Deliverable 3.3 – (Heating networks &) Citizen-led renovation TANDEMS model in 3 countries

07.04.2025

Final Version

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This project has received co-funding from the European Union's Life programme under grant agreement No 101077514

DOCUMENT DESCRIPTION

Related Work Package	WP3
Deliverable Lead	ZuidtrAnt
Author(s)	Liesbet Veulemans | contributions from Todor Popov, Ivaylo Trendafilov, Justin Pagden
Contact	liesbet.veulemans@zuidtrant.be
Grant Agreement Number/ Funding Body	101077514
Start Date / Project Duration	1 October 2022 / 36 Months
Type of Deliverable (R, DEM, DEC, Other)[1]	R
Dissemination Level (PU, SE)[2]	PU
Date of Last Update	07/04/2025
Project Website	https://lifetandems.eu/

REVISION HISTORY

Revision No.	Date	Description	Author(s)
0.1	24.03.2025	1st Review	Maria Saridaki
0.2	28.03.2025	2nd Version	Liesbet Veulemans
0.3	31.03.2025	2nd Review	Maria Saridaki
0.4	07.04.2025	Final Review	Liesbet Veulemans Maria Saridaki

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[1] **R** = Document, Report; **Dem** = Demonstrator, pilot, prototype; **DEC** = website, patent filings, videos, etc; **OTHER** = other

[2] **PU** = Public, **SE** = Sensitive

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GENERAL INTRODUCTION

The TANDEMS pilots hold a pivotal role within the TANDEMS project, serving as implementers and validators of the various tools, models, approaches, and trainings developed across different work packages.

- The Open Collaboration Model (D2.1) was used as a basis for the set-up of the Neighbourhood Renovation Hub within ZuidtrAnt. With each new Neighbourhood Renovation Hub, ZuidtrAnt set up a team based on the Open Collaboration Model. The specific case of the Neighbourhood Renovation Hub within the municipality of Schoten is the best example. After some discussions with the original partners of the team, specialized contractors were added in the collaboration model to tackle strict renovation regulations hands on.
- The municipalities of Gabrovo and Burgas also used this established model to set up the collaboration between both municipalities and partner EnEffect.
- Business models (D2.2): Within the framework of Tandem meetings – including inspiration sessions and consortium meetings - the shared examples and experiences related to the 'cost price model' proved particularly valuable for the Bulgarian partners. Moreover, during the establishment of the energy community, the support from the partners on citizen engagement strategies (D 4.1) was instrumental in successfully involving the members in the activities of the community, fostering engagement and organising joint meetings.

The successful execution of viable and innovative community energy projects is instrumental in determining the project's overall success and impact. However, the complexity of developing these projects lies to a large extent in the ability to deal with and/or challenge the existing energy regime and associated structures, practices and mental models. In the TANDEMS project, reflexive monitoring was implemented to support the pilot projects in identifying and addressing systemic challenges within existing energy regimes. This approach enabled the pilot projects to reflect on their experiences, adapt their strategies, and drive transformative change. To facilitate reflexive monitoring, several tools were introduced throughout the project.

Learning history workshops were organized to map key events in the pilot projects on a timeline, identifying both enablers and obstacles. Reflecting on these pivotal moments provided valuable insights into the factors contributing to success or failure, helping to define and monitor future actions. Additionally, the systemic iceberg model was applied to uncover deeper, second-order learning questions that drive transformative change. By analysing underlying trends, structures, and mental models, pilot projects could gain a better understanding of the root causes of challenges and identify opportunities for systemic change.

To further disseminate insights, eye opener workshops were conducted to share lessons learned from the pilot projects. These workshops used narratives to communicate key

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findings, allowing participants to collaboratively reflect on the most impactful lessons. Through this process, they explored ways to replicate successes, scale up innovations, and overcome challenges.

Agem's eye-opening workshop on their One-Stop-Shop approach provided valuable insight into the evolution of renovation guidance services offered by the Flemish partners (ZuidtrAnt) and the Bulgarian partners..

By systematically recording, analysing, and sharing learnings, the TANDEMS project fostered continuous improvement and encouraged the broader application of insights, strengthening the impact and scalability of community energy projects.

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LIST OF ABBREVIATIONS

LEKP	Local Energy and Climate Pact (Lokaal Energie & Klimaat Pact)
EC	Energy Community
EUCF	European City Facility
NPO	Non-Profit Organization
BENOveren	BEtter reNOvate (BEter reNOveren)
EPC	Energy Performance Certificate (Energieprestatiecertificaat)
IGEAN	Intercommunal organisation for land policy and expansion Antwerp
SPOC	Single Point Of Contact
MVB	My Renovation Guidance (MijnVerbouwBegeleiding)
HOA	Homeowners' Association
NRRP	National Recovery and Resilience Plan
INECP	Integrated National Energy and Climate Plan
SECAP	Sustainable Energy and Climate Action Plan
SGEI	Services of General Economic Interest (SGEI) framework

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1 INTRODUCTION

1.1 RENOVATION GUIDANCE: THE CURRENT SITUATION IN FLANDERS

Flanders and local governments have joined forces to make the necessary transition in energy and climate policy a reality. With the Local Energy and Climate Pact (LEKP), tangible targets have been set in four focus areas: greening, renovation and renewable energy, shared mobility and water. Synergies between these focus areas can be implemented at neighbourhood level. For instance, sustainable (renovated) houses consume less energy, making it feasible to generate energy locally. Some of this jointly generated energy can be used to charge shared cars. In turn, shared mobility can reduce parking needs, freeing up space for greening. This will create a neighbourhood of the future, where people can live in sustainable homes, energy and mobility can be shared between neighbours, where connection is created and where time and space become available to enjoy a green environment together.

Transforming our current neighbourhoods will require a phase of change, a 'Hub' phase. ZuidtrAnt's pilot case, 'Neighbourhood Hub', wants to guide the residents of these neighbourhoods step-by-step towards a new way of living together. In addition, renovation projects for individual households is a service offered by several partners in Flanders. Local authorities often also already cooperate with the Energy Houses, funded by the Flemish government.

The energy cooperative ZuidtrAnt, partner within the consortium of the LIFE TANDEMS project, offers a clear and collective offer to get citizens started.

