



Identified stakeholders to be involved in integrated home renovation services delivery

D2.2 List of identified stakeholders to be involved in IHRS delivery

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Project Partners

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Glossary of terms

SH	Stakeholder
EE	Energy efficiency
RE	Renewable energy
RES	Renewable energy sources
RET	Renewable energy technologies
SO	Specific objectives
MFAB	Multi-family apartment building
IHRS	Integrated home renovation services
OSS	One Stop Shop
HO	Homeowners
HOA	Homeowner associations
RBMC	Residential building management company



Executive summary

This deliverable (D.2.2) aims to provide a comprehensive analysis of the Macedonian market for energy-efficient home renovation, assess companies' interest in partnering on this platform, and support the project team in making informed decisions when selecting local partners. By the end of the project—preferably before the piloting phase begins in October 2025—more than 25 local partnerships with service providers should be established.

To evaluate service needs from the demand side, two surveys were designed and conducted between February and March 2025 to identify key motivations and challenges in planning energy-efficient investments. One survey targeted the households that had already implemented energy efficiency (EE) measures (100 respondents), while the other collected insights from households planning to implement EE measures (50 respondents).

The supply-side survey was designed to provide a comprehensive overview of the market and identify similarities in services offered by companies in the construction sector, the renewable energy market for housing, and businesses specializing in window and door refurbishments, renovation coordination, and heating and cooling system upgrades. The survey results highlight commonalities among available services in the Macedonian market that align with the project's objectives and requirements.

The stakeholder analysis highlights the importance of collaboration and alignment with existing energy efficiency offer. Additionally, it identifies potential challenges, such as insufficient awareness of the benefits of EE renovation, complex negotiation process with tenants, financial constraints, the high costs of minimum EE standards, which pose a financial burden for citizens, and the need for consumer engagement strategies. Recommendations for stakeholder engagement emphasize clear communication, capacity building, and the development of a coordinated action plan to enhance IHRS implementation.

This document presents a list of identified stakeholders to be involved in the delivery of Integrated Home Renovation Services (IHRS). The stakeholder identification process was designed to ensure the inclusive and effective implementation of IHRS by engaging key actors from various sectors.

Key stakeholders identified include public institutions, local and national authorities, financial institutions, professional associations, consumer organizations, and service providers. Their roles range from policy support and financial facilitation to technical expertise and consumer advocacy.

This deliverable serves as a key resource to ensure stakeholder participation and create an enabling environment for the successful introduction of integrated home renovation services.

Introduction

OSS HABITAT project focuses on establishing a foundation for long-term partnerships between different stakeholders (SH) in the field of integrated services for energy efficient (EE) home renovation, supporting the clean energy transition of the residential sector. The project will contribute to increasing the number of renovated residential buildings through the development of integrated services for energy efficiency and renewable energy sources, which include information, technical support, development and implementation of customized financial models, loans and subsidies, through systematization of the fragmented market of EE renovation and utilization of renewable energy (RE) in homes.

Scope, objectives and project impacts

There are three project-specific objectives (SO), followed during the project lifecycle:

- SO1 – Development of package of integrated services for single and multi-family buildings in the private sector
- SO2 – Establishing a one-stop-shop OSS HABITAT with standardized procedures for implementation of services for ambitious buildings renovation across the countries
- SO3 – Stimulating market values of OSS services through sustainable business model.

As SO1 suggests, the project focuses on developing complementary services for more impactful energy efficient home renovation. This process starts with mapping the potential households willing to renovate (regardless of if they are houses or multi-family apartment buildings (MFABs)), then performing an energy audit, designing a home renovation project, emphasizing energy efficiency, and implementing renewable energy technologies (RET). Developing financial products for the beneficiaries is a crucial integral part of a successful outcome, resulting in quality renovation.

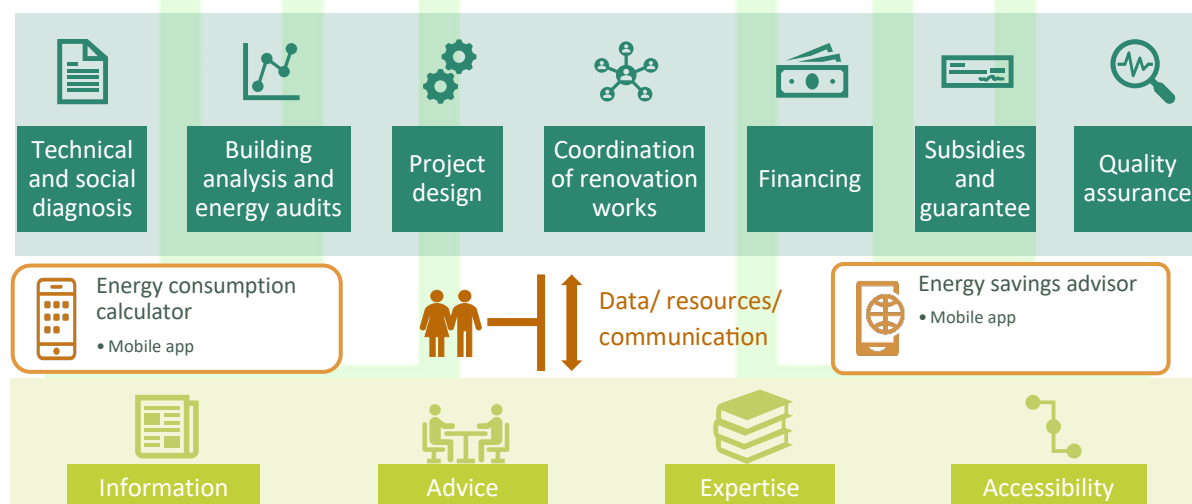


Figure 1 OSS HABITAT platform integrating different services, connecting providers and customers

Other than the development of this platform with services, OSS HABITAT concentrates on the three C: continuous **Cooperation**, **Coordination** and **Communication** between service providers and final beneficiaries. Raising awareness, educating, and consulting are fundamental activities providing accessibility and driving the renovation wave towards clean transition. To achieve this goal, two mobile applications will be developed: Energy consumption calculator and energy savings advisor. The figure describes the information flow and the connections between service providers (in the dark green color), the final beneficiaries (the orange tier) and OSS HABITAT (presented in lime color).

This deliverable should give a detailed overview on the Macedonian market for energy efficient home renovation, the interest of companies for partnering on this platform, and support the project team to make an educated choice in the selection of local partners. By the end of the project, ideally before the start of the piloting phase in October 2025, there should be more than 25 local partnerships established with service providers.

During the piloting phase, OSS HABITAT partnering with the service providers should serve over 200 households with deep energy efficient home renovation, and if or where visible to utilize some RET.

Target groups and beneficiaries

The projects SH' are a broad group of people, scraping each societal level, but during the implementation phase, there are several crucial target groups involved:

- Technical service providers (companies/manufacturers/ suppliers/ architects/ energy auditors, and other engineers),
- National governments, institutions and local self-governments (municipalities),
- Financial institutions (commercial banks, development banks, micro financing institutions),
- Chamber of expertise,
- Homeowner associations, and building managing companies,
- Civil society organizations and non-governmental associations.

The graph represents the flow between each target group and their main impact toward achieving each SO.

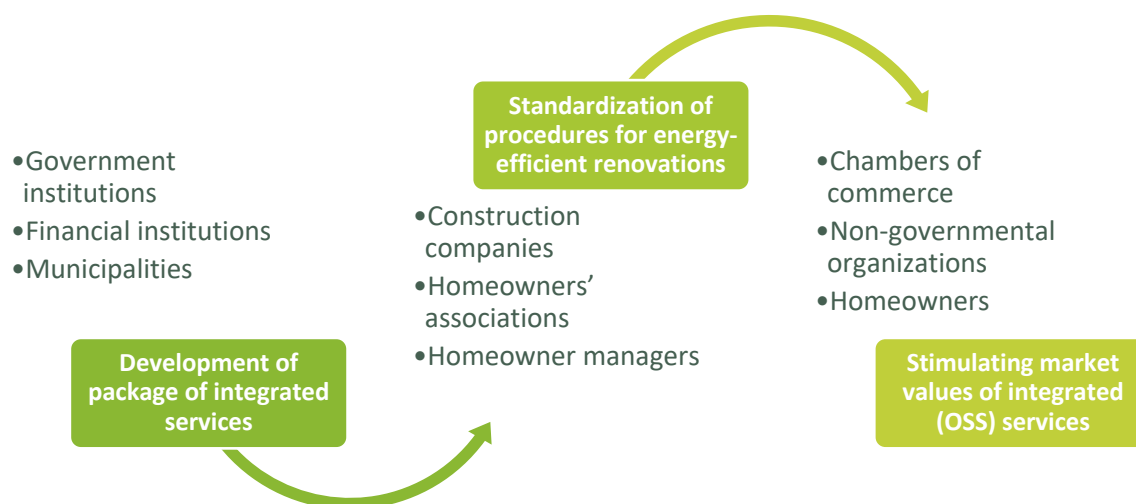


Figure 2 Process flow between SO and SH

Final beneficiaries are the homeowners.

Background for OSS in Macedonia

According to the findings in [D2.1 Market assessment report on available services compared to EU OSS practices with recommendation to overcome gaps in national context](#), there are a couple of challenges that this project and the establishment of the OSS HABITAT platform should overcome. When it comes to enhanced renovations, they include supply chain, quality of workmanship, technical failure and disturbance. With the established partnerships, all these aspects are foreseen to be addressed and mitigated.

All the companies in Macedonia registered in the Central Registry of the Republic of Macedonia, are not categorized whether they specialize in energy efficient home renovation or are working in construction in general. The same issue is transferred in other sectors as well, for electrical installation and PV mounting, it is not specified whether they work only on large power plants, or in the housing sector too.

Considering that the domain of action for each company is not easily recognized, this deliverable, and the results from the developed survey for all different players in the home renovation process should create a mapping of stakeholders and workmen companies relevant to the topic.

Service providers

When the tenants in one building decide to renovate the façade and the roof, there are a couple of steps they need to follow, while coordinating with different service providers: energy auditor, construction company for implementing the EE measures for the façade and the roof, if they include RET in some form that should be a different provider, improving the heating system is yet another company etc.

