

Innovative Transfer Network

Investment Plan for the City of Maia



Index

- EXECUTIVE SUMMARY 3
- 1. THE POLICY CONTEXT..... 4
- 2. THE INVESTMENT PROPOSAL 11
- 3. THE ADAPTED INNOVATION PROJECT 26
- 4. BUDGET 32
- 5. MONITORING AND EVALUATION 33

EXECUTIVE SUMMARY

The Investment Plan establishes the strategic roadmap for the Municipality of Maia within the framework of the URBACT “EmPowerIngUs” network. Based on the Getafe’s EPIU - Energy Poverty Intelligence Unit model, this document consolidates our local framework to proactively diagnose and mitigate energy poverty across the territory. It reflects the planning phase, framed by data-driven insights as well as the collaborative efforts of our URBACT Local Group.

This initiative is deeply embedded in Maia’s broader vision to establish itself as a citizen-centric Smart City. Rather than viewing technological innovation in isolation, the Municipality adopts a holistic and integrated methodology where digital transformation directly serves social cohesion and environmental sustainability. Within this strategic framework, addressing energy poverty is recognized as a critical priority. Improving energy efficiency and affordability is not only essential for elevating the quality of life and well-being of Maia’s citizens, but it is also a fundamental pillar in advancing a local agenda strictly aligned with global climate targets and carbon neutrality goals.

Thus, this document serves as a main driver in fighting energy poverty, outlining six priority actions, from a data intelligence unit, to the creation of an inclusive renewable energy community (REC). This operational framework defines clear implementation workflows and secures localized funding streams to guarantee an impactful execution.

It also establishes a robust baseline for immediate deployment, positioning Maia as a leading reference for sustainable and inclusive urban development.

1. THE POLICY CONTEXT

1.1 Needs analysis in the territorial context

In Portugal, every winter, thousands of families repeat a painful cycle with ritualistic trends: close rooms to save energy, use heaters with extreme restraint (when they exist), and live with the persistent feeling that heating the house is a luxury! We are talking about a structural problem that exists, year after year that places us at the bottom of the European rankings in terms of energy poverty.

According to Eurostat, in 2023, about 20.8% of the population in Portugal declared that they could not keep their homes adequately heated in winter. The European Union average was 10.6%. In a country with a mild climate, one in five people lives in cold conditions inside their homes.

According to the Portuguese Directorate-General for Energy and Geology, between 1.8 and 3 million people live in energy poverty, with more than 600,000 in severe energy poverty. These numbers are the result of 3 main combined factors:

- low income
- high energy prices
- old and inefficient housing stock

There is a clear acknowledge of the problem, but policies continue to fall short of what is needed. The social energy tariff, which in 2023 covered approximately 800,000 consumers, is an important short-term measure. However, its limitations are evident: it reduces the bill but does not reduce the energy needed to achieve thermal comfort. In poorly insulated homes, heat (even when subsidized) is lost quickly.

The consequences go far beyond discomfort. Reports from the World Health Organization, as well as European and National studies, consistently demonstrate the impact of cold homes on health:

- higher incidence of respiratory and cardiovascular diseases;
- worsening of chronic pathologies;
- increased pressure on health systems;

In Maia, the situation is similar: energy poverty has emerged as a growing concern over the past decade, exacerbated by rising energy prices, inflation¹, and the economic impacts as recent energy supply instability caused by geopolitical tensions.

Local data collected through social services and energy assessments suggest that low-income families, older adults living alone, and residents of poorly insulated housing in peri-urban areas are particularly exposed. Many of these households' face trade-offs between paying energy bills and meeting other essential needs, often resulting in under-heating, thermal discomfort, or reliance on inefficient and unsafe heating sources.

With the participation in the URBACT EmPowerIngUs network, Maia is actively testing participatory governance models that place citizens — specially deprived communities — at the centre of solution design and implementation.

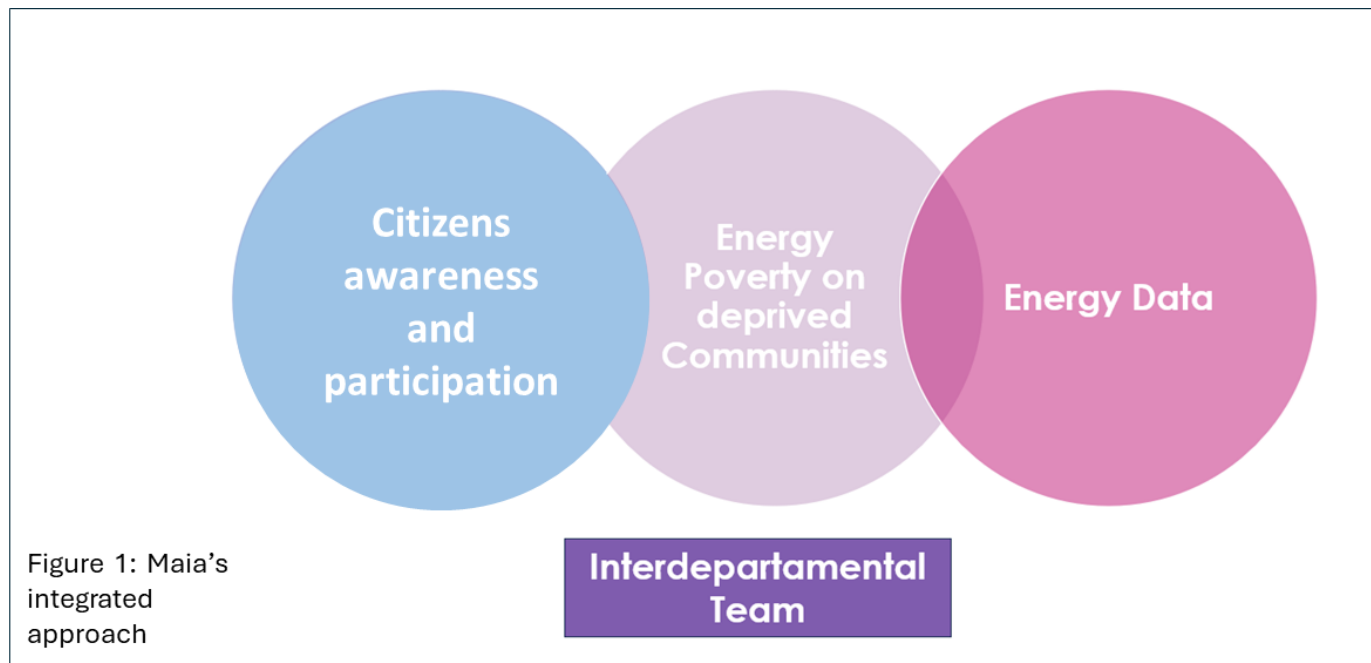
Rather than focusing exclusively on technical retrofitting or financial support, our participation in this network adopts a collaborative approach that leverages local knowledge, lived experiences and community engagement to craft more effective and sustainable solutions to fight energy poverty.

¹ In 2022, Portugal recorded an average annual inflation rate of 7.8% (with a year-on-year peak of 10.1% in October 2022), heavily driven by the energy component (Source: [INE](#))

By addressing energy poverty through an integrated approach, our work connects three key dimensions:

- i) gathering energy data with a special focus on energy poverty;
- ii) targeting the specific needs of deprived communities (beneficiaries of social housing);
- iii) citizens' awareness and participation;

This **multidimensional perspective** is coordinated by an “informal” interdepartmental team, **ensuring that social engagement, data-driven insights and community-focused interventions reinforce one another** to deliver more effective and equitable solutions.



1.2 A The policy response

In this chapter, we try to highlight several programs, policies and initiatives aimed at fighting energy poverty. Some of them are helping low-income families access essential energy without compromising other basic needs and reducing energy consumption through energy efficiency, at various territorial scales, namely: national, regional and most important local – Maia.

EU level

Maia's Investment Plan takes support and aims to converge several flagship strategies and policies:

- The European Green Deal - identifies the just transition as a core pillar and calls for targeted support to vulnerable citizens affected by the climate and energy transition
- The Renovation Wave Strategy - aims to at least double renovation rates by 2030 and reduce energy poverty through inclusive renovation programmes focused on worst-performing buildings
- The Fit for 55 package, particularly through support for local renewable energy initiatives and low-income energy transition pathways
- The Social Climate Fund (SCF) and Cohesion Policy 2021–2027 - both provide mechanisms to ensure no one is left behind in the green transition by supporting energy efficiency, mobility, and housing solutions for vulnerable groups
- (...)

National Level (Portugal)

Portugal has prioritised the fight against energy poverty in several national key strategic frameworks that include several dedicated goals to reduce energy poverty and promote a just energy transition.

National Energy and Climate Plan (NECP 2030)

The NECP 2030 establishes a strategic roadmap for Portugal's energy transition, focusing on the ambitious goal of reaching carbon neutrality by 2050. It sets high-impact targets for the current decade, including a **45% to 55% reduction in greenhouse gas emissions** and ensuring that **47% of final energy consumption is derived from renewable sources**. To support this, the plan prioritizes a significant increase in solar energy and widespread electrification of the economy.

Central to this framework is a commitment to a **just and inclusive transition** that directly addresses social inequalities. NECP 2030 aims to **eradicate energy poverty** by monitoring vulnerable households and promoting the **renovation of buildings** to improve thermal comfort and energy efficiency. By doubling the rate of energy-related renovations, the strategy seeks to lower costs for consumers while simultaneously reducing the national carbon footprint.

Finally, the NECP 2030 document empowers citizens by promoting **decentralized renewable energy and energy communities**. This shift allows individuals to act as both consumers and producers, fostering a democratic energy model that enhances local wealth and resource efficiency. By aligning environmental goals with social safeguards, the plan ensures that the path toward a green economy generates well-being across the country.

Social Climate Plan 2026-2032

The Social Climate Plan 2026-2032 serves as a strategic framework designed to mitigate socio-economic impacts of the European Union's new Emissions Trading System (ETS 2), which will begin pricing carbon in the building and road transport sectors in 2027. The **plan aims to ensure a just and inclusive energy transition** by providing direct support to vulnerable households, micro-enterprises and transport users. With a significant budget – funded largely by the EU's Social Climate Fund – the SCP 2026-2032 prioritizes structural investments such as building renovations to improve energy efficiency, the deployment of renewable energy and enhanced access to zero-emission mobility.

Roadmap for Carbon Neutrality 2050

The Roadmap for Carbon Neutrality 2050 outlines Portugal's commitment and long-term strategy to achieve **net-zero greenhouse gas emissions by 2050**. To reach this goal, the country aims to **reduce emissions by more than 85%** compared to 2005 levels, offsetting the remaining balance through carbon sequestration by forests AD² and use.

The transition is anchored in the deep decarbonization of the energy system, particularly the power sector, which is projected **to be 100% renewable by 2050**, and the transport sector, driven by widespread electrification and the use of hydrogen. Other fundamental pillars include increasing energy efficiency across all sectors, **adopting circular economy models** to minimize resource consumption, and enhancing territorial management to maximize the role of forests as natural carbon sinks.

² Forests and Direct Air Capture (Forests AD/DAC) refers to the use of forest ecosystems as natural carbon sinks to absorb CO₂ from the atmosphere.

The roadmap demonstrates, through various macroeconomic scenarios, that carbon neutrality is both technologically feasible and economically beneficial. This transformation is viewed not just as an environmental necessity, but as a strategic opportunity to boost national competitiveness, reduce external **energy dependency to less than 20%**, and stimulate economic growth and job creation through sustainable business models.

Long-Term Strategy for Building Renovation in Portugal

The Long-Term Strategy for Building Renovation establishes the national roadmap for decarbonizing the Portuguese building stock by 2050, focusing on energy efficiency and the Nearly Zero Energy Buildings (NZEB) standard. Targeting a **34% reduction in primary energy consumption and an 85% decrease in CO2 emissions** within the residential sector, the strategy aligns with the goals of the National Energy and Climate Plan 2030 to drive deep renovations across the country.

To achieve such targets, the strategy outlines a comprehensive framework of financial mechanisms, tax incentives and social measures aimed to eradicate energy poverty. With an estimated investment of 143 billion euros by 2050, it **prioritizes the modernization of both public and private buildings**, promoting localized renewable energy production and significantly improving thermal comfort for occupants.