1.2 BENEFITS OF WORKING WITH CITIZEN-LED RENOVATION PROJECTS IN FLANDERS

The advantage for the local authorities here is that the approach for neighbourhood projects developed by energy cooperative is clearer in terms of communication towards the residents. Residents are addressed not only as individuals, but also as a group and ZuidtrAnt prides itself on providing tailor-made solutions, because each project, each neighbourhood requires its specific approach, both in terms of communication as in terms of renovation options.

In Flanders we address the renovation projects from an 'energy cooperative' point of view, as there are currently no specific 'energy communities' in Flanders that have the knowledge and financial means to address renovation as an energy community.

In every local project energy cooperatives deliver tailor-made solutions that include the homeowners and local government staff. In comparison to the renovation guidance offered by the Flemish Energy Houses system, the energy cooperatives' approach is more hands-on, as they organise house visits, deliver tailor made solutions, and lastly engage a dedicated personal consultant that is always in close contact with the house owners and is able to look beyond the individual home owner.

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Benefits for the local authority can be best explained by using the example of the Neighbourhood Renovation TANDEM between ZuidtrAnt & the municipality of Schoten, one of the pilot cases of ZuidtrAnt within the Life Tandems project. During the neighbourhood sessions within this pilot, ZuidtrAnt identified opportunities for collective heating in the neighbourhood. In consequence ZuidtrAnt immediately looked into possible subsidizing schemes to explore more into detail the collective heating challenges. This resulted in a European City Facility (EUCF) study case that will help the local authority take the next steps into this case. Through their Energy Cooperative identity, ZuidtrAnt designed a unique partnership (see annex 1) within their non-profit structure, facilitating the smooth approval of these projects for local authorities.

Zuidtrant's non-profit organisation structure (Klimaatwerf vzw / Climate Hub NPO) enables the approval of these projects without the obligation for local authorities to write tenders for each project.

1.3 RENOVATION GUIDANCE: THE CURRENT SITUATION IN BULGARIA

In Bulgaria, the renovation of multi-family residential buildings is a strategic priority embedded in several national policies, including the National Recovery and Resilience Plan (NRRP) and the updated Integrated National Energy and Climate Plan (INECP 2024).

A large share of the country's housing stock was built between 1960 and 1989 and is characterised by high energy consumption, poor insulation, outdated systems, and low indoor comfort. Most of these buildings fall into the lowest energy performance categories (E, F, and G) and are mainly concentrated in urban areas.

The renovation process is strongly linked to the national legal framework, particularly the Condominium Ownership Management Act. Buildings are managed by homeowners' associations, which act as the main beneficiaries in public programmes. Municipalities play a key role as administrative facilitators and project coordinators.

Government-funded programmes (such as the NRRP) offer up to 100% non-repayable financial support during the initial implementation stages, later requiring co-financing from building owners. Other national and regional programmes also support energy efficiency improvements in multi-family buildings, either through grants, preferential loans or technical assistance. These projects usually include measures such as insulation, window replacement, modernisation of heating systems, the integration of renewable energy sources (e.g. solar panels), and accessibility improvements.

Despite the clear need and opportunities, challenges persist – including the lack of professional building managers, difficulties in collective decision-making, and administrative burden. However, pilot initiatives led by organisations such as EnEffect, in cooperation with municipalities like Gabrovo and Burgas, demonstrate a replicable model for building renovation. This model combines strong municipal leadership, expert technical assistance,

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and active citizen involvement, helping to overcome barriers and accelerate the transformation of the residential building stock in Bulgaria.

The **city of Burgas** developed its Strategy for Sustainable Energy and Climate Action Plan (SECAP) 2021-2030, setting up ambitious targets in compliance with national and European priorities.

Energy Targets of Burgas Municipality 2020 – 2030[3]:

- Reduction of energy consumption in the municipality of Burgas - 32.5% by 2030
- Reduction of CO2 emissions in the municipality of Burgas - 40% by 2030.
- Share of RES in the energy mix of the municipality of Burgas - 32% by 2030

Households significantly contribute to CO2 emissions and energy consumption. Since the local administration is well aware of this fact and recognises that the achievement of its climate targets will be impossible without involving all local stakeholders, Burgas Municipality puts a lot of effort in supporting its citizens in the renovation of the multifamily buildings they live in.

Since 2007, there have been several national and EU programmes to support the renovation of multifamily buildings. In all these programmes the good collaboration between the local authority and home-owners associations (HOA) has been crucial for the success of the initiatives. Burgas is a leader in renovated multifamily buildings in Bulgaria, as for the moment over 250 buildings are renovated, reaching minimum energy class C.

In 2022, Burgas was the first city in Bulgaria to open a full time working one-stop-shop, which in Burgas is called Energy office. Its opening matched the opening of the Programme for Renovation of Multifamily Buildings in Bulgaria. The office served as a contact point and provided administrative support to HOAs to prepare their documents to apply to the programme. As a result, 213 application were submitted, which is the highest level of application in Bulgaria.

In 2023, another call for the Renovation of Multifamily Buildings in Bulgaria was opened, but this time it required 20% co-financing from HOAs. The energy office again was the main unit which supported the citizens in the process of preparing documents and submitting an application form. As a result of the good cooperation between the local administration, Energy office and home owners associations, a total of 43 multifamily buildings were selected for renovation, tender procedures have been carried out and companies which will make the renovations are selected and the actual implementation of EE measures will start in May, 2025 and finish at the beginning of 2026.

[3] Source: https://www.burgas.bg/uploads/posts/2023/591535cafe26dae8d6912ed0005c1b39.pdf

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In the **city of Gabrovo** a dedicated Energy Community Gabrovo webpage has been developed and is hosted on the municipal website: https://gabrovo.bg/bg/page/1625

This platform provides information on the structure, principles, and functioning of the energy community, and is continuously enriched with project updates, results and relevant documentation. Internally, the platform will evolve to include energy monitoring data, performance indicators, and financial reporting to ensure transparency and active engagement of members in the community's operations and benefits. Tools for analysis, comparison, and decision-making will also be developed to promote participatory governance and continuous learning. Externally, the Municipality and EnEffect have presented the initiative at multiple national and European events, reaching stakeholders such as other municipalities, NGOs, policymakers, and citizens.

