ComActivate

Enabling community action for energy sufficiency

D3.5 ROADMAPS FOR ENERGETIC UPGRADING OF DISTRICTS IN SELECTED NEIGHBOURHOODS

JÓZSEFVÁROS

September 15, 2026

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Project Acronym	ComActivate
Project Name	Enabling Community Action for Energy Sufficiency
Project Coordinator	Habitat for Humanity International
Project Duration	36 months
Website	https://www.bpie.eu/comactivate-enabling-community-action-for-energy-sufficiency/

Deliverable No.	D3.5 Roadmaps for energetic upgrading of districts in selected neighbourhoods
Dissemination Level	Public
Work Package	WP3
Lead beneficiary	Eko Invest
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Date	September 2026
File Name	D3.5 Roadmaps for energetic upgrading of districts in selected neighbourhoods (Józsefváros)

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List of abbreviations

AC	Air Conditioning
EU	European Union
HOAs	Homeowners Associations
JGK	Management Centre of Józsefváros
MFABs	Multi-Family Apartment Buildings
NESR	Neighbourhood Energy Sufficiency Roadmap
NGOs	Non-Governmental Organisations
PV	Photovoltaic
RC	Resource Centre
SECAP	Sustainable Energy and Climate Action Plan

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1 INTRODUCTION

The ComActivate project, funded by the EU LIFE research programme, is a strategic initiative designed to respond to growing issue of energy poverty across Central and Eastern European countries. The ComActivate project continues the efforts of the ComAct project, implemented between 2020-2024, aiming to improve building energy efficiency as a major driver of energy poverty and climate change[1]. With rising energy prices and widening economic disparities, vulnerable populations are increasingly at risk of becoming unable to afford adequate heating, cooling and electricity.

The project is being implemented in **four selected municipalities across three countries** to pilot innovative and community-based solutions:

- Bulgaria: Burgas Municipality
- Hungary: Józsefváros Municipality (District 8 of Budapest)
- Lithuania: Kaišiadorys Municipality and Elektrėnai Municipality.

These municipalities and their pilot areas were selected due to the substantial energy inefficiency of multi-family apartment buildings (MFABs) and the deteriorated condition of many structures, making them priority targets for improvements. Renovation efforts are constrained by a combination of structural, financial, governance and behavioural barriers.

Across Europe, a persistent challenge is the gap between the upfront investment required for building renovation and the financial capacity of individual households. This is particularly difficult in MFABs, where households within the same building may have different[2] financial circumstances. While some households may be able to finance their share of renovation costs, others may face significant difficulties in covering upfront costs or co-financing requirements. Public funding alone does not always solve this problem, highlighting the need for flexible financing and support mechanisms that can accommodate different financial capacities and enable renovations at building level.

Financial constraints are further reinforced by limited access to information, complex administrative procedures and a fragmented financing landscape. Older people and households with lower income may find it especially difficult to identify suitable renovation measures and funding options. These factors can make the renovation process overwhelming and discourage residents from taking action.

Decades of underinvestment have left much of the housing stock in Bulgaria, Hungary and Lithuania below acceptable energy standards. Nevertheless, building performance does not tell the whole story. Even where energy efficiency improvements have been made in recent years, absolute energy consumption is not going down because of the rebound effect. Household behaviour, must therefore, be considered alongside technical improvements.

Another challenge is the legacy of decades of centralised management, which shaped expectations that responsibility for building maintenance and upgrades rests primarily with the state. In many communities, this has contributed to limited initiative at the household level and made collective decision-making more difficult.

For municipalites, addressing these barriers requires more than technical solutions: it requires time, trust, effective communication and local capacity to help residents understand their options, make informed decisions and act together.

Addressing energy poverty therefore requires an integrated approach that combines investment in energy efficiency with accessible financing, straightforward procedures, reliable information and community engagement.

[1] EU and National Level Policy Analysis and Monitoring, ComActivate, January 2024
[2] Baseline Report on the State of the Art of Resource Centres in the Demonstration Sites, ComActivate, April 2024

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In response to these challenges, ComActivate seeks to empower municipalities through targeted interventions, stakeholder engagement and capacity building activities. The project supports efforts to reduce energy poverty, improve energy efficiency and energy sufficiency in MFABs and providing pathways for renovation strategies that integrate renewable energy solutions.

This document, ***the Neighbourhood Energy Sufficiency Roadmap(s)*** (NESR), is one of the key delieverables of the ComActivate project. It is developed for each participating pilot municipality. The primary focus of this document is MFABs, although NESRs could be applied to a wide range of building types in the future, including public and commercial buildings.

2 OBJECTIVE OF THE ROADMAP

The NESR provides a practical, locally grounded plan for tackling energy poverty and strengthening resilience in each pilot areas. Rather than applying a single template, it is tailored to the socio-economic conditions and the housing stock of each area, so that the guidance is tailored to the specific needs and realities of each of pilot municipalities.

The primary objective of the NESRs is to define a clear and coherent vision for the **housing stock** in each pilot area, outlining concrete steps, activities and measures to reduce energy demand, improve housing quality and sustainability and ensure equitable access to adequate housing conditions for residents, particularly vulnerable households. It serves as a strategic tool to facilitate cooperation among key stakeholders through a structured and results-oriented approach. The approach also reflects European Union (in further text EU) requirements, such as those in the Energy Performance of Buildings Directive (EU) 2024/1275, so that each pilot area aligns with the broader strategic goal of achieving a highly-efficient and decarbonised buildings stock. This ensures consistency in implementation and enables measurable progress over time.

2.1 Energy Efficiency and Energy Sufficiency

Energy efficiency and energy sufficiency are the two main pillars of this NESR. They address energy use in different ways:

Energy efficiency is a key component of the EU's strategy to reduce energy consumption, lower costs and achieve climate neutrality by 2050. It involves using less energy to provide the same output or service, thereby minimizing energy waste, reducing energy costs and environmental impacts.

Key efficiency measures include:

- Improving buildings foundation and ceiling/roof insulation to enhance thermal performance and reduce heating and cooling demand
- Installing energy-efficient windows, doors and roof hatches to prevent heat loss and air leaks
- Installing solar photovoltaic (PV) systems to generate clean, renewable energy and reduce dependence on the grid.
- Implementing smart thermostats to automatically optimize temperature settings
- Upgrading high-consumption products such as HVAC[3] systems and water heaters.

For citizens, energy efficiency interventions offer clear everyday benefits: lower energy bills, warmer and healthier homes. They also reduce dependence on imported energy and exposure to geopolitical

[3] HVAC – Heating, Ventilation and Air Conditioning

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tensions and price fluctuations in the energy market. Additionally, energy efficient buildings are better protected against rising energy costs and are more likely to retain their value.

Energy sufficiency. While energy efficiency reduces energy per unit of service, it does not necessarily reduce overall energy demand. Global energy consumption continues to rise as populations grow, living standards increase and buildings expand. The concept of energy sufficiency focuses on reducing unnecessary energy demand by encouraging people to use only the energy that is genuinely needed while ensuring equitable access, particularly for vulnerable or marginalized populations.

> The Intergovernmental Panel on Climate Change defines sufficiency as:*"a set of measures and daily practices that avoid demand for energy, materials, land and water while delivering human well-being for all within planetary boundaries."*

Although energy sufficiency has not been formally adopted as a standalone directive or policy at the EU level (with the exception of France), it appears in many guidance documents, analytical frameworks and academic literature. Across these sources[4], energy sufficiency is generally understood as changing everyday practices of resource use in ways that lower energy consumption without compromising quality of life or creating negative social or environmental impacts.

To better understand and apply the concept, sufficiency measures can be grouped into four categories[5]:

- **Dimensional sufficiency**: ensuring an energy service matches to its actual purpose (e.g. using a vehicle suited to the travel need rather than one larger or more powerful than necessary, heating only occupied rooms to the temperature required for their specific use, converting an oversized heated basement storage into an unheated bicycle storage area with natural ventilation, eliminating heating demand entirely; using passive cooling strategies, such as external shading and green infrastructure to reduce or eliminate the need for Air Conditioning (AC), etc.)
- **Cooperative sufficiency**: maximising the shared use of energy services to reduce overall consumption (e.g. car sharing, collective housing arrangements, etc.)
- **Usage sufficiency**: reducing the duration, intensity or frequency of energy-intensive activities and extending equipment lifespan through optimal use (e.g. lowering heating temperatures during unoccupied periods, elevator load management, etc.)
- **Organisational sufficiency**: rationalising the use of space and arranging both physical spaces and daily activities to minimise the need for transportation and resources (e.g. designing urban areas to reduce the distances required to access workplaces and essential public services, including the centralized accessible facilities specifically designed to accommodate elderly users and provide various public services within a single location).