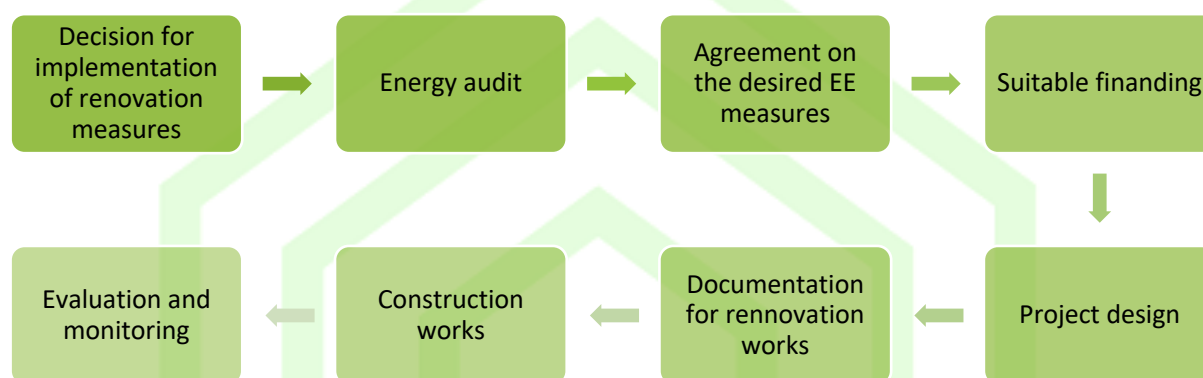


Figure 3 Main stages of organization of the tenants in one building to achieve EE building renovation

What we foresee is creating a methodology for home renovation based on relationships with stable service providers, and mediating between them and the final beneficiaries, creating one point of coordination. Therefore, the project proposal includes surveying different service providers:

- 40 companies /manufacturers/ suppliers,
- 60 architects/ energy auditors, and other engineers,
- 10 government institutions,
- 10 municipalities,
- 20 financial institutions,
- 3 chambers,
- 3 professional and/or tenants associations.

To further connect these providers, a Stakeholder Advisory Network (SAN) will be established.

1 Need for OSS services for home renovation

For identifying the needs for services, two surveys for the opinions on households' were prepared and implemented in the period February-March 2025. One survey targeting households that have already implemented EE measures (100 households) while the other gathered the opinions of households planning to implement EE measures (50 households).

1.1 General households needs and opinion assessment

To form a clear picture for the needs, opinions and readiness to invest in energy efficiency we formed 10 questions that were part of both surveys.

Main motives for investing in energy efficient measures start from reduction of energy bills, then improving home comfort, increasing the value of the property and protecting the environment.

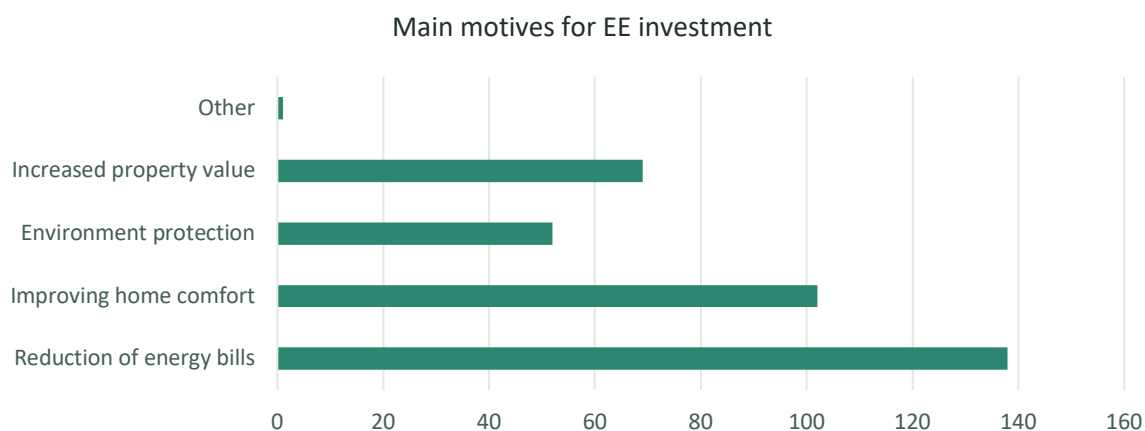


Figure 4 Motivation for EE investment

The main challenges in planning EE investments or renovations include the high upfront costs, while in multifamily apartment buildings, difficulties in communication and reaching an agreement among neighbors pose additional obstacles to renovation efforts.

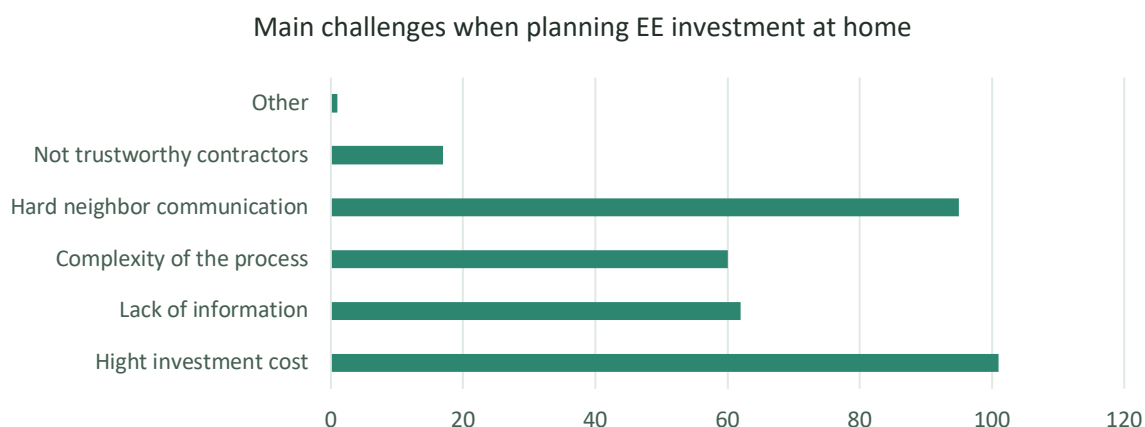


Figure 5 Main challenges when planning EE investment at home

Comparing the share of households of households that have already implemented EE measures versus the ones that are planning to implement EE measures, willing to make one time investment for improving EE in the next five years is the same. This finding shows that the households that already

have implemented some EE measures, have seen the benefits, noted that EE improvements is a continued process, rather than one-time investment.

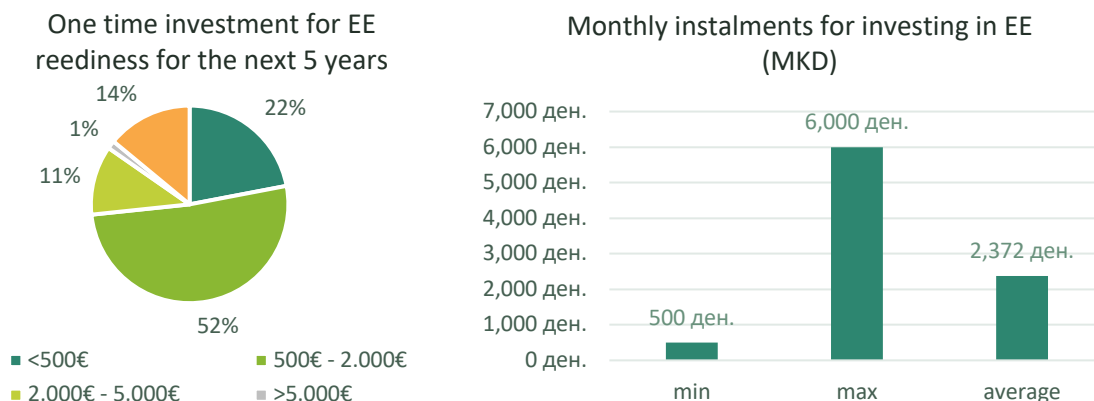


Figure 6 Readiness to invest in EE measures

The monthly instalments of households willing to invest in EE measures are for 742ден. (€12) higher compared to those that have already implemented EE measures.

When it comes to comparing and grading the reasons for not using available subsidies, the most popular answer is that the tenants couldn't reach an agreement, on second place with the same number of answers are the complexity of application process, and postponing the renovation process in general, then the household did not need additional funds, then has not met the criteria of the subsidy. The additional reasons for not using the available subsidies, are due to choosing between priorities of repairment, lack of information or taking loans for EE, and finally have already used subsidies for different purposes.

Conditions when selecting a company for EE renovation

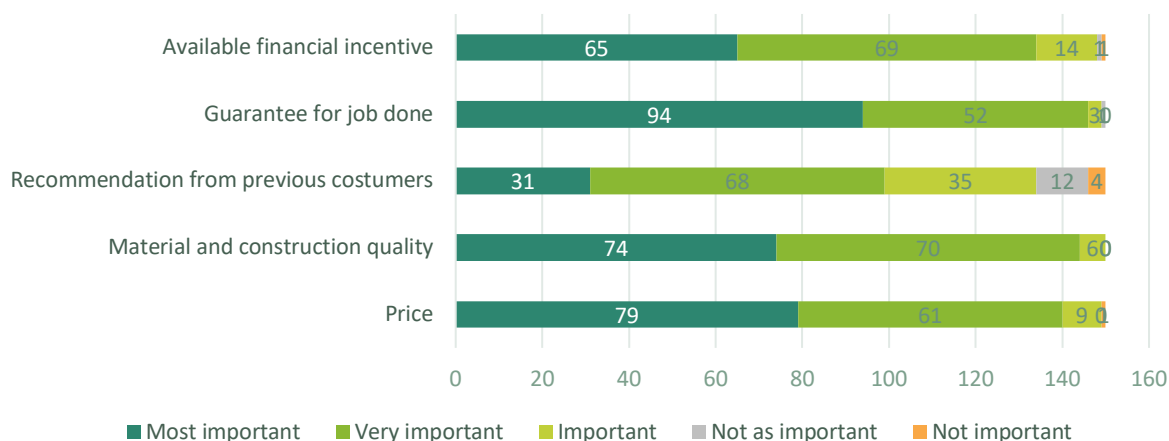


Figure 7 Conditions followed when contracting company for EE renovations

The difficulties when contracting a company for implementing the measures usually evolve around the price of the work, lack of contractors, small reapers not interesting enough for the contractors.

Additional important factor are the timeline and period of construction, respecting the due date, and easy, non-bureaucratic approach of work.