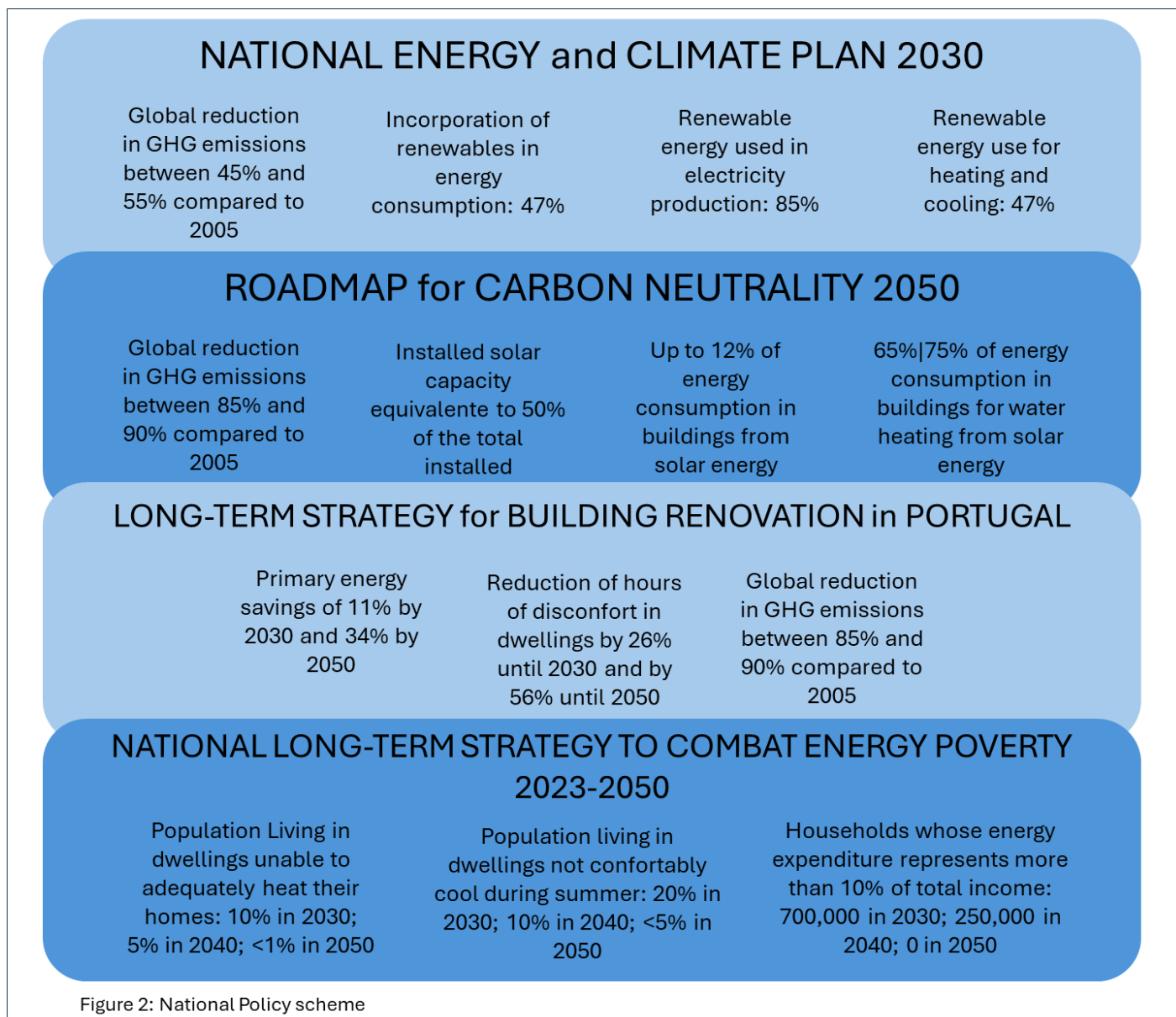
National Long-Term Strategy to Combat Energy Poverty 2023-2050

The National Long-Term Strategy to Combat Energy Poverty 2023-2050 establishes a framework to **eradicate energy precariousness in Portugal by 2050**, ensuring a just and inclusive energy transition. This strategy integrates social cohesion with carbon neutrality goals, focusing on protecting vulnerable households and improving their living conditions to ensure universal access to essential energy services and thermal comfort.

The implementation is structured around four strategic pillars:

- ✓ **Improving housing energy efficiency**
- ✓ **Ensuring universal access to energy services**
- ✓ **Strengthening integrated local action**
- ✓ **Enhancing public energy literacy**

Key targets include the complete elimination of energy poverty by mid-century, supported by decennial action plans and monitored by the National Energy Poverty Observatory to track progress in building renovation and household support.



National Context and Structural Challenges

The national landscape of plans and programs in Portugal (such as the Recovery and Resilience Plan and the Environmental Fund) should be leading a process of a paradigm shift in energy efficiency, but they often fall short of their potential. Some trends:

- **Low Energy Performance:** data from the Energy Certification System reveals that only 12% of residential buildings in Portugal achieve high efficiency classes (A or A+), leaving most of the housing stock with poor thermal performances;
- **Barriers to Access:** many support programs rely on reimbursement models and high bureaucracy, requiring prior financial capacity that excludes the most vulnerable households;
- **Fragmented Strategy:** instead of a cohesive structural strategy for building rehabilitation, the focus has shifted toward isolated programs such as the The E-Lar Programme (currently in its 2nd edition with €60M funding). While it targets low-income families and elderly residents, it is often criticized for prioritizing appliance replacement over deep structural interventions that would truly alter energy performance.

Regional Perspective: Northern Portugal

The Northern Region remains one of the territories most affected by energy poverty due to a critical combination of factors:

- **An aging and inefficient building stock**
- **Persistent socio-economic vulnerability**
- **Seasonal temperature extremes** that necessitate high energy consumption for both heating and cooling

To address this reality, the regional strategic framework focuses on the **territorialization of national policies**, integrating the goals of the National Long-Term Strategy to Combat Energy Poverty (ELPPE). Through instruments such as the Regional Program NORTE 2030, the region prioritizes **funding for thermal rehabilitation projects and the creation of renewable energy communities**. The objective is to mitigate the impact of energy costs on the most vulnerable families, promoting not only building efficiency but also energy literacy and climate sustainability across the territory.

Local Level: Maia's Strategic Framework

Maia's strategy for integral sustainability is rooted in a multi-level governance model that places **climate justice** at the heart of its policymaking. By aligning the Maia 2030 Carbon Neutrality Roadmap with the Local Housing Strategy, the **municipality prioritizes building rehabilitation – particularly within social housing – to ensure the energy transition remains inclusive**. This integrated approach ensures that energy efficiency and the adoption of renewables, such as photovoltaic systems, serve as **direct tools to mitigate energy poverty** and enhance the thermal comfort of the most vulnerable households.

Furthermore, territorial resilience is strengthened by the synergy between the Climate Adaptation Action Plan and the Strategy for Innovation and Digital Transition. The use of data-driven tools, specifically the digital mapping of energy vulnerability, allow for precise monitoring and more effective, inclusive public interventions.

By converting data into territorial intelligence, Maia ensures that decarbonization targets go hand-in-hand with social cohesion, consolidating an urban development model that is both technologically innovative and deeply human-centric.

Maia Municipality has developed a comprehensive framework of planning tools to guide a resilient and sustainable transition:

- **Maia 2030 Carbon Neutrality Roadmap:** focusing on energy efficiency in public and private structures, prioritizing social housing, and the promotion of local renewable energy sources like photovoltaic systems, the roadmap positions Maia as a leader in climate action ahead of national targets. Its ambition for an 85% reduction in greenhouse gas emissions by 2030 is the affirmation of its shift toward energy efficiency, the integration of renewable energy and sustainable urban mobility.
- **Local Housing Strategy (2023):** aimed at mobilizing financial resources and fostering innovative housing policies to accelerate responses to local needs, comes aligned with the 1º Direito Programme and is managed by Espaço Municipal – the municipal housing company. Intended to act in local housing shortage and precarious living conditions, it's

focus is the rehabilitation of public housing, supporting low-income families, and expanding the public housing stock - Maia's Local Housing Strategy will add 734 new units.

- **Climate Adaptation Action Plan:** promotes a transversal approach to climate resilience by integrating adaptation measures across all sectors and engaging diverse stakeholders. Designed to enhance the municipality's resilience against projected climate risks, such as rising temperatures, reduced annual rainfall and more frequent extreme weather events, the plan outlines specific measures aimed at reducing local vulnerabilities by integrating adaptation into key sectors like agriculture, forestry and urban planning.
- **Strategy and Action Plan for Innovation and Digital Transition** (ongoing): utilizes data-driven tools, such as the digital mapping of energy vulnerability, to support inclusive governance and long-term territorial development
- **Municipal Emergency Social Programme:** supports measure designed for individuals or families facing severe economic hardship or social vulnerability. Its primary goal is to prevent social exclusion scenarios and ensure the well-being of residents who encounter sudden difficulties in covering basic daily living costs. In practice, it provides direct financial assistance to cover essential expenses in critical areas such as housing (rent or mortgage payments), healthcare (medication bills and diagnostic test), and basic utilities like water, electricity and gas.

The proposed approach addresses these priorities through an integrated, multidimensional, and participatory framework prompt by the URBACT participation. By institutionalizing the insights from past territorial reports, this methodology ensures that local data is seamlessly converted into actionable municipal workflows.

2. THE INVESTMENT PROPOSAL

For policies to have a real impact, it is essential to have instruments that territorialize national strategies, overcome the lack of energy literacy and ensure the capacity for implementation on the ground.

Therefore, **proximity is crucial: local structures are needed to support families, transforming plans into action, funding into results, and strategies into effective improvements in quality of life.** If policies remain excessively centralized, bureaucratic and designed for those who already have financial capacity, energy poverty will remain a chronic, silent, and deeply rooted socially unjust problem.

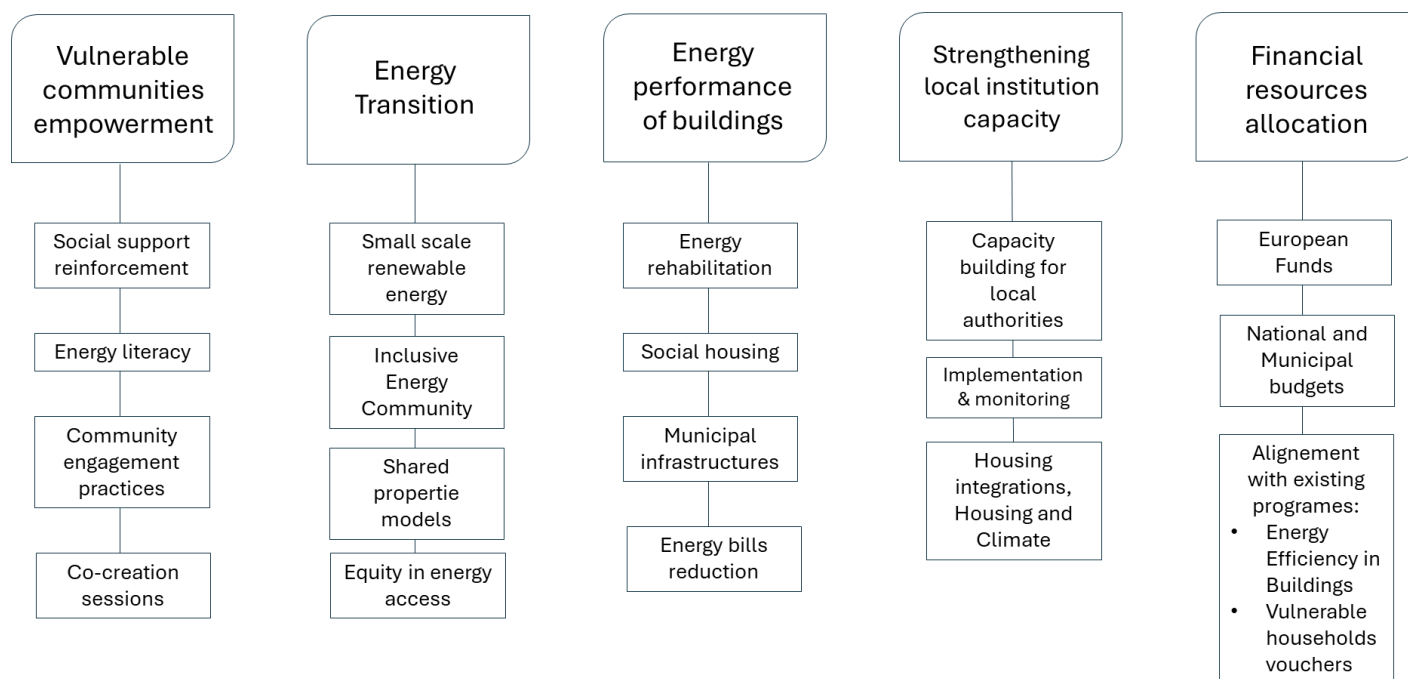


Figure 3: Strategic pillars and operational dimensions for local energy action

2.1 Background to the proposal

The URBACT Innovative Transfer Network (ITN) “EmPowerIngUs” was launched to transfer the Energy Poverty Intelligence Unit (EPIU) model to four partner cities that include Maia (Portugal).

