **Website:** www.machielsbuildingsolutions.be

DBV Architecten (Architectenbureau):

- **Adress:** Prins Bisschopssingel 34/b3, 3500 Hasselt

Creating high-quality affordable housing through the CLT model in Brussels

The Community Land Trust Brussels (CLTB) pioneers an innovative approach to affordable housing through the Community Land Trust (CLT) model. This model separates land ownership from home ownership, allowing for collective management of the land while individuals have access to secure, affordable housing. By focusing on sustainable development and community engagement, CLTB aims to create high-quality homes for people with limited financial means, addressing the urgent need for affordable housing in Brussels.

Table 19 - Simplified Business Model Canvas of the CLTB project in Brussels

Creating high-quality affordable housing through the CLT model	
HOW?	***FOR WHOM?***
Sustainability measures: • **Mobility:** The homes are strategically located in well-connected areas, facilitating access to public transport and amenities. • **Social Value:** The financial model enables low-income groups to acquire homeownership, with sale prices capped to maintain affordability. This model promotes community stability and long-term investment in neighbourhoods. • **Indoor Climate:** Renovations prioritize thermal comfort, ensuring residents enjoy a comfortable living environment. • **Energy Efficiency:** Renovations comply with the standards for Energy Performance of Buildings (EPB), with ongoing training for residents to optimize energy use in their homes. This includes awareness of energy-saving measures.	Affordable housing, primarily for individuals eligible for social housing.
FINANCIAL OVERVIEW	
Financing: CLTB is part of the regional multi-year investment plan of the Brussels-Capital Region, providing crucial financial support for its initiatives. **Business Model:** Under the CLT model, CLTB owns the land, while developers may retain ownership of the buildings or sell them to individual homeowners. Residents pay a symbolic rent for the land, ensuring the homes remain affordable and the land can be used as collateral for future financing.	

Insights and community impact of the project:

➔ **Legislative framework:** For the CLT model to thrive in Brussels, adjustments to the existing legal framework are essential. A supportive regulatory environment will enable the broader adoption of this innovative approach to affordable housing.

- **New ownership models:** Decoupling land and building ownership offers developers the opportunity to explore new market segments. By retaining ownership of the land, developers can limit financial risks and leverage the land's value for future investments.

- **Flexible CLT model:** The CLT model is adaptable and can be applied in various contexts, fostering collaboration among public, private, and individual stakeholders. This flexibility increases the potential for successful housing solutions.

- **Sale of homes:** While resale is allowed, it is subject to specific conditions, with a maximum of 25% appreciation. This measure ensures that homes remain affordable and accessible to future buyers.

- **Energy awareness:** A crucial aspect of CLTB's approach is promoting energy awareness among residents. Educating homeowners about efficient energy use helps reduce consumption and emphasizes that well-insulated homes do not automatically lead to lower energy costs without conscious effort.

- **Community engagement:** CLTB emphasizes the importance of community involvement in the daily management of homes. Empowering residents to play an active role cultivates a culture of sustainability and responsible consumption.

- **Educate on CLT principles:** To enhance understanding, especially among foreign readers, CLTB recognizes the need for clear explanations of how the CLT model works and the specifications of energy performance.

Key insights from the use-cases

Complexity and risks in renovation	*Attractiveness of neighbourhoods and building structures*
Renovation projects are complex and risky, and developers generally favour projects where risks are minimized, profitability is higher, and there are opportunities for standardization. City centres are preferred for their high added value, potential for densification, and sometimes, risk-sharing mechanisms like government subsidies.	Developers are selective about neighbourhoods and building types, often avoiding 19th and early 20th-century districts and village centres due to poor infrastructure, ownership complexities, or limitations on achieving economies of scale.

Table 20 - Key insights from the use-cases

Focus on energy and comfort	*Financing challenges*
Renovations tend to prioritize energy efficiency and comfort improvements, often focusing on individual rather than collective benefits. Broader sustainable themes like circular construction and biodiversity are rarely addressed.	Financing plays a crucial role in the feasibility of renovation projects. "Bankable" projects, backed by predictable returns or developers with strong credit, generally secure funding more easily. However, "non-bankable" projects, which involve sustainable renovations under uncertain conditions, face

	financial difficulties due to high costs and low immediate returns. Limited innovative financing models in Belgium mean that many sustainable renovation projects struggle with funding, highlighting a need for systemic changes in housing finance to support broader sustainability goals.