The project also links with other municipal initiatives under Gabrovo's Sustainable Energy and Climate Action Plan and its participation in EU-level networks. A One-stop-shop for energy efficiency and RES is being established in parallel, aiming to consolidate citizen engagement efforts and support replication. It provides individual consultations, outreach events, and resources to promote broader uptake of community energy models. Through these actions, the Gabrovo energy community (see Del.3.2) is not only becoming a local example of good practice but also a tool for broader cultural and behavioural change towards a just energy transition.

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2 PILOT CASES WITHIN THE LIFE TANDEMS PROJECT (FLANDERS)

2.1 'NEIGHBOURHOOD HUB RENOVATION' | CITIZEN-LED RENOVATION IN FLANDERS (ZUIDTRANT)

Figure 1: Information session in the municipality of Zoersel

2.1.1 Structure of a citizen-led neighbourhood renovation model

'Neighbourhood Hub Renovation' starts by selecting a neighbourhood, in consultation with the municipality. Next, individual houses in a neighbourhood renovation project are optimized through collectively organized energy-saving renovations, while opportunities for shared mobility are encouraged and efforts are made to reuse materials by applying circular principles in renovation. During this process, information and awareness-raising are used to change the behaviour of the neighbourhood residents. In this way, there is potential for a local energy community to grow with collective systems for electricity and, if possible, heat.

There are several components within a neighbourhood renovation project:

- Bringing together a group of residents who want to record and monitor their energy consumption;
- Collectively renovating to a better level (BENOveren) of as many neighbourhood homes as possible with various insulation measures and possible sustainable individual techniques, such as installation of heat pumps and ventilation systems (here unburdening is key);
- Switching public lighting to LED to set an example and organising joint purchase of LED lighting for neighbourhood residents;
- Researching the potential development of collective infrastructure for electric car charging;

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- Encouraging the concept of electric shared mobility;
- Exploring possibilities of the local energy community concept with collective systems for electricity and, if possible, for heat;
- Exploring and encouraging local flexibility and resilience through energy storage collection, and
- Encouraging modified social behaviour with an eye on sustainability.

As each neighbourhood project is a tailor-made project, tailor-made solutions are designed for each case.

In their TANDEM with the municipality of Zoersel, ZuidtrAnt worked with a group of citizen volunteers that were trained in some of the aspects of renovation and energy savings and functioned as a local contact point when residents had more questions. This enabled ZuidtrAnt to keep in touch with the neighbourhood even when not present in the municipality. The extra benefit of these volunteers was that it encouraged the collective feeling of the project, so residents were more inclined to reflect on their houses in a collective way.

Another example was the TANDEM with the municipality of Schoten, where ZuidtrAnt immediately took into account the specific requirements for the 'listed street façade' of the neighbourhood when they initiated the project. Due to the collective approach, every resident was aware of these specific requirements so no unauthorized renovations were done. Since these requirements involved some extra technical issues, ZuidtrAnt invited all the contractors to come and present their solutions during a special meeting for the residents. This personal approach and the opportunity to ask questions face to face, made it easier for the residents to decide on the solution for their houses.

The energy cooperative ZuidtrAnt, partner within the consortium of the LIFE TANDEMS project, favours this clear, collective approach to get residents started in renovating. The advantage for the local authorities when an energy cooperative leads these neighbourhood projects is the direct and collective communication towards the residents, the unburdening and the tailor-made approach in terms of context and renovation options.

2.1.2 The process of a citizen-led neighbourhood renovation

A neighbourhood renovation project proceeds in five phases, which will be further explained in detail below:

Phase 1: Identifying a neighbourhood and defining strategy

Phase 2: Information and communication campaign

Phase 3: Baseline of the neighbourhood and individual houses

Phase 4: Renovation guidance at individual and collective level

Phase 5: Towards the neighbourhood of the future

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Phase 1: Identifying a neighbourhood and defining strategy

In this first phase, the neighbourhood is defined and the ambition and objectives of the municipality are defined. The following components are covered:

- Intake meeting with determination of client's ambition and agreements around plan of action and possible stakeholders;
- Composition of the project team (internal/external) based on a stakeholder inventory;
- Demarcation and analysis of the neighbourhood (type of housing, vulnerable target groups, municipal infrastructure, bottlenecks). This analysis identifies needs at the housing, street and neighbourhood level;
- Retrieval of data on EPC and energy consumption at district level;
- Inform/sensitise project team around evolution energy landscape with focus on objectives of mayoral covenant and LEKP;
- Develop a strategic memorandum covering ambition and objectives, neighbourhood delineation and analysis, project team, stakeholders, agreements and timing.

Phase 2: Information and communication campaign

Figure 2: Campaign image for the Neighbourhood Renovation Hub in the municipality of Schoten

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The aim of the second phase is to make the 'Neighbourhood Hub' known to the residents of the selected neighbourhood:

- Make the route physical and visible: use banners, site banners, posters, social media, digital newsletters, articles in a brochure, etc. (deploy own communication channels and partner media for this);
- Send a letter from the municipality to residents of the neighbourhood to publicise the project and announce the information session;
- Organise an information session to present the project to the interested public;
- Create a landing page for the municipality on the 'Climate Hub' website where residents can register for a home visit;
- Create a physical presence in the neighbourhood with a booth where residents can register for a home visit or where first-line advice can be given.

Phase 3: Baseline of the neighbourhood and individual houses

In this phase, a baseline measurement of the neighbourhood is made, examining the possibilities for collective interventions. In addition, an analysis of the individual homes of the participating residents is made on the basis of an initial home visit.

The Collective level:

- Involving the various stakeholders in the neighbourhood process
- Rolling out EnergyID[4] as a data platform (at a separate cost)
- Identifying the collective renewable energy potential (electricity and heat) using solar map and heat map
- Identifying the potential for car sharing through a survey of neighbourhood residents
- Identifying the potential of the 'LEDification' of public lighting

The Individual level:

- First home visit with preparation of a roadmap for renovation
- Set up format of the START EPC (initial EPC level) for every house
- Requesting a quote for group purchase of BENOvation measures

Phase 4: Renovation guidance at individual and collective level

The aim of phase 4 is to set up renovation projects with professional advice, intensive guidance, maximum unburdening and specific attention to the various resident groups. In this phase, ZuidtrAnt organises various group purchases in which residents can participate.