EPIU was developed in Getafe (Spain), between 2019 and 2023, under the Urban Innovative Actions (UIA) programme, and is the innovative and systemic approach that Maia wants to emulate to tackle energy poverty, combining data intelligence, social services, and targeted interventions to improve living conditions and energy equity for vulnerable populations.

The strategic rationale for transfer lies in the urgent need to address invisible or under-reported energy poverty at the local level, where standard indicators often fail to capture the lived realities of affected households. Many cities such as Maia, lack reliable data and integrated services to detect and respond to this multidimensional issue, which intersects with social inequality, poor housing conditions, and rising energy costs.

EPIU offers a replicable, modular solution that shifts the paradigm from reactive monetary aid to proactive, data-informed public service delivery.

Key Innovative Dimensions of the EPIU Practice that Maia wants to replicate with necessary adaptations:

- *Data Intelligence System*: Use of local administrative, social, and energy data to detect patterns of hidden energy poverty and define household profiles for tailored interventions
- *Healthy Homes Office (HHO)*: A pioneering one-stop-shop offering personalised advice, energy kits, home visits, and direct support — becoming a trusted entry point between citizens and public administration
- *Modular, Multi-scale Solutions*: A catalogue of measures ranging from simple household improvements to neighbourhood-scale interventions, co-designed with citizens and implemented with public procurement mechanisms
- *Cross-sectoral Governance*: Institutional collaboration across housing, social services, environment, and health departments, paired with training and capacity-building

2.2 Our starting point

Methodological Framework

To understand and tackle energy poverty, Maia took a first step in adopting the methodology developed by João Pedro Gouveia – a lead expert in energy and climate policy. His approach centers on the **Energy Vulnerability Index (EVI)**, which maps vulnerability across all 3092 Portuguese parishes. By combining socioeconomic data with building performance and climatic variables, this index allows for a precise comparison of energy needs at a local scale.

According to this framework, the municipality of Maia holds an EVI of 0.195, indicating a moderate level of vulnerability. However, this figure masks underlying **challenges common to many Portuguese cities: a significant portion of the population – particularly the elderly and deprived communities – struggles with structural constraints, such as the lack of heating/cooling systems and high energy bills**. These barriers not only affect household well-being but also accompany a disbelief in the Green Transition, which often feels too abstract for those in immediate need.

A major hurdle in addressing these issues is the lack of granular, reliable data to support tailored policymaking. To bridge this gap, Maia is leveraging on the EPIU team's cross-disciplinary expertise and Getafe's data templates. In doing so, it has allowed us to systematize baseline indicators for information assessment, allowing us to move from macro-level analysis to citizen-centered solutions.

Maia Analysis:

Maia is part of the Porto Metropolitan Area and it is a highly consolidated socio-ecological and economic system in Northern Portugal. Geographically characterized by a complex interplay between a dense urban core center, specialized industrial clusters and peri-urban peripheral areas, the municipality features highly heterogeneous territorial and demographic dynamics. Over recent decades, high population influxes and rapid real estate development have intensified residential density, particularly along the central and southern structural axes, establishing Maia as a critical node in regional spatial planning and housing demand.

As a territory undergoing continuous modernization, understanding Maia's urban footprint requires a close examination of its housing stock, energy infrastructure, and social resilience. This analysis leverages recent data – including the 2021 INE Census and municipal social records from 2025 – to assess the structural health of local dwellings, thermal regulation capacities and energy efficiency trends. By exploring these metrics alongside local socio-economic vulnerabilities, this study provides a comprehensive overview of how Maia is navigating the dual challenges of sustainable climate adaptation and social equity.

The Built Environment in Maia: Structural, Technical, and Social Dimensions

The map shows the distribution of **conventional dwellings built before 1980** in the municipality of Maia, based on data from the 2021 Census (INE).

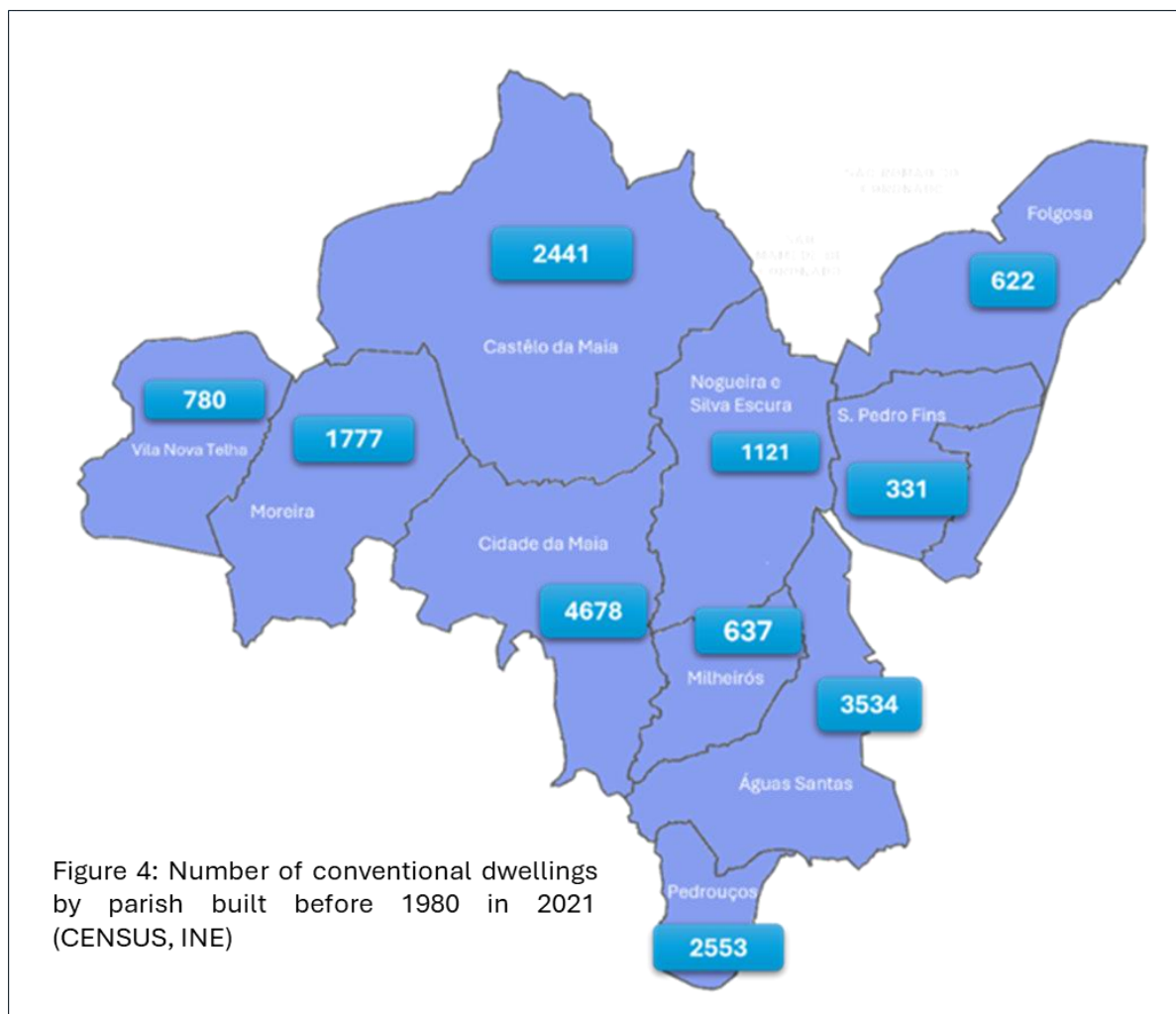
In total, the municipality accounts for **18,474 dwellings** built before 1980.

Statistical Highlights

- Highest Concentration: Cidade da Maia leads with the largest older housing stock, recording 4,678 dwellings (about 25.3% of the municipality's total). It is followed by Águas Santas with 3,534 dwellings (19.1%).
- Lowest Concentration: the parish of S. Pedro Fins shows the lowest absolute number, with only 331 dwellings from this period (1.8% in total).

Territorial Insights

The data highlights a clear geographical disparity. The housing stock built before 1980 is heavily concentrated in the central and southern axis of the municipality (Cidade da Maia, Águas Santas and Pedrouços), areas with historically higher population densities and earlier urban development. In contrast, the eastern parishes retain a significantly smaller share of older housing.



Statistical Highlights

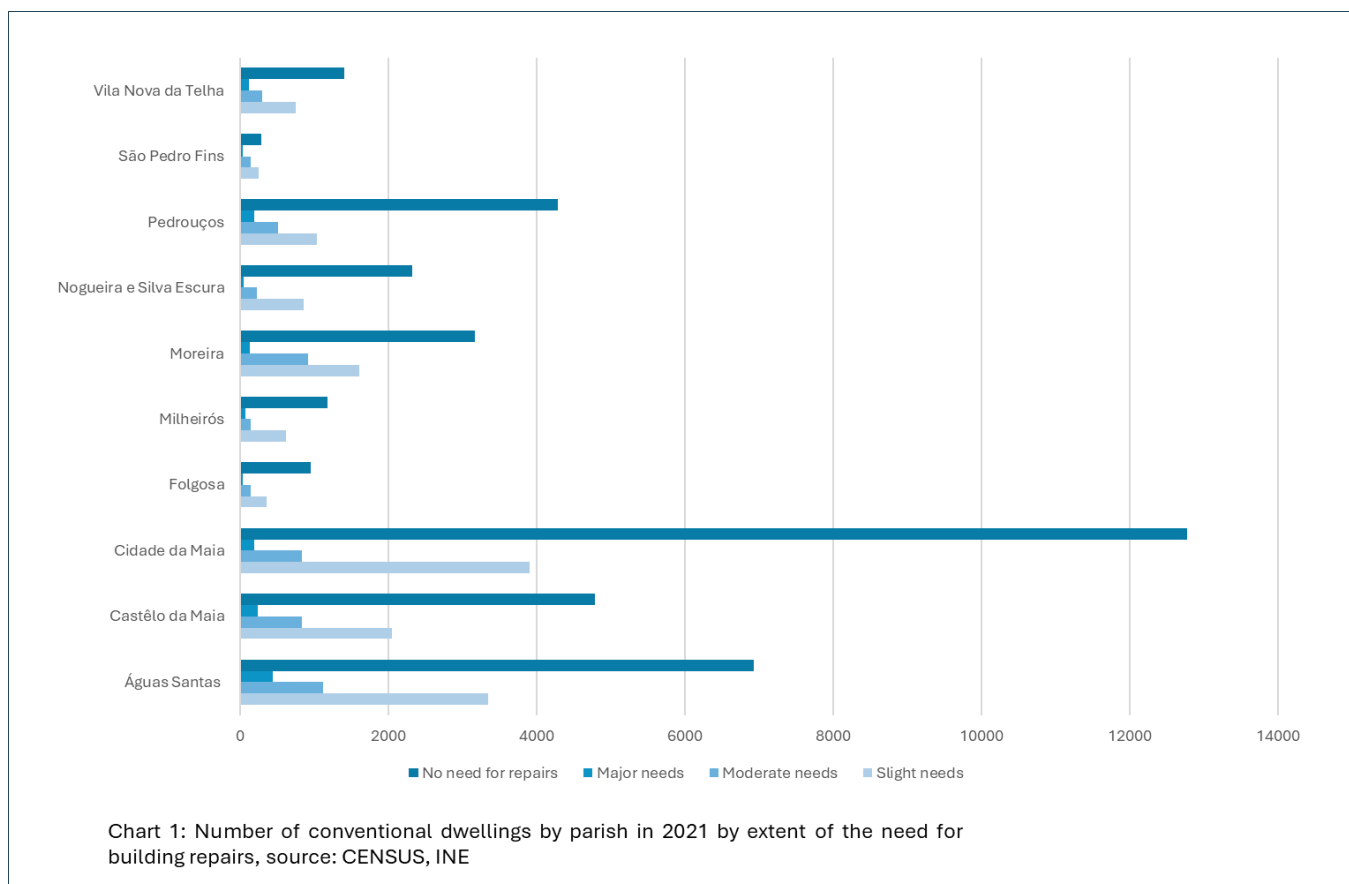
The following chart shows that the statistical footprint of Maia is heavily defined by Cidade da Maia parish, dominating the dataset with an absolute peak of over 12,000 dwellings classified as having “no need for repairs”. Águas Santas comes as the second-largest housing market, anchoring roughly 7,000 dwellings in this optimal tier. Across all of the surveyed parishes, the “no need for repair” category remains the dominant statistical majority.