Taken together, these four categories reflect a single idea with two boundaries. As a ***minimum***, sufficiency guarantees decent living standards for everyone, ensuring that no household falls below the level of energy needed for a dignified life. As a ***maximum***, it calls for avoiding unnecessary energy and resource use so that consumption stays within planetary boundaries[6].

When putting sufficiency into practice, a clear hierarchy should guide decision-making[7]. The first priority is to preserve and make better use of existing buildings, while new construction should be considered

[4] Source: https://journal-buildingscities.org/articles/10.5334/bc.458; https://enr-network.org/wp-content/uploads/Bohnenberger_EnergySufficiency_18.pdf
[5] Source: https://www.enerdata.net/publications/executive-briefing/eu-sufficiency-security-energy.html
[8] Prioritising Existing Buildings for People and Climate, BPIE, 2024
[6] Prioritising Existing Buildings for People and Climate, BPIE, 2024

[7] Prioritising Existing Buildings for People and Climate, BPIE, 2024

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only as a last resort and designed according to sufficiency principles. This hierarchy is summarized in Table 1:

Table 1: Hierarchy of Sufficiency Options: From Most to Least Preferred

Tier	When it applies	Sufficiency solutions	Why it works
Tier 1 (most preferred) *"Optimize the existing building"*	• High heating bills • High summer electric bills for cooling • Some flats are vacant • Flats are under-occupied	• Match heated space to actual need • Use passive rather than active heating and cooling solutions • Identify why flats are vacant and bring them back into use • Offer support for flat exchanges (move into smaller flats)	• Heating only areas of the house actually used • External solar shading rather than/in addition to AC • Enabling and incentivising rightsizing to adjust space needs to actual needs or residents, reduce the amount of space that must be heated, cooled and lit, cutting energy demand at source rather than relying solely on efficiency improvements.
Tier 2 *"Use existing space and materials before adding anything"*	• Unused attic space • Empty commercial spaces on the ground floor • Vacant neighbouring office building • A nearby building is being demolished	• Convert attic space into additional flats • Convert unused commercial spaces into flats • Reuse materials such as bricks, timber, etc.	• Reusing existing building structures significantly reduces embodied energy by avoiding the production of new construction materials such as concrete, steel, etc. • Reusing bricks and timber from demolition avoids the energy of manufacturing new materials.
Tier 3 *"Least preferred, but if new construction is necessary, build in the most sufficient way"*	• A genuine need for new space remains after Tiers 1 and 2 have been fully explored.	• Use low-carbon materials (recycled, bio-based insulation, etc.) • Design flexible layouts with movable wals • Prioritise shared spaces over private ones	• Bio-based insulation such as wood fibre requires far less energy to be produced than conventional foams. • Positioning the building to capture sunlight and designing

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Tier	When it applies	Sufficiency solutions	Why it works
			windows to let in the right amount of natural light and warmth cuts the need for heating and lighting. • Flexible spatial configurations enable a building to be repurposed over time, avoiding the large energy cost of rebuilding later.

Building on this understanding, the ComActivate Project has developed a comprehensive interpretation of energy sufficiency based on the following principles:

- Equitable Distribution: Reduce energy demand among high consumers while ensuring adequate energy access for vulnerable households (dimensional and cooperative sufficiency at the household level)
- Behavioural Change: Promote energy-saving habits and discourage unnecessary energy consumption in everyday life (usage sufficiency).

This dual approach recognises that effective energy policy must address both climate goals and human well-being.

While each NESR is customized to reflect the unique circumstances of its respective urban area, the methodological approaches proposed in this document are fully transferable to other urban contexts across Europe. As such, they serve as a valuable tool for replication and adaptation in other regions across the EU that face similar energy-related challenges. By sharing best practices and adaptable solutions, the ComActivate project aims to contribute to a fair and inclusive energy transition.

3 INSTITUTIONAL PLACEMENT OF THE ROADMAP

The Energy Efficiency Directive (EU) 2023/1791 mandates that Member States must establish a supportive framework for market actors, such as one-stop-shops, that would provide residents reliable information, individual technical assistance and guidance on available financial schemes for energy efficient renovations. Additionally, the Directive on Energy Performance Buildings (EU) 2024/1275 mandates inclusive one-stop shops providing technical assistance to all actors involved in building renovations, including owners, administrative, financial and economic actors, SMEs, etc. By streamlining the renovation process and coordinating both technical and financial support, these **one-stop-shops or Resource Centres** (RC), help to overcome major obstacles, such as a lack of understanding, high upfront costs and complicated administrative procedures.

Their core role is to assist households throughout the renovation journey by offering accessible and tailored services that make energy-saving improvements easier to implement.

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The key benefits of establishing a RC for community members (residents), including vulnerable people, and property managers are presented in Table 2. While the benefits for community members also apply for vulnerable people, they require additional attention and tailored support, as highlighted in the table.

Table 2: Key benefits of RC for community members (residents)

BENEFITS FOR ALL COMMUNITY MEMBERS	ADDITIONAL BENEFITS FOR VULNERABLE PEOPLE
• Main point of contact • Based on clear and reliable renovation advice, residents can make informed decisions • Professional guidance improves the quality of renovations • Informed access to funding • Guidance on energy-saving measures that improve comfort and living conditions • Better understanding of energy-saving measures and available support • Better coordination of neighbourhood renovation projects and stronger resident engagement	• Reduced mental load • Overcoming information barriers (using understandable language at appropriate literacy levels) • Resource Centre is perceived as a trusted intermediary • Prevention of exploitation (protection from high-interest loans or unnecessary work) • Home visits available when needed • Ensure renovations meet accessibility needs • Identification of households that need wider support (connection to other social services)

Beyond individual support, RC also help implement NESR by engaging residents, providing guidance and translating neighbourhood-level energy strategies into practical actions for all households, including residents with vulnerabilities. Although there are many benefits of energy renovation, there are barriers[8] that prevent people from engaging in such renovation, such as:

- Lack of understanding of the benefits of measures
- Fear of getting into more debt and higher energy costs
- Stigma associated with receiving free help and subsidy
- Structural barriers related to tenancy type or eligibility for interventions.

While NESR provide the strategic vision for neighbourhood transformation, the Resource Centre offer the infrastructure required to realize the vision through trusted relationships, tailored support and community organizing.

[8] Assert, D.2.1 Report on the state of the art on energy poverty and disability and relevant indicators

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Resource Centre Józsefváros

LakóTér, the Resource Centre in Józsefváros (in further text RC), is situated in the heart of the pilot area in a completely separate building from the Municipal Office. Therefore, it is easily accessible for the primary beneficiaries, municipal tenants and disadvantaged residents, but anyone may visit and ask questions.

There are four community organizers and an assistant working in the RC, which is open three times a week from 10 to 18 o'clock. Residents can access information, counselling on available supports and orientation regarding any problem they might be experiencing. Events and forums are frequently held, which are advertised on all municipal platforms (online or offline).

Community organizers also work in field in six residential buildings that are owned by the municipality in 100%. They work on preparing the residents for the upcoming changes towards energy sufficiency, like the building renovation works that will be implemented by the Municipality and the way the new energy services should be operated in an efficient way (e.g. using smart meters and regulating energy consumption).

From September 2026, the RC will become part of the Property Management and Housing Unit, linking it more closely to the strategic coordination and implementation of this Roadmap.

4 ENERGY VULNERABILITY

While the assessment of building performance and the design of renovation measures rely primarily on technical expertise, addressing energy vulnerability demands a human-centred approach. In the context of energy poverty, vulnerability encompasses the social, economic, demographic and housing-related factors that increase the risk of households facing insufficient access to affordable and adequate energy services[9].

Energy vulnerability should not be understood as an inherent characteristic of individuals or groups, but rather as the results of the contextual conditions that shape households' capacity to secure essential energy services, cope with energy-related challenges, adapt to changing circumstances. These conditions are multiple and frequently intersecting, including factors related to income, age, health, housing tenure, building characteristics and other context-specific factors. While low income is the most commonly cited factor, it is rarely the only one. Vulnerability typically emerges where several of these factors overlap and reinforce one another. Understanding vulnerability in all its dimensions is therefore a precondition for targeting support accurately, so that measures reach the households where disadvantage compounds rather than those who are simply easiest to identify.

