

WELLBASED



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TACKLING ENERGY POVERTY AS A PUBLIC HEALTH PRIORITY: FROM POLICY TO PRACTICE



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**ENERGY POVERTY
INTERVENTIONS TOWARDS
BETTER HEALTH: GUIDELINES
FROM WELLBASED PROJECT**

This report compiles key recommendations for planning, implementing, and improving interventions to combat energy poverty, with a focus on health aspects. Drawing from the pilot experiences of the WELLBASED project, it focuses on four intervention types: (1) social energy audits, (2) distribution of an energy efficiency kit, (3) group training on energy and health, and (4) home retrofitting, aimed at people at risk of energy poverty. For each intervention, the

report provides practical tips and guidance, including estimated costs and recommendations on how to integrate the health dimension to enhance impact. The detailed description of WELLBASED urban programs can be found in WELLBASED deliverables D3.4. Final report on the implementation of the urban programme (Petrova, et al., 2024) and D5.2. Upscaling and replication strategies (Karademir et al., 2025).

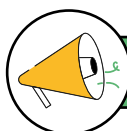


WELLBASED (2021–2025) is a H2020 EU project aimed at delivering comprehensive urban programmes to reduce energy poverty and explore its impact on health. The following pilot cities have implemented their programs: Edirne (Turkey), Heerlen (Netherlands), Jelgava (Latvia), Leeds (UK), Obuda Bekasmegyér (Budapest, Hungary), and Valencia (Spain).

1 SOCIAL ENERGY AUDITS



A systematic energy analysis of the home and the household's energy use by trained technicians which identifies opportunities for efficiency, health benefits, and energy bills cost reduction. It addresses energy losses, appliance use, bill optimization, available discounts, and debt management, empowering households to save energy, lower costs, and improve comfort.



USEFUL TIPS

- **Conduct audits on-site when possible:** Energy coaches should conduct audits at users' homes to better understand their housing conditions, their daily energy usages and appliances and their specific situations. If possible, it is highly recommended to install the energy efficiency kit during the same visit as it allows a more accurate installation of the kit elements by detecting the needs of both the household and the property.
- **It is recommended to arrange the visit when all household members are present in the house** so that everyone can raise questions and make better use of the tips and learnings provided.
- **Prepare training materials to deliver** (both digital and physical) with information about support measures, efficiency tips, general advice...

→ CHALLENGES IN KNOWLEDGE TRANSFER

- **Energy is seen as overly technical:** Users often see energy as highly technical and complex. Clear, user-friendly recommendations with practical examples tailored to each home and profile are essential.
- **Language barriers:** Be mindful of potential language challenges among migrant communities.
- **Do not rely on providing information through on-line channels only** – many people on low incomes do not access information this way, e.g. because of no or poor access to the internet or lack of IT skills.
- **Difficulty recognizing energy tariffs:** Users may need help identifying their energy tariff through their most recent bills.
- **Limited access to reliable information:** Vulnerable groups (e.g., older adults, migrants, single-parent families) might lack information about social tariffs, grants, or price changes. Clarify the distinction between government and energy companies to build trust and counter fake news or fears of scams.
- **Adapt to local conditions:** Tailor information to local contexts, including climate, building materials, and humidity levels. Consider summer Energy Poverty assessments if relevant.
- **Rental housing challenges:** Renters may face constraints in making significant upgrades or renovations. Adjust advice accordingly.
- **Help manage energy debts:** Assist users in setting up payment plans to avoid service cuts and recommend prioritizing older bills to reduce extra charges. Recognise that people with energy debts often have other debts and will therefore need holistic debt management advice. Inform about the options that the Municipal Social Services or energy suppliers can offer to vulnerable households for special protection to avoid cuts.
- **Empower users to seek help:** Emphasize that asking for help or having debts is not shameful. Highlight external factors beyond their control, such as inefficient buildings, climate conditions, opacity of the energy system or fluctuating energy prices.

→ ENERGY COACHES

- **Include diverse and experienced professionals:** The team should consist of energy coaches and social workers experienced and trained in working with vulnerable households.
- **Be approachable,** flexible with communication (phone, messaging services), care listener, empathetic, trustworthy. Help create a safe space for users to feel confident to share their concerns, build a relationship of trust.
- **Ensure cultural and gender sensitivity:** When conducting home audits, include both male and female coaches to address potential gender-related barriers in certain cultural contexts.
- **Establish emergency protocols:** Collaborate with housing and health services and set up a protocol for extreme cases. Report unsuccessful cases to the appropriate authorities. Refer cases when needed (Social Services, Energy Office, Healthcare centers, other municipal services).