Conversely, homes requiring “major needs” represent the absolute minority, with counts consistently flattening near zero across the board. The lowest housing volume is observed in S. Pedro Fins, which sits at the bottom of the scale and barely crosses the 500-dwellings mark.

Territorial Insights

From a territorial perspective, structural volume is heavily concentrated within core urban centers like Cidade da Maia and Águas Santas, whereas peripheral parishes maintain a much smaller architectural footprint.

Despite these differences in size, the region displays excellent overall real estate health, indicating that severe structural degradation is an extreme rarity rather than a systemic issue. Furthermore, minor structural issues – classified as “slight” and “moderate” needs – scale predictably with density, appearing more visible in larger areas, as we might infer goes in line with an overall volume of buildings rather than a higher rate of decay.

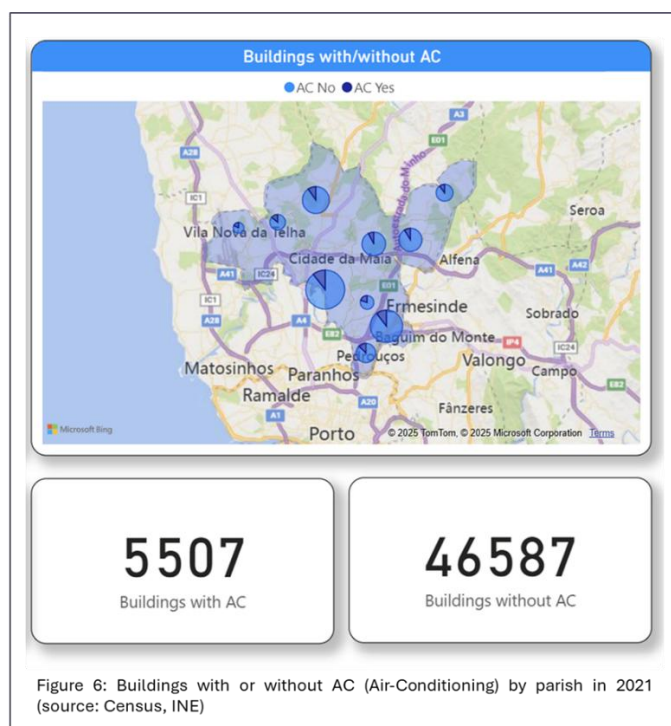
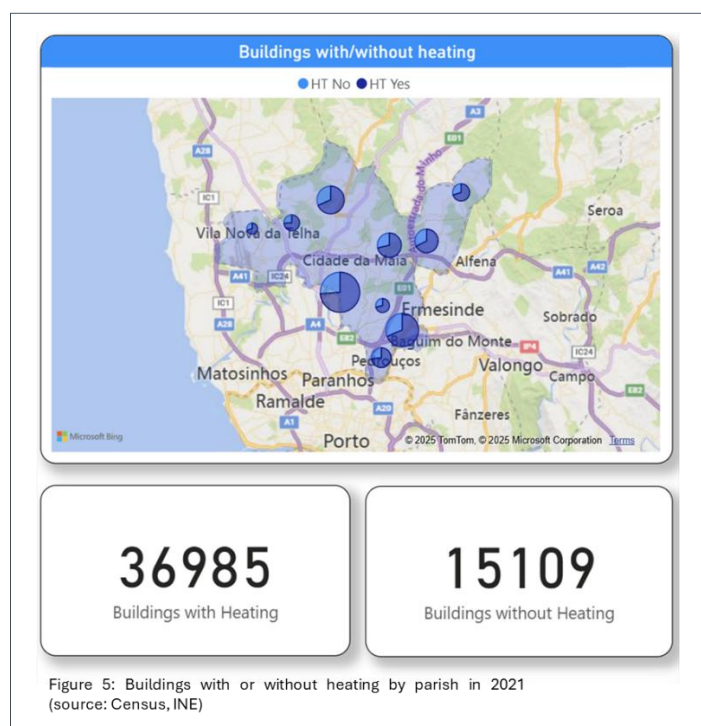


The data from the 2021 INE Census – figures 5 and 6 – illustrate the distribution of residential thermal regulation systems across the parishes of Maia, revealing distinct patterns between heating and cooling infrastructure.

Regarding heating systems, a significant majority of local buildings are equipped with climate control infrastructure. Out of the total buildings surveyed, 36,985 possess heating infrastructure (“HT Yes”), while a considerable minority of 15,109 buildings completely lack these facilities (“HT No”). The geographic visualization highlights that while central, densely populated urban areas like the Cidade da Maia parish exhibit a high concentration of buildings with operational heating, there remains a notable portion of properties, particularly scattered throughout peripheral zones, that lack this essential infrastructure.

In contrast, the distribution of air conditioning (AC) systems reveals an opposing trend. A substantial majority of buildings across the municipality lack AC units, with the highest concentration of non-equipped structures located in the urbanized areas of Cidade da Maia, Águas Santas, and Castelo da Maia. Although these urban centers register the highest absolute numbers of AC installations due to their size, the overall penetration rate remains low compared to non-equipped buildings. Meanwhile, less densely populated parishes—such as Folgosa, São Pedro Fins, and Milheirós—exhibit minimal reliance on residential cooling systems.

This widespread absence of active cooling systems suggests that most local buildings depend heavily on passive ventilation or alternative thermal regulation methods. Consequently, these findings highlight a potential structural vulnerability to rising temperatures, particularly given the increasing frequency of climate-induced heatwaves.



Statistical Highlights

- Dominant heating types: central heating and mobile devices are the most common heating methods across the municipality
- Peak category: mobile devices in Cidade da Maia represent the highest single value on the chart with 4,695 units
- Lowest adoption: open fireplaces and fixed non-central devices consistently show the lowest numbers in almost all areas

- Absence of heating: the “none” category registers near-zero values across all listed parishes

Territorial Insights

- Cidade da Maia: this parish shows the highest overall footprint, leading significantly in central heating (4,539) and the heat recuperators (4,181)
- Águas Santas: exhibits a strong reliance on mobile devices (3,474) and heat recuperators (3,273)
- Castêlo da Maia and Pedrouços: both areas follow a similar pattern in showing a moderate-to-high use of central heating and mobile devices
- Low density parishes: Folgosa, Milheirós and S. Pedro Fins show the smallest overall numbers, reflecting much lower population sizes.

Following the growing emphasis on energy performance certification, most likely driven by increasing regulatory requirements, awareness of energy efficiency and the consequent dynamics of the real estate market, the evolution of certificates issued annually has had a significant increase. The year 2024 sums up to 3586 certificates, against the 1976 issued certificates from a decade ago (2014³).

In 2025, the municipality was issued energy performance certificates, mostly dominated by moderate ratings. Class C represents the largest individual segment with 8,270 certificates. Class D and Class A follow closely with 5,741 and 5,732 respectively. Together, the three categories constitute most of the total volume, highlighting a solid baseline of moderate to high energy performance.

Extreme energy efficiency ratings occupy smaller shares of the distribution. High-efficiency Class A+ certificates reached 1,765 units, while intermediate B and B- classes contributed a combined 4,310 certificates. The lowest efficiency category, Class F, recorded the fewest entries with only 799 certificates.

³ Source: <https://www.sce.pt/estatisticas/download-de-informacao-estatistica/>

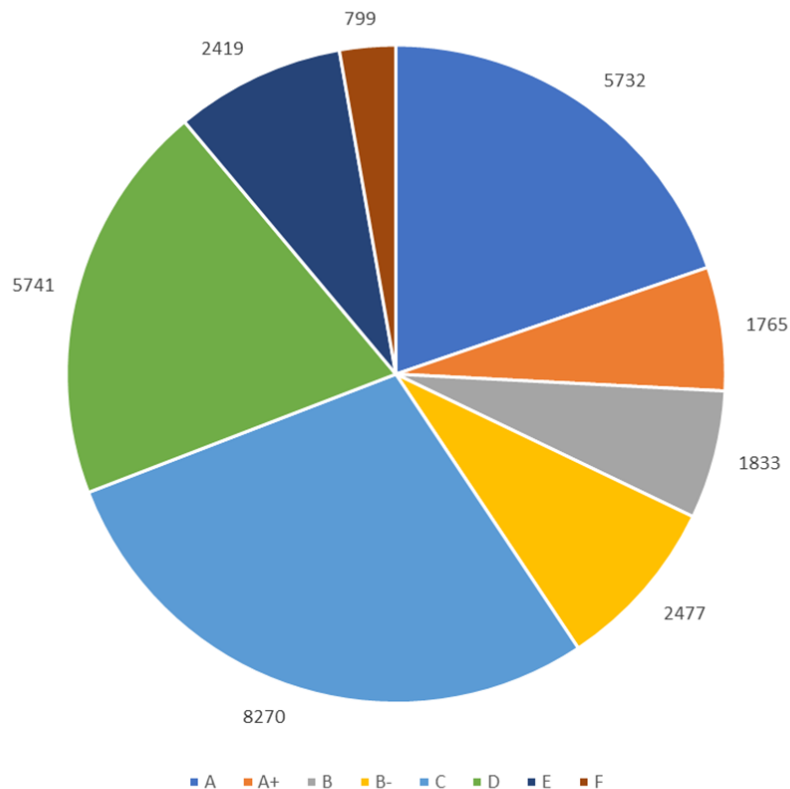
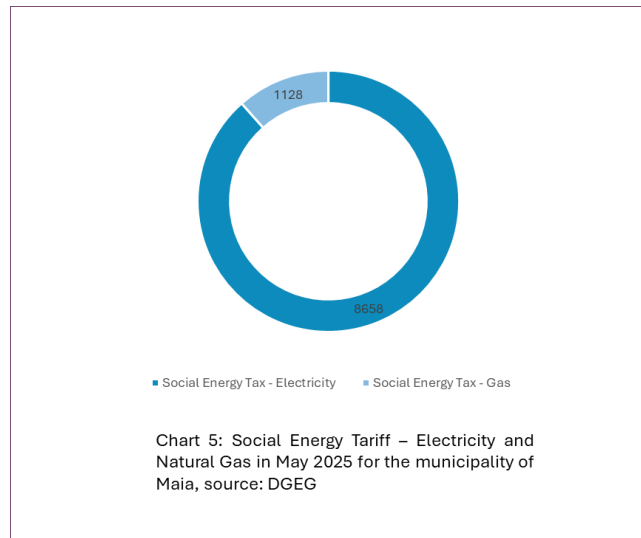


Chart 3: Total certificates issued for the municipality by energy class in 2025 (Source: <https://www.sce.pt/estatisticas/download-de-informacao-estatistica/>)

Energy Poverty Profiling through the Municipal Social Emergency Plan (PMES)

The distribution of beneficiaries of the Social Energy Tariff in the municipality of Maia, May 2025, distinguishing between electricity and natural gas, shows that most beneficiaries – 88% – are tied to electricity, whereas natural gas accounts for just 12%. This stark disparity highlights electricity as the primary energy source under the social tariff, pointing to high household reliance on electric power and a low penetration of natural gas. Ultimately, the data underscores a heavy concentration of social energy aid within the electricity sector.



In addition to this data, the analysis incorporated information from individuals who sought assistance through the Municipal Social Emergency Plan (PMES).

This Program was designed to support four areas: education, housing, health, and food supply.

In 2014, the Municipality of Maia assumed responsibility for this initiative and implemented the Municipal Social Emergency Program. This program remains active today and provides occasional, and temporary financial assistance targeted at households facing severe social emergencies, specifically within the scope of housing and healthcare.

Main Issues of the Monitored Households

Common Trends (2024 and 2025):

- Income insufficiency
- Indebtedness
- Unemployment/precarious employment
- Low education levels
- Physical and mental health problems
- Family burden

2025 Evolution:

- Greater evidence of loneliness/social isolation (Core 1).
- Increased incidence of unemployment/precarious employment (Cores 2 and 3).
- Persistence of the homelessness issue in the City of Maia.

Analysis:

The issues remain structural, but with increasing complexity and accumulation of vulnerability factors.