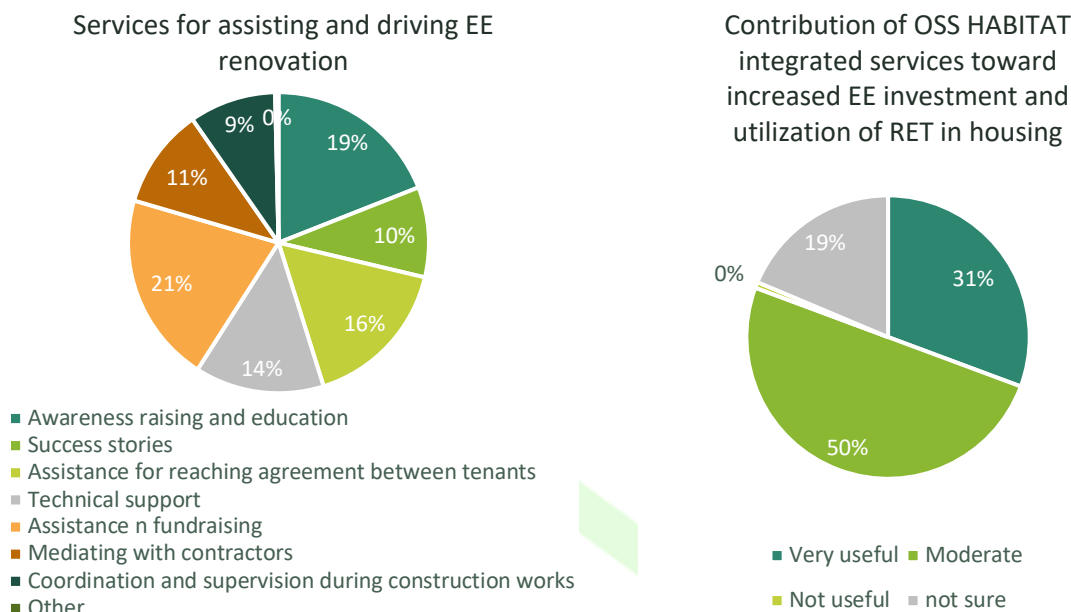


Figure 8 households' opinions on integrated EE home renovation services

Those that have chosen to answer that are familiar with companies, organizations or other entities that provide integrated services, have pointed Habitat Macedonia as resource for gathering needed information on EE in housing, setting the OSS HABITAT project on successful start.

1.2 Opinions of household that have implemented EE measures

For investigating the opinions of the homeowners that have already implemented some EE measures in their homes, we have developed a survey categorized in four different categories:

1. if and what financing products they have used;
2. which EE measures they have implemented;
3. what are their further plans, and
4. what is their opinion on OSS HABITAT project.

The results from this survey should give us the insights on the opinions and the experience gained from the homeowners. This questionnaire counts 16 questions.

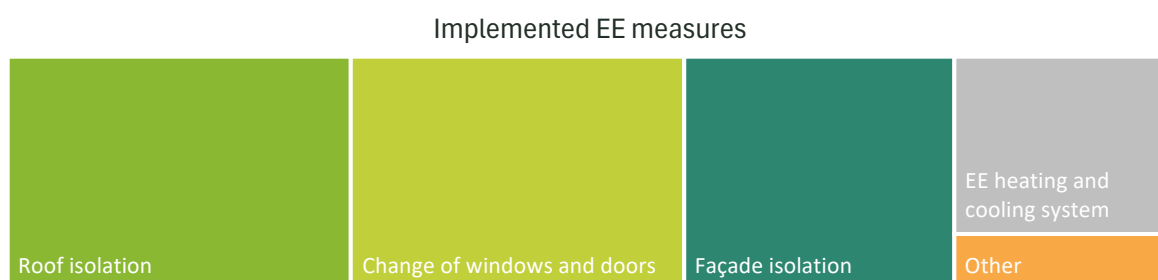


Figure 9 Implemented EE measures by households

The most popular EE measure is roof isolation, then change of windows and doors, after that comes the facade isolation and EE improvement of heating and cooling systems. Out of this 47% have achieved their expected energy savings, and 41% have partially achieved their expected energy savings.

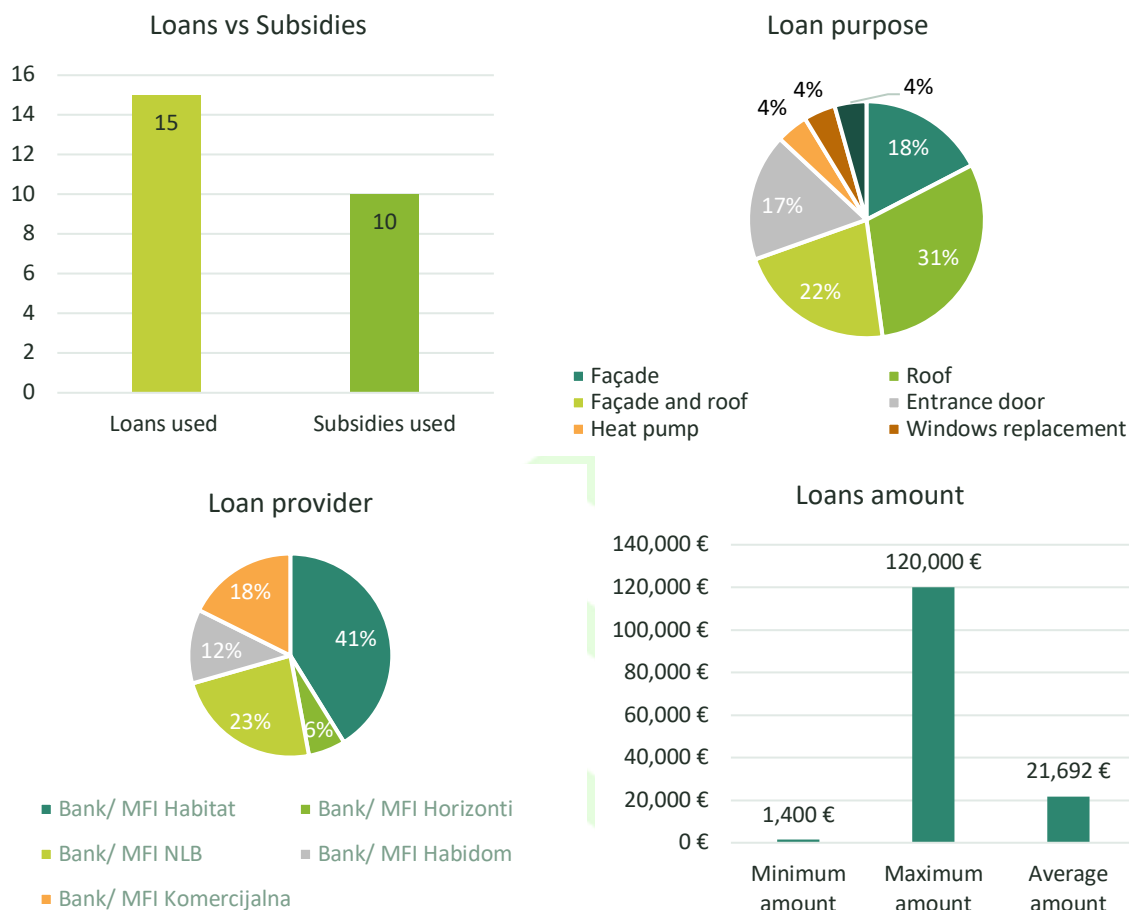


Figure 10 Information on loans used by households for EE improvements

When it comes to familiarity with other financing incentives 50% of the respondent have answered that they are not familiar, 30% that they are familiar and 40% that they are partially familiar. As sources for different financing tools and model are appointed to municipalities Karposh, Centar, City of Skopje, Habitat Macedonia and Habidom¹.

When asked if they have prepared EE road map or energy audit, 73% have answered that they haven't, because it was not needed for implementing the measures.

Some of the responders have used loan for replacement of the door.

Additional insight was gained through the [needs assessment of homeowner associations and homeowners for implementation of smaller renewable energy measures in Macedonia](#), prepared in the scope of sunrise project in February 2025. The survey conducted with homeowners, has showed that out of 190 respondents only 6.8% are not willing to install photovoltaic systems and the other 37.9% would invest up to €500, 35.3% would invest between €500 and €1000, and finally 20% would invest more than €1000. Out of this 49% would provide excess electricity for free, if an energy community was organized. The most important finding of this assessment, valuable for OSS HABITAT project is that the focus groups have stated: fragmented support structure is an issue and a challenge that the citizens should overcome to invest in collective renewable energy systems.

¹ [Habidom](#) is residential building management company, mainly working in City of Skopje.

1.3 Opinions of households planning to implement EE measures

Similarly, we asked the opinions of households that are intending to implement some EE measures in their homes. This questionnaire, has also 4 sections:

1. EE measures;
2. financial aspects;
3. services for EE renovation;
4. opinions on OSS HABITAT project.

This survey will form the basis and taken to consideration the current needs of the homeowners in regard of energy efficiency. This questionnaire has 24 questions.

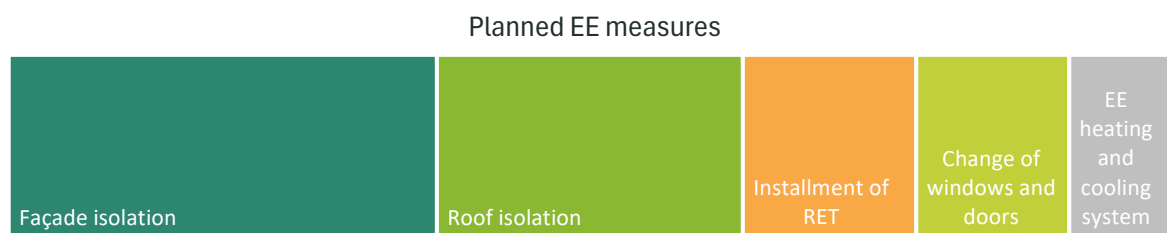


Figure 11 Planned EE measures by households

The most popular planned EE measure is façade, then roof isolation, installment of RET, changing the windows and the doors and finally improving the heating and cooling systems in the home.

When it comes to developing an EE road map or performing energy audit, they are not convinced from the necessity and the benefits of the energy audit or are not well informed of its purpose and value.

These two surveys, other than needs assessment, will also serve as a guidance for developing services offered by OSS HABITAT project and its partners.

2 Methodology for identifying service providers – potential partners of OSS Habitat

For achieving the goal of this stakeholder mapping and finding the most suitable partners from all different service providers, a three-step methodology for selection has been created. The methodology includes:

1. Implementation of SH mapping tools to determine their level of power and interest, while deciding the communication efforts of the OSS HABITAT team,
2. Development of criteria for ranking each service provider,
3. Development of survey for each target group.



