



Raising summer energy poverty awareness to reduce cooling needs

How to address Summer Energy Poverty in public policies



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Introduction

The present policy brief was developed in the context of the COOLTORISE project: Raising summer energy poverty awareness to reduce cooling needs. COOLTORISE is a pioneering project in that it is the first to be awarded funds by the European Commission to deepen and widen the understanding of the summer energy poverty issue.

The existing literature on energy poverty is mainly linked to cold climates, leading to a large amount of evidence on coping strategies for cold in detriment of heat ones and on cooling in homes during summertime. The latter present specific challenges for some sectors of the population, as the drivers of summer energy poverty may differ from those of wintertime.

Given the prevalence of the summer energy poverty phenomenon in Mediterranean countries over the rest of the EU, previous work has already introduced a Mediterranean-specific perspective when designing mitigating policies. Building conditions, cooling systems availability, socio-economic conditions, and climate change are all contributing factors to tipping the scales towards a higher summer energy poverty incidence in the households of the Mediterranean coastal strip.

In addition, it is also known that climate change-induced extreme weather conditions, such as heat waves, are becoming a more frequent occurrence. Various reports and studies, e.g. those developed by the Intergovernmental Panel on Climate Change (IPCC), warn that extreme events are predicted to have an important impact on public health. In cities and dense urban areas, the burden of said weather events will be compounded by the Urban Heat Island (UHI) effect, which will aggravate extreme temperatures in city centres.

In order to take an in-depth look at these phenomena and identify strategies to tackle summer energy poverty, this document stemming from the COOLTORISE project provides key policy design guidelines for different types of stakeholders at the local, national and public levels.

This brief is structured according to three sections: accuracy and quality improvement in **summer energy poverty measurement**; impact on **wellbeing conditions and urban scale**; **health impact**. Each section is, in turn, composed of a diagnostic subsection followed by its respective recommendation.

Summary for policy makers

Measuring Summer Energy Poverty

Europe should strive to understand how energy poverty manifests in each Member State and different seasons, and provide them with a clear definition to establish future frameworks to guide policymakers.

EU-funded projects should prioritise the development of contextual knowledge within their action plans for each national context rather than attempting to address ill-defined problems. By focusing on recognising the specific challenges and dynamics of energy poverty in each Member State, these projects could ensure a more targeted and effective policy design and implementation.

Policy design should recognise that the drivers of energy poverty, including **summer energy poverty**, are **rooted in cross-cutting structural factors**. Therefore, it would be crucial **to enforce the comprehensive monitoring of housing conditions, health policies, urban space, energy access, employment and income, as well as climate change**. The latter should be considered as a factor that informs present and future summer energy poverty.

To effectively approach the significant issue of summer energy poverty, it would be advisable **to implement its direct measurement by means of new primary indicators** rather than relying solely on secondary ones.

It would be essential to characterise **summer energy poverty based on lived experiences** and ensure that it ceases to be overlooked in Europe. Policy design should actively consider these nuances and incorporate targeted measures to address the unique challenges faced during the summer months.

To enhance policy design, the establishment of a framework reflective of the **variations between different territories** would be highly recommendable, encompassing the comprehensive mapping of lived experiences and initiatives addressing summer energy poverty. At the same time, this framework should aim to foster connections and collaboration across local, regional, national, and international levels. Facilitating knowledge sharing and leveraging best practices would assist policymakers in developing more context-specific and effective strategies to tackle summer energy poverty.

Wellbeing conditions and urban scale

To effectively address the specific thermal challenges faced during summer and contribute to enhancing the resilience of residents in coping with thermal stress, it is necessary to further our understanding of the cooling strategies and measures adopted.

National meteorological agencies can play a pivotal role in facilitating **monitoring campaigns aimed at adequately addressing urban microclimatic conditions**. To achieve this, it is crucial to establish standardised criteria that enable easier comparison and correlation of different situations. By developing and implementing consistent measurement methodologies and data collection practices, policymakers could gather reliable and comparable data across different regions. This standardised approach would enhance the ability to analyse and understand urban microclimates, and, in turn, lead to better-informed policy-making and targeted interventions for tackling thermal challenges and promoting sustainable urban environments.

