



EmpowerMed

# Review of previous EU experiences

*Assessment from  
an energy poverty,  
gender, health and  
Mediterranean  
perspective*





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## Executive summary

This report contributes to advancing the knowledge about energy poverty and the means for its alleviation by conducting an overview of previous experiences to the EmpowerMed project in Europe. It aims at assisting EmpowerMed partners in building their pilot actions across the 6 project countries. To this end, it evaluates 20 projects funded through the Intelligent Energy Europe (IEE) and Horizon 2020 programmes that broadly deal with energy, environment and society topics (i.e., Smart-Up, ASSIST, SAVES2, STEP-IN, STEP,

*"The first key finding of the review is that insufficiently recognized forms of household stress related to domestic energy need to be prioritized, especially issues around arrears, debt, and disconnections."*

SocialWatt, REACH, CLEAR 2.0, REScoop Plus, SCORE, POWERTY, Start2Act, Save@Work, FIESTA, TRIME, Digi-Label, TopTenACT, PEAKapp, Mobistyle and EnergAware). This critical assessment focuses on energy poverty, gender, health and the Mediterranean coastal context as the main four EmpowerMed project dimensions. A first key finding of the review is that insufficiently recognized forms of household stress related to domestic energy need to be prioritized, especially issues around arrears, debt, and disconnections. The mental health impacts of these conditions are often disregarded. A second key learning

is that gender dimensions of domestic energy use are often missing or downplayed, with some of the reviewed previous experiences evidencing the reinforcing gender stereotypes in dissemination and outreach materials in order to appeal to the 'average' household. The analysis also calls for attention to regional vulnerability factors in the Mediterranean and Central and Eastern Europe, and to solutions suited to the socio-environmental realities of coastal areas. In relation to the energy saving and mitigation objectives of the Horizon 2020 call 'Mitigating household energy poverty' to which EmpowerMed belongs, this review suggests that projects dealing with energy poverty need to carefully avoid further suppressing the demand of households whose level of energy service consumption is below the minimum required to live a dignified life. Regarding the practical implementation of support actions, the assessment recommends avoiding market-like, 'assistentialist'

approaches that treat the vulnerable as clients. Instead, interventions need to go beyond a symptomatic treatment of energy poverty and to (re-)empower affected households while providing for their immediate needs. They also need to be guided by knowledge



gained through real-life practice and the lived experiences of energy poverty, while direct interaction with households requires careful respect for people's privacy and autonomy. The assessment also advocates for building sensible alliances with partners respected and trusted by the target population, and for caution when engaging with energy companies with reputational issues and reported unfair treatment of vulnerable consumers. Finally, it advises addressing emerging forms of energy vulnerability caused by the digital transformation of the energy sector, as well as embracing principles of inclusive energy citizenship for vulnerable people to participate in and benefit from the low-carbon transition. In summary, this report encourages careful partnerships, respectful engagement and impactful action to demonstrate that more equitable, democratic forms of domestic energy provision are feasible and necessary to guarantee the right to energy of European citizens.

## 1 INTRODUCTION

The Horizon 2020 project 'Empowering women to take action against energy poverty in the Mediterranean' (EmpowerMed) aims to contribute to the alleviation of energy poverty and to improve the health of people affected by energy poverty in the coastal areas of Mediterranean countries with a particular focus on women and women-led households. Following the project's Specific Objective 1 (i.e., to advance the knowledge about energy poverty and the means for its alleviation), EmpowerMed Task 1.2 requires an overview of previous similar experiences in Europe to help partners build their pilot actions across the 6 project countries.



In response to that mandate, this report conducts a critical review of previous experiences in the form of similar projects to EmpowerMed carried out in and funded by the EU in recent years. Aimed at informing and fine-tuning pilot action plans, it identifies key issues and gaps to be addressed or avoided as well as lessons learned and replicable tools potentially valuable for the consideration throughout the project.

This exercise emphasizes the relational character of EmpowerMed and other cognate EU-supported projects. Each of them is an autonomous, self-contained action as much as a piece of a broader picture demonstrating the scope of EU action in the realm of energy, environment and society.