Figure 12 Three-step methodology for SH mapping for potential OSS HABITAT partners

2.1 Stakeholder mapping tools implemented

When mapping the stakeholders, there are three questions to consider:

- What is their power in the decision-making process?
- What is their influence on the market of interest?
- What type of cooperation should be implemented?

To answer these questions, two complementary SH mapping tools are used: power-interest grid and communication pyramid, based on the power-interest grid.

2.1.1 Power – interest grid

When categorizing SH based on their level of interest and influence, several factors must be considered. Therefore, the SH' "interest" encompasses their knowledge, willingness, support, and attitude, while their "influence" involves leadership, power, positioning, and networking.

Interestingly, in this project, all the potential partners are considered to have high knowledge in their work, therefore their attitude will be considered as an excluding condition.

In the scheme and in the table below, it is explained in detail what are the key features of each category, and how each potential partner will be categorized based on their interest and power over the legislation or the impact they cause on to the market for EE and RET in the residential sector.

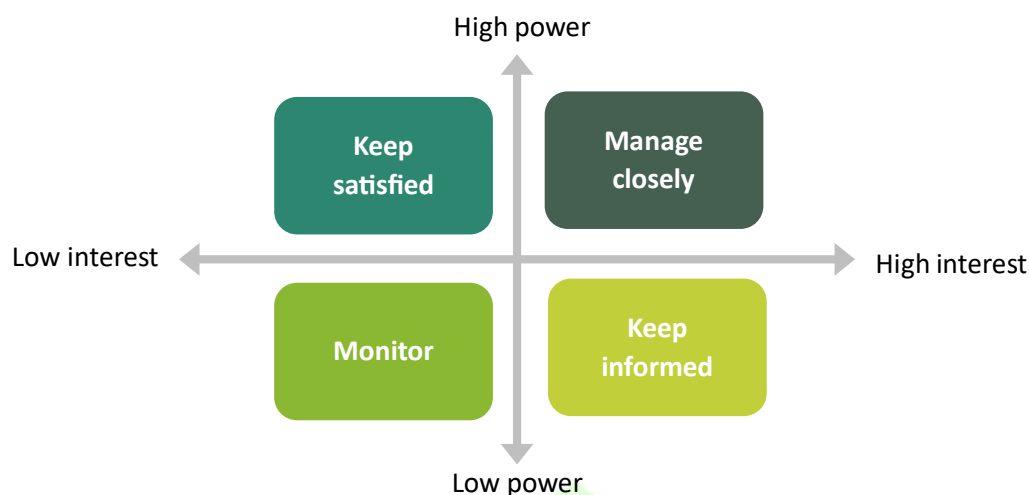


Figure 13 Scheme of the power-interest grid

2.1.2 Communication pyramid

When it comes to identifying which range of interactions and how much effort the project team should put while engaging with different stakeholders potentially included as service providers of the integrated home renovation services, the pyramid for engagement level in relation with the SH's power - interest grid can be used. The greater the influence and the interest, the effort and the collaboration and cooperation is higher, but there is a lower number of potential partners. Adequately, less interest for taking participation in the project and lower influence, also means less effort from the project team in including them as service operators, but there is a greater number of SH.

The hierarchy of the engagement pyramid starts at the bottom from information and gradually evolving to partnership. Each level has different techniques of communication.

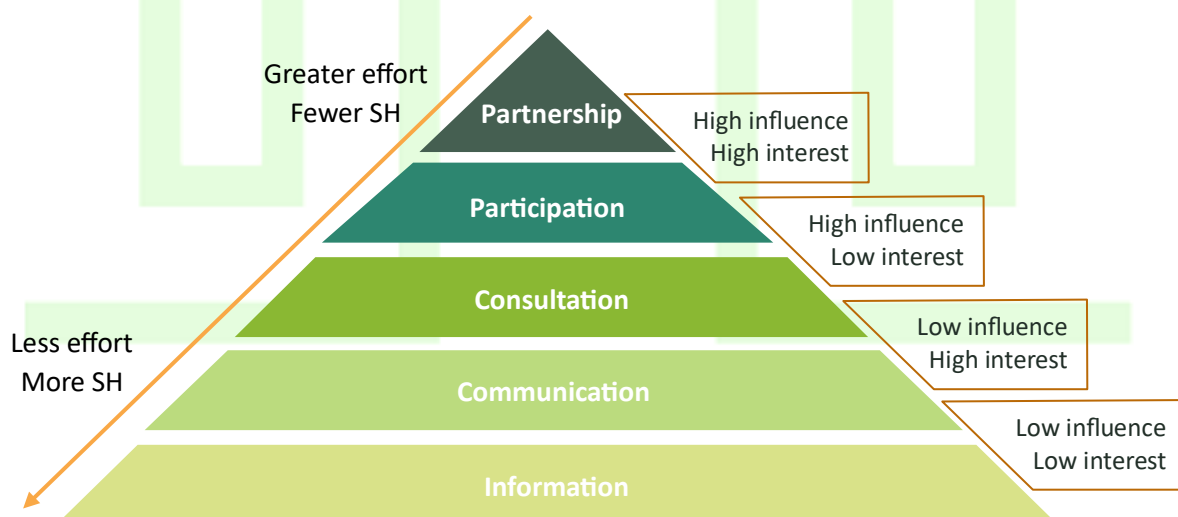


Figure 14 Scheme of the pyramid of communication regarding power-interest grid

The first level of information: all the stakeholders can be included especially at the beginning of the process, as well as for dissemination purposes. The most effective tools and methods when it comes to information include brochures, presentations, social media posts, web page sharing, mass media channels such as radio and television etc.

The second level is communication which is the first level of a two-way process and usually includes the stakeholders that have high interest of participation, but don't hold a lot of power and don't have a big influence on the market. The best mechanisms to communicate with them are public hearings, panel discussions, round tables and conferences.

Level above it is consultation, and it's mostly used in situation when an exchange of opinions is needed or in cases when the power holders, or in the case of this deliverable the influencers on the market are somewhat interested in participating in the project. Effective methods used in this level of communication are research and analysis meetings, committees, workshops etc.

Level 4, participation, present a higher form of collaboration including efforts from both sides the project team, in this case are the potential service providers, while holding benefits for joint venture. In this level of communication, a clear idea and interest about the outcome it's beneficial. This type of collaboration can be presented as advisory groups, joint activities, temporary or long-term structures that include decision making and hold responsibilities.

The highest form of collaboration in this pyramid is the partnership that anticipates equal high amount of power and influence compared to interest for participation. For the project purposes this form of collaboration will result in close cooperation in delivering the integrated home renovation services (IHRS) with the most potential partners, so-called dedicated operators.

2.2 Developing criteria for selecting IHRS suppliers

Each of the surveyed stakeholders will present a potential partner. The criterion for arranging the stakeholders is performed with the purpose for determining their seriousness in the delivering adequate quality to the final beneficiaries – homeowners. Ranking the most suitable candidates will be presented in the online database with local partners, dedicated operators for delivering parts of the IHRS.

The ideal potential partner from all the surveyed stakeholders would have a will to take an active participation in the project and will agree to get continuous updates on project development and implementation. It will be considered as an advantage if the potential partner in question works on national level, implements projects internationally, takes participation in development projects and has a higher number of consumers served. The grading of their influence on the market for energy efficiency and utilizing renewable energy in housing will be also taken into consideration.

2.3 Development of survey for IHRS providers mapping

This survey is expected to give a full picture of the Macedonian market and the similarities of services between Macedonian companies in the construction market, the market for renewable energy sources utilized in the housing sector, companies dealing with refurbishments of windows and doors, coordination of renovation works, changing, maintaining and improving heating and cooling system in households. The results of the survey display similarities between available services offered by the Macedonian market that are aligned with project objectives and needs.

For providing the most suitable answers from the different categories of SH involved in this survey there was one questionnaire including 20 questions suitable for all categories, and then six additional questionnaires that include couple of specific questions tailored to each category:

1. providers of technical services,
 - a. Furthermore, sectioned in nine different subcategories
 - i. energy auditors
 - ii. project designers for facade and roof

- iii. project design for renewable energy sources in housing
 - iv. construction of a façade and roof
 - v. companies working with external windows and doors
 - vi. companies working with heating and cooling systems
 - vii. engineers working on commissioning PV systems
 - viii. Supervision of construction works
 - ix. supervision on the renewable energy systems
 - x. production and distribution of construction materials.
2. governmental and self-governmental institutions,
 3. financial institutions,
 4. chambers of expertise,
 5. homeowner managers,
 6. non-governmental organizations.

The survey is developed and implemented in collaboration between Habitat Macedonia and M-Prospect agency. The questionnaire used during this survey has been developed according to the project description, and the initial list of contacts has been also developed by Habitat Macedonia.

The initial contact list started from long trusting partners and collaborators to both implementing partners of the OSS HABITAT project and gradually expanded to all relevant companies in the market willing to participate in the survey.

2.4 Methodology for carrying out the survey

This part outlines the methodology used for conducting a phone/online survey aimed at mapping potential stakeholders in a one-stop-shop project for delivering energy-efficient renovation services to buildings. The survey targeted eight key categories of respondents:

- Companies (manufacturers and suppliers);
- Architects and energy auditors;
- Other engineers;
- Government institutions;
- Municipalities;
- Financial institutions;
- Chambers, professional, and/or tenants' associations, and
- Non-governmental organizations (NGOs)

The objective was to identify and engage relevant SH who play a role in EE renovation projects.

2.4.1 Methodological Approach

Sampling Strategy

Convenient and snowball sampling method was employed to reach relevant SH within each category. This approach was chosen due to the dispersed nature of the SH and the absence of a centralized database listing all potential respondents. The method involved:

- Initial outreach to key informants within each SH category;
- Encouraging participants to refer other relevant SH within their networks.

Desk Research and Contact Database Compilation

To identify potential respondents, a **desk research** approach was also conducted alongside reviewing and compiling existing databases, directories, and publicly available contact lists, including:

- Industry associations' membership lists;

- Government agency directories;
- Business registries;
- Chamber of commerce databases;
- NGO registries, and
- Professional associations.

Survey Design and Data Collection

The survey was conducted via phone and online methods to maximize response rates and reach SH efficiently. The key steps included:

- **Survey Instrument:** 8 structured questionnaires were designed, incorporating both closed- and open-ended questions to capture quantitative and qualitative insights.
- **Survey Distribution:** Respondents were contacted via phone and email, with follow-ups conducted to ensure participation.
- **Data Recording:** Responses were logged in a centralized databases for analysis. Survey-to-Go (DOOBLO) was used as a software for data collection

Data Analysis

Collected data was categorized by stakeholder type and analyzed to identify:

- Key organizations involved in EE renovation;
- The level of engagement and interest in one-stop-shop (OSS) initiatives, and
- Potential collaborations and gaps in SH involvement.