Municipalities should actively engage with state-level agencies to foster knowledge and resource sharing for implementing a suitable monitoring process. Simultaneously, conducting specific studies and **data collection efforts could assist in pinpointing various urban aspects that influence microclimatic conditions**. These features may include, inter alia, different types of pavements, the presence of green and blue infrastructure, variations in building typologies and ages, and the prevalence of HVAC systems.

For targeted awareness-raising on summer energy poverty, it is recommended to implement two complementary policy measures. Firstly, **developing public projects for monitoring and mitigating UHI effects** would be a determining factor. Secondly, conducting **information campaigns on how to effectively manage and cope with overheating situations** would be essential. By combining UHI mitigation efforts with informative campaigns, policymakers can enhance resilience and reduce the impact of summer overheating, ultimately alleviating summer energy poverty.

Health impact

It is crucial to establish protective measures for consumers in vulnerable situations, ensuring they are not deprived of essential services due to non-payment of energy bills. In line with this, it is recommended to consider the elimination of historical debts to prevent a gradual accumulation of interest.

It is recommended that public administrations adopt certain beneficial practices, such as the **implementation of heat prevention health plans**. These plans should **incorporate an alarm system to promptly notify the community during heat waves**. Additionally, health centres should activate protocols to proactively reach out to vulnerable groups previously identified based on their medical history and/or age.

As part of policy design, it is advisable to implement Urban Action Initiatives that prioritise addressing energy poverty as a central theme. **These initiatives should include interventions in public spaces, recognising their potential impact on the thermal comfort of nearby homes.** Moreover, the concept of outdoor space as a liveable extension of the household should be embraced, **creating comfortable alternatives to homes, such as climate shelters**. By integrating public spaces into the broader context of households, policymakers can enhance the overall living conditions and thermal comfort of individuals affected by energy poverty.