- Private BENOvation via the 'Renovation Hub' (Renovatiewerf)
- Private PV installation via the 'Solar Hub' (Zonnewerf)

[4] Home | EnergyID

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- Group purchases for roof and attic floor insulation, cavity wall insulation, basement ceiling insulation, windows
- Group purchase of LED lighting for individuals
- Group purchase of charging infrastructure (in cooperation with IGEAN)

Phase 5: Towards the neighbourhood of the future

The final phase aims towards the actual relaunch of the neighbourhood of the future, relying on the neighbourhood network built during the previous phases.

This phase proves to be extremely challenging due to the current restrictions in the Flemish region of Belgium with regards to energy sharing and bottlenecks for collective installations.

- Start-up car sharing
- Roll-out LEDification of public lighting
- Collective PV solution via ESCO
- Setting-up a legal framework for a renewable energy community (REC)

2.2 PILOT CASE FOR INDIVIDUAL CITIZEN RENOVATION GUIDANCE (ZUIDTRANT)

Figure 3: Campaign image for the Renovation Guidance by Zuidtrant

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Next to the 'Neighbourhood Hub' Renovation guidance, ZuidtrAnt also offers a non-collective, Renovation Guidance for Individual citizens / households. This guidance focuses on advising and guiding citizens towards making their homes more sustainable. ZuidtrAnt deliberately opts for a process in which citizens are 'unburdened'.

Specifically, an individual renovation guidance includes the following aspects:

a) Advice on energy-saving measures and technical solutions (such as heat pumps) for the entire house, including a detailed renovation report.

b) Guidance on the implementation of energy-saving measures and technical solutions
- Preparation of a request for offer
- Screening qualitative contractors
- Requesting and comparing price-quality quotations or group appointments

c) Single Point of Contact for questions via a personal renovation consultant (SPOC)

d) Support in applying for subsidies

Finally, ZuidtrAnt also offers collective group purchasing with fair price and quality agreements with contractors, appealing to a wider public than citizens who are already involved in a renovation guidance project.

2.3 INSIGHTS AND RECOMMENDATIONS FOR THE FLEMISH CONTEXT

2.3.1 General insights for Flanders | building the case for Energy Cooperatives

Energy cooperatives, in collaboration with Energy Houses, are pushing for an accelerated and efficient renovation wave. Energy cooperatives play a unique role in renovating the housing stock, thanks to their accumulated expertise and independent position.

The strength of Energy Cooperatives lies in tapping into the existing network of citizens, businesses and governments that ensure anchoring in local communities. The ambition to meet climate target goals is high but it is always accompanied by the ambition to get everyone - including vulnerable fellow citizens - in the energy transition and increase their self-reliance.

Energy cooperatives not only excel in technical expertise. Non-technical knowledge and techniques, such as effective persuasion and listening skills, enable them to unburden citizens in their renovation quest. In addition, Energy Cooperatives are equipped with a professional, automated back-office that allows to switch quickly in case of high demand,

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such as during an energy crisis. This leads to very high customer satisfaction. Many Flemish people have a say in energy cooperatives. Energy cooperatives thereby provide a unique model of collective ownership and citizen participation. This gives them the flexibility to respond to local needs and enter into new collaborations.

This is how Energy Cooperatives build a strong local ecosystem with benefits for everyone:

Figure 4: How Energy Cooperatives build a strong ecosystem

Independence

- ✓ Neutral and in the general interest of the community
- ✓ Not driven by profit maximization

Expertise

- ✓ Extensive knowledge
- ✓ High quality standards
- ✓ Commitment to innovation (pilot projects, gathering and disseminating knowledge)

Climate Neutral Ambitions

- ✓ Focus on CO2 reduction
- ✓ Aim for 100% renewable energy; avoid gas consumption

Local & Citizen ownership

- ✓ Working with local contractors & organisations
- ✓ Transparency & accountability of financial resources (to members)

Social Economical Balance

- ✓ Maximum energetic improvement within the participant's capabilities
- ✓ Reduced complexity, offering clear choices for everyone and every budget

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Energy Cooperatives are flexible in offering renovation advice, campaigns and information sessions. With our local network of -among others- shareholders, contractors, architects and specialists in the field of sustainable energy, energy cooperatives strengthen the renovation rate in Flanders. Their cost-efficient structures guarantee quality and social return.

Through group purchases and correct price agreements, energy cooperatives deliver an excellent value for money. They reach and support homeowners with sufficient financial capacity and strengthen their self-reliance. For those who are more financially vulnerable, additional mechanisms from the government and energy houses are essential to make the transition accessible.

In Flanders, it is established that there is no sufficient budget available within the local governments to fully tackle the high challenge of renovation. In 2023, there were 2.052 neighbourhood subsidies (burenpremies) applied for renovation measures in Flanders. A substantial 74% of these were realised with the support of energy cooperatives. Moreover, cooperatives initiated successful group purchases across different energy houses, including for cavity wall insulation. (source for these figures: Energiekaart | Vlaanderen.be)

2.3.2 Recommendations for Flanders | building the case for Energy Cooperatives

To accelerate the energy-efficient renovation of residential buildings in Flanders, the implementation of the following policy recommendations is crucial. These actions aim to empower both citizens and municipalities to actively contribute to the decarbonisation of the residential building stock, aligning with both national and European climate objectives. The recommendations focus on creating a stable and long-term policy framework, fostering strategic partnerships, increasing citizen engagement, and ensuring access to appropriate financing. Together, these measures will help pave the way towards an increase in the renovation rate of homes and a more sustainable and energy-efficient future for the housing sector in Flanders, allowing Energy Cooperatives to escalate actions and contribute even more to the energy transition..

a) A stable and long-term framework for energetic renovations

A stable and long-term policy framework allows energy cooperatives to develop a consistent strategy for energetic renovation for private citizens. This ensures sustainable quality in services and reliable long-term support for private citizens.

b) Strategic partnerships with Energy Houses

Give Energy Cooperatives and Energy Houses room to enter into strategic partnerships. Energy Cooperatives create social added value and are therefore not comparable to commercial - read: profit-driven - players.