CREATING HIGH-QUALITY AFFORDABLE HOUSING THROUGH THE CLT MODEL IN BRUSSELS

https://cltb.be

Contactgegevens:

Adres: Gulden Vlieslaan 72, 1060 Sint-Gillis, Brussel
Telefoonnummer: 32(0)2.840 61 49
E-mailadres:

Key takeaways for sustainable building renovation

Strategic frameworks for sustainable renovation

- ✓ **The importance of sustainable building renovation:** Addressing the environmental impact of the construction sector is critical, as buildings contribute significantly to greenhouse gas emissions. In Belgium, residential buildings emit nearly double the European average, highlighting the urgency of sustainable renovation. This approach improves energy efficiency while fostering social, economic, and environmental sustainability.
- ✓ **The role of local governments:** Municipalities play a pivotal role in advancing sustainable renovation by developing long-term strategies, offering incentives, and simplifying administrative processes. Leveraging urban planning, they can integrate sustainability into broader policies, ensuring renovation aligns with environmental and social objectives.
- ✓ **Public-private partnerships (PPPs) for implementation:** PPPs can unlock financing and foster collaboration between public and private sectors. For instance, the Leopold Barracks renovation in Ghent demonstrates how PPPs can facilitate large-scale, sustainable projects. Such partnerships enable pooling of resources, technical expertise, and innovative solutions.

Innovative solutions for sustainable renovation

- ✓ **Prefabricated modules for efficient renovation:** Innovative techniques like prefabricated modules streamline renovation processes while reducing waste and energy consumption. The Ecoren project in Bilzen is a prime example, using modular solutions to efficiently renovate social housing and address sustainability challenges.
- ✓ **Community Land Trust (CLT) models for affordability:** The CLTB in Brussels illustrates how the CLT model promotes sustainable and affordable homeownership. By separating land ownership from housing, CLTs lower costs and ensure long-term community benefits, aligning social equity with sustainability goals.
- ✓ **Integrated urban planning for sustainable practices:** Urban planning can embed sustainable renovation within larger municipal objectives, ensuring that housing upgrades align with renewable energy, mobility, and waste reduction goals. Coordination across departments enhances coherence and maximizes impact.

CHAPTER 11 – Conclusion

As the urgency of the climate crisis intensifies, the window for meaningful action is rapidly closing. ***The year 2030—just around the corner—marks a critical milestone for achieving the EU's ambitious energy and climate objectives.*** *Local governments, with their unique proximity to citizens and deep understanding of territorial dynamics, hold a pivotal role in bridging the gap between high-level goals and on-the-ground impact. Cities and municipalities are uniquely positioned to transform EU and regional objectives into actionable strategies that deliver measurable results.*

The momentum of a new legislature offers an unmissable opportunity to drive transformative change. *With municipal elections just months behind us, the time is ripe for local governments to set bold priorities, foster collaborative partnerships, and implement the far-reaching actions necessary to accelerate energy renovation. This guidebook is designed to empower cities and municipalities with the knowledge, tools, and strategies needed to act decisively and locally, making energy renovation a cornerstone of sustainable urban development.*

The challenge is monumental, but it is decisive for the well-being of future generations*. Energy renovation is a critical issue that exemplifies how climate action and social justice are deeply intertwined. By improving living conditions, reducing energy poverty, and cutting emissions, local governments have the unique ability to simultaneously enhance the daily lives of their citizens and address the global climate crisis. Positioned at the intersection of policy and community, cities and municipalities are in the ideal seat to drive meaningful change and shape a more equitable and sustainable future.*

Summary of key findings and insights

This guidebook highlights the importance of a comprehensive and interconnected approach to sustainable building renovation. **Collaboration emerges as a central theme**, with municipalities, homeowners, contractors, and energy advisors working together to drive successful initiatives. Public-private partnerships, such as the Leopold Barracks renovation, and collective efforts like those seen in Ghent and Antwerp illustrate the effectiveness of integrated strategies. Community engagement is equally crucial, with tailored awareness campaigns, participatory workshops, and transparent communication playing pivotal roles in mobilizing both individual and collective actions.

Special attention has to be given to vulnerable groups, who face financial and administrative barriers that limit their participation in renovation projects. These households often experience energy poverty and housing insecurity, requiring targeted support through subsidies, grants, and tailored financial tools such as the Mijn VerbouwLening. Renovation coaching and intensive guidance help ensure these groups are not excluded, making sustainable energy solutions more inclusive.