→ FOR SOCIAL ENERGY AUDITS

- **Provide practical guides:** After the audit, leave step-by-step guides and leaflets covering energy efficiency, bill optimization, and market basics. Offer a contact point for further assistance. Prepare it both digital and physical to ensure that people can share it among their contacts, so it reaches as many people as possible.
- **Distribute information widely:** Use municipal websites, public campaigns, and local NGOs or grassroots organizations to spread awareness.
- **Ensure GDPR compliance:** Obtain user consent for data collection, particularly for home visits and explain how it safeguards their rights and privacy.

→ COMMON RECOMMENDATIONS SHARED DURING SOCIAL ENERGY AUDITS

- **Optimize ventilation:** Suggest proper ventilation strategies based on home orientation and seasonal changes to improve indoor air quality and temperature. Cross-ventilate if possible.
- **Identify and adapt energy tariffs:** Help users understand their tariff type and optimize energy use during cheaper hours. Provide tools or resources for tracking costs.
- **Choose energy-efficient appliances:** Recommend using efficient devices (advice will vary in each country, but to name a few: using central heating when available rather than single room heaters; using oil-based electric heaters rather than usual electric ones for long heating periods; fans or ceiling fans rather than air conditioning when possible, etc.). When air conditioning is needed, regulate the temperature and use low consumption modes such as de-humidifier program.
- **Save energy while washing and drying:** Encourage users to wash clothes in cold water or lower temperature available in washing machines, use shorter cycles, and air-dry when possible.
- **Adjust water heater settings:** Advise lowering water heater temperatures, especially during summer (although considering a minimum temperature to prevent legionnaires diseases).
- **Limit excessive appliance use:** Suggest alternatives like using radios instead of TVs for older adults who leave devices running for long periods.
- **Manage additional freezers:** Highlight the energy costs of extra freezers, common in some cultural practices, and suggest smaller, more efficient models.
- **Tackle summer Energy Poverty:** Recommend strategies like cross-ventilation (during the first and last hours of the day), blinds or thermal stickers on windows, the use of fans over the air conditioning and specific plants to lower indoor temperatures and humidity.
- **Improve efficiency of illumination in the house:** check for old lightbulbs with high consumption (40-60kw) and advise changing them into LED bulbs (7-12kw)
- **Use of power meter:** check together with the user the appliances that have energy consumption even when they are turned off. This facilitates fighting against stand-by modes and a deeper knowledge of the home's appliances and functioning.



HEALTH FOCUS

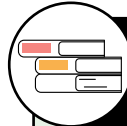
- **Integrate health into the audit:** Include questions about physical and mental health in the audit questionnaire and refer users to a GP if needed. Include health (e.g. frequency of visits to GP, sleep quality, anxiety/depression levels, blood pressure, cardiovascular or respiratory diseases, frailty conditions on older adults, gender inequalities, presence of children or disabled people)
- **Conduct basic health checks:** Perform simple measurements (e.g., blood pressure, heart rate) during home visits and guide users to health services when needed.
- **Promote healthy habits:** Provide guidelines on ventilation, healthy lighting, and nutrition to enhance overall wellbeing.
- **Adapt advice to user habits:** Tailor health recommendations based on users' routines and coping strategies.
- **Train energy coaches in health:** provide basic guidelines to the energy coaches to detect when values or measures could be worrying and advise a visit to the specialist accordingly. Develop a protocol to refer those cases.



COST OF SOCIAL ENERGY AUDITS (PER HOUSEHOLD)*

- The social energy audits conducted in WELLBASED, including energy bills optimization, energy efficiency advice and energy audit at home have an estimated cost of **230 € per household**. This cost includes:
 - o Staff cost: two superior technicians for 1.30h of intervention
 - o Planning and preparation time: reaching the participant, appointment and interview, phone calls (3h per household)
 - o Leaflets and guides: **1-2 euros/guide** approximately, depending on the needs. Includes: Social Bonus leaflet, Good practices at home leaflet, Energy efficiency at home leaflet.

* Spanish prices have been used as a reference for estimating intervention costs.