Limitations

While the snowball sampling method effectively expanded outreach, some limitations included:

- Potential bias due to network-based referrals.
- Limited responses from harder-to-reach stakeholder groups.
- Dependence on the availability and willingness of contacts to participate.

3 Results from national survey on suppliers and operators in IHRS delivery

The results on the survey show that relatively low percentage (8.8%) know some organization company or else that offers integrated renovation service. We were also interested whether the different SH think that this type of platform that integrates all the different services for EE renovation in one place is beneficial, and whether it will initiate broader action in the residential sector. The answer distribution indicates that this type of service is perceived as highly beneficial (47,7%), somewhat beneficial (36,8%). Only one respondent answered that it's not beneficial. Below you can find general results of the stakeholder mapping, according to the implemented survey.

Table 1 General results from SH survey respondents

Surveyed	Number of SH
Total number of initiated contacts	187
Total number of filled questionnaires	57
Total number of declined responses	3
Total number of additional expected responses	70
Total number of stakeholders willing to take an active participation	53
Total number of stakeholders that want to stay informed of project development	48

Table 2 SH respondents compatibility with OSS HABITAT IHRS

OSS HABITAT integrated service providers	Number of surveyed SH
Perform mapping of households and potential costumers	12
Managing apartment buildings	2
Preparing energy audits	9
Designing energy efficient renovation of facade and roof	5
Designing systems for renewable energy sources for homes	14
Implementing construction works for facades and roofs	2
Installing external windows and doors	4
Installment of systems for heating and cooling	13
Installment of a renewable energy sources systems	15
Providing subsidies	7
Providing loans for energy efficiency	8
Perform supervision on construction works	6
Perform supervision on systems from renewable energy sources	6
Developing politics for energy efficiency on national and local level	13
Produce and distribute energy efficient construction materials	2
Other	9
Not compatible	2
OSS HABITAT integrated service	N. of potential partners
Preparation of technical documentation	22
Preparation of energy audits	14
Implementation of EE measures (facade, roof)	13
Change of windows	9
Installation of RES systems	17
Installation of heating and cooling systems	18
Organizing and educating tenants	15
Providing financial support	13
Other	4
Don't want to participate	4

In general, the most often users of the stakeholders surveyed are: owners of individual houses, Homeowners (HO) who want to invest in improving the EE of their apartment, Institutions and public establishments, apartment owners who want to invest in improving the EE of the entire residential building, professional real estate investors, Homeowner associations (HOA) and RBMC.

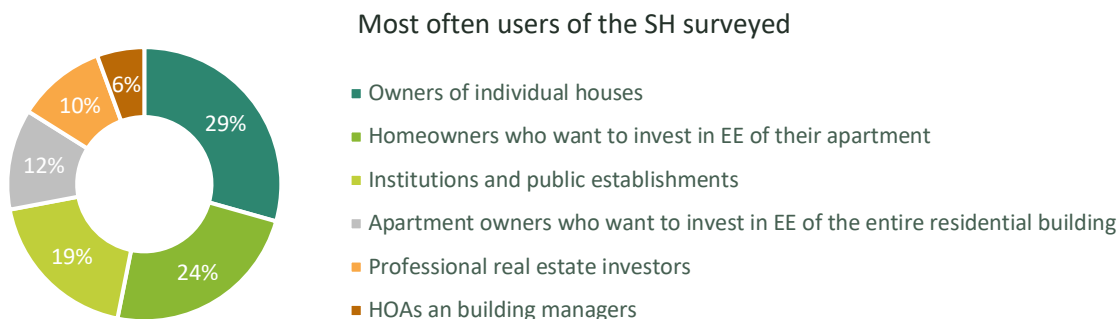


Figure 15 Most often users of the SH surveyed

The following questions from the survey will serve in determining the potential stakeholders' power influence and interest as a criterion for positioning them in the power interest grid and the pyramid for level of communication:

1. On which level do you work nationally, locally or both?
2. How many consumers annually do you serve?
3. On what type of project does your organization or company works on?
4. How would you grade your influence on the market of energy efficient renovation and utilizing renewables in housing?
5. Do you want to get continuously updated with the OSS HABITAT project development?
6. In which area of OSS HABITAT project, you can contribute to?

Majority of the SH work nationally, or both locally and nationally, only 12 operate only locally. When it comes to working on project, majority of the respondents work on national projects, almost a third work on Municipality level projects, and on EU projects work 15 of the respondents and 14 on international projects. The majority of respondents perceive their impact as small, 17 companies report a medium impact, and 11 companies indicate a high impact. Only 9 respondents don't want to get continuous update on the OSS HABITAT project development

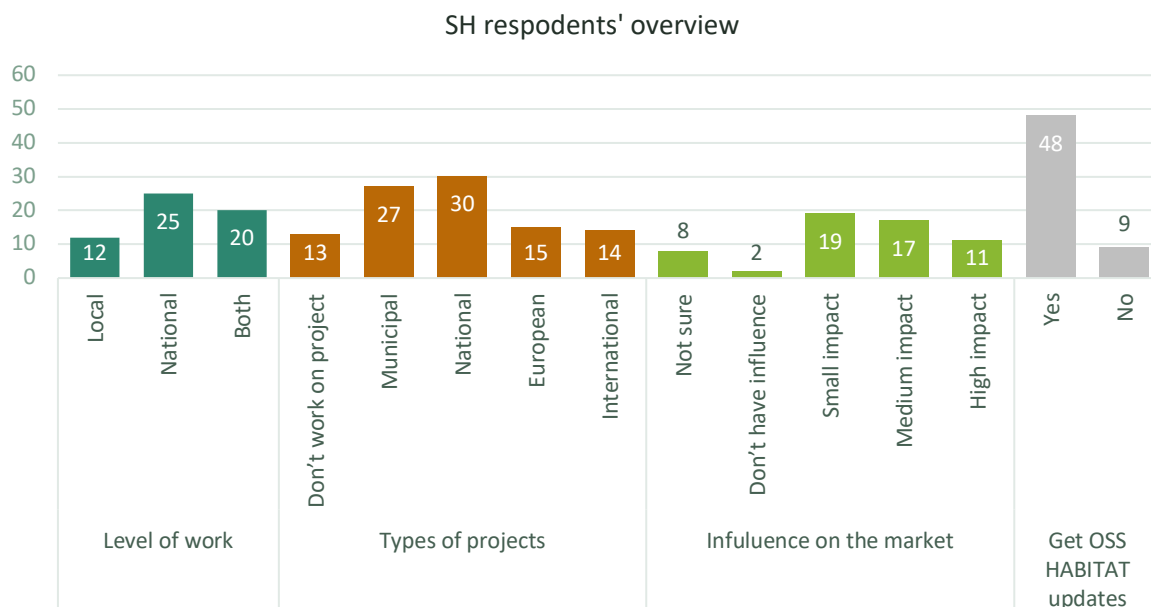


Figure 16 SH respondents' overview

When it comes to the number of consumers annually, the answer distribution from 0 to 1200, with most frequent answer – 1 consumer annually. Between 10 and 100 consumers annually serve 13 respondents. 15 respondents serve between 100 and 1000 consumers annually.

The first four questions will be crucial in identifying the level of market influence and power from each surveyor company or organization, and the last two will determine the level of interest for taking participation in the project.

Based on the answers of the respondents a criterion was formed for selecting the most suitable potential partners. In the grading process zero points were not used.

- Level of work
 - local working weighing one point
 - national 2 points
 - national and local in parallel three points
- Participating in and implementing projects on different regional level
 - if they don't participate, they get one point
 - local projects 2 points
 - national 3 points
 - European project 4 points
 - international project 5 points
- The grading of their influence on the market is as follows
 - If they don't know, they get 1 point
 - no influence on the market 2 points
 - small influence on the market 3 points
 - medium influence on the market 4 points
 - big influence on the market 5 points
- The willingness for getting continuous updates on the development of the project
 - not interested is great at 1 point
 - interested is graded 2 points

- When it comes to their current overlapping of the scope of their work with the project needs, as well as with the integrated energy efficiency home renovations, each overlap is graded one point.

The sum of this coefficient, while taking into consideration the number of users that they accommodate annually gives the final list of potential partners, starting with ones that have the most potential, and gradually decanting.

Table 3 Number of stakeholders categorized by the pyramid of communication and power-interest grid method

	Level of communication	Achieved points	Number of SH
MONITOR low interest, low influence	Information	<10	6
	Communication	10 – 13	17
KEEP INFORMED high interest, low influence	Consultation	13 – 16	12
KEEP SATISFIED low interest, high influence	Participation	16 – 19	11
MANAGE CLOSELY high interest, high influence	Partnership	≥ 19	11

3.1 Identified gaps in the market

When it comes to identifying the gaps and opportunities in the market, two questions were selected for all stakeholders.

The companies have faced couple of challenges during their work, starting from insufficient awareness of the benefits of EE renovation and knowledge of the possibilities for installing RET in households, difficult negotiation of all tenants in apartment buildings, lack of financial models to support measures, inadequate regulation for EE renovation in the housing sector and inadequate regulation for RES installation in the housing sector, lack of capacities for designing and installing PVS systems and the minimum EE standards set are too expensive for citizens pose a challenge

Challenges faced by SH during their work

- Insufficient awareness of EE renovation benefits and RET
- Difficult negotiations with tenants
- Lack of financial models
- Inadequate regulation for EE renovation and RET in the housing sector
- Lack of capacities for designing and installing PVS systems

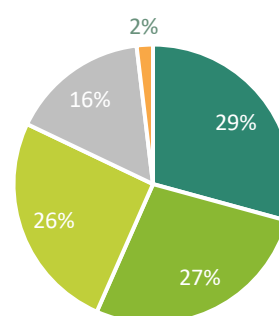


Figure 17 Challenges faced by SH during their work

The development of additional more favorable financial models for EE is seen as a most favorable suggestion for overcoming these challenges. Next suggestions are:

- Development of additional more favorable financial models for RES;
- Establishing a fund for EE and RES in housing;
- Continuous educational campaigns with homeowners;

- Continuous capacity building and training;
- Development of appropriate policies and programs.

3.2 Market development of EE and RES home renovation forecast

The questions that are describing the market development of EE and renewable energy sources implemented in the residential sector, are the following:

- How has the market for EE services and RET in the housing has changed in the last 10 years?
- What is your forecast for market development of EE and RET in the housing for the next 10 years?