## 2 RELEVANT PREVIOUS EXPERIENCES ASSESSED

Among the large array of possible previous experiences available, this report prioritizes projects funded through the Intelligent Energy Europe (IEE) and Horizon 2020 programmes, given that these are the most relevant actions for EmpowerMed. Confronted with the scarcity of initiatives specifically dealing with gender, health and energy poverty in an integrated manner, the list of 20 projects reviewed include EU-supported initiatives broadly addressing energy, environment and society topics. They belong to the following four groups:

- Tackling energy poverty: Smart-Up, ASSIST, SAVES2, STEP-IN, STEP, SocialWatt, and REACH.
- Collective and cooperative action for energy efficiency (EE) and renewable energy sources (RES): CLEAR 2.0, REScoop Plus, SCORE and POWERTY.
- Changing the daily behaviour of households and employees: Start2Act, Save@Work, FIESTA, TRIME.
- Innovative tools driving behaviour change: Digi-Label, TopTenACT, PEAKapp, Mobistyle, EnergAware.

Regarding the selection of projects for the review of previous experiences, three aspects need to be emphasized. Firstly, the assessed projects arise from different contexts and respond to different objectives, mainly due to the diversity of funding sources within the EU research and innovation framework. While some projects are more practice-oriented, others have explicit scientific purposes. Some respond to EU calls oriented to the development of the technical aspects of energy use (e.g., energy efficiency in buildings), while others explore the societal dimensions of transitions. Coming from all these different directions, the projects assessed are **not** directly compared to each other but rather analysed from the perspective of what useful lessons can be learned for the purposes of EmpowerMed, as well to identify potential pitfalls to be avoided by the project.

Secondly, it is important to emphasize that the findings of this report do not imply that the reviewed projects are entirely either excellently or poorly designed and/or implemented. The findings only highlight certain elements of these previous experiences in relation to the needs of EmpowerMed and assess their relevance and usefulness from the perspective of EmpowerMed project objectives.

Thirdly, the scope of selected projects goes well beyond energy poverty due to the scarcity of such initiatives. To this end the assessment needed to include initiatives without energy vulnerability objectives but allowed exploring the three main other dimensions of EmpowerMed – the gender, health and Mediterranean coastal components.

### 3 ASSESSMENT APPROACH AND CRITERIA

The methodology followed for the review is as follows. First, relevant previous experiences (EU projects) were identified through EASME's recommendations, EmpowerMed partners' expertise and knowledge and weblinks to similar initiatives in identified primary projects. Then key project documents and online materials (leaflets, monitoring tools, videos, etc.) were collected. Typically these were the project's website, the project final report and other relevant available outputs such as training guidelines, monitoring framework or assessment reports of specific project actions. The material thus assembled went through a qualitative assessment of text and images 'as discourse' based on the following criteria:

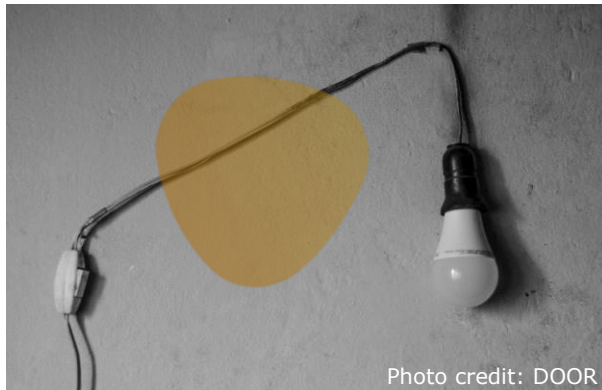
- **Gender**, and more specifically gender-responsiveness criteria, i.e., "rather than only identifying gender issues or work under the 'do not do harm' principle, a [gender responsive perspective] will substantially help to overcome historical gender biases — to 'do better' — in order for women to truly engage and benefit from these actions" [1].
- **Energy poverty** understood as a household's inability to attain a socially and materially necessitated level of domestic energy services [2]. This overarching definition is cross-checked against critical gender perspectives according to which "energy poverty discourses [...] construct and perpetuate a 'gender myth' of the energy-poor women as vulnerable, helpless, virtuous and hardworking, and oppressed [...] in spite of the varying evidence of [...] women as agents of their lives and of change" [3].
- A **Mediterranean** perspective in the acknowledgement of the EU energy divide' by which countries of the Southern and Eastern 'periphery' show higher and more pervasive levels of energy poverty as compared to a Northern and Western Europe 'core' where domestic energy deprivation is quantitatively less significant and more socially concentrated in particularly disadvantaged population segments [4]. EmpowerMed focuses on coastal areas of Mediterranean countries where specific challenges include significant conflicting thermal comfort needs in summer and winter, lack of pre-installed central heating systems and reliance on costly electricity-based forms of domestic heat.
- **Health** as a well-established impact endpoint of energy poverty, especially in regard to the morbidity and excess winter mortality effects of living in a cold home [5]–[7]. Mindful of this bias, the analysis pays special attention to mental health and psychosocial well-being as significant effects of domestic energy deprivation [8] not yet sufficiently acknowledged in public discussion and affirmative action on energy poverty.