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c) Recognise the added value of cooperative renovation initiatives

Recognise Energy Cooperatives as knowledge partners and implementing experts in energy renovations.

See Energy Cooperatives as a strong cooperation partner of the Flemish government in realising the Flemish renovation strategy towards 2050.

Integrate and validate the functioning of Energy Cooperatives by including them in the renovation advice and One-Stop-Shops of Energy Houses.

d) Targeted support for scaling up cooperative renovation programmes

Support the scale-up of cooperative renovation programmes at Energy Houses and Energy Cooperatives to enable wider and more efficient roll-out. Lower the threshold by simplifying the administrative burden, for Energy Houses, Energy Cooperatives and citizens.

e) Increased empowerment of citizens

By providing citizens with clear renovation advice, Energy Cooperatives unburden them on this complex issue and offer both owners and tenants clear and manageable steps for their renovation. This can be done through energy houses and cooperative initiatives, which act as One-Stop-Shops. By tailoring a renovation plan for each household, lock-ins are avoided, leading to increased citizens' empowerment, with insight into available financing options.

f) Financing options for renovations

Make climate renovations accessible by offering pre-financing instruments tailored to types of owners and tenants, their repayment capacity, energy costs and housing type. The government can hedge the risks of these instruments and guarantee modest returns.

As for the **financing of Energy Cooperatives**: setting up a renovation guidance for local governments with over 20 000 residents in a large region requests at least 1 FTE for general coordination, 1 FTE for administration and 5 freelancers for house visits, setting up the guidance, …. Implementing a functional back-office administrative system also comes with a significant fee & licenses. If residents need to pay the full cost for this guidance, the level of renovation in Flanders will decrease. Therefore Energy Cooperatives need additional funding to be able to set up this type of renovation guidance.

In case of **vulnerable households**, the level of guidance needed is even higher, so costs increase accordingly. The energy saving after the installation of energy efficient measurements will never tackle these guidance costs, the return time is too long.

Therefore, **additional European funding** , such as the Elena project (ELENA – European Local ENergy Assistance) are a good start. However, this type of subsidy is linked to a success factor, so if the target cannot be achieved, there is no budget to cover the personnel costs required to even start up the implementation of a guidance project.

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g) Optimisation of 'My Renovation Guidance' (MijnVerbouwBegeleiding-MVB)

Review the 'My Renovation Guidance' (MVB) approach. The current fee does not cover costs for renovation consultants, which creates financial risks for organising parties such as Energy Cooperatives. Moreover, additional barriers have been created for homeowners, who, due to the MVB, can only apply through the Energy House and have to digitally verify their eligibility for free counselling.

2.4 CONCLUSIONS FOR FLANDERS

Energy Cooperatives contribute substantially to the energy transition and help increase the renovation rate for private homes. This potential deserves further expansion so that more citizens can benefit from energy efficient renovations and can be included in a sustainable future. Energy Cooperatives are usually the initiator of renovation projects within their region. In case of the Bulgarian context, it is usually the local government that initiates these projects and partners up with Energy Communities or dedicated partners like EnEffect. In both countries the TANDEM between a local government and an Energy Community or an Energy Cooperative operates effectively.

Our recommendation for Flanders is that the local governments should receive a dedicated budget for stimulating and organizing household renovations. This would enable cities and municipalities to work together with Energy Cooperatives on renovations and benefit from all the collective approaches as described above. While local governments possess the knowledge and resources (such as data access) to identify and reach out to relevant groups, energy cooperatives can contribute their expertise in engaging these citizens and installing collective renovation projects.

Collective renovations are cost-effective due to economies of scale and help simplify complex processes. In particular, policies should focus on the private rental market and offer financial incentives to landlords, especially for energy-vulnerable households.

Local authorities are ideally situated to support inclusive community energy initiatives, thanks to their access to community data, established trust with residents, and connections with social housing services. They can play a key role in connecting stakeholders and delivering tailored solutions for energy-vulnerable households or providing risk-sharing mechanisms to support social innovations. Establishing partnerships between municipalities, energy communities, energy cooperatives, and poverty organizations will help integrate social and energy objectives. Cross-departmental collaboration within local governments can foster cohesive strategies to combat energy poverty.

Policies that support community initiatives should emphasize measurable social outcomes, such as decreasing the energy cost within the household by implementing energy-efficient measurements.

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3 PILOT CASE WITHIN THE LIFE TANDEMS PROJECT (BULGARIA)

Figure 4: Multi-family residential building (source: BBC article Communist-era apartment blocks dominate Eastern Europe – now they're being transformed)

3.1 ESTABLISHING AN ENERGY COMMUNITY IN MULTI-FAMILY RESIDENTIAL BUILDINGS IN BULGARIA (ENEFFECT)

This pilot model, implemented in cooperation between EnEffect and the Municipality of Gabrovo, aims to create a replicable framework for energy renovation in multi-family residential buildings. It builds on the extensive experience of Bulgarian municipalities in building retrofitting and introduces a community-centred, participatory approach to engage citizens and co-create long-term energy solutions. The pilot explores the potential of establishing energy communities and public-civic partnerships in densely populated residential areas.

3.1.1 Process of a Multi-Family Residential Building Renovation

The approach in Gabrovo follows a step-by-step model, based on successful practices from previous national renovation programmes and tailored to the requirements of the Bulgarian Recovery and Resilience Plan (NRRP):

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Phase 1: Preparatory Activities and Stakeholder Mobilisation

- Identification of eligible multi-family buildings, prioritising those with established homeowners' associations and active community interest, allowing citizens to lead the initiative with municipal support, which increases outreach and inclusion.
- Targeted communication with active building managers and community representatives, based on a municipal database of over 200 associations.
- Organisation of more than 50 meetings with building representatives and residents, establishing a working contact list and fostering a collaborative environment for mutual learning and coordination.

Phase 2: Technical and Administrative Support

- Assistance with gathering building documentation and identifying missing components (such as energy audits and technical passports).
- Facilitated access to municipal archives and energy consumption data, reducing the administrative burden on citizens.
- Coordination with external contractors and certified energy auditors.
- Classification of buildings by structure and technical typology to allow for scaling up similar renovation projects.