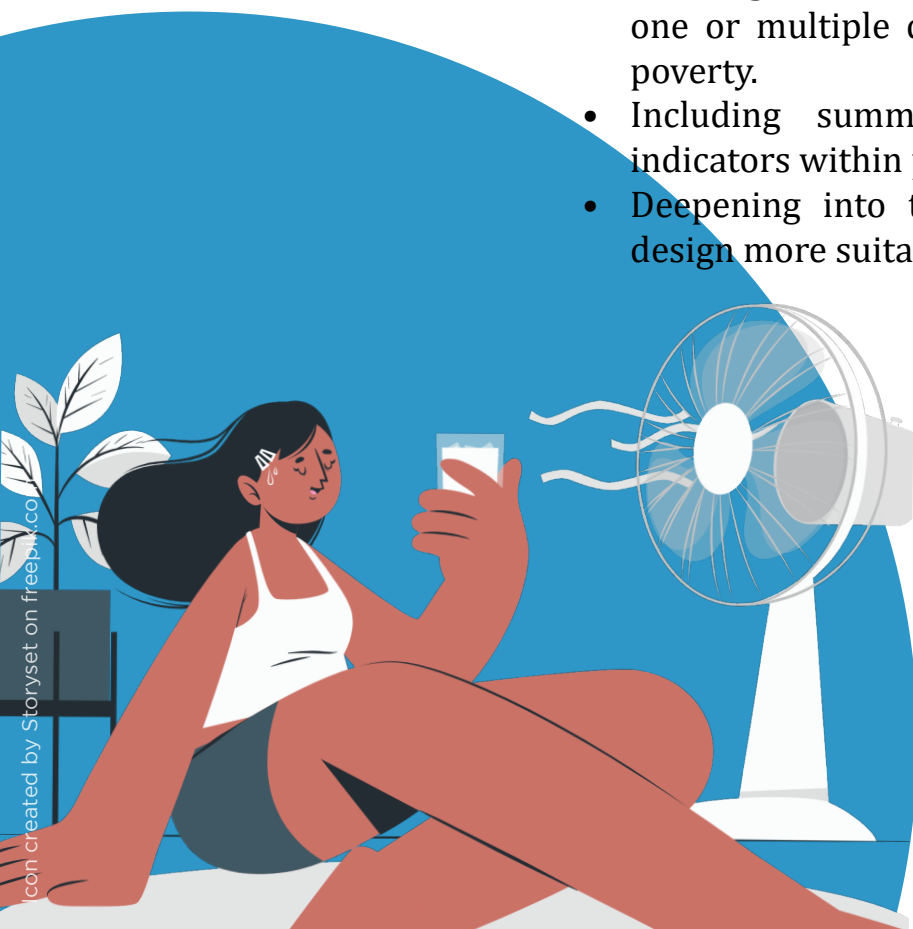


Measuring Summer Energy Poverty

Given the lack of a common definition for summer energy poverty, new methodologies and indicators should be developed to measure and characterise this phenomenon. However, there are some roadblocks in their development.

This section provides an analysis of methodologies, indicators and definitions aimed at improving the recognition of summer energy poverty as a problem with structural drivers. From the national to the local context, the backbone of an integrated approach should match the following steps:

- Creating a common framework that includes one or multiple definitions of summer energy poverty.
- Including summer energy poverty impact indicators within policies.
- Deepening into the household experience to design more suitable measures.



Lack of consensus? common definition: an opportunity

It is known that instead of creating a common baseline understanding of energy poverty, every Member State has the opportunity to establish its own definition, with only a few having adopted a formal definition to this day. Although winter energy poverty is a shared problem of all Member States, the same does not apply during the summertime.

The task of defining summer energy poverty can involve a double work burden, as it remains doubly invisible for countries bereft of a definition for both energy poverty and summer energy poverty.

- **Creating a definition of summer energy poverty would ensure its recognition within policies.**
- **In order to achieve the UN Sustainable Development Group's Leave No One Behind (LNOB) goal, an integrated strategy against energy poverty should be promoted.**
- **Europe should strive to recognise the mechanisms of energy poverty in different seasons and for each Member State, in lockstep with circumscribing its definition so as to putting forth new frameworks to guide policymakers.**
- **EU-funded projects could comprise this specific knowledge gathering and generation within their action plans for each national context rather than trying to tackle problems that remain undefined.**

Review of indicators: improving data availability and the design of indicators

Some limitations arose when examining the indicators and measurement of summer energy poverty. It proved infeasible to quantify the issue based on the indicators proposed by the Energy Poverty Advisory Hub (EPAH) and The Covenant of Mayors (CoM). The use of these indicators is in turn challenged by the limited data availability in terms of time periods, thus rendering the measurement of some summer energy poverty drivers impossible.

A similar gap in information is also present within a few indicators that take into account winter-specific complications, e.g. mortality or heating affordability, while failing to consider their summer counterpart.

- **There is an increasing sense of urgency in the need to improve data availability and the design of suitable indicators characterising summer energy poverty.**
- **As with energy poverty, the drivers of summer energy poverty, in particular, are structural. They require monitoring housing conditions, health policies, urban space, energy, employment and income, and climate change. What is more, the inclusion of specific questions geared towards recognising summer energy poverty is pivotal.**
- **It is a significant issue that should be measured directly from new primary indicators, not only through secondary ones.**

Summer energy poverty based on the household perspective

During the last few years, a growing body of literature has developed around energy poverty from the household perspective. Qualitative methods have been applied to discuss different drivers as well as the impact of energy poverty based on the households' lived experience. Currently, despite the myriad of interviews and statements that delve deep into this topic, a specific focus on summertime is still missing and thereby, heat-related adaptive behaviour remains largely unknown.

From a cultural lens, summer energy poverty relates differently to outdoor space than its winter equivalent, as the use of public open space plays a special role during the summer season.

- **Summer energy poverty should be characterised based on lived experience and ceased to be neglected at the European level. There are cultural drivers that shape summer energy poverty and differentiate it from winter energy poverty.**
- **An inclusive framework acknowledging territorial differences and that could act as a point of convergence for the mapping of local, regional, national, and international experiences and initiatives addressing summer energy poverty would be recommended.**
- **Regarding the relationship between summer energy poverty and outdoor space, further research should be developed to get a better characterisation of its specificities. Qualitative research methods should encompass features of collective experience on top of an individual dimension.**

Wellbeing conditions and urban scale

Assessing and evaluating summer heat stress in specific urban environments is a stepping stone towards the implementation of effective policies and urban plans for tackling summer energy poverty.