## 4 KEY FINDINGS

### 4.1 Issues and shortcomings in previous experiences

#### Controversial energy saving targets



Unlike initiatives targeted to businesses and the general public where energy savings are expected, projects dealing with energy poverty need to carefully avoid further suppressing the demand of households whose level of energy service consumption is below the minimum required for a life with dignity.

Most reviewed previous experiences (i.e., STEP-IN, STEP, SMART-UP, FIESTA, SocialWatt, TRIME, and ASSIST projects) are committed to delivering energy savings as a main impact of interventions. While savings are expected in projects targeted to businesses and the general public, this objective becomes controversial when it explicitly refers to energy-poor households, which by definition are unable to attain an adequate level of energy services at home [2]. The Horizon 2020 call 'Mitigating household energy poverty' (LC-SC3-EC-2-2018-2019-2020), to which EmpowerMed and some of the projects listed above belong, states, among other objectives, that proposals submitted are expected to contribute to primary energy savings triggered by the project (in GWh/year) when possible. .

In response to this requirement, projects funded under the call LC-SC3-EC-2-2018-2019-2020 have set themselves the task of delivering energy and carbon savings. Previous experience, however, raises concerns about the feasibility of the intended reductions. The [monitoring mechanism report of the ASSIST project](#) indicates that, in their case, "the objective of the 7% energy reduction [turned out to be] extremely ambitious for the target of vulnerable and energy-poor consumers [as] energy savings should be considered in relation to both a genuine comfort level in the household (i.e., that the temperature in the household is perceived comfortable by the inhabitants) and take into consideration average consumptions levels in households of the same country, since it is expected that many vulnerable customers are already saving on their

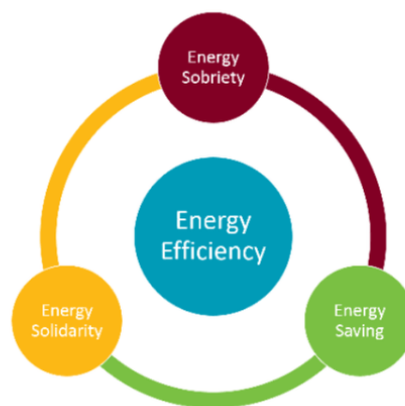
*"While savings are expected [...], this objective becomes controversial when it explicitly refers to energy-poor households, which by definition are unable to attain an adequate level of energy services at home"*



energy costs to save money”. Consequently, they recommend that “when calculating the potential energy savings [...] the amount of energy used in a household also matches what is required in terms of heating, cooking, washing etc. –all elements, which are needed in a modern household”. Along the same line, the [SMART-UP final project report](#) concludes that even if “low-income households can benefit from improving energy efficiency in their daily routines, in most cases energy use is already down to the bare minimum, and similar attention needs to be given towards ensuring that these households also maintain adequate thermal comfort, and don’t engage in further ‘suppressed demand’”. In view of this, they realigned the work of their Home Energy Advisors (HEA) towards “providing advice on understanding bills, dealing with energy debt, and accessing other services”.

As an alternative to the efficiency-behaviour-savings triad prioritised in energy calls, the [REScoop Plus project](#) puts forward the energy sobriety-solidarity-savings framing as key dimensions of new modes of ‘energy citizenship’ – see below. This way, REScoop Plus introduces new narratives that challenge dominant perspectives in EU funded projects.

**Figure 1.** Energy sobriety-solidarity-savings framing of the REScoop project



## Emphasis on behavioural approaches



*Delivering energy saving and carbon emissions reduction through behaviour change conflicts with the everyday reality of energy vulnerable households who often engage in very careful domestic energy consumption practices that sometimes result in under consumption.*

EU-funded calls on energy, environment and society often rely on behaviour change for delivering the expected energy savings and carbon emissions reductions. This is also the case of call ‘Mitigating household energy poverty’ (LC-SC3-EC-2-2018-2019-2020), which includes behaviour change facilitation as a recommended course of action among the various items listed in its scope. Behavioural approaches seem to be particularly strong in projects aimed at SMEs and other non-domestic target groups (see START2ACT report on the [assessment of behaviour in target groups](#) and [training kit](#)). But they are also very much

present in projects aimed at citizens (as final energy users) in 'smart' combinations of lifestyle, health and ICT-based solutions – see as an example the [MOBISTYLE project concept](#). When it comes to domestic energy, behaviour is strongly related to the smartification of energy use, market liberalization and dynamic pricing with links to other beacons of modernity (i.e., social networks and gamification) – see [PEAKapp project targets](#). Often these initiatives aim to equip energy users with better data information about their consumption and the energy efficiency of products and appliances ([PocketWatt](#) and [Topten ACT](#) projects) to address the knowledge gap that allegedly results in inefficient consumption.