Dimensions of Energy Vulnerability. Energy vulnerability is defined by a range of interconnected dimensions that shape households' capacity to secure essential energy services and to access available support. These dimensions include economic, demographic, health-related, social and housing-related factors.

[9] EPAH Guidelines, Addressing Vulnerability & Equity in Energy Poverty Action, 2026

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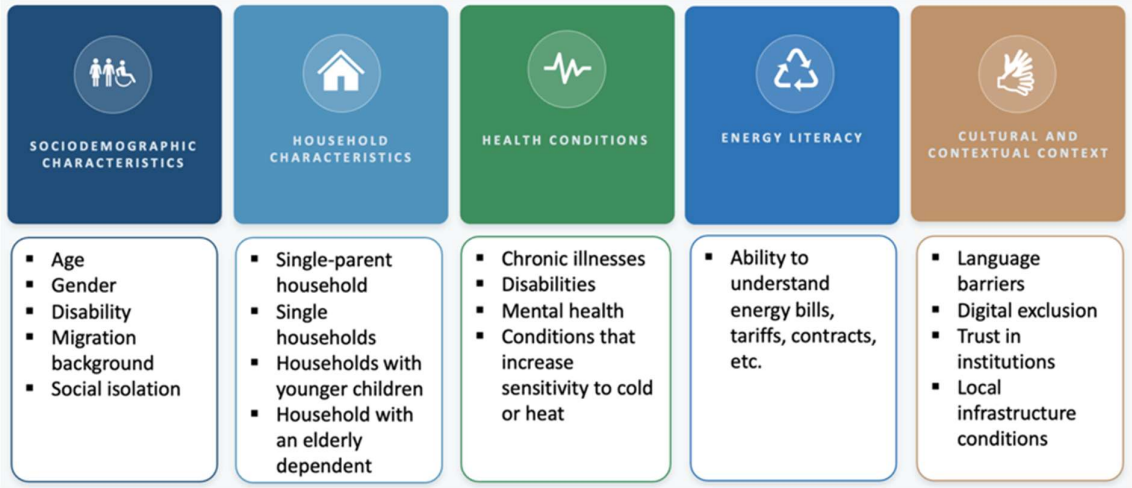

Figure 1: Key dimensions of vulnerability that shape access to essential energy services and available support[10]

Energy Poverty. When vulnerability factors, such as economic, infrastructural and contextual dimensions, accumulate and exceed a household's adaptive capacity to overcome energy-related barriers, the household may experience energy poverty. Energy poverty[11] is defined as a condition experienced by households unable to secure sufficient energy services, encompassing thermal comfort, illumination and appliance operation, required for maintaining physical health, well-being and social participation. The impact of energy poverty may also extend to other household members (e.g. caregivers of people with disabilities), who may face stress and fatigue when providing support in poorly resourced households.[12]

5 LOCAL CONTEXT

Budapest is divided by the Danube into two distinct halves: Buda on the west bank and Pest on the east. Administratively, the city consists of 23 districts, one of which is Józsefváros, officially designated as District 8. Józsefváros includes a wide variety of areas, which are very diverse both in terms of their urban and social character.

The position of the district is determined by the fact that it is located on the outskirts of Budapest's city centre, in the middle of the most developed region of Hungary (Budapest). The district is an integral part of the capital's economy and due to its central position, it is also the seat of many important institutions, with good transport connections.

[10] EPAH Guidelines, Addressing Vulnerability & Equity in Energy Poverty Action, 2026
[11] https://www.researchgate.net/publication/259543840_Energy_poverty_in_the_European_Union_Landscapes_of_vulnerability
[12] Assert, D2.1 Report on the state of the art on energy poverty and disability and relevant indicators, 2025

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Figure 2: Overview of Hungary and ComActivate project municipality

The district borders only other districts of the capital, and most of its boundaries do not constitute a functional boundary, so that, although the separating effect of the busy main roads is significant, the same buildings and functions generally appear on the other side of the district boundaries. This does not mean, however, that the district itself is homogeneous: Józsefváros is home to residential areas of widely differing status, institutional and green spaces of national importance, and industrial areas.

Józsefváros has an exceptionally high level of urban density, even by the standards of the capital. The built environment is dominated by residential and service buildings, which amplifies the effects arising from the city's climatic conditions and geographic location.

During the summer months, urban heat islands form in the most densely built-up areas, where temperatures do exceed 40°C. The increasingly frequent episodes of intense rainfall in the region cannot be effectively absorbed by the soil. As a result, moisture infiltrates the walls of older, uninsulated buildings, and on surfaces already dampened by leaks from damaged water and wastewater pipes, it causes additional water intrusion in basement and ground-floor areas. This presents significant public health risks for residents. Furthermore, due to the dense building fabric, energy intensity within the district is also extremely high.

Population. Józsefváros had a population of around 70,000 in 2022, making it the most populous of the inner Pest districts. Compared to the Budapest average, the population is over-represented in the working age population. Over the past two decades, largely as a consequence of urban regeneration programmes and ongoing gentrification processes, the demographic and social structure of the district has undergone partial transformation. The population has become increasingly heterogeneous, primarily due to the influx of higher-status, more highly educated residents. At the same time, in certain parts of the district, particularly within the pilot area, the concentration, spatial clustering, and social segregation of low-status and disadvantaged groups remain significant. These areas continue to be characterised by a relatively high unemployment, income poverty, and poor housing conditions.

Socio-economic profile. Józsefváros has the lowest average per capita net domestic income in Budapest. The population of this district is less educated than the average in Budapest, and even less educated than in other inner Pest districts.

The number of unemployed in Józsefváros has been steadily declining in recent years, in line with the national trend. However, the unemployment rate is still relatively high, about twice the Budapest average (4.5% against the 2.4% in Budapest at the end of 2023). Józsefváros had 446 taxpayers per 1,000 inhabitants in 2019, the 7th lowest among the districts. According to the most recent social data,

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more than 10% of residents in Józsefváros live in deep poverty, and an additional 33% have no financial savings. Social vulnerability worsened following the waves of the COVID-19 pandemic, as economic changes affected the livelihoods of 37% of residents, which proportionally increased the risk of energy poverty.

Additional significant challenges in the district include the prevalence of drug use, school segregation and dropout, and the poor quality of life experienced by a considerable share of the older population. Overall, a substantial proportion of residents can be considered disadvantaged in one or more dimensions, often facing multiple, complex forms of social vulnerability.

Despite relatively low energy prices in Hungary, the winter season continues to place significant strain on low-income households, particularly those living in low-energy-efficiency buildings that are 100 years old or older.

Housing stock. Nearly three-quarters of the buildings in Józsefváros were constructed before 1950, and many date back to the late 19th century. For these reasons, Józsefváros is one of the districts in Budapest most exposed to energy poverty.

The Józsefváros Municipality does not own heritage-protected rental buildings that have undergone large-scale renovations, but preserving their architectural character remains a priority. Façade alterations, including external insulation, are generally not permitted to preserve the buildings' original character, while thick brick walls often provide adequate thermal performance. Additionally, cost constraints further limit such interventions. Internal insulation is applied only where walls are thinner. Renovations consistently modernize windows with insulated glazing and wooden frames, preserving the architectural character of the neighbourhood, while ensuring proper apartment ventilation through integrated trickle vents. Preserving the architectural character also depends on the proper roof renovation. In that regard, to ensure historically appropriate yet cost-effective restoration, the Municipality insulates the top-floor ceiling structures (*zárófödém*), a method that has proven successful to date.

Besides the typical residential buildings built around the turn of the 20th century, the pilot area includes also a neighbourhood of panel housing complexes built in the 1970s. These ten-storey high residential buildings have over 100 apartments each. They are connected to district heating, thus their comfort level is well exceeding that of the old housing stock of the pilot area.

The Asset Management Strategy of Józsefváros defines the strategic framework for municipal asset management measures and investments, in alignment with the Economic Programme and the Integrated Territorial Development Strategy. A central element of the plan is the program for the development of municipal rental buildings and housing units. The Strategy was adopted in 2022 for the following seven years, and revised in 2025.

Taking into account the characteristics of the existing housing stock and the absence of external financial resources, the only viable approach to renewing the municipal housing portfolio is the qualitative transformation of the existing property stock. This includes the vacating and sale of buildings and housing units with the poorest characteristics and conditions, and the reinvestment of the resulting revenues into the renovation of the remaining municipal buildings and dwellings.