EXAMPLES OF MATERIALS FOR SOCIO ENERGY AUDITS:

- [Good practices for the use of energy \(Valencia Clima i Energia, SP\)](#)
- [Social Tariff \(Valencia Clima i Energia, SP\)](#)
- [Good practices \(Valencia Clima i Energia, SP\)](#)
- [Advices for extreme heat \(Valencia Clima i Energia, SP\)](#)
- [Guide for home savings \(Valencia Clima i Energia, SP\)](#)
- [Home energy advice leaflets \(Center for Sustainable Energy, EN\)](#)
- [Quick tips to save energy \(Energy Saving Trust, EN\)](#)

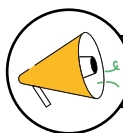
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ENERGY EFFICIENCY KIT: INSTALLATION AND USE

Collection of tools and devices designed to help households reduce energy consumption and lower utility costs. It can contain:

- 2 LED LIGHTBULBS
- 1 POWER METER
- 1 TIME PROGRAMMER
- 1 POWER STRIP
- WEATHER STRIPES (NORMALLY FOR 2-3 WINDOWS) AND 1 DOOR WEATHER STRIPE (ADAPTATIVE ACCORDING TO NEEDS)
- SUMMER ENERGY EFFICIENCY ITEMS: FAN, PLANTS





USEFUL TIPS

- **Install kits during audits:** Energy coaches should install the energy efficiency kit during the home energy audit and provide customized energy-saving advice. This is more effective than merely delivering the kit. Users can also identify the needs and make the most of the kit.
- **Explain kit components:** Some items, like timers and weatherstrips, may require instructions on proper use and placement.
- **Explore lending schemes:** Consider lending energy efficiency tools (e.g., power meters) through libraries or community centers to allow users to assess appliance consumption at home. An inspiring example of this is the eco-library Óbuda Platán Library, maintained by the Municipality of Óbuda-Békásmegyer in Budapest, Hungary ([Óbudai Platán Könyvtár](#)).
- **Adapt to each household:** adapt language and explanations to each household previous knowledge. If they can use IT and technologies, energy coaches can show them apps and digital tools to monitor consumption and check the effectiveness of the kit installed.

→ ISSUES SOLVED WITH THE ENERGY EFFICIENCY KIT

- **Reduce phantom energy use:** Measure the standby energy consumption of appliances (TV, microwave, coffee machine) and estimate costs. Install power strips and remind users to switch them off when not in use.
- **Switch to LED lighting:** Assess lighting and replace traditional bulbs with LED alternatives.
- **Optimize water heater schedules:** Use timers to align water heater operation with cheapest hours on regulated tariffs.
- **Control WiFi router energy use through the plug time programmer:** Suggest timers for turning off routers overnight or during extended absences.



HEALTH FOCUS

- **Promote healthy habits:** Include a guide in the kit with tips on ventilation, lighting, and healthy living (e.g., recipes).
- **Monitor home comfort:** Provide sensors with displays to help users track comfort parameters such as humidity, air quality, and exposure to unhealthy conditions, such as cold, damp and mould.



COST OF ENERGY EFFICIENCY KIT

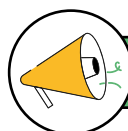
The Energy Efficiency Kit has an average cost of **40–80 euros/kit**.



3

GROUP TRAININGS ON ENERGY
AND HEALTH ISSUES

Regular group trainings of local communities, organised by municipalities in collaboration with grassroots associations, on energy and health-related topics—such as energy efficiency, bill optimization, household budgeting, ventilation, mould prevention, how to deal with heat waves, preparation for winter, and the health impacts of extreme temperatures. If held on a regular basis (e.g. monthly), they can strengthen community bonds and create spaces for mutual support.



USEFUL TIPS

→ PLANNING AND ORGANIZATION

- **Design a diverse program:** Plan sessions with varied speakers and topics, incorporating participants' preferences to ensure engagement.
- **Build trust with participants:** Ensure at least one consistent, trusted person is present in every session.
- **Offer free snacks or lunch during the sessions.** It will enhance participation and engagement and it is a nice moment for participants to connect and build relationships one with each other.
- **Convenient locations and times:** Organize sessions near participants' residences and schedule them outside typical working hours.
- **Address accessibility challenges:** Enable transportation services for groups with mobility issues, single parents, or other vulnerable individuals.
- **Welcome family, kids, carers or friends:** facilitate a space for kids so families and single parent families can attend. Also, friends, carers and neighbors are welcome as support companions.