Said policies ought to consider two key aspects pertinent to summer thermal comfort: on the one hand, establishing summer wellbeing conditions is intrinsically linked to adaptive comfort evaluation and citizens' resilience to cope with high temperatures through the implementation of cooling strategies. On the other hand, the unique urban thermal conditions, and the connection between heat exposure and heat vulnerability across the different areas of the city, require a deeper awareness of how urban features relate to local microclimates.



Setting wellbeing conditions for summertime

Summer comfort conditions are closely bound up with the degree of adaptiveness of citizens. The experience of overheating can be alleviated in summer energy poverty situations by adopting mitigating strategies. Unlike in winter, where indoor thermal conditions are mainly depending on heating systems and buildings' insulation, in summer there is a greater degree of low-energy thermal regulating behaviours.

However, the evaluation of building thermal performance and overheating risk is still far from incorporating such aspects, as buildings and inhabitants are commonly considered passive agents in dynamic thermal simulations.

- **To better address the idiosyncrasies of summer thermal experience and the households' ability to cope with thermal stress, it is essential to build a better sense of the cooling strategies and measures applied. To do so would involve collecting qualitative data and considering local microclimatic differences to a greater extent.**
- **Thermal comfort conditions can vary within the same building and according to age, economic conditions, or vulnerability to overheating.**
- **Carrying out surveys and compiling data on user behaviour and socio-economic profiles, and identifying the different heat-coping trends attached to specific locations, i.e. passive strategies, adaptive measures, building use and energy supply, would enable the improved understanding of summer wellbeing conditions.**

Summer urban microclimatic conditions

Urban microclimatic conditions in the summertime are a concerning issue for southern European cities. Different municipalities and local universities have developed tailored plans for monitoring and evaluating the UHI phenomenon. UHI refers to the urban summer phenomenon that occurs when a city experiences higher temperatures than the surrounding rural areas. Nonetheless, the lack of data presents a hindrance to said evaluation plans. In this sense, some municipalities have developed their own network of stations to gather local climate data, albeit with no clear criteria for their geographic position within the municipality, which results in a diversity that does not lend itself to effective comparison.

- **National meteorological agencies can play a central role in the promotion of monitoring campaigns aimed at better pinpointing urban microclimatic conditions. For this purpose, it would be necessary to establish standardised criteria that could lead to fostering data comparability and establishing correlations.**
- **Municipalities could cooperate with state-level agencies by facilitating technical knowledge and resources for installing appropriate devices. At the same time, focused studies and data collection could be undertaken to discern urbanscape elements relevant to microclimatic conditions: types of pavements, green and blue infrastructure, building typologies and age, presence of HVAC systems, among others.**
- **Finally, and to effectively support urban cooling measures at different levels, it is fundamental to gain a better appreciation of the dynamics between local microclimates and different urban scenarios.**
- **Alleviating heat stress within the city at the urban and microclimatic scale is a top priority due to its profound effect on buildings' cooling loads.**

Indicators for policy makers

Despite the current shortcomings when it comes to assessing summer conditions, partly due to the novel character of energy poverty appraisals, there is an increasing concern over urban cooling and the UHI from local authorities, the academic community and citizens. However, the gap between overheating-related scientific knowledge and policy-making is evident. Withal, there is a growing number of prevention health plans for heat wave events, which steer the focus solely towards the health effects of summer urban conditions, rather than taking into consideration a broader spectrum of relevant factors such as urban design decisions or raising awareness on summer energy poverty conditions among citizens.