In accordance with the Asset Management Strategy, the goal is to retain for housing only buildings with a higher number of flats. Smaller buildings with 4 to 10 flats demand more energy to maintain than those with 20 to 40 flats. Therefore, these smaller tenements are going to serve another function in the future.

6 HOUSING IN JÓZSEFVÁROS

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Construction Periods of Multi-Family Apartment Buildings. Most buildings in the district were constructed before 1945, many even in the late 19th century and are typically terraced, 2–4-storey structures with a layout consisting of a street-front building, an inner courtyard, and courtyard-facing walkways (corridors). Most of these buildings are in poor or very poor technical condition and lack renovation. Roughly half feature ornate street façades, which significantly restrict the methods available for physical and thermal refurbishment, as external insulation on visible surfaces cannot be applied.

These conditions contribute to high energy consumption. Based on the district-wide Sustainable Energy and Climate Action Plan (in further text SECAP) analysis and 2019 data, 33% of CO_2 emissions resulting from natural gas consumption in the district originate from the residential sector.

Energy Efficiency Status. There is no comprehensive database of energy performance certificates, which makes it difficult to develop an accurate and comprehensive picture of the buildings' energy categories. In 2021, four certificates were issued for prototype buildings located in the neighbourhood: two from the late 19th century and two from around 1990, serving as a reference for the pilot area's energy profile.

Older buildings that have undergone façade renovation but were originally constructed without thermal insulation, the typical energy performance rating is "HH." With heating and hot water systems upgrades, they can achieve "EE". Buildings constructed around 1990, generally hold a "CC" rating, which can be further improved through window replacement and the integration of renewable energy sources.

In 2023, 53 municipal MFABs were technically assessed, out of which 27 are located in the ComActivate pilot area. The following description extrapolates these findings to the pilot area due to their similar architecture and technical features:

- The buildings' heating and domestic hot water demand was calculated according to the methodology defined in the Hungarian decree *7/2006 (V.24.) TNM on the determination of energy performance of buildings*, using onsite surveys and available architectural plans.
- Average annual heat consumption of municipal rental buildings and similar pilot-area structures is 164 kWh/m², though demand varies with building's configuration (shape) and the proportion of exposed surfaces (coverage by neighbouring structures).
- The buildings are uninsulated brick structures with traditional windows and significant thermal bridging, due to their courtyard corridor layout. The calculated thermal transmittance (U-value) of the façade walls is 1.14 W/m²K, of glazed windows 2.35 W/m²K, and of doors 4.0 W/m²K.

Thermal refurbishment (insulation of external elements and window replacement) is limited by thermal bridging, building typology and for ornate façades, external insulation cannot be applied on visible surfaces, resulting in U-values that do not meet the requirements for near-zero energy buildings, which currently prescribe 0.24 W/m²K for external walls.

Recent Renovations on Energy Efficiency. In 2022, the Municipality adopted a renovation strategy for its rental housing stock whereby the annual budget allocated to building renovation is distributed among multiple municipal buildings, allowing for the implementation of partial renovation works.

Between 2022 and 2024, the most common types of renovation were roof reconstruction and electrical rewiring, each carried out in eight buildings.

This approach is justified not only by the urgency of certain structural repairs, but also by the equally important objective of improving the living conditions of as many residents as possible, even if only to a limited extent, within the constraints of the available resources. It is also a key consideration that the Municipality is able to carry out these renovation works while the buildings remain inhabited. As mentioned earlier, exact technical improvement of heating-systems require complex architectural and technical refurbishments.

Major structural renovations are complemented by maintenance activities like the overhaul of entrance gates or the insulation of firewalls. Elsewhere, the replacement of the main drainpipes and the

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restoration of adequate basement ventilation is primary to reduce dampness in ground-floor apartments. In many cases, the mould and humidity problems affecting ground-floor units are significantly exacerbated by leaking basement drainpipes and the absence of proper basement ventilation. This increasingly deteriorates the thermal insulation properties of the walls.

Subsidies for Renovations. There is no state funding for public housing construction or renovation, nor for energy-efficient upgrades of private multi-family buildings, leaving local municipalities, already financially strained, to rely on housing sales for improvements, reducing the availability of essential public housing. Limited municipal resources and capacities risk rapid gentrification, while private owners, despite access to HOA financing, often lack sufficient funds for major renovations, struggling even to maintain safe building conditions.

However, the Municipality offers a range of grant programmes to support the renovation and energy-efficiency improvement of residential buildings, targeting both municipal rental units and privately owned condominiums:

- Home Renovation Grant Programme
    - Each year, the Municipality announces its Home Renovation Grant, which has provided HUF 300,000 (approx. EUR 782) and later HUF 500,000 (approx. EUR 1,303), to residents in municipal rental units for renovations, including energy-efficiency projects. In 2024, the budget for the program was HUF 50 million (approx. EUR 129,000), while in 2025, it was HUF 30 million (approx. EUR 77,340).
    - Between the launch of the programme in 2018 and 2025 a total of 682 applications received funding. Most funded projects concerned window and door replacement, installation of air-conditioning units, replacement of floor coverings, bathroom renovation, gas heater replacement, and interior painting. The call for applications is published once a year.
    - Participation in the programme requires applicants to attend an energy-efficiency consultation provided by LakóTér (our One-Stop-Shop), with the aim of reducing household energy consumption.
- Eszter Pécsi Grant Programme
    - Provides financial support to condominiums for renovation works on elements of buildings held in undivided joint ownership, for the restoration or replacement of common structures and installations, thereby improving the technical condition of condominium buildings in the district.
    - Through this programme, the Municipality offers a one-time, non-refundable grant of up to HUF 2,000,000 (approx. EUR 5,225) for renovation works. Applicants must provide a minimum 20% own contribution.
    - In 2025, 47 condominiums received the grant. The most common investments were the complete renovation of roofs, electrical wiring replacements and side corridors in critical condition. The total amount of grant was HUF 73 million (approx. EUR 188,200) with a mean of HUF 1,55 million (approx. EUR 4,000) per project.
- Mária Telkes Grant Programme
    - Supports the creation or improvement of active green spaces in condominium buildings (such as green courtyards, shading structures, green façades, or green walkways), as well as the installation of rainwater collection systems and the use of collected rainwater.
    - Eligible applicants include condominiums and housing cooperatives located within the administrative boundaries of Józsefváros that are not owned 100% by the Municipality.

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- It provides a one-time, non-refundable grant of up to HUF 3,000,000 HUF (approx. EUR 7,838). The conditions include a minimum 20% own contribution, and at least 40% of the grant amount must be allocated to plants, soil, and related landscaping works.
- In 2024, 23 condominiums received the grant. The total amount of support was HUF 22,5 million (approx. EUR 58,000).

- Green Panel Programme
  - This programme, in partnership with the Municipality of Budapest, has launched call for applications in February of 2026. Only one condominium with 206 flats has applied until June 2026. The building does not sit in the Pilot Area, rather in the more affluent neighbourhood of the district. This indicates how difficult it is for private owners to consider their properties at the building level and over the long term for renovation and investment, especially in neighbourhoods like the Pilot Area; and also highlights the fact that the emerging ratio of renters in the district means landlords see their private flats primarily as an income and they are not interested in their renovation. However, the Budapest and Józsefváros's partnership plans to launch the programme again in the next years.
  - The programme consists of two phases: preparatory and implementation. Only those residential communities that have received support during the preparatory phase and successfully completed it, will be eligible to apply for the implementation phase. Phase one funds the preparation of a decision-support study justifying energy-efficiency modernisation with no co-financing required. Phase two supports renovation measures from the decision-support study, covering 30% of total project costs, with a minimum of 10% own contribution (the rest is paid by a state supported loan).
  - Eligible applicants include Budapest-based condominium buildings and housing cooperatives with at least 10 residential units, constructed between 1946 and 1995, using panel or other industrialised building technologies. All complex, deep-renovation investments aimed at achieving significant energy savings will be eligible for support.
  - The anticipated budget is HUF 12 million (approx. EUR 31,338) for the preparatory phase and HUF 100 million (approx. EUR 261,192) for the implementation phase. Taking into account the fact that the subsidy rate is planned to be 30% and at least 30% energy savings is required, it is expected that about 1-2 panel building can be awarded throughout the programme in 2026.

7 PILOT AREA IN JÓZSEFVÁROS

The area of the project covers parts of 3 officially delineated neighbourhoods of the municipal strategic plans and is bounded by the following streets: Magdolna St.– Fiúmei Rd. –Orczy Rd. –Szigony St. – Szigetvári St.