A comprehensive database⁴ was constructed from municipal records, encompassing all 354 applications submitted in 2025. Of these, 48 were rejected, leaving a total of 616 individuals who

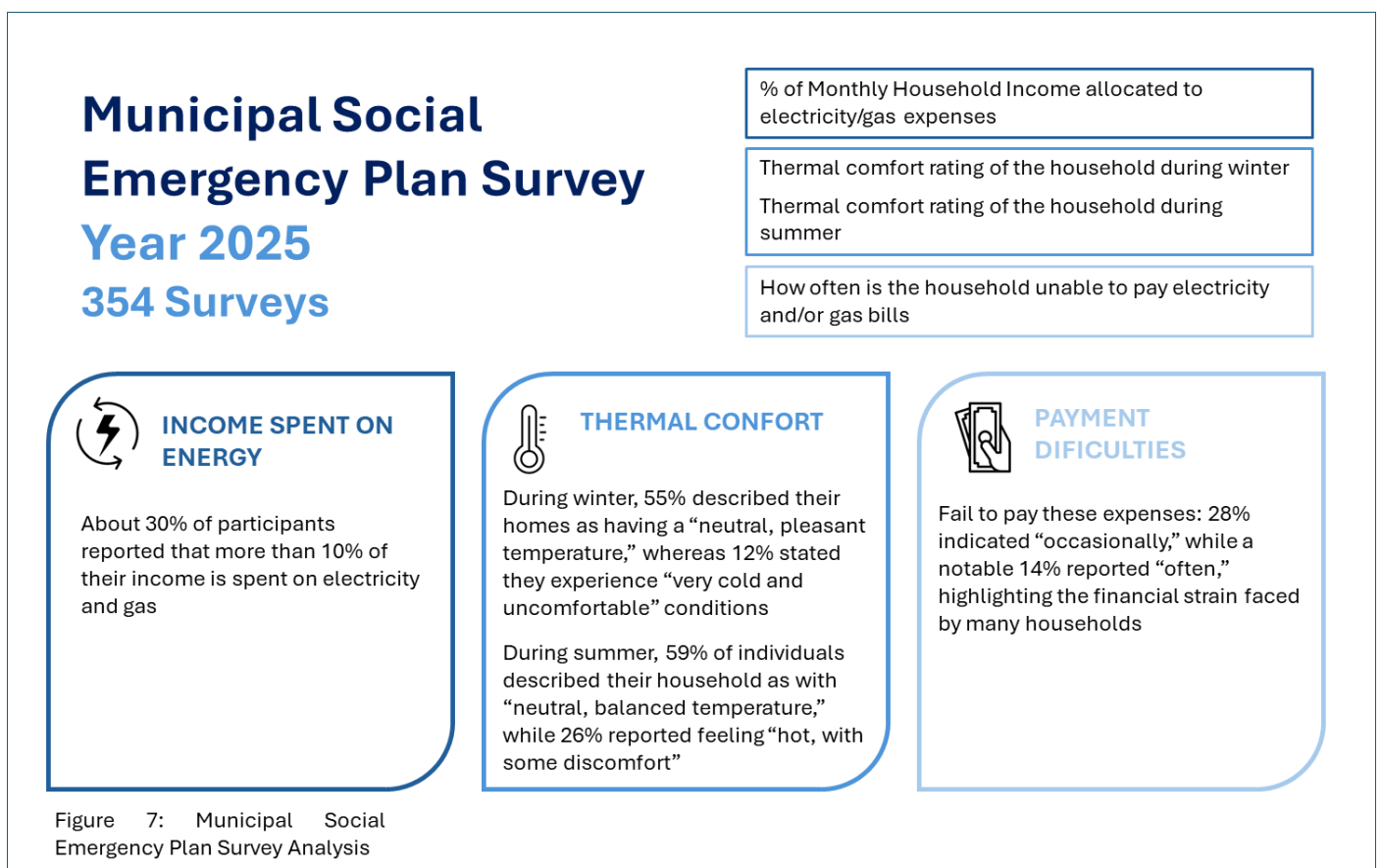
⁴ A residual number of *NO INFORMATION* records exist. This statistical limitation is a result of the fragmentation of the current social intake processes.

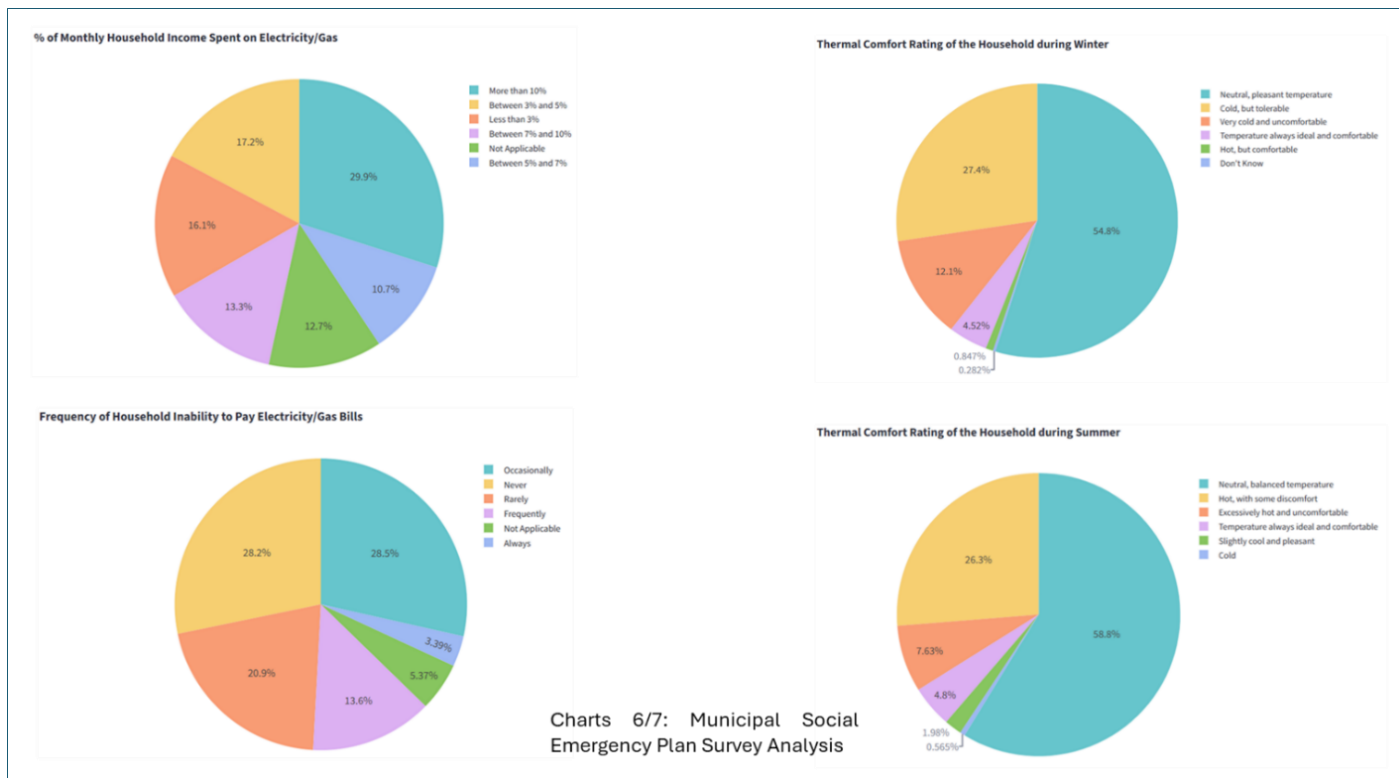
received social support. This assistance varied, providing direct financial aid for rent, mortgages and healthcare invoices.

An added effort to better suit our purpose was to include new questions to gather information for possible profiling of energy poverty exposure:

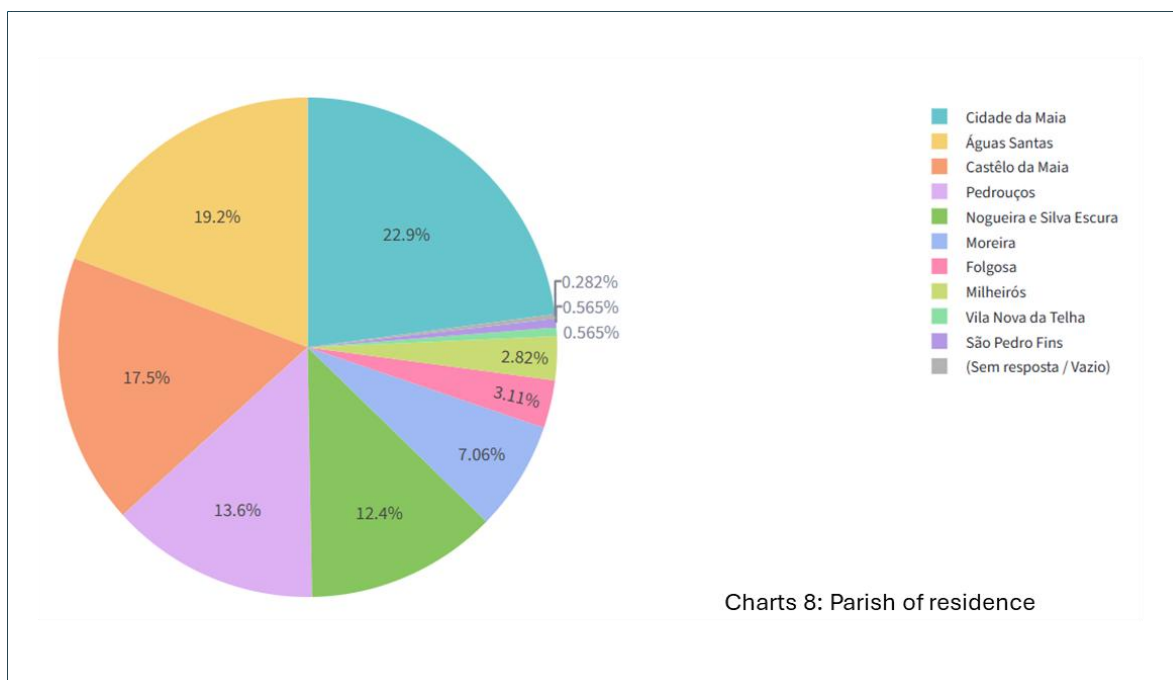
- **% of monthly income allocated to electricity/gas expenses**
- **Thermal comfort rating of the household during winter/summer**
- **How often is the household unable to pay electricity and/or gas bills.**

The results are as follows:

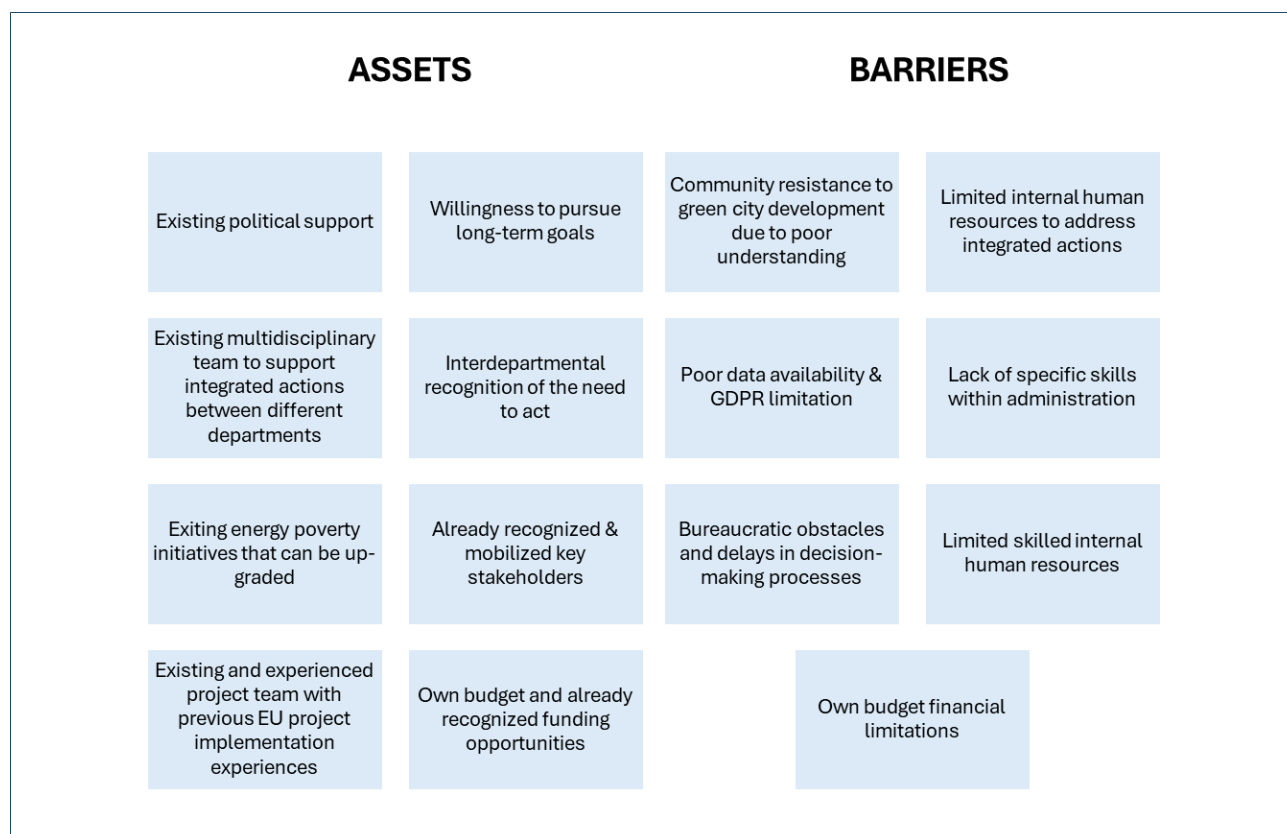




Further analysis indicates that most individuals in this group reside in the parish of Cidade da Maia (22,9%), have low levels of education, and are predominantly unemployed or retired.