From the answers, most of the respondents have answered that the market for EE and RET in the housing sector has grown (43 respondents), and it will continue growing in the next 10 years (47 responded).

When it comes to influences on the market development, for a quarter of the respondents the availability of funding and subsidies is most influential on the development on the market, more than a fifth say that changes in legislation and regulations (New national and international policies to reduce CO₂ emissions, EE standards, housing law) have the biggest influence. Additionally, the economic conditions (Economic stability or instability directly affects investment in renovation, technological progress, and changes in consumer habits, knowledge and awareness of EE and RET are mentioned.

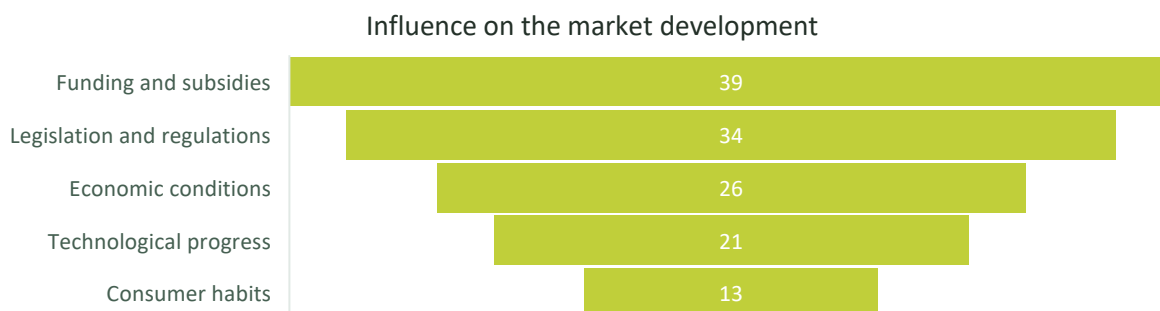


Figure 18 Influence on the market development

On the other side, when it comes to adjusting to the market needs and investing in priorities for business growth the most popular method is education and training of existing staff.

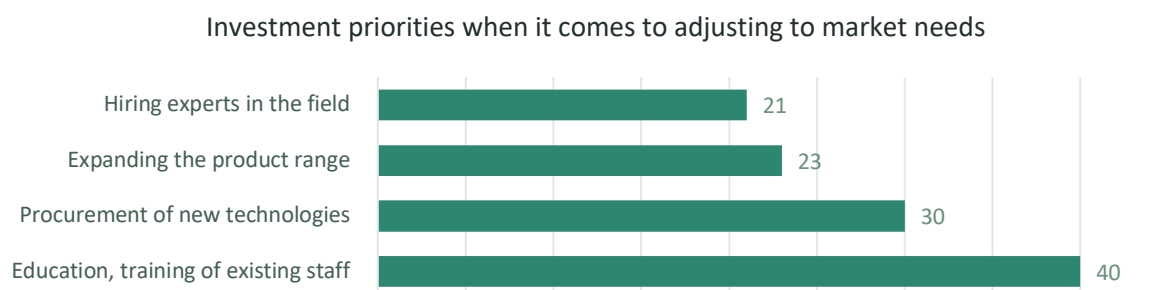


Figure 19 Investment priorities when it comes to adjusting to market needs

3.3 Awareness raising and advocacy

In this part of driving the renovation wave, the awareness raising activities and creation of adequate policies, and other legislative and strategic documents are crucial. Therefore, one of the most

important questions as part of the survey for each different stakeholder is how their institution/organization/ company is supporting the idea for energy efficient home renovation.

In addition, this activity should be highly supported by the governmental institutions, as well as the local self-government. To analyze the incentives they provide, we prepared questions that include mechanisms for awareness raising and education, development of policies, Registry of buildings, as well as determining the potential of solar energy.

Describing the current state of the legislatives, strategies and programs for energy efficiency and renewable energy sources in the housing sector, the stakeholders have pointed out different needs in the scope of three main areas financing, improving current laws² and by laws, and motivating energy efficient home renovation.

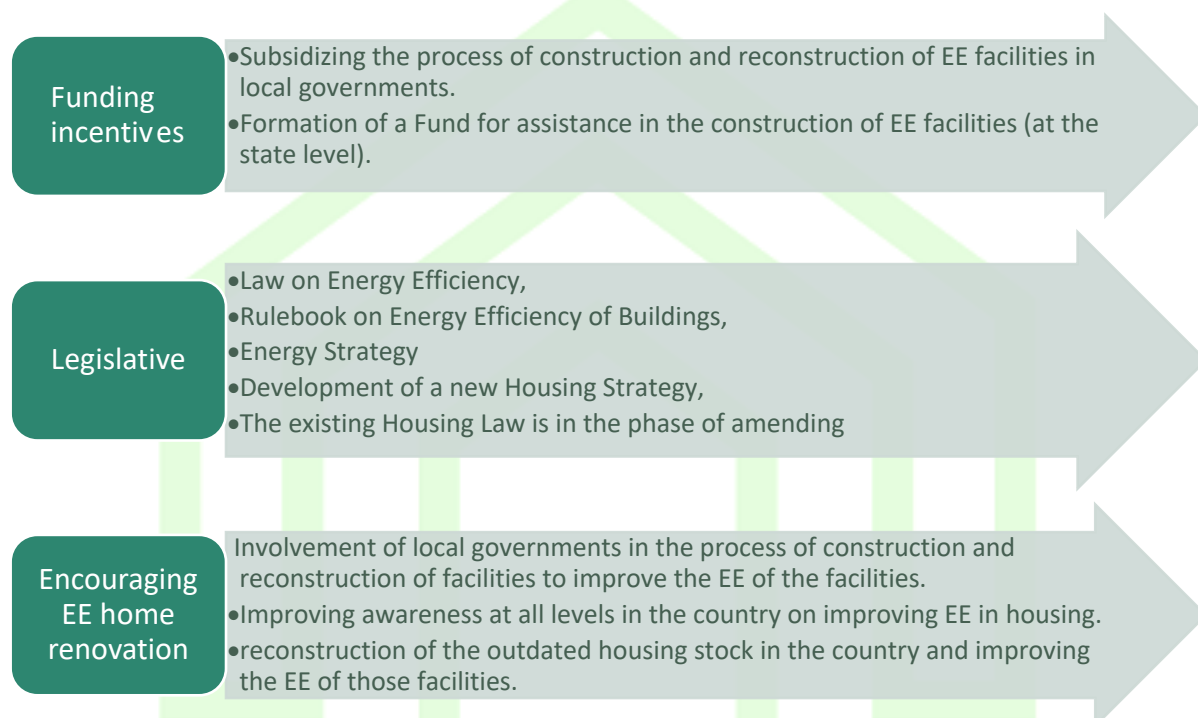


Figure 20 Available legislative, strategy or program for energy efficiency or renewable energy sources in the housing sector

Developed policies for simpler implementation of energy efficient measures and integration of renewable energy sources in the housing sector

Majority of the government institutions/municipalities (4-80%) included in the survey that don't have developed policies to facilitate the implementation of EE measures and the integration of RET in housing - 4, while only 1 government institution/municipality has developed such policies for both residential buildings and individual houses.

New legislative or other strategic documents for energy efficiency and utilizing renewable energy sources in the housing development undergoing

² Housing Law amendment: certain provisions that may help implement the measures and facilitate the processes in the EE and RES in housing program in the part of implementing faster decision-making by the owners of the separate sections.

New regulations and other strategic documents for EE measures and RES in housing are planned by 2 of the government institutions/municipalities (40%) included in the research, namely the revision of existing documents, a housing strategy and a law on social housing.

Development of registry of individual houses

Development of a registry of individual houses is planned in 3 of the government institutions/municipalities (60%) included in the survey.

Preparation of assessment for the solar potential of the residential buildings

Two of the government institutions/municipalities (40%) that were included in the survey are planning an assessment of solar potential within the housing sector.

Availability of Resource Center for EE and RET for the citizens

Two of the government institutions/municipalities included in the survey have some kind of information center dedicated to energy efficiency and renewable energy sources (40%), while 20% or 1 of the institutions have a general information center. The remaining 40% have no information center.

The CSOs are playing pivotal role in the overall awareness raising and educational campaigns. We have asked if they can give us more insights on the socio economic, as well as demographic influence on energy efficiency.

- Two of the NGOs believe that citizens are not ready for investments in EE and RES, 1 believes that the market in Macedonia is generally budget-limited, while the remaining 2 NGOs that participated in the research do not have information.
- Most NGOs (4) involved in the survey believe that the interest in EE is equal among men and women, while only one NGO believes that men are more interested in EE than women. The responses are the same regarding interest in RES.
- According to the data they have, 3 of the NGOs involved in the research believe that people between 35 and 45 years old are most inclined to invest in EE and RES.
- The NGOs that participated in the research believe raising awareness and dissemination of information about the benefits and opportunities of investments in EE and RES are crucial at this moment.

3.4 Opportunities for accelerating EE and RES market

As a general accelerator of market development for services including EE renovation and integration of RET in the housing sector, are the chambers of expertise and their channels of communication and dissemination. Therefore, we were interested about their influence on the market simulation and setting standardized procedures of business.

3.4.1 Technical and social diagnosis

In the technical and social diagnosis or user mapping the most adequate category of surveyors are:

- For Social diagnosis: HOAs and RBMC,
- For technical diagnosis: housing energy managers.

In addition to this, at some cases beneficial can be the CSOs and loan givers, such as microfinancing institution Horizonti and Moznosti.

3.4.2 Building analysis and energy audits

When it comes to deeper technical diagnosis, building analysis and energy audit, intuitively most beneficial are the energy auditors. The two most important answers from the energy auditors in the

context of the development of integrated home renovation services in the project, especially when selecting potential partners were:

Out of 9 responders preparing energy audits, more than half have performed energy audits on existing housing facilities (individuals houses and apartment buildings. Out of which four respondents answered that only 1% of the energy audits prepared annually are for apartment buildings, while one respondent answered 40%.

3.4.3 Project design

In the integrated service project design, most valuable are the engineers and companies dealing with project design of facade and roof as well as integrating renewable energy sources.

The project designers were divided into categories, one for preparing designs and projects for improving the facade and the roof, and the other for designing the renewable energy systems.

Designers of construction works

40% of the respondents who previously responded that they are preparing projects for EE renovation of facades and roofs (5), are doing this only for individual houses and residential buildings, while 60% are preparing such projects for other facilities such as commercial buildings. Out of which the annual percentage of EE renovation project for apartment building between 1% and 40%.