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Figure 3: Delineation of the pilot area

Figure 4: Overview of the pilot area and its surroundings, with selected buildings highlighted in beage, orange and red

The main characteristics of the three delineated neighbourhoods in the pilot are summarized in Table 3.

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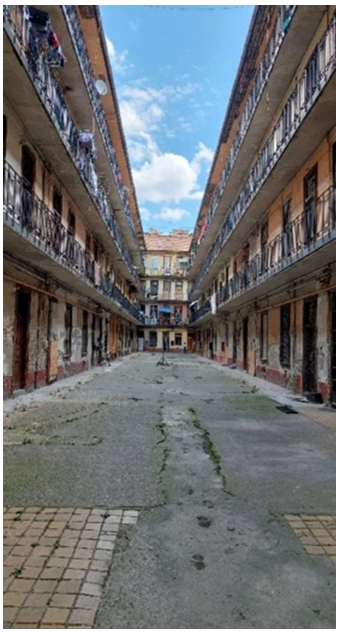
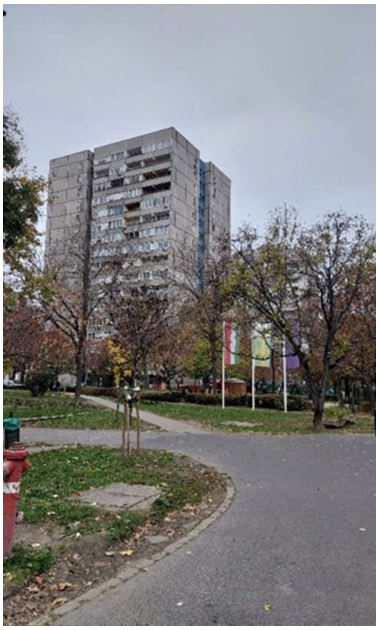
Table 3: Main characteristics of the three delineated neighbourhoods in the pilot area

Magdolna quarter bounded by Szigony St., Magdolna St., Fiume Rd. and Baross St. **(northern part of the pilot area)**	**Neighbourhood of Orczy quarter** **(south-eastern part of the area)**	**Losonci quarter, east of Szigony Street** **(south-western part of the area)**
		
• It includes the 4 central blocks of the Magdolna quarter adjacent to Kálvária Square. • It has a high proportion of low-quality and one-room flats, which, after significant improvements, still exceeds 50%. • In 2011, it had the highest unemployment rate of all Józsefváros quarter and the highest quarter-level segregation rate, which exceeded the 15% at-risk threshold.	• Orczy quarter is the most peripheral part of central-Józsefváros, the second most critical crisis area of the district, next to the Magdolna quarter. • The area has a varied and mosaic character. • Since the 2000s, new condominiums have been built in many parts of the area. However, the area around the middle section of Diószegi Samuel Street is still the most segregated[13], ghettoised and crime-affected[14].	• Domination of prefabricated concrete block of flats built in the 1970s and using district heating. • The strength of the area is its central location, which also encourages regeneration. • The age composition of the population and unemployment rate are average compared to the district in total, the segregation rate is above average, and the blocks along the Orczy district are at risk of segregation.[16]

[13] The 2011 Census identified a segregated area of 728 people and 436 dwellings, and a larger five-block segregation risk area of 4,317 people and 2,367 dwellings.
[14] Drug use and trafficking is a particularly significant problem.
[16] Integrated Urban Development Plan of District 8, 2015

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Magdolna quarter bounded by Szigony St., Magdolna St., Fiume Rd. and Baross St. (northern part of the pilot area)	Neighbourhood of Orczy quarter (south-eastern part of the area)	Losonci quarter, east of Szigony Street (south-western part of the area)
• In addition to the higher apartment buildings that almost dominate along the main roads, there are many smaller houses on side streets, up to 150 years old, as well as workshops and a large number of vacant lots. • It was an object of three waves of social rehabilitation programmes between 2005-2015 in which 28 municipal buildings and 13 condominiums were renovated.	• The very outdated housing stock is largely municipally owned and of low comfort. • Significant new housing stock is more modern but overcrowded in places, with many small one-bedroom dwellings. • Between 2018 and 2023, the Magdolna-Orczy[15] Programme carried out regeneration of seven blocks. The integrated approach included both renewing the neighbourhood's building stock, creating a more liveable living environment, tackling crime problems and significantly improving the skills and cooperation of the population.	

The pilot area's old public and private housing stock faces significant structural and technical challenges, such as: many units were subdivided from larger apartments, creating hard-to-fix layouts; electrification and heat pump installation are limited by building infrastructure and apartment design; renewable energy applications are constrained by roof layouts and do not fully address winter heating; century old buildings rely on decentralized natural gas systems and residents resist centralisation. While district heating exists in panel housing, pipe capacity limits further expansion.

8 FINDINGS FROM THE TECHNICAL SURVEY OF THE PILOT AREA

In July 2024, experts of EcoInvest (ComActivate project partner) visited the pilot area and made photos on all residential buildings. This, complemented by the technical observations by Google Maps and

[15] Magdolna-Orczy (MOrczy) Programme covered the area around Dankó Street - Magdolna Street - Baross Street - Kálvária Square - Diószegi Sámuel Street - Dugonics Street - Illés Street - Kálvária Square.

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application of technical modelling tools resulted in the calculation of buildings' energy needs and the potential of decreasing these needs by external investments on the building envelop.

According to these observations the pilot neighbourhood is approximately 0.95 km^2. It includes 295 residential buildings, many of which are smaller old MFAB, closely packed side-by-side and sharing outer walls, with small inner yards or gardens and narrow streets between them. Beside such buildings, there are several large residential buildings or high-rises with several entrances each, separated from other buildings by parks and parking spaces. There are brand new buildings built between old buildings, often sharing outer walls.

Table 4: Overview of building stock, pilot area, current state

Buildings	-	295
Heated area, total	m^2	590,924
Heated area, average per building	m^2	2,003
Heat required for heating, total	kWh/a	53,756,733
Heat required for heating, average per m^2	kWh/m^{2}a	90.97
Small buildings (≤500 m^2)	-	70 (24%)
	m^2	16,448 (3%)
	kWh/a	3,856,449
	kWh/m^{2}a	234.46
	tCO$_2$/a	774.95
	tCO$_2$/m^{2}a	0.014
Mid-sized buildings (500-2,000 m^2)	-	130 (44%)
	m^2	150,630 (25%)
	kWh/a	17,797,615
	kWh/m^{2}a	118.15
	tCO$_2$/a	3,955.31
	tCO$_2$/m^{2}a	0.026
Large buildings (≥2,000 m^2)	-	95 (32%)
	m^2	423,846 (71%)
	kWh/a	32,102,669
	kWh/m^{2}a	75.74
	tCO$_2$/a	4,536.84
	tCO$_2$/m^{2}a	0.011

Budapest experiences a transitional climate, lying between a humid temperate and a humid continental climate. Summers are generally warm to hot, while winters are cold and often overcast. From November to early March, temperatures can drop significantly, with nighttime lows of −10 °C not uncommon between mid-December and mid-February. However, snowfall occurs rarely during this period. Spring (March and April) brings rapidly rising temperatures and unpredictable weather. The long summer season, lasting from May to mid-September, is typically warm or very warm, though sudden heavy showers are common, especially in May and June. Autumn, from mid-September to late October, features mild temperatures, limited rainfall, and plenty of sunshine. However, temperatures can drop sharply in late October or early November. Budapest has low number of rainy days, and plenty of sunshine.

Implementation of any renewable energy sources measures makes sense only if buildings are fully insulated, i.e. with wall, ceiling/roof and floor/basement insulation, as well as with new windows and doors.

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Table 5: Overview of building stock, after implementation of some energy efficiency measures (insulation and change of windows)

Heat required for heating, total	kWh/a	24,487,566
Heat required for heating, average	kWh/m^{2}a	41.44
Small buildings (≤500 m^2)	kWh/a	1,158,697
	kWh/m^{2}a	70.45
	reduction %	69.95
	tCO_2/a	232.84
	tCO_2/m^{2}a	0.014
Mid-sized buildings (500-2,000 m^2)	kWh/a	7,308,729
	kWh/m^{2}a	48.52
	reduction %	58.93
	tCO_2/a	1,659.11
	tCO_2/m^{2}a	0.011
Large buildings (≥2,000 m^2)	kWh/a	16,020,139
	kWh/m^{2}a	37.80
	reduction %	50.10
	tCO_2/a	4,536.84
	tCO_2/m^{2}a	0.0111

In the Reports on possibilities for energy production from renewable sources needed for energy autonomy/independence of targeted districts, various renewable sources have been analysed and considered to achieve sustainable and independent energy supply after implementation of energy efficiency measures, instead of currently used district and individual heating based on natural gas. It has been suggested to change current ways of heating by installing inverter split-system air conditioners and heat pumps. Through installation of photovoltaic (PV) panels on rooftops and inverters within the buildings, there would be possible to achieve energy sustainability for the entire target neighbourhood.