→ PARTICIPANT ENGAGEMENT

- **Use stigma-free communication to recruit participants:** Frame information campaigns for group trainings around the right to energy and healthy homes instead of focusing on Energy Poverty to reduce stigma and highlight structural causes.
- **Use clear, relatable language:** Incorporate examples, practical cases, and everyday experiences to explain concepts effectively.
- **Foster a safe and welcoming environment:** The facilitator plays a vital role in encouraging open dialogue and collaboration.
- **Simplify communication:** Use accessible group channels (e.g., phone messaging apps) to share reminders, information, and updates with participants.
- **Identify community leaders within the neighborhood who are already trusted by the community:** Engage previously with key persons who can help build credibility, ensure effective communication about the event, spread the word and encourage participation.

→ ACTIVITIES AND PROGRAMS

- **Incorporate engaging activities:** Include trips to energy efficiency centers, model 'green homes', family activities, escape rooms with energy-saving themes, or creative workshops (e.g., photovoice art projects). Ask participants for ideas to tailor activities to their interests.
- **Encourage peer-to-peer learning:** Empower participants to become trainers in their communities, fostering a network of volunteers to assist others, such as visiting vulnerable individuals with disabilities.
- **Protect data and privacy:** Ensure confidentiality, and if using photos or videos for communication, obtain informed consent at the start of each session.



HEALTH FOCUS

- **Promote health awareness:** Organize discussions on the impact of extreme temperatures, dealing with mold, ventilation, mental health, and healthy nutrition.
- **Support community health:** Offer activities like collective health screenings, free sports classes in green spaces, or workshops on improving mental and physical wellbeing
- **Encourage mutual support:** Strengthen community resilience and reduce unwanted loneliness by fostering engagement and collaboration.
- **Involve professionals:** Include psychologists, therapists, and health experts in the program to address diverse health-related concerns.

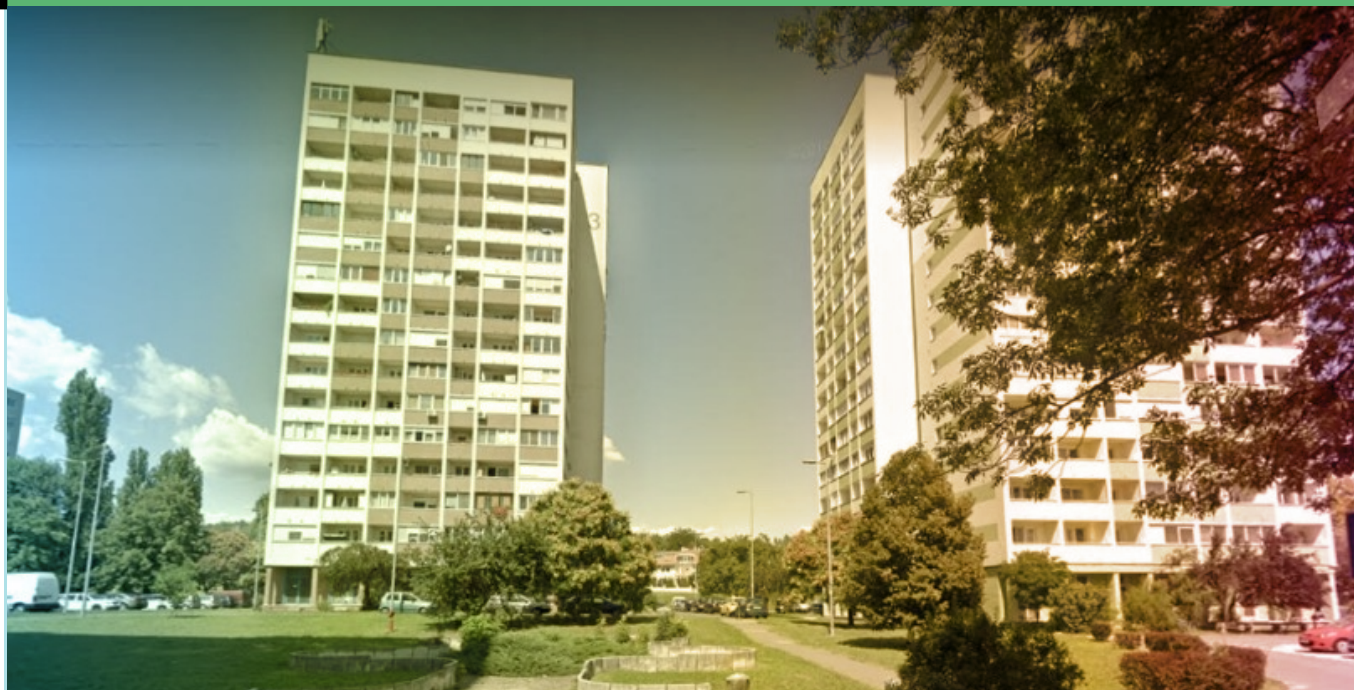


COST OF GROUP MEETINGS

A 2h session with an expert and two groups facilitators has an estimated cost of around **300€**, including **50€** of food and drinks served during the session for participants. Therefore a program of 10 sessions would cost around **3000€**. (Spanish prices used as reference)



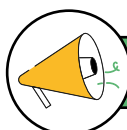
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HOME RETROFITTING: COMMUNICATION,
COORDINATION, AND HEALTH CONSIDERATIONS

Buildings upgraded to enhance energy efficiency, reduce consumption, and improve comfort and health, often through measures like insulation, efficient heating systems, and appliance upgrades.