Depending on the implemented EE measures, after the construction the companies are expecting energy saving between 30% and 70%.

Designers of RES

There are 32 designers of RES surveyed. Almost a third of the respondents (13-31%) prepare projects for RES for individual houses. More than a fifth (10-23,8%) prepare projects for commercial facilities, the same percentage prepares projects for large photovoltaic power plants. And 9 (21,4%) prepare for residential buildings. Put of these, one respondent declares that the percentage of their annual work dedicated to apartment buildings is around 20% and one 60%.

Less than half (42,9%) of the respondents who answered that they were preparing RES projects in homes – 14, have designed a system for an energy community of several houses or for a residential building.

3.4.4 Coordination of renovation works

In the coordination of work, the implementation phase of the construction works should be integrated. As focal point for EE renovation coordination³, in apartment buildings, most suitable would be the RBMC, however in this category also should be included companies that work with refurbishment of facades and roofs, change of windows and doors, Installment and commissioning renewable energy systems, and companies dealing with heating and cooling systems. Additionally, the distributors and producers of construction materials should also be included.

The project team has hoped on the HOAs and RBMC to be the coordinators of the renovation work. Therefore, further investigation on their capacities, views and experiences you have been surveyed.

According to the answers of HOAs and RBMCs one respondent perceives their role as initiators and one respondent answers that the role is both as an initiators and mediators.

³ The EE renovation coordination includes: organizing the tenants to agree on EE improvement of the apartment building, meet with contractors, seek for and apply for available financial incentives, etc.

Table 4 Summary from the respondents (HOA and RBMC)

Summary from the respondents (HOA and RBMC)	
Number of buildings managed	663 (422 +241) buildings
Number of buildings that have EE renovation of the facade and the roof	192 (120 + 72)
Number of buildings that have implemented measures for EE without available subsidies	51 (1 + 50)
Time needed from problem occurrence till repairment	6 months till a year
Most popular EE measures	Installation of EE heating and cooling devices and insulation of facade and roof
Biggest obstacles for EE renovation	financial situation of tenants

Construction of a façade and roof

Of the respondents who previously responded that they perform construction work for facade and roof renovation - 2, only 1 responded that less than 50% of the buildings they renovated had already installed photovoltaic systems, while the other company did not answer/does not know.

Companies working with windows and external doors

Only 3 of the surveyed companies previously stated that they replace windows and doors - one of them responded that 30% of their work annually is replacing old windows and doors versus installing them in new buildings, while for another one this percentage is 60%. For only one company, the percentage of replacing old windows and doors versus installing them in new buildings is very low - 1%.

Companies working with heating and cooling systems

The majority of companies (92,3%) install heating and cooling systems in both commercial and residential buildings – 12, while one of the companies installs heating and cooling systems only in residential buildings. This question is answered only by the surveyed companies who stated in the previous question that they install heating and cooling systems - 13.

Engineers working on commissioning PV systems

For the mounters and commissioners of PV systems we were interested where they're installing the systems, what is the annual percentage of installments in residential buildings, what is the most frequent power of the installed systems, and lastly whether they have implemented PVC system intended for energy community in the scope of one apartment building, or as a union of couple of individual houses.

15 of companies (41,7%) are engaged in the installation of RES systems. The following frequencies apply only to these companies:

- Photovoltaic systems are installed in individual houses by one third of companies (33,3%), while the percentage of companies that install these systems on commercial buildings and large photovoltaic systems is equal – 22,2%. Such systems are installed on apartment buildings by 11,1% of companies.
- The range of responses ranges from 2 to 80% in terms of photovoltaic systems that are installed annually for use in residential buildings.

- The power of the systems installed in individual houses is most often given by the respondents as 6kW, and only one of them answered that it is 10kW. While the answers about the power of residential buildings range from 6kW to 100kW.
- Seven of the companies implemented an energy community system for houses or within a residential building (46,7%), while 8 of the companies did not have such implementations (53,3%).

Production and distribution of construction materials

Two companies out of all surveyed are involved in the production and distribution of construction materials. Only one of the companies produces construction materials, while the other company only sells them. Both companies stated that individuals can also purchase materials from them.

3.4.5 Financing

When it comes to financing, several banks including commercial, development banks and other microfinancing institutions were surveyed. The financial incentives and opportunities are playing crucial role in the decision-making process whether one house or one apartment building would decide whether will implement energy efficient measures or not. In the past years there have been some governmental funds from the ministry of economy for subsidizing energy efficient air-air heat pumps and change of windows. Additionally, some municipalities including the pilot and municipality of Karposh, have offered subsidies for façade and roof thermal insulation.

Exciting products offer and subsidiary programs for EE and RES

This part of the report is focused on the financial institutions, explaining their available financing schemes, loans and other financial models.

The following tables summarize the answers to the question for the financial institutions to describe their current Available loans on energy efficiency.

Table 5 Silk Road bank credit line

Silk road bank	
Credit line	GFF Credit line for HOUSEHOLDSS
Target group	single parent, returnees from abroad
Purpose	Energy efficiency and renewable energy sources
Maximum amount (MKD)	1 500 000 ден.
Interest rate (%)	5,4%
Years of repayment	95 months

Table 6 TTK bank credit line

TTK bank	
Credit line	GFF outcome 2
Target group	population
Purpose	GFF
Maximum amount (MKD)	1 200 000 ден.
Interest rate (%)	5%
Years of repayment	3 months

Table 7 MCI Horizons credit line

MCI Horizons	
Credit line	ДОМ/HOME
Target group	marginalized households
Purpose	renovation, reconstruction, extension, equipment
Maximum amount (MKD)	300 000 ден.
Interest rate (%)	8,9%
Years of repayment	48 months

Popular financial tools and models for EE and RES support in housing

We have asked the stakeholders whether their customers are using some financial models for supporting the services they provide and if they have some suggestions for improvement of these models. Additionally, we have asked the construction workers of facades and roofs, companies that change windows and doors, companies changing and installing heating and cooling systems and the HOAs and RBMCs what is the impact of the available financial instruments in the decision-making process for home renovation.

Financial models for supporting the services offer by the SH used by their customers

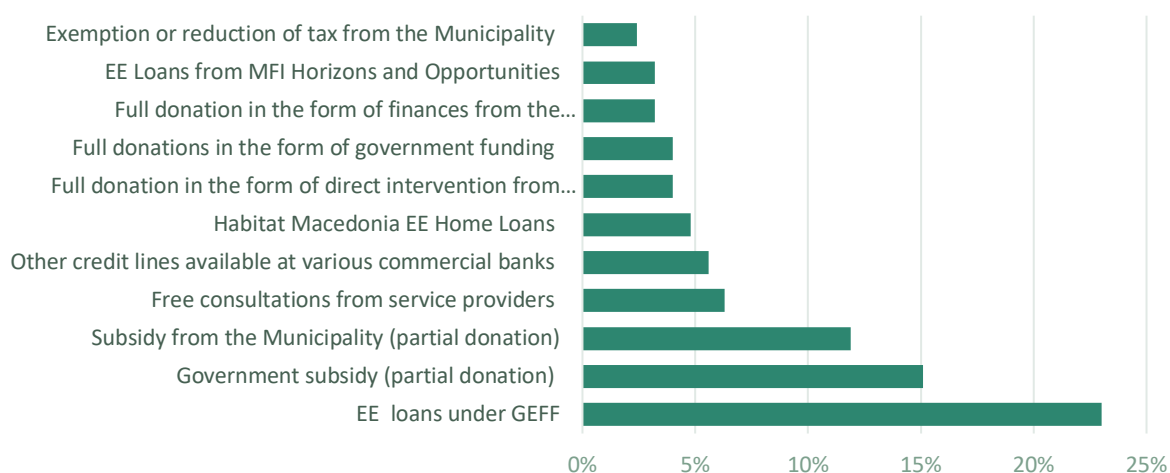


Figure 21 Financial models for supporting the services offer by the SH used by their customers

When it comes to improving the existing financial models, the most popular ones are reduction of the interest rates of loans, and developing additional financial models to support households, then are coming the loans to communities of owners and managers, followed by guaranteed facilitation and increase of payback period.

Improving exiting financial models to convey just energy transition

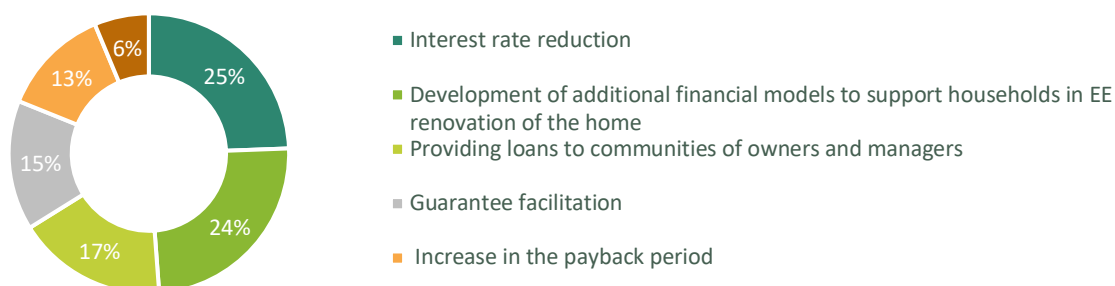


Figure 22 Improving exiting financial models to convey just energy transition

Development of new financial products

In addition to the already offered financial incentives, their impact on the decision market making process and, on the market, as much as important is the development of new financial models, loans and other. The financial institutions have explained whether they are forcing the development of new products or loans in the foreseeable future.

3.4.6 Subsidies and guarantee

Most suitable for subsidies and guarantee providers can be the local governments and municipalities. In addition to this Habitat Macedonia also provide services in a form of a guarantee. The questions have included description of the incentives that they provide, including further plans for development of new incentives.

The majority (4-80%) of government institutions/municipalities do not offer a financial product or subsidy for EE facades and the use of RET, while only one of the municipalities (20%) has such a product/subsidy.

One Municipality answered: Municipal subsidy for apartment buildings, targeting tenants of collective housing facilities. 30% subsidies will be provided per household, while the condition for receiving the subsidy is to participate in a public call and obtain the consent of the tenants.

Only 2 of the government institutions/municipalities (40%) have foreseen a plan for a new product/subsidy, such as: 1000 ден. on the electricity bill for vulnerable categories, a decision by the council to subsidize 30% for construction, etc.

3.4.7 Quality assurance

In quality assurance, most suitable would be the supervisors of construct works and installment and commissioning of renewable energy source systems.