The role of innovative tools and digital platforms is pivotal to upscale energy renovation. Tools like *Woningpas*, *Passeport Bâtiment, Feuille de Route*, and *Quickscan* simplify decision-making by consolidating data, providing phased renovation plans, and offering energy performance assessments. Digital platforms, such as Buildwise's Renovation Academy, further bridge skills gaps by providing accessible training and fostering knowledge sharing across the construction sector.

Energy efficiency and renewable integration are foundational aspects of sustainable renovations. Initiatives like Buurzame Stroom in Ghent demonstrate the potential of solar panels, heat pumps, and district heating systems at both building and neighbourhood scales. Circular economy principles, focusing on material reuse and waste reduction, are also central to achieving environmental goals while maintaining economic viability.

Strategic and localized approaches to renovation are critical for success. Customizing broader climate objectives to local contexts allows municipalities to address specific housing stock needs effectively. Data-driven decisions, such as identifying priority neighbourhoods based on socio-economic and energy performance metrics, ensure resources are allocated efficiently and maximize impact.

The construction sector faces significant challenges, including workforce shortages and the need for upskilling. Achieving climate neutrality by 2050 requires a drastic increase in renovation rates and a well-trained workforce equipped with the skills necessary for deep renovations and energy-efficient practices. Programs promoting training, certification, and construction careers

are vital, alongside regulatory measures to simplify administrative processes and encourage participation.

Finally, **the economic and social benefits of renovation need to be well communicated.** Energy-efficient upgrades reduce utility bills and enhance property values. At the same time, these initiatives support health, comfort, and social well-being, contributing to urban regeneration and enhanced quality of life. This guidebook advocates for a systemic, inclusive, and innovative approach to scaling up energy-efficient renovations while balancing economic, environmental, and social objectives.

Policy recommendations

Develop a strategic framework

Policymakers must establish a comprehensive framework to drive local energy renovation efforts. This begins with **developing a Local Long-Term Renovation Strategy (LLTRS)** to align municipal actions with EU and regional climate objectives. These strategies should include detailed, phased plans based on robust data on housing stock, energy performance, and socio-economic conditions. **Integrate renovation targets into urban planning** by leveraging zoning updates, master plan revisions, and redevelopment opportunities to embed energy-efficient infrastructure, such as district heating networks and renewable energy hubs.

Leverage existing tools and develop your own

Municipalities must capitalize on existing tools while investing in innovative solutions tailored to local needs. Digital platforms like *Woningpas, Feuille de Route,* and *Quickscan* help triggering, accelerating and simplifying the renovation process. These tools should be promoted widely and integrated with municipal renovation services to enhance adoption.
Developing custom solutions, such as *"energy bill as a tool",* can further engage citizens. This approach, successfully piloted in Mechelen, uses energy consumption data to provide personalized insights and targeted incentives for behavioural changes and energy-saving renovations. Cities should invest in adaptable tools that address specific local challenges, ensuring they are user-friendly, widely accessible, and linked to financial and technical support mechanisms.

Offer personalized support

Policymakers must ensure tailored and accessible support for all citizens, with a strong focus on vulnerable households. Often living in poorly insulated homes that are costly to heat, they face the greatest need for renovations but lack the financial means to act. Providing **free, comprehensive renovation support** is crucial. Dedicated renovation coaches should guide them through energy audits, contractor selection, grant applications, and navigating administrative hurdles like permits.

One-stop shops are essential to centralize these services, offering technical advice, financial guidance, and administrative assistance in a single, accessible location. Outreach efforts must proactively engage vulnerable households through direct communication, workshops, and neighbourhood events. Financial solutions must be inclusive, offering grants and pay-as-you-save models for those unable to take on debt.

Promote collective approaches

Collective renovation initiatives maximize efficiency, reduce costs, and foster community engagement. Policymakers should promote neighbourhood-scale projects to address shared challenges, such as insulation, heating systems, and energy efficiency upgrades. Tools like the **Wijkrenovatietool** can play a pivotal role by mapping renovation needs and identifying effective renovation and decarbonization strategies at the neighbourhood level.

Municipalities should support bulk purchasing, providing residents with access to group discounts and high-quality materials. Establishing community renovation funds or co-financing models can further ease the financial burden. Local authorities should encourage citizen participation in decision-making and strengthen community bonds to foster collective approaches.