Assets and barriers



2.3 The adapted version of the innovative practice

EPIU in a Nutshell

Traditionally, energy poverty is defined by the percentage of household income spent on energy. However, Getafe City Council has adopted a broader definition that links energy poverty directly to living conditions.

Under this approach, energy poverty occurs when:

- Households cannot maintain a comfortable indoor temperature year-round
- Families are forced to allocate an excessive part of their income to meet basic domestic energy needs

The original idea was inspired by the recognition that factors such as low energy efficiency, the aging building stock, and a lack of renovation and modernization efforts had led to deteriorated housing conditions and high energy costs, faced by many households today. Combined with varying household incomes and a sharp increase in energy prices over the past decade, these conditions left many families struggling to afford basic energy needs, such as heating, cooking, and maintaining comfortable indoor temperatures.

To shift this approach, the Energy Poverty Intelligence Unit (EPIU) solution was developed around three key components:

1) Intelligent Data Analytics System –identifying and predicting energy poverty by defining population clusters based on energy consumption habits, socio-demographic data, income levels, and building characteristics.

- 2) Multidisciplinary Municipal Public Service – a horizontal, integrated service was created to manage, monitor, and evaluate the efficiency of local energy poverty policies.
- 3) Tailored Programs – specific interventions designed at three scales: household, building, and neighbourhood.

Impact and Results in Getafe (2019-2023)

Spearheaded by the Getafe City Council and the EMSV (Municipal Land and Housing Company), the project was implemented under the Urban Innovative Actions (UIA) programme.

Today, the neuralgic point of the EPIU in Getafe is the Healthy Homes Office, where a team of EMSV experts receives citizens and advises them on the best course of action. The quality of provided advice and solutions depends on the quality of information provided by citizens themselves.

Based on received information, Healthy Homes Office staff decide on the best course of action for an individual case. Sometimes only soft measures – like advice on how to reduce household's energy consumption (in average ensuring savings of 20%) – prove to be enough. If not, they can propose a household visit. In just two years EPIU became a unique and effective public service. So effectively, that Getafe's City Council decided to integrate it into city's social support system and secure its regular funding from the city budget.

Replication in Maia:

The city of Maia will be adopting Getafe's *modus operandi* through four strategic actions:

- 1) ISI MAIA Platform: consolidating an Urban Data Platform where energy poverty is a core pillar;
- 2) LIGU (Multidisciplinary Urban Intelligent Centre): establishing a horizontal service for data management, monitoring and predictive assessment;
- 3) MAIA ENERGY HUB: "redefining" the current One Stop Shop (OSS) to better serve the community;
- 4) Energy Literacy: launching awareness campaigns with a special focus on Renewable Energy Communities (REC).

2.4 The integrated approach and the participative process

The EPIU Good Practice highlights the importance of internal cooperation between key city administration departments, external stakeholders like the Madrid University and the effective awareness of key target groups, namely inhabitants of deprived communities.

Therefore, participating in EmPowerIngUs has allowed us to establish our URBACT Local Group (ULG), a core requirement and a critical success factor for any URBACT-funded project.

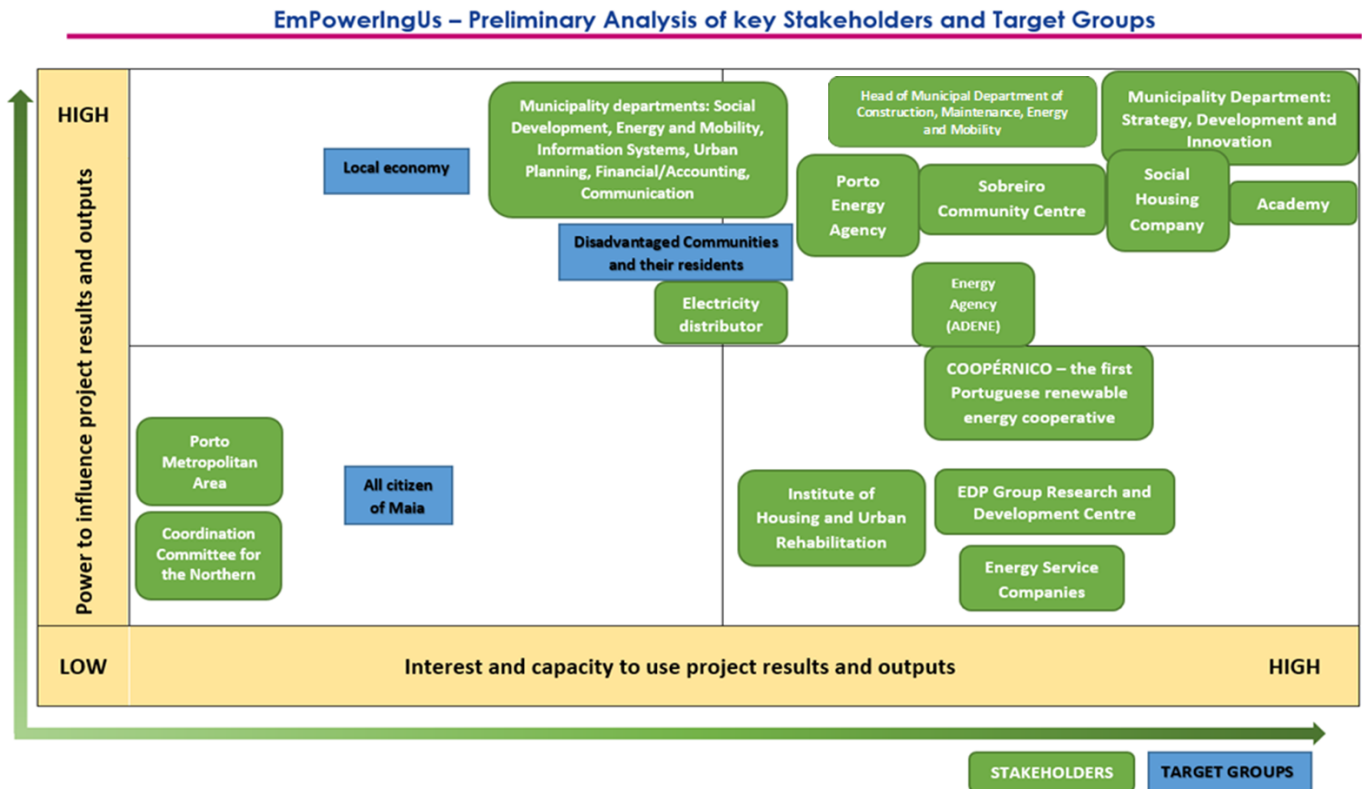
Our ULG has brought to the table a broad and relevant scope of local stakeholders—public authorities, private sector actors, civil society, experts, and citizens - to co-design solutions to the urban challenge the city is addressing, fighting energy poverty.

Maia's ULG is essential because it:

- **Anchors the project locally**
- **Ensures participatory and integrated action planning**
- **Enhances innovation through collaboration**
- **Strengthens communication and public support**

- Improves the long-term impact and sustainability of the project

Based on workshop discussions and conclusions, as well as previous cooperation experience the following Analysis of Stakeholders and Target Groups was developed by Maia's project team:



ULG Meetings: Governance and Ecosystem Dynamics

The operational logic of the Urbact Local Group (ULG) meetings has evolved to balance the internal and external ecosystems of the territory, optimizing both institutional alignment and community outreach.

Despite the initial composition of the ULG, during the implementation process some key aspects have emerged that led to adjustments, such as:

- Availability of local data and resources : Although Maia has a strong technical capacity, the lack of specific and consolidated data on energy poverty initially limited the perception of investment priorities and affected partners' engagement.
- Composition of the ULG : The decision to maintain a smaller core group proved positive, allowing for more efficient coordination between municipal departments (quality and information systems division, social services, energy division). In addition, the inclusion of third-sector organisations and local energy agencies contributed with valuable insights for identifying local needs and potential risks.
- Political cycles : As in other municipalities, leadership commitment remains a key factor for the project's continuity and success.
- Step-by-step implementation: Given the diversity of neighbourhoods and socio-economic contexts in Maia, a gradual and adaptive implementation approach has proven essential to ensure realistic progress and stakeholder involvement.

Internal Ecosystem and Decision-Making

Internally, priority has been given to a restricted meeting format to facilitate fluid, high-level and effective discussions among municipal units. **This internal core comprises:**

- **Municipal Divisions: Energy, Social and Systems of Information divisions**
- **Municipal Housing Sector: Espaço Municipal Housing Company**
- **Academia: Maia University**

This institutional arrangement has proven essential to support agile, targeted and data-driven decision-making processes.

External Ecosystems and Territorial Decentralization

Externally, a decentralized approach was implemented by hosting ULG sessions across strategic locations within the municipality. This geographic dispersion directly aims to foster closer engagement with local communities and actively involve key territorial actors in the co-creation process.

Stakeholder Integration and Evidence- Based Planning

In parallel with the core ULG structure, internal support units – specifically the Strategy, Development and Innovation Unit and the Quality and Information Systems Division – have been developing and managing dedicated databases to guarantee an evidence-based planning framework.

Concurrently, the ULG has gradually expanded its scope to involve relevant stakeholders across both ecosystems. In the energy sector, strategic collaboration has been established with:

- ADENE – National Energy Agency
- AdEPorto – Porto Energy Agency
- EDP CNET – the Energy and Environment Centre of EDP, focusing on research, innovation and sustainable solutions.

Constraints and Strategic Commitments

Although specific political constraints resulting from the local elections last October made it impossible to involve the political board of Maia's ten parishes, securing their formal participation remains a mandatory commitment for future actions⁵. Concurrently, methodological work is ongoing to define the most effective framework for integrating citizen groups, a step that is deemed crucial to ensure that future interventions are fully aligned with public expectations and efficiently address the localized challenges identified.

⁵ All 10 parishes have participated in the last ULG meeting, under the theme of "The OSS – Implementation for the Espaços Energia – Maia Energy Hub.

November
2024
Maia visit
Kick-Off



February 2025
ULGs

University of Maia;
Social Housing
Company; Social
Development
Division

March 2025
ULG

Energy and Mobility
Division: *Maia Energy
Hub* application



May 2025
ULG

Northern Portugal
Regional Coordination
and Development
Commission; Energy and
Mobility Division; EDP
CNET; University of
Maia; URBACT National
Contact Point



July 2025
ULG

National Energy
Agency; Coopernico
(first Portuguese
Renewable Energy
Cooperative);
Municipal Divisions

June 2026
ULG

The OSS
implementation for the
Espaços Energia - Maia
Energy Hub



3. THE ADAPTED INNOVATION PROJECT

3.1 The Value Proposition

The Investment Plan outlines a set of six Actions that aim to achieve the overarching goal of reducing energy poverty and ensuring more efficient and sustainable access to energy in households, while directly tackling the main challenges identified.