Considering that baseline assessment and proposed energy efficiency measures are already covered and included in building stock (with all details), the next step would be prioritisation and selection criteria. Based on numbers presented in Table 4 and Table 5, it would be reasonable to start implementation from large buildings. Largest by heated area, and accommodating most residents, they would provide great start. Some of these buildings are built in rows along the streets, therefore effectively reducing investment. Small and mid-sized buildings would usually require smaller investment, but the expected impact would be smaller too, involving less residents. They could be included in later stages of renovation, what is particularly favourable considering many of these smaller buildings are protected as historical heritage, thus ensuring time to evaluate and assess right approach to their renovation.

It is hard to give implementation timeline, as it includes many mutually connected and intertwined steps. Preparation could take 6 to 12 months, and include coordination with HOAs and verification of legal documentation and ownership. Residents should acknowledge that implementation of the RES measures makes sense only if all the EE measures are implemented. Technical documentation and procurement procedures could be made in stages. Implementation of measures, i.e. actual works on buildings (particularly installation of new heating systems), could take up to 5 years to complete, considering number of buildings and available resources, weather and other influencing factors.

There are many key actors to be involved in this process, some of them being HOAs, Municipality of Józsefváros (technical assistance, social programmes and co-funding support), construction companies and electricity distributor/operator (for PV grid connection). With their joint work and assistance to residents, financing plan and analysis can be made, including municipal and EU-funded subsidies, “green” and other loans or other co-financing programmes.

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After implementation of measures, monitoring and verification should last at least 10 years, particularly because renovation includes new heating systems.

9 VISION FOR THE PILOT AREA

The ComActivate pilot area covers parts of three neighbourhoods with distinct characters, though major changes in the Orczy quarter are expected to have a strong impact on the other two.

According to the recent investment plans and already initiated large-scale interventions, the character of the target neighbourhood will change significantly:

- a new research centre of the Semmelweis Medical University is under preparation and
- a new educational complex of the National University of Administration is under planning. These two investments are planned to be completed by 2030.

These interventions most probably will change the social composition of the area, which will be threatened by fast gentrification.

Thus, the vision for the area is to benefit from the intense construction activities, but still preserve the social values of at least two neighbourhoods out of the three in the target area. Benefiting from the revenues of the sales in Orczy quarter the Municipality aims to invest in the two other quarters in order to increase the quality of the currently substandard residential building stock and improve the quality of public spaces to be able to mitigate the harmful consequences of climate change.

9.1 Goals for the pilot area

In order to set the goals for a more sufficient housing sector it is crucial to define the concept of sufficiency in Józsefváros. Sufficiency has lower and upper limits:

- It must ensure adequate level of housing for all within the planetary boundaries.
- Sufficiency measures have to increase the level of housing when it falls below the lower limits and reduce consumption when it creates overconsumption.

When operationalizing the sufficiency term in housing, the local ComActivate research team identified the following possible interventions, to be set as possible goals and actions for the current strategy:

Table 6: Overview of proposed sufficiency goals

To increase housing quality above the lower threshold of sufficiency	To mitigate overconsumption
Handle Energy Poverty • Income-based interventions to make energy affordable • Structural interventions for renovation	**Handle Energy Poverty** • Optimised energy consumption • Moderated rebound effects of renovation
Provide sufficient size and quality of housing units	**Provide sufficient size of housing units**

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To increase housing quality above the lower threshold of sufficiency	To mitigate overconsumption
• Renovation strategies • Distribution strategies	• Renovation and utilisation of vacant units • Distribution strategies for utilizing vacancies and under-use • Converting non-residential buildings to housing • Sharing housing functions, co-habitation
Make housing affordable and secure • Control of public rent levels • Access to home-ownership • Provision of security of tenure	**Make housing costs reasonable** (reflecting environmental and housing externalities) • Legal and regulatory interventions to bring vacant units back to the market (e.g. ban on Airbnb, taxation)
Provide proper housing environment • Security on streets • Clean environment • Decreased air pollution • Protection from heat waves	**Decarbonisation of energy systems** • Decarbonisation of internal and external energy systems • Involving renewables • Setting of energy communities

With regard to the generic goals set on municipal level, references to the Sustainable Energy and Climate Action Plan (SECAP 2022)[17] is essential. Some of the below mentioned goals set in the SECAP – especially the shaping of public attitudes and awareness-raising will be made more sustainable using part of the project budget. But it is important to underline, that most of these goals will be implemented through other projects, not directly through ComActivate.

The SECAP 2022 sets out the following goals for the Municipality:

- **Goal:** Energy efficiency investments in buildings operated by the municipality

  Description of the objective: the municipality has the most information available about the buildings it operates and thus has a direct influence on what investments should be implemented on these buildings. During the preparation of the SECAP, data from approximately 50 municipal buildings were reviewed. The goal of the SECAP is to reduce gas consumption in municipal buildings by 40% by 2030 compared to the 2019 base year through various energy efficiency investments.

  Target group: municipal non-residential buildings

  Time span: 2022-2030

  Expected result: With investments like thermal insulation, replacement of doors and windows, modernization of heating and lighting, replacement of electrical appliances a total of ~1860

[17] https://jozsefvaros.hu/otthon/onkormanyzat/strategiak/2022/07/fenntarthato-energia-es-klima-akciotery-secap/

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MWh per year can be saved. The proposed energy efficiency investments in municipal buildings could result in total annual savings of 390 tons of carbon dioxide.[18]

- **Goal:** Use of renewable energy sources in buildings operated by the municipality

  Description of the objective: The aim of SECAP is to install solar panel systems on the roofs of all municipal non-residential buildings where the relevant investment has not yet been made, there are no restrictions due to historical preservation, and the roof structure is suitable for installation.

  Target group: municipal non-residential buildings

  Time span: 2022-2023

  Expected result: The expected output of the solar panels is more than 1,650 MWh of electricity. The heat energy to be replaced by heat pumps is nearly 10,000 MWh. Green electricity production with solar panels will prevent 375 tons of carbon dioxide emissions per year (not including solar panel investments in municipal buildings not maintained by the local government). Heat pumps will prevent nearly 2,000 tons of emissions per year.[19]

- **Goal:** Creation and continuous monitoring of a municipal energy management database

  Description of the objective: The purpose of establishing an energy management system is to make the energy consumption of individual institutions easy to track, compare, and evaluate. This database must be updated annually so that it can be used for comparative and analytical studies before making energy decisions and initiating investments.

  Target group: Operators and users of municipal institutions; external or internal energy experts

  Time span: 2022-present day

  Result: The municipality operates it's own energy management database, called "PANDA". The database was established by the help of an external energy expert company. It is continuously monitored by a municipal employee (energy advisor) who's duty is ultimately to assist the municipality in collecting and evaluating energy consumption data, help selecting institutions for renovation, planning investments, and preparing energy tenders. Their tasks include providing advice and feedback to the local government and institutions on their energy consumption trends.

- **Goal:** modernization of public/street lights

  Description of the objective: Currently, the district still mainly uses compact fluorescent street lighting, with nearly 5,600 light sources. However, during renovations and new investments, only modern LED technology is permitted. Modernization is ongoing in the district.

  Target group: Local residents, travelers passing through

  Time span: 2022-2030

  Expected result: modernization of public/street lights in cooperation with the Municipality of Budapest.[20]

- **Goal:** Raising awareness of energy conservation among municipal employees and energy-efficient operation of municipal buildings

[18] In recent years, approx. 50-60 apartments have been renovated, including heating system modernization and inspections of windows and doors.
[19] Solar panels have been installed on two municipal buildings to date, with plans for installation on two further buildings.
[20] The modernization of public/street lighting was completed on seven district streets during 2023-2024. Plans are underway for eight streets, four of which are expected to be implemented in 2026.

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Description of the objective: The aim is for the Józsefváros Local Government to strive to expand the knowledge of its employees in the area of individual involvement in energy conservation through training courses held each year.