In contrast with the dominant approaches described above, other EU projects such as [SHAPE ENERGY](#) speak of 'energy cultures' to criticize the "idea of a purely rational consumer, driven mainly by information and economic calculations" and suggest alternative understandings of "private energy consumption as a result of a combination of activities, preferences, values, technologies and material structures" [9]. These social science perspectives, critical with the so-called ABC 'attitude, behaviour, and choice' paradigm [10], are particularly relevant in the case of energy vulnerable households. As stated previously, projects aiming at changing the habits and behaviour of final energy users



Photo credit: DOOR



Photo credit: DOOR

under the assumption that overconsumption is widespread apply poorly to many energy vulnerable households (to be) engaged with EmpowerMed who often display very careful domestic energy consumption practices resulting in underconsumption, precisely because of the precarious circumstances they find themselves in. Behavioural approaches have also been put under scrutiny in the case of disengaged, vulnerable households facing rapidly changing energy pricing mechanisms and the smartification and digitalisation of domestic environments [11], [12].

## Disregard of gender dimensions and risk of reinforcing gender stereotypes



*Previous experiences often downplay or miss well-established gender dimensions of domestic energy use with some projects reinforcing gender stereotypes for dissemination and outreach materials to appeal to the 'average' citizen.*

Despite overwhelming consensus about the gendered nature of domestic energy deprivation and, more broadly, of final energy use in the building sector [9], [13]–[16], gender aspects are absent in most of the projects reviewed. Yet it is known that “family members tend to have defined roles in the households, and specific members would tend to take over the task of checking and controlling the energy consumption” – see report ‘Feedback on energy monitoring tool’ of the [SMART-UP project](#). Along the same line, projects that target and [involve children as ‘agents’](#) to motivate households to change their energy habits are far from gender-neutral precisely because of the deeply gendered nature of childcare and child rearing<sup>1</sup>.

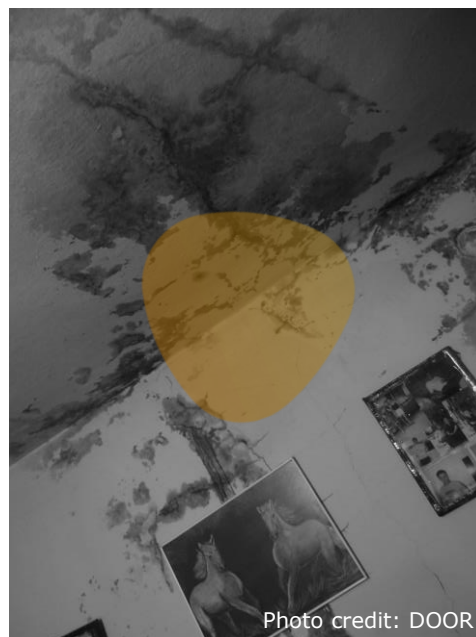


Photo credit: DOOR

Other previous experiences ignore the gender dimensions of energy use and in some cases [reinforce gender stereotypes](#) as well as traditional [heteronormative household](#) models. A pragmatic interpretation of these representations of prevailing household roles and relationships is that they may serve to maximize impact on the general public (despite differences across countries and socio-cultural contexts, e.g., urban vs. rural populations). However, making dissemination and outreach materials appealing to the ‘average’ citizen should not come at the expense of emphasizing existing gender inequality and other forms of sex-based discrimination. A counter-example in this regard is the analysis of challenges faced by ‘prosumer’ models in Europe of the [Supporting Co-Ownership of Renewable Energies \(SCORE\) project](#), which states that “participation of women and social groups prone to fuel poverty is still rather uncommon [...] so far the typical “prosumer” is male, middle aged and has a higher income”. The evaluation of project impacts with a gender perspective is also uncommon despite the noteworthy [Start2Act project](#) example: in their assessment report of behaviour changes in target groups, they explicitly looked for

<sup>1</sup> On a related note, all projects reviewed seem to hold to the ‘one-dwelling, one-household’ assumption, which when taken as a general rule without exceptions is misleading. EmpowerMed will with all likelihood encounter cases of more than one household living under the same roof but not sharing incomes, expenses and living conditions; or extended families occupying non-adjacent dwellings but sharing duties and burdens, e.g., grandparents in charge of food provision and other forms of care to children who otherwise most often live with their parents.

statistically significant differences of the impact of their training activities between men and women.