The prioritized projects include:

1. **Development and implementation of a Municipal Action Plan for the Mitigation of Energy Poverty** – This project involves conducting a comprehensive study of energy poverty in the Municipality of Maia to map vulnerable households, identifying key drivers of energy vulnerability, and assess socio-economic and structural factors contributing to high energy consumption. By establishing a robust evidence base, it will guide future interventions, investment decisions, and policy-making. Ultimately, this initiative should be integrated as a core action within the Municipal Climate Action Plan currently under preparation.
2. **Energy Poverty Study**– This project will be conducted by EDP CNET (Centro de Novas Tecnologias de Energia), the Research and Development (R&D) center of the EDP Group. Its primary objective is to build a user-friendly AI model capable of predicting, with high accuracy, which households are at risk of energy poverty and when this may occur. Furthermore, the project ensures that all models strictly adhere to green, human-centric and reliable principles.
3. **Acquisition and distribution of energy efficiency kits for households** – kits including LED bulbs, smart thermostats, consumption regulation devices, and simple insulation materials, aimed at reducing energy consumption and household energy costs.
4. **Renewable Energy Community (REC) “Maia Solar”** - The municipality aims to expand decentralized energy production, with the goal of establishing a REC. This initiative builds upon the project developed within the Urban Rehabilitation Operation of the Sobreiro Neighborhood. This initiative will extend photovoltaic production to additional Sobreiro blocks and 15 municipal service buildings. Initially operating under a collective self-consumption model, the long-term goal is to integrate other local producers and consumers into a fully functional REC. This action will be funded through a future application to the NORTE 2030 Program (ERDF), with the call expected to open in 2026.
5. **Smart City Unit** - creation of a special unit focused on data treatment from several fields of expertise. This unit will allow us to implement the decision-making-data-supported management model.
6. **Energy Balconies – MAIA Energy Hub** – The Espaço Energia initiative in Portugal is a national program created by the Ministry of Environment and Climate Action and funded by the Environmental Fund to support the energy transition. Serving as a network of free, one-stop-shops (OSS) that help citizens and businesses navigate energy efficiency, renewable energy, sustainable mobility and financial incentives. Through this program, users receive personalized support, customized technical solutions, training, energy assessments and guidance on funding opportunities, with a dedicated focus on supporting vulnerable communities.

The workplan

1. **Development and implementation of a Municipal Action Plan for Mitigation of Energy Poverty** - conducting a comprehensive study of energy poverty in the Municipality of Maia, mapping vulnerable households, identifying key drivers of energy vulnerability, and assessing socio-economic and structural factors that contribute to high energy consumption

Actions:

- a) Diagnosis & planning – Household Mapping; Infrastructure Analysis; Public Consultation Sessions/Workshops; Goals/Indicators definition
- b) Action plan development – Strategic Plan drafting; Public Policy definition; Communication Strategy
- c) Implementation – Household Energy Efficiency audits; Training & Workshops
- d) Monitoring & Evaluation – Monitoring System; Reports & Audits

Funding source: Municipal Budget; European Structural and Investment Funds; Environmental Fund

Stakeholders: National Energy Agency (ADENE); AdEPorto, energy providers, municipal departments

Timeframe: until 2030

2. **Energy Poverty Study** - Developed by EDP CNET (Centro de Novas Tecnologias de Energia), the Research and Development (R&D) center of the EDP Group. Its main objective is to develop an AI model capable of predicting, with “low” uncertainty, which households may fall into energy poverty.

Actions:

- a) Electricity consumption analysis; Geospatial Vulnerability mapping; Socio-demographic profiling; Support dissemination events
- b) AI predictive modelling; aggregate anonymized consumption data; Integrate external datasets; support Dissemination events
- c) Definition of success metrics

Funding source: Horizon Europe

Stakeholders: Municipal Social Housing Company; EDP CNET

Timeframe: starting November 2025 until end of 2026

3. **Acquisition and distribution of energy efficiency household kits** - Kits including LED bulbs, smart thermostats, consumption regulation devices, and simple insulation materials, aimed at reducing energy consumption and household energy costs.

Actions:

- a) Acquisitions of Energy Efficiency Kits (EEKs)
- b) Training sessions
- c) Distribution plan of the EEKs

Funding source: Municipal budget (allocated under the dedicated efficiency framework)

Stakeholders: Municipal Social Housing Company; EDP/other energy suppliers; AdEPorto; Local Community Associations

Timeframe: from starting point: 12 months

4. **Renewable Energy Community MAIA SOLAR** - The municipality aims to expand decentralized energy production, with the goal of establishing an inclusive REC. This initiative builds upon an ongoing pilot project developed within the Urban Rehabilitation Operation of the Sobreiro Neighborhood, involving social housing buildings. In this context, the municipality plans to extend photovoltaic energy production to additional buildings.

Actions:

- a) Technical Assessment – ensure all buildings are suitable and optimize system design
- b) Design & Engineering – detailed planning for photovoltaic installation
- c) Procurement & Installation – acquire and install panels and equipment
- d) Self-consumption setup – enable shared use of energy among households and municipal buildings
- e) Monitoring & Evaluation – impact measurement and systems performance to support future replication

Funding source: Northern 2030 Program - European Regional Development Fund (ERDF)

Stakeholders: Municipal Social Housing Company; AdEPorto; E-REDES; EDP NEW R&D; Sobreiro Community Centre

Timeframe: to start in the second half of 2026 until December 2029

5. **Smart City Unit** - creation of a special unit focused on data treatment from several fields of expertise. This unit will allow us to implement, at all times, the decision-making-data-supported management model.

Actions:

- a) Electricity consumption analysis; Geospatial Vulnerability mapping; Socio-demographic profiling; others
- b) Governance model definition
- c) Municipal Units cluster definition
- d) Training and dissemination of methodological framework
- e) Municipal Board validation
- f) General implementation

Funding source: Municipal budget

Stakeholders: Maia University

Timeframe: End of 2026

6. **ESPAÇOS ENERGIA – MAIA ENERGY HUB** - Aiming to be a one-stop shop (OSS) for citizens and businesses to clarify doubts about energy efficiency, renewable energies, sustainable mobility and financial support.

Actions:

- a) Human resources training
- b) Citizens training

Funding source: Environmental Fund

Stakeholders: all ULG active members; Maia Municipality team; citizens

Timeframe: implementation pending – to be upgraded

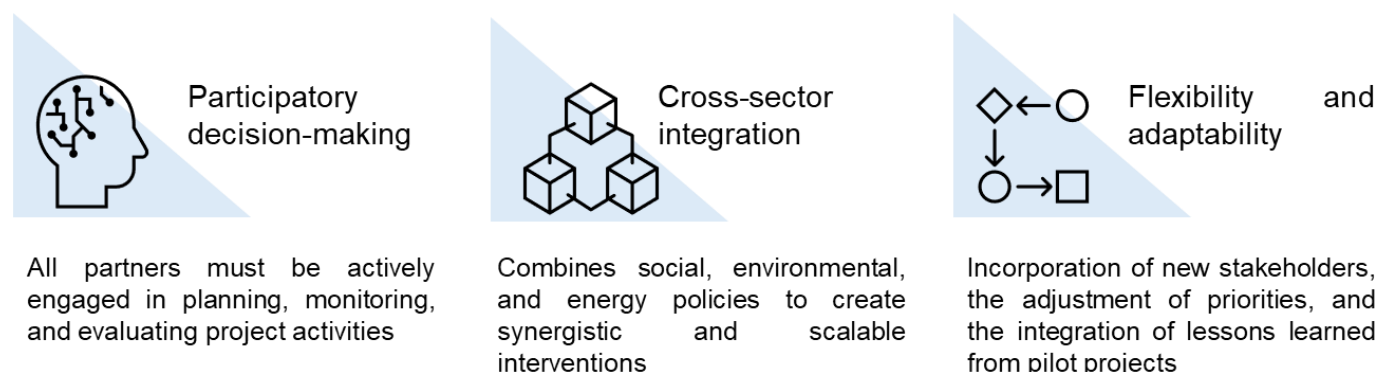
3.2 Governance and delivery model

The Municipality of Maia actively participates in the *EmPowerIngUs* network, collaborating with key partners to design, implement, and monitor interventions aimed at reducing energy poverty. Key partners involved in the project include:

- **Municipal Departments, Municipal Companies of Maia and Parish Councils** (include Social Services, Energy Division, Quality and Information Systems Division, Municipal Social Housing Company) – coordinating local implementation, facilitating access to vulnerable households, ensuring alignment with municipal strategies, and providing support for the deployment of energy efficiency measures and community initiatives.
- **EDP CNET (Energy and Environment Centre of EDP – Energias de Portugal - focused on research, innovation, and the development of sustainable energy solutions)** – leading the development of the Enfield Project, providing expertise in AI modeling, data analysis, and the integration of predictive tools to identify households at risk of energy poverty.
- **Local Organisations** – engaging directly with households, supporting awareness campaigns, and facilitating participation in training and capacity-building programs.
- **Academic and Research Institutions** – providing technical advice, contributing to monitoring and evaluation, and supporting evidence-based decision-making for pilot projects and policy recommendations.
- **Regional and National Energy Entities** – including energy agencies, regulatory authorities, and organizations involved in national energy policies and programs, which provide guidance, technical support, and access to funding or incentives for energy efficiency and poverty reduction initiatives.

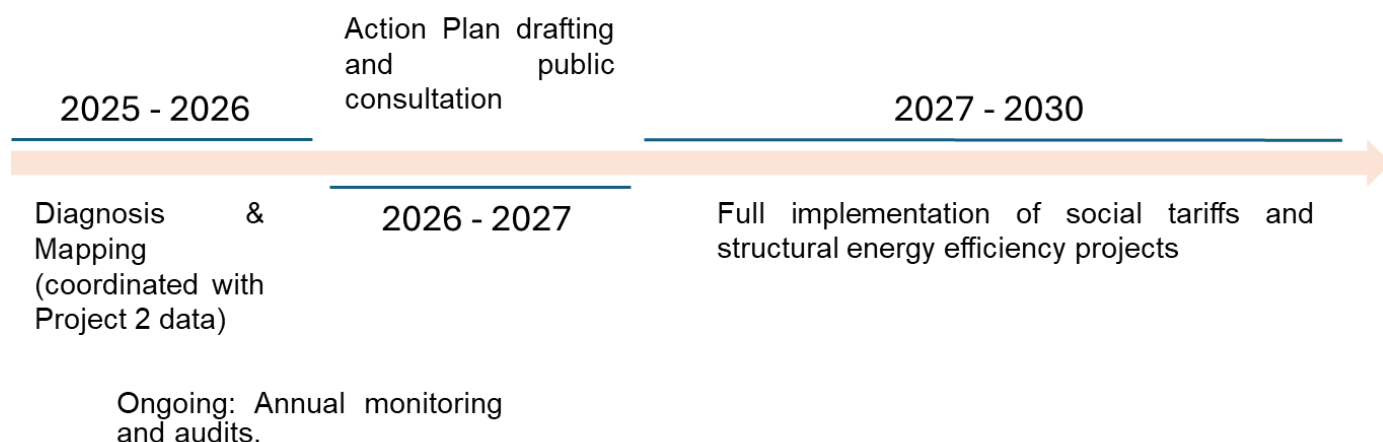
ULG members act as both a strategic steering committee and an operational coordination hub. It brings together municipal departments, companies, parish councils, local social organisations, academic partners, and regional/national energy entities. It oversees progress, fosters collaboration, mediates between technical and operational teams, and ensures alignment with broader municipal strategies on energy efficiency, social inclusion, and sustainability.