- **It would be feasible to bolster summer energy poverty awareness by developing public projects for UHI monitoring and mitigation, concurrently with information campaigns targeting practical guidelines for dealing with overheating situations.**
- **In order to put forth information campaigns tailored to the most vulnerable population groups, summer-specific indicators would be required to supplement traditional energy poverty indicators, in particular, specialised in urban features and contemplating existing cooling strategies on the part of citizens.**
- **A thorough characterisation of the summer energy poverty issue, by means of indicators, could also help to advance urban cooling plans spanning from the city to the building scale.**

Health impact

The rapid rise in temperature brought about by climate change over the last century has set off health alarms, bringing to light climate change-susceptible population groups whose vulnerability is exacerbated by additional exposure variables, e.g. time spent at home under extreme temperature conditions, lack of solar protection on the façade, incidence of UHI, among others.

The next steps in addressing summer energy poverty and, in turn, improving health resilience, would entail that the public administration identifies the most vulnerable groups, integrates policies that go beyond financial aid, and adopts a comprehensive approach that encompasses a variety of stakeholders.



Targeting summer energy poverty as far as vulnerable groups are concerned

At the European Union level, a few countries have been able to incorporate the identification and characterisation of vulnerable groups into their energy poverty plans on the basis of statistical data either from national databases or from social care offices. Notwithstanding, said national strategies are marked by great heterogeneity and overall lack the aforementioned vulnerability component.

- **It is critical to include this vulnerability component within energy poverty policy measures for an evidence-informed decision-making process concerning possible solutions, and ultimately, the development of enhanced policies to combat summer energy poverty.**
- **A necessary first step in this direction would be to collect data so that public administrations are provided with statistical information to identify vulnerable groups (e.g. socio-economic data, household composition, among others). In addition, being able to georeference this data would further the quality of urban policies.**

A broader scope of policies

Without a doubt, summer energy poverty is a problem that must be tackled on several fronts. Amongst these, policy development is one of the most important since it determines the course of action and can have a cross-cutting impact, from large (e.g. at the European level) to small-scale, e.g. municipalities. However, financial aid is commonly found at the core of current energy poverty policies, primarily intended at supporting the most vulnerable groups with energy bills, for instance, or to conduct housing retrofit actions such as improving thermal insulation. These initiatives constituted a first building block and a partial response to the energy poverty problematic, yet, going beyond the economic scope is essential to achieve profound changes in this area.



Some of the public administration practices that have proven to be very useful are the development of health plans for heat prevention. These include an alarm system for heat waves that alerts the community and, in health centres, a protocol is activated to contact pre-identified vulnerable groups according to their medical history and/or age.



Summer energy poverty is also taking centre stage at Urban Action Initiatives that bear interventions in public spaces. The rationale that public space can impact the thermal comfort of nearby homes is asserted, in addition to providing a comfortable alternative to homes (e.g. climate shelters), and viewing outdoor space as a continuity of the household.



In the social sphere, protection for consumers in vulnerable situations has been legislated to prevent deprivation of basic needs due to non-payment of their energy bills. Along the same lines, it has been proposed that historical debts in their bills be eliminated to avoid a progressive increase in interests.



The public administration should therefore explore the implementation of policies beyond the economic realm, targeting social, health, and urban scopes.

Integrated stakeholders approach

Energy poverty, being a multifaceted and multidimensional issue, requires a multidisciplinary approach. In this sense, in addition to administrations at the national and European level, local public administrations, as well as civil society, private sector entities, and the academic sector should be contemplated as key actors to tackle energy poverty. Synergistic collaborations have been previously established between these groups in projects within the EU.

- **For a streamlined integrated approach, and considering the recommendations of previous studies and reports, the following participating stakeholders should be at least considered:**
 - **Civil organisations:** work closely with people and can assist in identifying the groups most vulnerable to the risk of energy poverty. Additionally, they can provide direct and specific assistance, share work experience, play a mediator role between policies, plans and materialise necessary changes.
 - **Public Administration:** capacity to finance, monitor, and measure actions, involve citizens, and plan and implement awareness-raising campaigns.
 - **Private sector:** can be implicated through participating in international agreements and adopting measures that favour gender equity. Furthermore, they can invest in research and share knowledge and experience.
 - **Academic sector:** key role in knowledge generation and establishing methodologies for studies, analyses, and implementation. Furthermore, their role in science communication to a wider audience, conveying complex findings and ideas to both policymakers and the broader society across the world .

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