Both groups of supervisors were asked what is the type of buildings that they work in, and what is the percentage of the projects intended for residential buildings. In addition, the supervisors for systems for electricity production from renewable energy sources, were asked whether they have supervised an implementation of energy community.

3.5 General conclusion

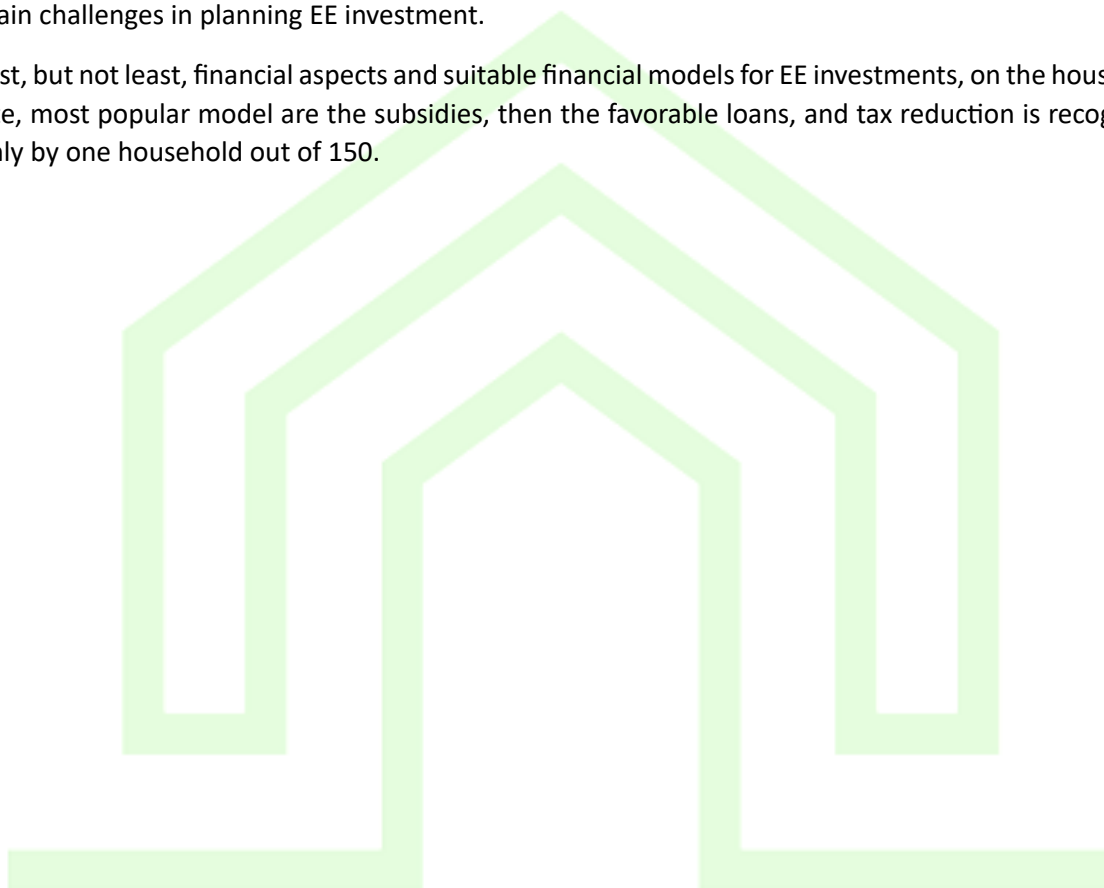
What was noticed during the analysis of the responses, is that OSS HABITAT can find a lot of potential partners for realizing the integrated services for energy efficient home renovation. Most of the respondents are even eligible for couple of services offered, for example companies that work with energy efficient heating and cooling are usually also offering installation of photovoltaic systems or

other RET. Additionally, most of these companies are also offering some types of financial incentives or loans. When it comes to providers of loans and subsidies, they usually can get included in the identification or mapping of potential consumers. The ones dealing with energy audits, also work either on projects/ road maps for energy efficient renovation or are directly implementing construction work on the facade or the roof.

The challenges faced by the potential partners are usually concentrated around the households and tenants, starting from lack of knowledge and insufficient awareness of the benefits of implementing EE renovation and RET, then are coming the lack of financial models and inadequate regulations and other laws and bylaws for EE and RET in the residential sector.

When it comes to the motives and challenges faced by the households, the reduction of energy bills is primary motive for EE investment, while high upfront costs and difficulties in reaching agreement are main challenges in planning EE investment.

Last, but not least, financial aspects and suitable financial models for EE investments, on the household site, most popular model are the subsidies, then the favorable loans, and tax reduction is recognized only by one household out of 150.



4 List of potential OSS Habitat partners

The details for each company, including the contact person are not for public use. If you need more information, contact OSS HABITAT project team via the e-mail info@osshabitat.com.

Table 8 List of potential partners categorized according to the power-interest grid

Manage closely
Sum coefficient ≥ 17 , making in total 18 potential partners
1. Македонска Соларна Асоцијација, Солар Македонија 2. Индивидуален консултант 3. Министерство за транспорт 4. Кнауф 5. Зружението за лиценцирани енергетски контролори 6. Факултет за електротехника и информациски технологии 7. Еко Солар дооел 8. МИ-КОМЕРЦ 2000-КАВАДАРЦИ 9. Машински факултет 10. ЦеПроСАРД Скопје 11. ИЕЕПР - Институт за економски и енергетски политики и истражувања 12. ИЦС груп 13. Тригор Битола 14. ТИМЕЛ 15. Општина Кочани 16. Импера Плус Инженеринг ДООЕЛ Скопје 17. FMS 18. БЛАКОМ дооел Скопје
Keep satisfied
Sum coefficient 14 – 17, in total 15 potential partners
1. Еуро Профил 2. НЛБ Банка Скопје 3. Центар МакЛидер Скопје 4. Општина Куманово 5. ПРО ТЕРМ-КМ дооел 6. АЦДЦ ДЦАЦ доо и СунСмарт Соларни системи доо 7. Македонска секција на Меѓународниот центар за одржлив развој на енергетски, водни и околишки системи (SDEWES-Скопје) 8. ЕКО ИНВЕСТ - СОЛАРЕС 9. ЕБРД 10. Етерна Солар 11. КМГ ЕОЛ КВАЗАР ДООЕЛ Скопје 12. ЗРАК СОЛАР ДООЕЛ 13. МЕРМС 14. Индивидуален консултант 15. Факултет за електротехника и информациски технологии, УКИМ.
Keep informed
Sum coefficient 9 – 14, in total 18 potential partners
1. АРЕСЕ Солушнс 2. Енергосистем ДОО 3. Рабуш Пласт Прилеп 4. Хабидом ДООЕЛ Скопје 5. МКФ Хоризонти

6. ЛКВ Костовски доел 7. ДОМИНУС, дооел Скопје. 8. ТТК Банка АД Скопје 9. АКВА СИСТЕМ ЗЗ ДООЕЛ ГОСТИВАР 10. Штедилница Можности ДОО Скопје 11. Друштво за градежништво и консултантски услуги АФИОН ДООЕЛ Велес 12. Архитектус 8 13. Адамант Лајтинг Груп Доо 14. Енекс Групп Инженеринг 15. ФМС ДООЕЛ Скопје 16. Аква терм 17. Стопанска Комора на Мал Бизнис 18. МРФП - Македонска развојна фондација за претпријатија
Monitor
Sum coefficient ≤ 9 , in total potential 6 partners
1. Силк Роуд Банка 2. Евротехника инженеринг 3. Развојна банка на Северна Македонија АД Скопје 4. Виртус Елиас Скопје 5. Energy efficiency 6. Анимакс дооел Скопје

The identification of potential partners continues process that will expand the timeline of the deliverable submission. No stakeholders should be excluded while the project implementation, nothing that 70 stakeholders have already confirmed that they are willing to participate in this research.

Annex I List of surveyed contact

Фирма/Институција
1. Адамант Лајтинг Груп Доо
2. АЦДЦ ДЦАЦ доо и СунСмарт Соларни системи доо
3. Енекс Групп Инженеринг
4. Кнауф
5. Тригор Битола
6. FMS
7. Друштво за градежништво и консултантски услуги АФИОН ДООЕЛ Велес
8. АРЕСЕ Солушнс
9. Еуро Профил
10. ТИМЕЛ
11. Индивидуален консултант.
12. ФЕИТ
13. Masinski fakultet
14. Центар МакЛидер Скопје
15. Импера Плус Инженеринг ДООЕЛ Скопје
16. ДОМИНУС, дооел Скопје
17. LKV Kostovski DOOEL
18. ИЦС груп
19. EKOSOLAR dooel
20. ЕКО ИНВЕСТ - СОЛАРЕС
21. Енергосистем ДОО
22. Факултет за електрика и информациски технологии, УКИМ.
23. ФМС ДООЕЛ Скопје
24. АКВА СИСТЕМ ЗЗ ДООЕЛ ГОСТИВАР
25. МИ-КОМЕРЦ 2000-КАВАДАРЦИ
26. Eterna solar
27. Рабуш Пласт Прилеп
28. ЗРАК СОЛАР ДООЕЛ
29. КМГ ЕОЛ КВАЗАР ДООЕЛ Скопје
30. Animako dooel Skopje
31. Evrotehnika Inzenering
32. Energy efficiency
33. AKVA TERM
34. ПРО ТЕРМ-КМ дооел
35. BLAKOM dooel Skopje
36. Arkitektus 8
37. Општина Карпош
38. Општина Куманово-Раководител на Сектор во локалната самоуправа
39. МЕРМС
40. Министерство за транспорт
41. Општина Кочани
42. Штедилница Можности ДОО Скопје

43. МКФ Хоризонти
44. НЛБ Банка Скопје
45. ЕБРД
46. МРФП - Македонска развојна фондација за претпријатија
47. Развојна банка на Северна Македонија АД Скопје
48. Силк Роуд Банка
49. ТТК Banka AD Skopje
50. Стопанска Комора на Мал Бизнис
51. Виртус Елиас Скопје
52. Хабидом ДООЕЛ Скопје
53. Македонска Соларна Асоцијација, Солар Македонија
54. Зружението за лиценцирани енергетски контролори
55. Македонска секција на Меѓународниот центар за одржлив развој на енергетски, водни и околински системи (SDEWES-Скопје)
56. ИЕЕПР - Институт за економски и енергетски политики и истражувања, ул. Козле 9 бр. 8 Скопје, тел: +38970 555 031
57. ЦеПроСАРД Скопје



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