Phase 3: Community-Level Renovation Planning

- Public awareness campaigns across multiple channels: local radio, social media, printed brochures, and in-person consultations.
- Two training sessions for representatives of homeowners' associations to present procedures, funding models, and required documentation.
- Integration of outcomes into feasibility studies for collective energy solutions.
- Preparation of simplified legal agreements between stakeholders, with municipal experts supporting coordination and oversight.

Phase 4: Implementation and Replication

In the city of Gabrovo, the first set of buildings supported under the NRRP is currently in the implementation phase. Eight buildings are scheduled for renovation within the next 12 months. Preliminary data from these eight buildings, encompassing over 250 households, indicate potential annual savings of approximately 7,296 MWh of non-renewable energy, equating to 1,500 tonnes of CO_2 equivalent.

EnEffect and the Municipality of Gabrovo continue to foster public-civic collaboration in energy-related projects, by using the renovation momentum to explore the creation of renewable energy communities within residential districts.

This pilot demonstrates how municipalities, residents, and technical experts can co-develop energy renovation projects in a structured, inclusive, and scalable way. The Gabrovo model offers a strong foundation for replication in other Bulgarian cities.

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3.2 INSIGHTS AND RECOMMENDATIONS FOR THE BULGARIAN CONTEXT

3.2.1 General insights for Bulgaria

The Bulgarian context presents both significant challenges and unique opportunities for scaling up citizen-led renovation initiatives and the development of energy communities in multi-family residential buildings. The municipality plays a key role as an initiator and facilitator, especially in the early stages of project development. Experience from Gabrovo shows that when local governments take a proactive role, by identifying suitable buildings, supporting homeowners' associations, and providing technical and administrative assistance, citizens are more willing and able to participate.

Another critical success factor is the involvement of an experienced and trusted intermediary, such as EnEffect, which bridges the gap between technical requirements, legal procedures, and community engagement. Their support helps reduce the complexity of renovation processes and ensures professional coordination between stakeholders.

Despite growing awareness and political support, citizen participation remains fragile due to fragmented ownership, administrative burdens, and lack of capacity within homeowners' associations. Many associations lack the knowledge, motivation or internal leadership to initiate renovation projects independently. Furthermore, access to financing and the availability of technical documentation continue to be major bottlenecks. Buildings often lack energy audits, technical passports, and consumption data—basic prerequisites for applying under national or EU-funded programmes.

The positive examples from pilot cities such as Gabrovo and Burgas, however, demonstrate that a replicable model is possible; one that combines municipal leadership, community outreach, technical expertise and long-term planning.

Looking ahead, scaling up citizen-led renovation and energy communities in Bulgaria will require:

- clearer regulatory frameworks;
- stronger institutional partnerships between municipalities and expert NGOs;
- financial mechanisms tailored to the needs of vulnerable households;
- and systematic awareness-raising efforts to promote behavioural change and collective action.

3.2.2 Recommendations for Bulgaria

The implementation of the following policy recommendations can support the acceleration of energy-efficient renovation in multi-family residential buildings in Bulgaria. These actions will help empower citizens and municipalities to engage in the decarbonisation of the residential building stock, in line with national and European climate goals.

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a) Creating an enabling framework for large-scale renovation of multi-family buildings

- Ensure stable and long-term national programmes supporting the renovation of pre-1999 multi-family buildings, including predictable funding and simplified rules.
- Facilitate access to technical assistance and reduce administrative burden for homeowners' associations (e.g. by providing templates, toolkits, and municipal support teams).
- Establish dedicated municipal units or renovation offices that act as a “single point of contact” for citizens throughout the renovation journey.
- Clarify and streamline regulatory procedures under the Condominium Ownership Management Act (ZUES), especially in relation to decision-making and legal representation in renovation projects.

b) Capacity Building and Resident Engagement

- Launch national and local campaigns to raise awareness of the benefits of energy renovation – including energy savings, comfort, health, and property value.
- Provide targeted training for homeowners' association representatives on technical, financial, and legal aspects of renovation.
- Develop a municipal-level support model for "renovation facilitators" – local mediators or advisors who can guide residents through the process.
- Encourage collaboration between citizens, municipal staff, energy consultants and NGOs to ensure inclusive and trust-based processes.

c) Financial Instruments and Equity

- Establish a national fund or financial instruments for co-financing renovation projects, especially in buildings with vulnerable households.
- Promote pre-financing or bridge-financing options for preparatory steps such as energy audits, technical passports, and design.
- Encourage partnerships between municipalities and financial institutions to create bundled offerings (technical + financial).
- Ensure renovation schemes are inclusive and prevent social exclusion by aligning with energy poverty reduction policies.

d) Local Development and Monitoring

- Prioritise the use of local contractors, materials, and design offices to stimulate regional economic activity and job creation.
- Encourage partnerships with universities, vocational schools and research centres to improve renovation quality and innovation.
- Implement a monitoring and evaluation framework to track progress towards renovation goals, CO_2 reductions, and social impact at municipal and national level.
- Share successful models (e.g. Gabrovo’s renovation approach) with other cities to enable replication and scaling.

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3.3 CONCLUSIONS FOR BULGARIA

In conclusion, the successful implementation of these recommendations will be pivotal in driving Bulgaria's transition toward energy-efficient renovations in multi-family residential buildings. By creating a stable and supportive framework, empowering citizens, and fostering collaboration between municipalities, citizens, and various stakeholders, Bulgaria will not only meet its climate goals but also enhance the quality of life for its residents. Prioritizing financial support, local capacity building, and inclusive renovation strategies will ensure that vulnerable households are not left behind. With the right infrastructure, clear guidance, and sustained efforts, Bulgaria can set a strong example for other nations in the region, contributing to a greener and more resilient future for all.