Target group: Mayor's Office; employees of municipal organizations; maintainers and employees of municipal and other communal sector buildings

Time span: 2022-2030

Expected result: Trainings on energy conservation, awareness-raising events that achieve a reduction in energy consumption and, consequently, carbon dioxide emissions by changing consumption habits. Raising awareness, without significant financial investment.

- **Goal:** Integration of the “Green-approach” in the public procurement processes

  Description of the objective: Where possible, enforcement of environmental and sustainability considerations in public procurement procedures.

  Target group: Municipal employees, visitors to municipal buildings

  Time span: 2022-ongoing

  Expected result: Sustainability considerations are taken into account in green public procurement, which means that technologies with lower energy consumption are given priority. In the long term, therefore, all such investments result in energy savings and a reduction in carbon dioxide emissions compared to the original investment plan.

- **Goal:** Monitoring the new Energy Efficiency Obligation Scheme (EEOS) and establishing cooperation

  Description of the objective: The EEOS, which is already in operation in several European countries, aims to ensure that energy efficiency investments are implemented through a legal obligation to reduce energy consumption and CO2 emissions. In Hungary, the Energy Efficiency Obligation Scheme (EEOS) came into force in Hungary, the essence of which is that energy suppliers (electricity, natural gas and fuel traders and universal service providers) are obliged to save energy in proportion to the energy they sell to end users. To this end, the aim is to implement energy efficiency projects, modernizations, and investments aimed at reducing energy consumption among end users (households, companies, institutions).

  Target group: Municipal employees, visitors to municipal buildings

  Time span: 2022-ongoing

  Expected result: Within the framework of the measure, the primary task of the local government is to monitor the operation of the EEOS, collect international and domestic best practices, and then use this information to establish its own partnerships with the above-mentioned service providers, who could potentially provide financial support in the future for the energy-efficient renovation of municipal institutions as "end users."

With regard to residential purposes, the SECAP 2022’s goals include:

- **Goal:** Residential energy efficiency investments

  Description of the objective: Between 2022 and 2030, we aim to modernize the energy efficiency of 20% of single-family homes and 35% of condominiums in the district, which affects approximately 30 single-family homes and 13,000 condominium apartments. The target energy savings are set at 30% for single-family homes and 40% for apartment buildings.

  Target group: residents, HOA-s, renovation companies

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Time span: 2022-2030

Expected results: In residential buildings, modernization measures, primarily the avoidance of natural gas combustion and district heating, will save residents a total of approximately 45,700 MWh of energy per year.

- **Goal**: Residential renewable energy investments

  Description of the objective: Installation of solar collector systems on approximately 5% of apartment buildings and heat pump systems in 10% of smaller apartment buildings (2-10 apartments) by 2030.

  Target group: district population, HOA-s, service providers

  Time span: 2022-2030

  Expected result: With the above investments, the expected average annual production of solar panel systems will be 38,000 MWh by 2030. Solar collector systems and heat pump systems can provide approximately 1,900 MWh of thermal energy per year. The solar investments planned in the residential sector would save the environment from 8,600 tons of CO2 emissions per year. Solar collectors would prevent 470 tons of emissions per year, while heat pumps would prevent 380 tons per year.

- **Goal:** Information and advice to promote energy investments by the general public

  Description of the objective: Organized information and advisory work carried out by the municipality: on tax incentives, renewable and energy efficiency solutions, available grants, and good examples from the municipality.

  Target group: residents of the district

  Time span: 2022 –

  Expected result: The impact of the above measures is reflected in savings on residential energy investments.

- **Goal**: Identifying and monitoring energy-poor households

  Description of the action: Identifying households struggling with energy poverty and continuously monitoring their situation (for example by implementing a “home-visit program”.

  Target group: energy poor households

  Time span: 2022-2030

  Expected result: -

- **Goal**: Shaping public attitudes – energy conservation, Shaping attitudes and communication related to energy poverty

  Description of the action: Intensive awareness-raising activities, both online and offline (kindergarten activities, theme days in high schools, lectures, open days, themed article series, community campaigns, etc.)

  Target Group: population of the district, with a focus on young people and energy-poor households

  Time span: 2022-2030

  Expected result: -

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Besides the goals set in the local SECAP (to be revised in 2026) specific goals set for the ComActivate target can be defined for 2030. In general the main goal is to secure a stable and sustainable housing stock with a lower share of public housing but on a higher level of quality. For the three neighbourhoods of the pilot area the specific goals are the following:

1. As for the Orczy quarter where the large-scale university interventions are in preparation the main housing sufficiency goal is to provide affordable housing for those who are connected to the educational institutions (dormitories, rental units). This goal is planned to be fulfilled by private actors.

2. As for the Magdolna quarter where housing has the worst technical conditions, the main housing sufficiency goal is to increase the quality and efficiency of the public and private residential units to exceed the lower limits of sufficiency. The basic requirement is that there must be flushing toilet and bathroom in each unit and the wetting of the walls must be eliminated in each building, such as the structural deficiencies must be fixed.

3. As for the Losonczi quarter where the prefabricated panel buildings are located, the main housing sufficiency goal is the improvement of the energy efficiency of the building stock and the installation of renewable energy sources.

As the selling of municipal properties planned to end up in 2030 – no more marketable properties will be left, it is essential to use the sources in the wisest way and sustain the results reached by 2030 in the coming decade. For the 2030s there is a hope that state/EU subsidies will be more available for the renovation of residential buildings and the electrification of energy systems.

9.2 Proposed Activities

The proposed activities are defined up to 2030 as this time scale can be strategically predicted. The proposed actions contain tasks related to data gathering and preparation, piloting some energy sufficiency measures in housing distribution and the most crucial technical steps to improve the quality of the housing stock.

A detailed overview of defined activities has been presented in Table 7.

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Table 7: Overview of defined activities and responsibilities

Objective	Activities	Lead actors	Supporting actors	Target group	Timeline (years)
Up-to-date understanding of the condition of the housing stock	Finalisation of the technical inspection of the public housing stock	Management Centre of Józsefváros (in further text JGK)	External technical experts	Public tenants	2026-2027
Evaluate available electrification technologies	Analysis of the technical means of electrification (heat pumps, H tariffs, renewable potentials)	Municipality of Józsefváros (Property management and housing unit)	JGK External technical experts	Inhabitant of the neighbourhood	2026-2027
Assess the feasibility of integrating buildings with large scale energy systems	Analysis of the potential to connect to large scale energy systems (capacity of electricity grids, district heating, energy systems of the forthcoming large-scale educational investments)	JGK	Energy companies	Inhabitant of the neighbourhood	2026-2027
Investigate the climate adaptation capacity of vulnerable households	Implementation of the Just4Care project for assessing the possibilities of climate adaptation in Magdolna and Orczy quarters with the involvement of the most vulnerable inhabitants – project started in November 2025	Municipality of Józsefváros (Property management and housing unit)	RC	Vulnerable inhabitants of the neighbourhood	2026-2028
Collect data to understand vacancy levels	Analysis of the vacancies and underutilisations in the private and public	Municipality of Józsefváros (Property	JGK External social experts	Vulnerable inhabitants of the neighbourhood	

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Objective	Activities	Lead actors	Supporting actors	Target group	Timeline (years)
and underutilisation patterns	housing stock (statistical and survey based)	management and housing unit)			2027
More efficient housing distribution system	Developing an app/website for accommodating housing swaps within the public housing stock – already in preparation	Municipality of Józsefváros (Property management and housing unit)	JGK RC	Public tenants	2026
Support long-term financial sustainability of public housing	Modification of the public housing rent schemes (elimination of social rents and strengthening of housing allowances)	Municipality of Józsefváros (Property management and housing unit)	JGK RC	Public tenants	2027-2028
Involvement of private units into the public housing system	Enlargement of the capacities of the local Social Rental Agency	Municipality of Józsefváros (Property management and housing unit)		Vulnerable inhabitants of the neighbourhood	2026-2027
Optimise the use of available housing space	Development of housing models with shared functions (e.g. utilising basements linked to their renovation, for common functions like storage, laundry, guest room, kitchen)	Municipality of Józsefváros (Property management and housing unit)	JGK RC	Inhabitant of the neighbourhood	2027-2028
Monitoring and management of resource consumption in	Make all public housing units measurable with regard to water, heat and electricity consumption	Municipality of Józsefváros (Property management and housing unit)	JGK RC	Public tenants	2026-2027

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Objective	Activities	Lead actors	Supporting actors	Target group	Timeline (years)
public housing units					
Ensure resilient, comfortable and sustainable housing	Implementing the most critical structural and energy upgrades in the public housing stock (water retention, insulation of firewalls, attics and basements, change of windows)	Municipality of Józsefváros (Property management and housing unit)	JGK RC	Public tenants	2026-2030
Provision of financial assistance	Operating a subsidy scheme for the crucial renovation of private condominium buildings	Municipality of Józsefváros (Property management and housing unit)	RC	Private HOAs	2026-2030
Support the Municipality's sustainability initiatives	Joining the Green Panel programme of the Municipality of Budapest	Municipality of Józsefváros (Property management and housing unit)	RC	Private HOAs	2026-2027

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9.3 Tailored outreach and communication

Effective communication is not an additional aspect of the NESR, but rather its cornerstone. Regardless of funding or technical quality, no renovation initiative will succeed if the target population neither understands it nor feels sincerely considered.