Another exemplary case of gender-responsive EU project is the ENTRUST project as shown in its [‘Gender Inclusivity Dissemination Guidelines’](#), [‘Intersectional Analysis of Energy Practices’](#) and [‘Intersectional Analysis of Perceptions and Attitudes Towards Energy Technologies’](#). These are all valuable resources for the EmpowerMed project.

### Risk of reproducing ‘assistentialist’ approaches

**While assisting households with their immediate needs is imperative, going beyond a symptomatic treatment of energy poverty requires emphasizing the agency of the vulnerable and (re-)empowering affected households.**

In EmpowerMed project countries, social services are often the most common form of support available to vulnerable households, which, to a certain extent, makes them a welfare-assisted population segment. Even if this form of state support is of great importance for cases of severe vulnerability, social services fail to reach many households experiencing difficulties to afford domestic energy – especially among those who do not consider themselves to be in any sort of poverty or feel reluctant to demand this form of assistance. In addition, critics of ‘assistentialist’ approaches alert of the disempowering effects of having “social service providers regard people as clients or consumers [thus] focusing on the symptoms of problems rather than their root causes” (p.430) [17].

Complementary to the efforts of the related [SocialWatt](#) project (also funded under call LC-SC3-EC-2-2018-2019-2020), which aims to “bridge the gap between energy companies and social services by promoting collaboration and implementing capacity building activities”, EmpowerMed seeks to emphasize the agency of the vulnerable and to (re-)empower households in energy poverty. This approach does not preclude in any case the collaboration with social services as key stakeholders for the implementation of EmpowerMed activities.

## Pervasiveness of 'market-like' approaches



**'Market-like' household engagement strategies that treat them as clients may result in vulnerable people being disempowered and unwilling or reluctant to get involved in energy poverty alleviation actions.**

Lack of trust, along with unwillingness to share personal information or to admit to being vulnerable to energy poverty, have been identified as key challenges for household engagement in the final report (D7.8) of the [SMART-UP project](#). In this light, 'market-like' approaches in project implementation may be problematic for vulnerable households, especially among those that have had negative experiences with commercial utility providers. This is more the case as citizens become increasingly aware of the complexity of liberalised energy markets, which some may find disempowering. As noted in the [ASSIST project](#), "the energy market is seen as complex and overwhelming for many people and [...] it would often result in people refraining from taking actions in their personal energy behaviour, because it basically seemed to be impossible".

Yet the review of previous experiences has found examples of household engagement strategies that reproduce the client-service provider binary (see the [FIESTA project guidebook for home energy advisors](#)) as well as of tools designed for a cost-effective, automated identification of energy-poor customers by utility companies such as the [SocialWatt Analyser](#). These methods have limited effects in terms of empowering affected individuals and communities, and may lead to the depersonalization of vulnerable households, thus making people reluctant to get involved.

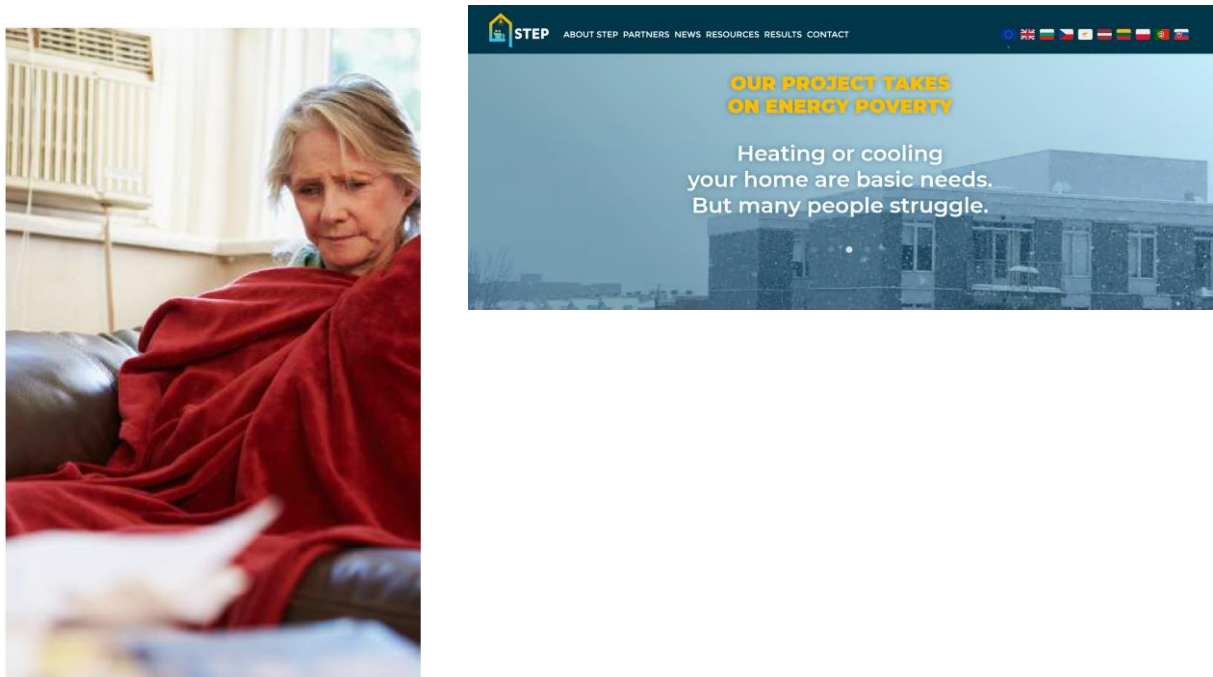
## Insufficient attention to the lived experiences of vulnerable households