In the WELLBASED project, the pilot cities of Edirne (Turkey) and Leeds (United Kingdom) implemented properties'

improvements. More concretely, Edirne's urban program introduced a new heating system, replacing old single stoves with a more efficient setup consisting of a stove and radiators for whole-home heating, along with improved insulation. Leeds, in turn, installed insulated cladding to the outside of the buildings and connected the properties to the district heat network.



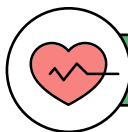
USEFUL TIPS

→ COMMUNICATION AND COORDINATION

- **Establish clear communication:** Ensure residents are well-informed about the work schedule, expected duration, and any disruptions.
- **Plan for potential delays:** Understand that exact timelines are hard to predict and may be affected by factors like elections or parallel projects.
- **Minimize disruptions:** Take steps to avoid noise, dirt, blocked parking, and other inconveniences that could affect tenants.
- **Address potential mold issues:** Insulation work may cause moisture buildup; plan for mold prevention measures.
- **Ensure easy-to-operate heaters:** Ensure that renovated heating systems are user-friendly and efficient.
- **Design for larger households:** Plan rehabilitations with the needs of large families in mind.
- **Coordinate technical work:** When multiple projects (e.g., insulation and heating systems) run in parallel, ensure they are properly coordinated to prevent complications, such as the impact of insulation on heating system calculations.
- **Modernization of household appliances.** Focus on those that do not require construction work or involve legal complexities
- **Provide advice on new equipment;** this may often require follow-up advice several months after the upgrading has been completed.

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HOME RETROFITTING: COMMUNICATION, COORDINATION, AND HEALTH CONSIDERATIONS



HEALTH FOCUS

- **Evaluate health impacts:** Assess and follow up on the health effects of rehabilitation interventions, considering comfort parameters before and after the work.
- **Track success through health indicators:** Establish indicators linked to wellbeing and health to measure the success of interventions.
- **Include wellbeing indicators in funding:** Introduce wellbeing and health-related criteria in funding programs to ensure holistic benefits.



COST OF HOME RETROFITTING MEASURES

The cost of interventions varies significantly, from simple upgrades like window renovation to major renovations such as full building insulation or replacing heating system. Some examples of measures and estimated costs are presented below, based on the information provided by different pilot programs of WELLBASED (Valencia,

in Spain, Leeds in the United Kingdom and Edirne, in Turkey).

A significant cost variation can be observed for the same interventions across different pilot sites, influenced by the nature and scale of the intervention, the size of properties, as well as the varying cost of living in each country.

Table 1. Estimated costs of home improvements' measures included in pilot programs of Valencia, Leeds and Edirne (2023-2024)

MEASURES	ESTIMATED COST (per household)
Replacement of gas water heater with a 50-liter electric water heater (Valencia, Spain)	350 €
Upgrading heating system in small dwellings: from single stoves to efficient stove-radiator setup (Edirne, Turkey)	530 €
Replacement of bedroom window. Installation of ceiling fan. Refrigerator replacement (Valencia, Spain)	3.000 €
Insulated exterior cladding, windows replacement and connection to district heating in building (Leeds, United Kingdom)	31.500 €



REFERENCES

Karademir, M., Alpagut, B. (2025): [Upscaling and replication strategies](#). Deliverable No D5.2, Wellbased, Grant Agreement No. 945097.

Petrova, E. et al. (2024): [Final report on the implementation of the urban programme](#), Deliverable No. D3.4, Wellbased, Grant Agreement No. 945097.

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FURTHER READING:

[D3.4. WELLBASED Final Report on the Implementation of the Urban Program](#)

[D4.3. WELLBASED Final Pilot Sites Analysis Report](#)

[D4.5. WELLBASED Report from the qualitative study](#)

[D5.2. Upscaling and replication strategies](#)

[D5.5. WELLBASED Policy Recommendations](#)

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