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4 AGEM AND THE ENERGIELOKET ACHTERHOEK: A REGIONAL MODEL FOR ENERGY RENOVATION AND STAKEHOLDER ENGAGEMENT

In the TANDEMS project, partner Agem has shared with the Belgian and Bulgarian partners the collaboration model they developed with municipalities to establish a desk for energy efficiency, along with the various schemes and activities implemented. This desk can be consulted via https://www.energieloketachterhoek.nl/

In the Achterhoek region, municipalities hold the responsibility to inform and support citizens and homeowners in adopting energy-saving measures. This task has been delegated to Agem, which carries out the activities with funding provided through a long-term subsidy under a Services of General Economic Interest (SGEI) framework. A wide range of activities has been implemented, including grants, financing schemes, energy coaches, technical and financial advisory services, collective purchasing initiatives, and more.

To extract and reflect on these experiences, a Learning History Workshop was conducted with key stakeholders. The outcomes and insights from this process were then shared with the project partners during an interactive Eye Opener Workshop, providing inspiration and practical guidance for replication in other regions. (See Deliverable 2.3 Annexes)

4.1 INTRODUCTION

Agem (Achterhoekse Groene Energiemaatschappij) is a regional energy cooperative founded by the Achterhoek municipalities in 2013 to accelerate the local energy transition. Initially focused on energy supply and generation, Agem expanded to energy savings through the launch of the Energieloket (energy desk), forming a complete Trias Energetica model: saving, generating, and delivering energy. By 2020, Agem's Energieloket had matured into a central platform offering advice and services to all types of building owners and users in the region. Agem set up a plan/offer **2020 Plan Energieloket - 2020-2022** available to the Achterhoek municipalities for the implementation of this Energy Desk in the period 2020-2022 based on the 'Note Request Energy Desk 2020-2022 version 08-11-2019'.

Agem also developed a One Stop Shop to facilitate the application of energy-efficiency measures for privately owned homes, which has also been shared with the consortium as a valuable example. The 'One-Stop-Shop- (OSS) initiative for scaling up home sustainability efforts in the Achterhoek region aims to streamline and facilitate energy-efficient renovations for privately owned homes by creating a structured, collaborative approach involving multiple stakeholders, including local consortia, municipalities, and financial advisors.

4.2 THE ROLE OF THE ENERGIELOKET IN RENOVATION

The Energieloket acts as the primary regional contact point for energy renovation, targeting approximately 148,500 building owners (residential and non-residential). The objective

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between 2020–2022 was to inform 100% of the target audience, with a goal of converting 10% into taking concrete energy-saving or renewable energy measures.

The Energy desk supports renovation across all stages of the customer journey: from awareness and information, through advice, financing support, and project execution, to aftercare and satisfaction tracking. It delivers services directly or through a network of regional partners, including housing corporations, SME networks, and municipalities.

Agem's Energieloket stands out due to its inclusive approach, aiming to reach not just "low-hanging fruit" but also vulnerable or underserved segments such as low-income households or complex multi-owner buildings. The Energieloket combines mass campaigns with tailored support, including:

- A professionalized energy coach network (volunteers trained to act as ambassadors and guides)
- A personalized online platform that matches users to relevant content and services
- Neighbourhood-based outreach strategies, enabling peer learning and scaling collective actions (e.g. group buys for insulation or solar panels)
- Support for natural gas phase-out through heat network transitions and area-specific planning

4.3 THE ONE STOP SHOP: A SCALABLE, INTEGRATED RENOVATION MODEL

In response to persistent barriers in the private housing renovation market — such as fragmented offerings, lack of standardization, and limited consumer trust — Agem launched a pilot for a One Stop Shop (OSS) model as part of the Regiodeal "Sleutel tot een energieneutrale woning" ("Key to an energy-neutral home.") This pilot was initiated in Groenlo in 2021 and targeted post-war serial housing (1972, label C/D), aiming to provide a full-service pathway for homeowners from awareness to execution.

4.3.1 Key Challenges Addressed

- Many homeowners struggle to understand or trust the renovation market.
- Existing initiatives were fragmented, small-scale, and lacked structural support.
- Traditional business models faced high "cost of sales" for individual renovations.
- Suppliers showed limited interest in the private market due to these inefficiencies.

4.3.2 OSS Design and Stakeholder Roles

The OSS approach brought together multiple local consortia (combinations of contractors, suppliers, and service providers), each offering a pre-developed total package tailored to a specific housing typology. This approach enabled:

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- Standardization and cost reduction, thanks to repeated application of renovation packages.
- Quality control and integration, with performance guarantees (e.g. energy savings, comfort).
- A shared intake system, including a self-scan tool to reduce preliminary on-site visits.
- A digital client portal, centralizing offers, financial tools, and communication.

The Agem Energieloket plays a central coordinating and facilitating role, responsible for:

- Campaigning and community outreach at neighbourhood level
- Concept development and safeguarding of OSS standards
- Maintaining the digital client portal
- Providing or referring to independent financial advice