This chapter outlines NESR approach to outreach and stakeholder/citizen engagement that is organized around five interrelated pillars:

- Language-accessible information
- Communication through culturally and locally appropriate channels
- Trust-building activities
- Continuous two-way dialogue and
- Ongoing monitoring and adaptation.

These five pillars form a communication framework designed to reach all residents of the neighbourhood, regardless of their language, age, digital access or prior experience with public programmes. At the same time, the framework is built to adapt continuously to changing needs and circumstances, ensuring that residents are engaged as active partners than passive recipients.

Language-accessible Information. The starting point for any communication strategy is an assessment of the audience's capacity to understand and engage with the message. Where neighbourhoods have a diverse linguistic composition, the answer can not be taken for granted.

All communication materials (leaflets, frequently asked questions, application forms, workshop handouts) need to be produced in Hungarian as the primary language. Where there is a significant presence of other language groups, equivalent versions should also be made available in those languages.

To ensure accessibility, all materials need to be written in plain language, using clear, concise and easy to understand wording while avoiding complex sentence structures, technical jargon and ambiguous terms. Once the content has been simplified and finalized, it can then be translated into other languages.

NOTE	**Messages should be tested rather than assumed to resonate.** • Where technical and legal terms must appear, they should be followed by a plain language explanation in parentheses. • Before anything is finalized or shared, materials must be reviewed by community individuals (volunteers) from each language group. • Every key messages (energy savings, eligibility for subsidies, application deadlines and contact details) is supported with simple visual icons, so the information is accessible even for those with lower literacy levels.

Communication Through Culturally and Locally Appropriate Channels. A communication strategy that relies solely on one channel will consistently fail to reach the populations that need it most. The NESR combines traditional and digital communication channels, aiming for both broad outreach and meaningful engagement.

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- Community meetings: Meetings are scheduled at times that accommodate working adults, elderly residents and parents with school-age children. These meetings are held both at the RC and within community spaces across the neighbourhood, if convenient for the residents and the specific circumstances.

- Focus groups: Focus groups are a structured form of small-group discussion used to gather insights, opinions and perceptions from people who may share similar experiences or challenges such as tenants, youth, elderly residents, etc. By bringing together participants with similar backgrounds this approach encourages more open discussion and allows a safe environment where all participants feel comfortable contributing.

- Door to door visits: This approach is used when targeting vulnerable groups as it enables direct, personal and trust-based interaction with these people who are often difficult to reach through conventional communication channels. Many vulnerable groups (e.g. elderly people, low-income households, socially isolated individuals, people with limited digital access, etc.) may not participate in public meetings or actively seek information about services and support mechanisms.

- Printed materials: Materials need to be distributed and made available for residents to pick up at the RC and frequently visited locations within the neighbourhood. This may include community centers, public utility company premises, local shops, residential building entrances, etc. Placement of materials take into account the daily movement and habits of residents to maximize visibility and accessibility.

- Digital outreach channel: Channels such as SMS or mobile applications (e.g. Messenger, Viber) are an effective and low-cost communication channel for wider outreach at neighbourhood level. Since mobile applications are already widely used in many communities, it provides a familiar and accessible platform for communication. However, when using mobile applications an administrator respects privacy and data protection principles such as obtaining participant consent, limit the sharing of personal information and clearly communicating the purpose and rules of the group.

Trust-building Activities. Important preconditions for effective communication such as language accessibility and the use of appropriate communication channels are not sufficient to establish trust. In communities that have experienced failed promises or administrative complexity, trust must be built through consistent, transparent and open dialogue.

The NESR trust infrastructure is based on three elements:

- A credible intermediary institution

- Community knowledge sharing

- Meaningful participation

Credible Intermediary Institution: The RC as Trusted Intermediary. Its role is not only to distribute information but to accompany resident through the renovation process from first enquiry to project completion. Specific functions include:

- Home visits: representatives of the RC visit households at their request, assessing the building's situation, explaining eligible measures and walking residents through the application process.

- Personalised technical advice: each households receives advice tailored to their specific building type, tenure situation and financial circumstance.

- Follow-up: the RC proactively follows up with households that expressed interest but have not yet progressed, identifying and addressing barriers rather than waiting for residents to re-engage.

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Continuous Two-Way Dialogue. This pillar represents the most transformative change to traditional public communication approaches. Traditional communication method is predominantly one-way and passive, focusing on sharing, preparing and distributing materials to a public. The NESR takes a different approach by engaging residents as active participants in shaping their neighbourhoods.

Before any outreach activities begin, a stakeholder mapping exercise should be carried out to identify the full range of stakeholders who may either support or hinder renovation efforts. This extends beyond apartment owners and tenants and includes:

- Vulnerable groups: older residents living alone, energy poor people, people with disabilities, etc.
- Community intermediaries: trusted individuals with informal influence within the community, such as religious leaders, respected local figures, social workers, school directors, etc.

Open dialogue sessions should be held regularly with the primary goal of hearing from residents rather than presenting information to them. These sessions should begin with a brief project update, leaving most of the time for residents to share their views, concerns and suggestions. Facilitation needs to be conducted by trained professionals who can create an environment that prioritize listening, encourages participation and ensures that all voices are heard. During these sessions raised concerns need to be documented exactly as expressed, ensuring that their specificity are not diluted through paraphrasing. Residents who raised specific concerns need to receive individual follow-up from the RC.

NOTE	**Fostering ongoing conversation.** • Research on public participation[21] shows that residents who feel genuinely heard are more likely to trust decision-making processes and maintain engagement even during challenging periods

Monitoring and Evaluation. A communication strategy without systematic evaluation is only a plan that hopes to succeed. The NESR integrates monitoring and evaluation into the communication framework from the beginning, treating communication effectiveness as a performance indicator with the same relevance applied to other metrics (technical or financial).

Communication effectiveness need to be assessed through a combination of quantitative and qualitative indicators:

- Participation rate: How many people are showing up to community meetings and open dialogue sessions? Additionally, it should be tracked how many households respond to door-to-door visits and break this down by age and gender.
- Repeated contact rate: measuring the number of households that contact the RC more than once is worth since it could mean they did not get a clear answer the first time or It could mean they trust the channel enough to come back.
- Satisfaction survey: using short surveys after community events to assess the quality, accessibility and usefulness of information provided.
- Grievance mechanism: tracking communication-related grievances, response times and information accuracy, with results reviewed on a monthly basis.

The above-mentioned indicators need to be read differently for energy poor people because low turnout does not necessarily mean low interest. It often reflects real barriers. Energy poor households are more likely to skip meetings because they are less comfortable with digital or written materials if literacy or internet access is limited. The following indicators should be considered on energy poor households:

- Track participation of energy poor households separately, not just by age and gender, to see if they are being reached at all.

[21] OECD Survey on Drivers of Trust in Public Institutions, 2024

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- Watch for a low repeat-contact rate as a potential warning sign. It may mean the first contact left people confused or discouraged rather than satisfied
- Conduct satisfaction surveys verbal or in-person where possible, since this group may be less likely to fill out written forms.
- Flag grievances from energy poor households separately, since they may be more hesitant to complain in the first place.

However, the purpose of measurement is not simply to evaluate performance, but to generate insights that lead to meaningful action and lasting impact. The NESR therefore propose monitoring data to guide continuous improvements through:

- Monthly communication review meetings attended by RC staff, municipal staff and one community representative to identify trends and agree on adjustments.
- Transparent communication of changes through all active channels, explaining what was changed and why, reinforcing trust between the project and residents.

NOTE

Communication framework that learns.

- Success is not measured by how many materials are produced, how many meetings are held or messages sent. It is measured by how many eligible residents understand the programme or project well enough to make informed decisions, trust it enough to engage with it and feel heard enough to recommend it to their neighbours.

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