**Going beyond customary thermal comfort-based understandings of energy poverty, insufficiently recognized, self-declared forms of household stress and discomfort related to domestic energy use need to be prioritized, especially issues around arrears, debt and disconnections.**

The review of previous experiences reveals a strong shared understanding of energy poverty through an indoor thermal comfort lens (see websites of [ASSIST](#), [STEP-IN](#) and [ENTRUST](#) projects and visuals below). This perspective derives from very early conceptualizations of fuel poverty as 'cold homes' and 'unaffordable warmth' in the UK [18]. It was subsequently reinforced later on by 'consensual' indicators based on readily available data of the EU survey on income and living conditions according to which a household's self-declared inability to keep their home adequately warm in winter is a primary symptom of energy poverty.



**Figure 2.** Visual representation of energy poverty, primarily as poor indoor thermal comfort during winter in projects [STEP-IN](#) and [ENTRUST](#)



Then, when EU-funded consortia represent the views of energy utilities, their concerns as profit-maximizing organizations come through clearly in the way energy poverty is defined.



As stated in the objectives [SocialWatt](#) project, “people having difficulty paying their energy bills and/or adequately heating/cooling their homes are of concern for companies (beyond the fact that the cost of arrears borne by companies can amount to millions of euros) and it is in their interest to find effective solutions to alleviate energy poverty within their Energy Efficiency Obligations”.

EmpowerMed aspires to be sensitive to ‘native’ or ‘bottom-up’ (-emic) perspectives of energy poverty [19], i.e., to the needs and concerns of vulnerable households as experienced and reported in their everyday life and in their own words. Such an approach calls for a careful consideration of insufficiently recognized self-declared forms of stress and discomfort related to domestic energy use such as the psychological burden of unpaid utility bills, the difficulties in navigating increasingly complex liberalized energy markets, the barriers for accessing support mechanisms, etc. In this regard, household utility debt and disconnections are highlighted as severe forms of domestic energy deprivation to be prioritized in project actions given the significant health and well-being impacts of not

having access to basic energy supplies– see [ENGAGER COST Action policy brief](#) on the psychosocial impacts of energy poverty. Another valuable source in this regard is the [dedicated resource](#) on the lived experiences of energy use at home of the ENTRUST project on the human dimensions of energy systems and transitions.

## Need for tailored action focused on Mediterranean and Central and Eastern Europe



**Above the average incidence of energy poverty in the Mediterranean and Central and Eastern Europe requires paying special attention to regional vulnerability factors and to solutions suited to the socio-environmental realities of coastal areas.**

Some of the assessed previous experiences have an implicit regional focus on the Mediterranean. e.g. in the [FIESTA project](#), 7 out of the 14 municipalities involved were coastal mid-sized cities on the Mediterranean and the Black Sea, namely Trieste (IT), Rijeka, Pula, Zadar (HR), Limassol, Larnaca (CY) and Burgas (BG); and in SocialWatt, 5 out of 9 project countries are Mediterranean – Croatia, France, Greece, Italy and Spain. However, the EmpowerMed project is unique in terms of its explicit regional focus on Mediterranean coastal areas. Only the [REACH project](#) has had a similar regional focus on countries of the Balkan Peninsula.