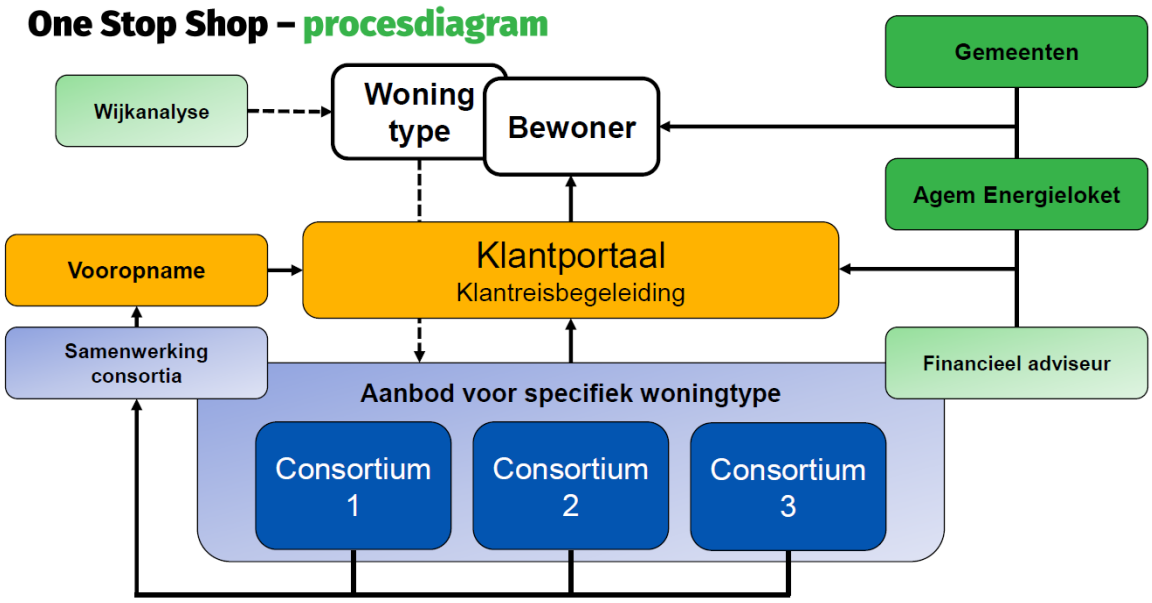

Figure 6: One-Stop-Shop process diagram by Agem

Local municipalities supported communication and legitimacy, while financial advisors were integrated to ensure homeowners understood financing options, including subsidies and loans (e.g., sustainable home improvement loans, VAT refunds). The model emphasized:

- Transparency through comparable offers from multiple consortia
- Affordability, using a monthly cost-benefit overview (energy savings vs. loan payments)
- Ongoing availability, not limited to temporary campaigns
- Community anchoring, by collaborating with local actors and housing-specific data

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4.3.3 Results and Next Steps

The pilot in Groenlo reached 78 homes and served as proof-of-concept for scaling. Evaluation followed in early 2022. The ambition, backed by a Regiodeal funding request, is to scale the OSS model region-wide from 2022–2024, targeting 10,000 homes with a total investment of €1.77 million — half from public sources, half from the market. Lessons from the pilot informed a phased investment strategy:

- Adaptation based on real-time feedback
- Community of Practice to build knowledge among stakeholders
- Continued iteration of the digital tools and service model

4.4 CONCLUSIONS ON AGEM'S MODEL AS INSPIRATION FOR TANDEMS

The OSS model embodies a TANDEMS-style collaboration:

- Municipalities, cooperatives, SMEs, and residents co-create the model
- A trusted, non-commercial actor (Agem) anchors the approach
- Data, standardization, and personalization are combined for efficiency and impact

By integrating technical, financial, and social dimensions of renovation into a cohesive customer journey, the OSS in Achterhoek represents a promising replicable model for other TANDEMS pilots and European regions.

Agem's Energieloket initiative plays a crucial role in guiding households toward energy efficiency and sustainability. By providing clear information, personalized advice, and access to financial resources, it helps homeowners and tenants make informed decisions about energy-saving measures.

Over the 2020-2022 period, the plan has focused on strengthening outreach, enhancing advisory services, and fostering collaboration with key stakeholders. These efforts aim to create a more sustainable housing market, reduce energy consumption, and increase the adoption of renewable energy solutions.

Looking forward, continued investment in public engagement, financial support mechanisms, and inter-organizational cooperation will be essential to ensuring long-term success. By maintaining a strong knowledge base and expanding accessibility, the Energieloket can evolve into a self-sustaining platform that drives meaningful energy transitions at both local and regional levels.

Final Considerations

- The initiative requires continued funding and market investment.
- External factors (economic conditions, material costs, subsidies) could impact success.
- The goal is to create a scalable, standardized model that ensures long-term energy efficiency improvements in the region.

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5 CONCLUSIONS ON CITIZEN-LED RENOVATION

This TANDEMS citizen-led renovation deliverable provides a structured approach to renovation guidance, emphasizing best practices, sustainable strategies, and regulatory compliance. It highlights the importance of balancing innovation with feasibility, ensuring that renovations align with energy efficiency goals while remaining cost-effective. While focusing on practical implementation it underscores the need for stakeholder collaboration to ensure the success of renovation projects.

In addition, this deliverable delves into financial and logistical challenges, discussing strategies to mitigate costs while optimizing project outcomes. It highlights funding opportunities and innovative financing models to support sustainable renovations. It advocates for continuous improvement and adaptation of renovation strategies in response to evolving technological advancements and regulatory changes and calls for knowledge-sharing and collaboration with local governments and energy communities / energy cooperatives to enhance future projects.

In conclusion, this document reinforces the necessity of a well-rounded, adaptable renovation approach that considers technical, financial, and sustainability aspects. By leveraging effective planning and collaboration, renovation projects can achieve both environmental and economic benefits.

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6 LIST OF ANNEXES

See zip folder for annexes

ANNEX 1: KLIMAATWERF vzw (CLIMATE HUB npo) PARTNERSHIP (Flanders 2025)

This partnership document, described by ZuidtrAnt ,designed a unique partnership within their non-profit structure, facilitating the smooth approval of projects for local authorities.

ANNEX 2: PRICE REQUESTS FOR GROUP PURCHASES I – II – III (Flanders)

These price requests were used to set up then group purchases for for roof and attic floor insulation, cavity wall insulation, basement ceiling insulation, windows,...

ANNEX 3: RENOVATION TENDER Multi-family Residential Buildings (Gabrovo)

Tender Open Procedure under the Public Procurement Act (PPA) for the Selection of Contractors for a Public Procurement with the Subject: Implementation of Engineering – Design and Execution of Construction and Installation Works (CIW) Related to the Energy Renovation of Multi-family Residential Buildings on the Territory of the Municipality of Gabrovo.

ANNEX 4: COLLEGEVOORSTEL DAEB AGEM ENERGIELOKET (example Berkelland)

Example of a municipal board decision with regards to agreeing to and signing the letter of intent to ensure that Achterhoeks Energieloket B.V. continues to manage the implementation of the energy desk for 2021.

ANNEX 5: ENERGIELOKET door AGEM – PLAN 2020-2022

The offfer from Agem to the Achterhoek municipalities for the implementation of the Energy Desk during the period 2020-2022, based on the 'Request for Proposal Energy Desk 2020-2022.

ANNEX 6: ONE-STOP-SHOP 2.0 door AGEM (June 2021)

This presentation was used to inform the local governments within the AGEM region about the plans of the new version of the ONE-STOP-SHOP offer to facilitate the application of energy-efficiency measures for privately owned homes.

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