Key features of this governance approach include:

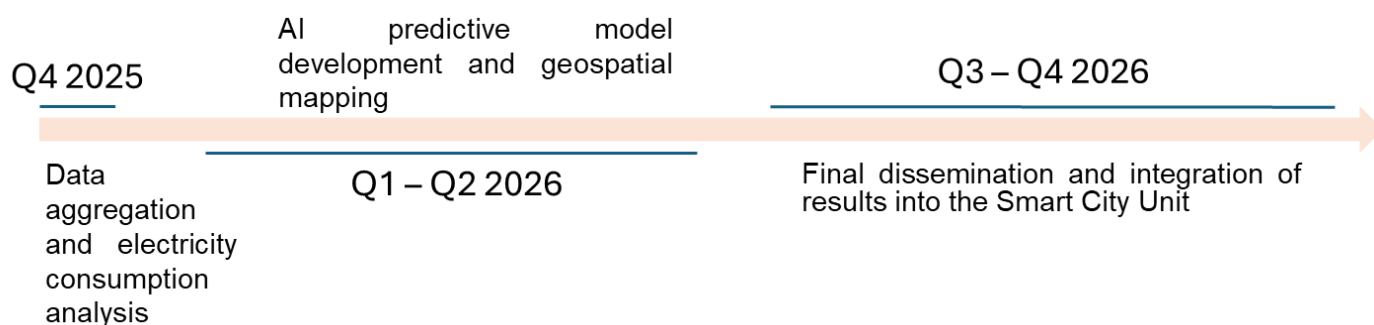


3.3 Overall project schedule

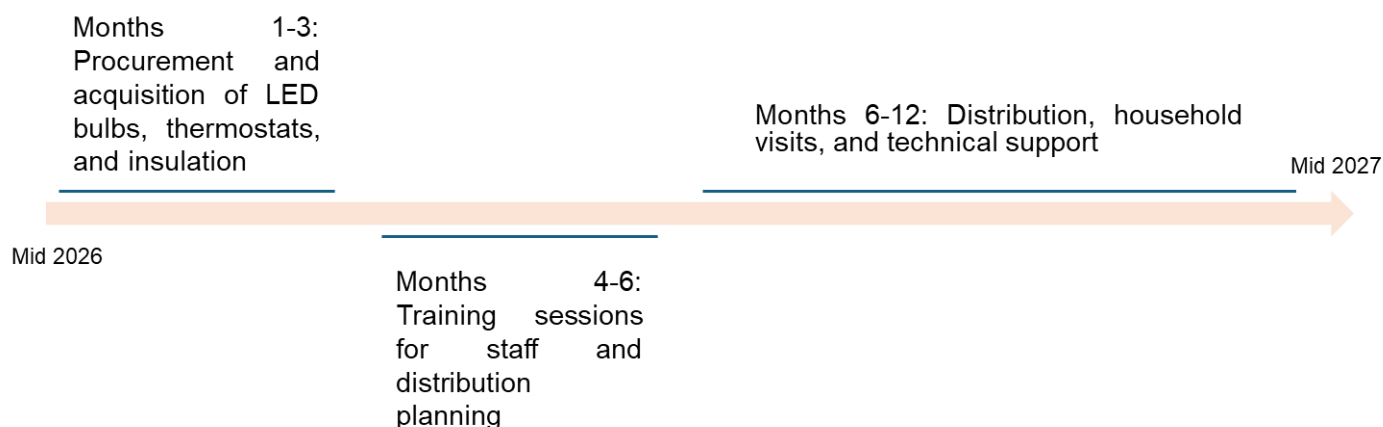
1. Municipal Action Plan for Mitigation of Energy Poverty



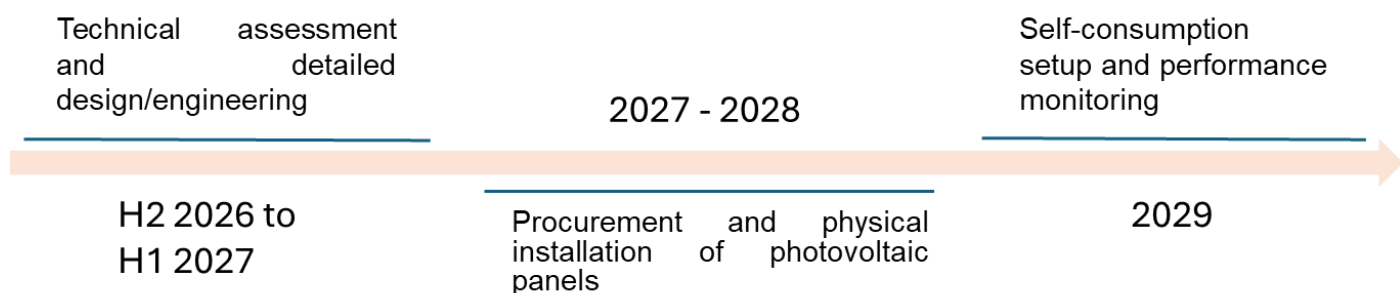
2. Energy Poverty Study



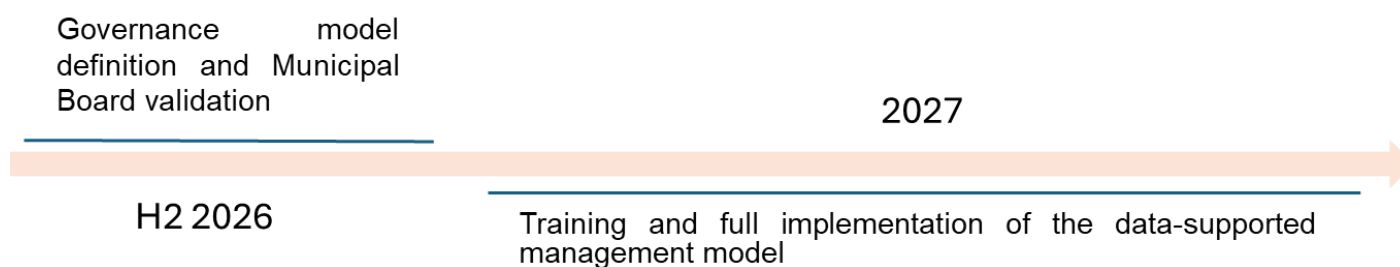
3. Household Energy Efficiency Kits (EEKs)



4. Renewable Energy Community: MAIA SOLAR

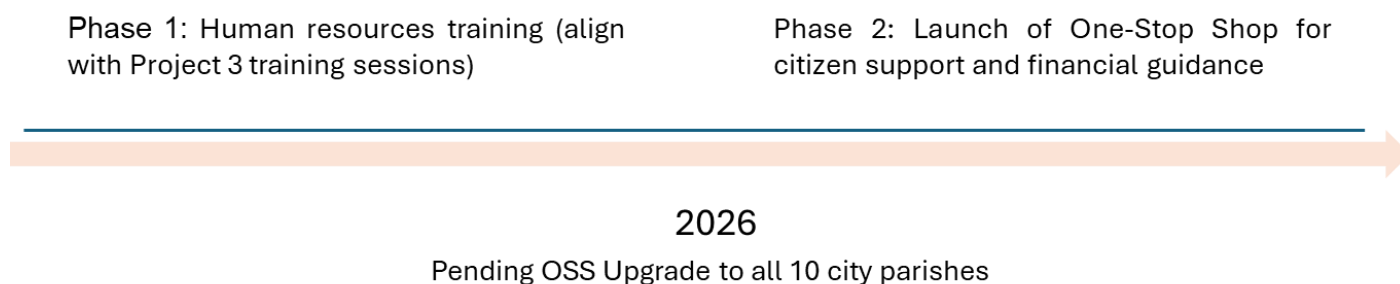


5. Smart City Unit



Along a *continuum*: Acts as the "brain" for all other pillars by processing consumption data

6. ESPAÇOS ENERGIA – Maia Energy Hub



4. BUDGET

4.1 Project costs/investment sources

The implementation of the proposed projects is supported by a dedicated financial framework, ensuring that resources are allocated efficiently across all project phases. Funding covers key areas such as technical interventions, community engagement activities, capacity building, and monitoring and evaluation. By aligning the financial planning with the work plan, the project ensures that each action is adequately resourced, enabling the achievement of objectives within the defined timelines and fostering sustainable impacts in addressing energy poverty.

PROJECT	COSTS BREAKDOWN	SOURCE OF FUNDING	TOTAL INVESTMENT
Development and implementation of a municipal action plan for the mitigation of energy poverty	a) 35.000€ to 65.000€ b) 20.000€ to 40.000€ c) 45.000€ to 110.000€ d) 15.000€ to 30.000€	• Recovery and Resilience Plan • Municipal Budget • European Structural and Investment Funds • Environmental Fund	115.000,00€ up to 245.000,00€
Energy Poverty Study	Overall cost	Horizon Europe	294.750,00€
Acquisition and distribution of energy efficiency kits for households	a) 19.500,00€ b) 3.750,00€ c) 12.000,00€ *for up to 150 households/ unit value = 235.00€	Municipal budget	35.250,00€
Renewable Energy Community (REC) "Maia Solar"	Overall cost	Northern 2030 Program - European Regional Development Fund (ERDF)	161.019,09€
Smart City Unit	a) to f) integrated Unit setup	Municipal Budget	619.204,00€
Espaços Energia – MAIA ENERGY HUB	Overall cost	Environmental Fund	≈ 60.000,00€

5. MONITORING AND EVALUATION

5.1 The Monitoring and evaluation approach

Our monitoring and evaluation approach is designed to assist the ULG members – 1st response assessment to measure and evaluate progress in a periodic and consistent way.

The realistic defined baseline shows the importance to work the Stakeholders – Community Engagement – Communication nexus not only for the duration of the project – although it will be its focus during the implementation period – but to consider its outputs for continuity.

5.2 Key Performance Indicators

Maia's Investment Plan follows a cumulative, multidimensional approach designed to track the city's transformation from a reactive model of monetary aid to a proactive, data-driven methodology. By combining quantitative and qualitative metrics, the selected KPIs translate abstract climate targets into practical tools for social cohesion and energy equity. This strategy ensures that performance measurement directly serves the municipality's overarching goal of eradicating energy poverty by assessing both building infrastructure performance and the immediate socio-economic well-being of its citizens.

This integrated approach establishes a reliable and transparent system for Maia to monitor structural deployment and secure evidence-based accountability. By constantly benchmarking programmatic results against local baselines, the municipality can optimize funding streams, mitigate operational risks, and adjust intervention workflows in real time. Such comprehensive validation loop guarantees that technical solutions remain deeply human-centric, successfully converting localized data into a permanent mechanism for territorial resilience and long-term sustainability.

Project	Workstream	Indicator (KPI)	Purpose / Benefit of Measuring
Municipal Action Plan for Mitigation of Energy Poverty	Territorial Diagnosis & Planning	Nº of vulnerable identified and mapped dwellings	Targeted resource allocation: Directs financial and technical support precisely where needs are most critical.
	Habitability & Health	Thermal comfort	Quality of life impact: Directly assesses improvements in citizens' health and comfort following interventions.
	Building Stock Efficiency	Percentage of buildings with an energy rating lower than C	Retrofitting strategy: Identifies the severity of housing obsolescence to plan rehabilitation funds.
	Financing & Sustainability	Total investment mobilized in efficiency measures	Return on Investment (ROI): Demonstrates the municipality's ability to attract capital for the energy transition.

Project	Workstream	Indicator (KPI)	Purpose / Benefit of Measuring
Energy Poverty Study	Socioeconomics & Financial Impact	Energy Burden / 10% Rule	Hidden poverty identification: Flags families spending over 10% of their budget on energy, validating urgent support.
	Social Inclusion & Demographics	Socio-demographic vulnerability	Social equity: Ensures municipal plans prioritize the most fragile groups (e.g., the elderly or single-parent families).

Project	Workstream	Indicator (KPI)	Purpose / Benefit of Measuring
Household Energy Efficiency Kits	Operations & Distribution	Total nº of distributed kits	Target monitoring: Evaluates scale, logistical reach, and compliance with the initial project goals.
	Household Economic Impact	Direct annual financial savings per household	Financial relief: Quantifies the direct economic benefit back into the families' budgets.
	Capacity Building & Citizenship	Increased knowledge in energy literacy	Behavioral change: Ensures energy savings are sustainable over the long term through conscious habits.

Project	Workstream	Indicator (KPI)	Purpose / Benefit of Measuring
Renewable Energy Community - MAIA SOLAR	Infrastructure & Energy Transition	Total Installed Capacity (kWp)	Asset sizing: Defines the scale of the project generation and its relevance to the local energy mix.
	Energy Production	Annual Renewable Energy Generation (MWh/year)	Environmental performance: Measures solar panel efficiency and calculates prevented CO ₂ emissions in the municipality.
	Community Efficiency	Collective Self-Consumption Rate (%)	System optimization: Minimizes wasted energy fed back into the national grid, maximizing local benefits.
	Community Economic Impact	Average Energy Bill Reduction (€/month or %)	Community viability: Proves the economic business case of the cooperative model for its participants.

Project	Workstream	Indicator (KPI)	Purpose / Benefit of Measuring
SMART CITY UNIT	Digital Governance & Tech	Data Interoperability Score	Technological efficiency: Eliminates technical barriers so information flows seamlessly across platforms.
	Systems Integration	Nº of Integrated Data Silos	Holistic urban view: Allows cross-referencing energy, social action, and urban planning data in a single view.
	Municipal Management & Strategy	Data-Driven Decision Ratio	Administrative modernization: Ensures urban planning is predictive, scientific, and free from intuition.
	Organizational Culture	Inter-Departmental Collaboration Index	Public agility: Reduces bureaucracy and accelerates citizen response times through cross-functional teams.

Project	Workstream	Indicator (KPI)	Purpose / Benefit of Measuring
Espaços Energia – MAIA ENERGY HUB	Education & Partnerships	Nº of ADENE Academy attendees	Local qualification: Evaluates the success of institutional partnerships in building technical skills in the region.
	Customer Service & Proximity	Nº of Consultations	Service demand: Measures the relevance of the Hub as a reference point for citizens seeking help.
	Inclusion & Communication	Demographic Reach	Gap identification: Reveals whether the Hub reaches the entire territory or if isolated areas need targeted campaigns.
	Effectiveness & Real Impact	Conversion Rate (Info-to-Action)	Practical return: Ensures the Hub operates as an active engine of change for local buildings, not just an information spot.