***"The EmpowerMed project is unique in terms of its explicit regional focus on Mediterranean coastal areas."***

In this regard, the higher incidence of energy poverty observed in Mediterranean and Central and Eastern European countries [4] calls for more decisive action in these regions



where the EmpowerMed project takes place while paying special attention to specific vulnerability factors in coastal areas such as distinct summertime and wintertime indoor thermal comfort demands, low levels of insulation and central heating in residential buildings, dependence on electric modes of heat and cooling provision, or seasonal unemployment patterns related to tourism-based economies.

### Box 1. Technologies and approaches suited to Mediterranean conditions

The [ELIH-MED \(Energy efficiency in Low Income Housing in the Mediterranean\)](#) project produced in the early 2010s a number of valuable resources including a [list of technical solutions](#) (see p.38 and 39 of the report), a review of [successful European and international projects](#) on the improvement of energy performance of low- income and social housing and detailed [evaluation reports of building retrofits](#) carried out in all project countries (Italy, Spain, France, Malta, Greece, Cyprus and Slovenia). Regarding interventions at the urban scale, the experience of Barcelona is noteworthy both as an EmpowerMed pilot location and as a European city leading the transformation of the urban space with climate criteria. The Barcelona City Council has recently announced [100 'climate shelters' across the city for days of extreme heat](#) and is implementing an Urban Innovation Action (UIA) project to [adapt schools to climate change through green, blue and grey](#) solutions.

### Indifference towards energy carriers different from electricity and natural gas



**Pre-paid forms of domestic energy such as bottled gas and solid fuels deserve special consideration because they are more often used by households affected by energy poverty and may lead to self-disconnection in cases of severe vulnerability.**

Previous experiences have paid little attention to less common energy carriers such as district heating or solid fuels – with some exceptions such as the '[Package Approach](#)' and '[Optimized return flow](#)' best practices of the REScoop Plus project. This omission speaks of a Western Europe bias in the ways EU projects regard and respond to energy efficiency and vulnerability. They also indicate a lack of sensitivity towards post-socialist conditions in parts of Central and Eastern Europe where district heating and solid fuels (firewood and coal) prevail as main sources of domestic heat across urban and rural areas. Yet energy carriers considered to be sub-standard also exist in North-Western countries of the EU. Pre-paid energy in the form of bottled gas such as propane or butane likely pervades large sections of the Mediterranean where individual or collective central heating is less common than in the colder mainland of the continent. In Spain, as many as 36% of households

relied on gas cylinders (liquefied butane or propane gas) as a source of domestic heat in 2018 [20]. In terms of energy vulnerability, these pre-purchased forms of domestic energy



manifest reveal themselves as particularly problematic because they are significantly less convenient than automated heating technologies (e.g., manually operated coal or firewood stoves require a degree of fitness that is often challenging for elder people living on their own and do not provide a stable level of warmth) and, most importantly, may lead to self-disconnection in cases of severe vulnerability.

### Poor recognition of the human health dimensions of energy poverty

**The human health dimensions of energy poverty are largely absent in EU projects, especially the mental health impacts of accumulated arrears/debt and impending disconnection or eviction.**

Despite substantial scientific evidence [5]–[7], previous experiences pay little attention to the human health impacts of energy poverty and, more generally, to the health and well-being dimensions of energy use at home or at work. The [STEP \(Solutions to Tackle Energy Poverty\) project](#) speaks of the need to involve “consumer groups and frontline organisations, who advise people on a range of issues such as financial or health-related ones, to partner and deliver advice to energy-poor consumers” but as a general rule the few energy poverty-specific projects funded by the EU in recent years do not explicitly tackle human health dimensions. Among other more general energy, environment and society initiatives analyzed in this review, the [MOBISTYLE project](#) refers to these issues in terms of “mental and physical well-being optimization through technology and information strategies in everyday life”.

EmpowerMed recognizes the health dimensions of the precarious everyday life conditions faced by the average household to be engaged throughout the project. In this regard, it needs to be particularly sensitive to the mental health dimensions as incidence rates of anxiety and depression have been found to be significantly higher among the energy-poor, especially among households facing utility disconnection and/or eviction. [8], [21]. In the Barcelona pilot site, EmpowerMed local partners have identified phone harassment calls by debt collectors or utility companies as a factor contributing to the emotional distress of energy vulnerable persons.