Ensure workforce availability and competencies

Addressing the labour shortage in the construction sector is critical for meeting renovation targets. Municipalities must invest in **training and upskilling programs** focused on renovation techniques, renewable energy systems, and circular economy practices. Collaborations with educational institutions and industry stakeholders can ensure that training curricula align with market needs, while scholarships and apprenticeships can attract new talent to the sector.

Policymakers should also promote **digitalization in the construction industry**, such as Building Information Modelling (BIM), to improve efficiency and quality. Ensuring decent working conditions, fair wages, and career growth opportunities will further enhance workforce retention and attract new entrants, enabling the sector to meet the growing demand for skilled labour in energy renovation.

Future prospects and emerging trends

The transition to energy-efficient and sustainable building renovation is poised to accelerate in the coming years, driven by advancing technologies, evolving policies, and growing public awareness. **Future prospects hinge on the ability of local governments to adapt to and capitalize on emerging trends**, ensuring long-term success in achieving energy and climate objectives.

One key trend is the increasing integration of **digital and data-driven tools** into the renovation process. Platforms like digital building passports and energy audit tools are becoming essential for providing personalized, actionable insights to homeowners and stakeholders. As these technologies mature, their ability to streamline planning, enhance transparency, and foster engagement will continue to grow. Municipalities must remain at the forefront of this shift, adopting and promoting these tools to drive efficiency and accessibility.

The rise of circular economy practices represents another transformative trend. As resource constraints become more pressing, policies promoting material reuse, recycling, and waste reduction will take centre stage. Cities that prioritize circular construction methods and establish local markets for recycled materials will not only reduce environmental impacts but also create economic opportunities within their communities.

Decarbonizing urban energy systems through renewable integration will become a cornerstone of sustainable renovation. The adoption of district heating systems, collective solar projects, and energy-sharing networks is set to expand. Local governments must invest in the infrastructure and regulatory frameworks needed to support these innovations, ensuring equitable access to clean energy solutions for all citizens.

The social dimension of renovation is also gaining importance. With growing recognition of the link between energy efficiency and social justice, policies that address energy poverty and prioritize vulnerable households will remain critical. The emergence of innovative financing models, such as pay-as-you-save schemes and community renovation funds, will empower low-income families to participate in the energy transition.

Lastly, the construction sector will continue to evolve, with **workforce transformation** playing a pivotal role. **Emerging green jobs and the need for upskilling will shape training initiatives**, while digitalization and automation will redefine construction practices. Policymakers must ensure that local workers are equipped with the knowledge and tools to thrive in this rapidly changing landscape.

Looking ahead, local governments have the opportunity to lead the way in adopting these trends and ensuring they translate into tangible benefits for their communities. By embracing

innovation, fostering inclusivity, and maintaining a clear focus on sustainability, cities and municipalities can position themselves as champions of the energy transition and pioneers of a more equitable and resilient future.

Closing remarks and acknowledgments

As we conclude this guidebook, we extend our heartfelt gratitude to the cities, municipalities, companies, and organizations whose dedication has been instrumental in advancing sustainability in the building sector. Their vision and commitment have driven the development of innovative tools, successful pilot projects, and actionable strategies that serve as a blueprint for the future. A special thanks goes to the citizens who actively participated in these initiatives, demonstrating the transformative power of collective action and community engagement.

The progress that was made through the numerous initiatives developed under the BE REEL! project is a testament to what is possible when diverse stakeholders unite around a common goal. Yet, the journey toward a future-proof built environment has only started. Achieving deep renovation at scale requires continued collaboration, innovation, and determination. Only by maintaining this shared commitment can we realize the profound benefits of energy renovation: reducing emissions and creating healthier living environments for all.

Deep renovation is more than an environmental necessity; it is a catalyst for positive social and economic transformation. It addresses energy poverty, strengthens communities, and lays the foundation for a resilient and equitable future. Together, we have the tools, knowledge, and momentum to achieve these goals. Let us move forward with purpose, confident that our efforts today will shape a better tomorrow for generations to come.

BE reel!

BELGIUM RENOVATES FOR ENERGY EFFICIENT LIVING

LIFE IP CA 2024 BE REEL!
Naam: Eddy Deruwe, Projectcoördinator BE REEL!
Contact: eddy.deruwe@vlaanderen.be
Datum: 11 januari 2025