## 4.2 Key lessons learned and replicable tools or measures

### Expanded monitoring frameworks to account for comfort gains and empowerment

**Alternative assessment frameworks looking beyond 'hard' energy- or money-saving metrics need to be put in place to adequately measure key impacts such as the empowering effects if interventions aimed at strengthening the capabilities of households to confront their of vulnerable consumer status and be better informed about their rights.**

Given the controversies and obstacles in delivering energy savings among vulnerable households, the [ASSIST project](#) has developed an *ad hoc* algorithm to quantitatively measure the impact of interventions. The algorithm incorporates different – and contradicting – impact dimensions, namely energy savings, financial savings, and comfort gains:

Building on these concepts, the suggestion is to build an algorithm to measure the impact of the project based on the energy reduction which takes into account also the increased level of comfort, the money saving and the increased empowerment of the target, an indicator we have named The Vulnerability Empowerment Factor – or VE Factor for short. The algorithm suggested is:

With energy savings above zero:

**ASSIST Energy Savings Indicator(%) = ((Energy Savings(%))+(((Energy Savings(%))\*Comfort Indicator)+((Energy Savings(%))\*Money Savings Indicator))/3)/100)**

The maximum value that can be reached is a doubling of the actual savings, so a cap of 5% additional value is instated.

With no savings or negative savings (increased consumption):

**ASSIST Energy Savings Indicator = energy savings (%) + comfort indicator + money saving indicator**

In addition, the [ASSIST project monitoring mechanism](#) has also devised a questionnaire-based methodology to quantify the empowering effect of Home Energy Advisors (HEA) – see below. This tool is especially relevant for the EmpowerMed project, given the emphasis on strengthening the capabilities of households to confront their status of vulnerable consumer and be better informed about their rights:

The Indicator is measured both ex-ante and ex-post to be able to measure what the HEA visits have meant for the customer in relation to becoming a more conscious and empowered energy customer.

I feel confident about whether my energy consumption is higher or lower than normal for my type of household	Not at all, a little, Somehow, yes, to some extent, yes, indeed	1-5
I know where to seek for energy savings advice	Not at all, a little, Somehow, yes, to some extent, yes, indeed	1-5
I feel confident about my current energy price, that I am not paying too much	Not at all, a little, Somehow, yes, to some extent, yes, indeed	1-5
I feel confident on how to save energy	Not at all, a little, Somehow, yes, to some extent, yes, indeed	1-5

#### HEA Network Monitoring Mechanism for Saved Energy and Increased Comfort Level

I feel confident to help others saving on their energy bill	Not at all, a little, Somehow, yes, to some extent, yes, indeed	1-5
I am aware of how different energy tariffs can be used to lower my energy bill?	Not at all, a little, Somehow, yes, to some extent, yes, indeed	1-5

*The total score is then summed up and divided by 6, to give a score between 1 and 5, where 1 is absolutely not empowered and 5 is fully empowered.*

## Knowledge through practical and lived experience



**Interventiona need to be guided by knowledge gained through real-life practice and the lived experiences of people affected by energy poverty.**

Given the eminently applied character of EmpowerMed, interventions need to be based on sources of practical knowledge gained through real-life experience. In this regard, the [ASSIST project](#) has been praised by the European Commission for leveraging the lived experiences of people with direct experience of energy poverty at some point in their life as vulnerable consumer energy advisors (VCEAs). ASSIST trains VCEAs to improve their employability and to maximise peer-to-peer benefits when providing support to vulnerable households engaged with the project. The [Living Lab approach](#) put in practice by the STEP-IN project – another relevant example in this regard – is specifically aimed at proving concepts through practical experience based on iterative action-evaluation resulting in refined and improved methodologies for intervention.

## Careful partnering for impactful action



*Effective engagement and impactful action is achieved by building sensible alliances with partners respected and trusted by vulnerable households.*

Collaborating with a range of different stakeholders is key for the effective project implementation and for securing impact beyond the persons directly involved in project activities. The STEP-IN project specifically addresses this need by creating '[networks of interest](#)' to shape future policy and research needs, foster collaboration resulting in concrete actions and connect with other relevant projects and initiatives happening simultaneously. For the effective engagement of vulnerable households, the [REACH project](#) advises in the lessons learned of its final report to cooperate with "organizations that have established trust in the households, such as centres for social work, Red Cross or Caritas, was a must [because] only through working with such organizations were the partners able



to approach the households and establish sufficient trust to implement the visits and advising". For policy impact, REACH's advice is to invest in "establishing connections with different decision-makers and sectors [as] building trust takes time". In the context of Mediterranean and post-socialist countries, "personal meetings and personal contacts represented an important success factor of policy-related activities".

Partnership composition matters also in terms of the agenda pursued by the project, with project [consortiums participated by multinational energy companies and suppliers](#) following openly business-oriented objectives. The presence of for-profit energy companies with reputational issues and reported unfair treatment of vulnerable consumers may be counterproductive for gaining households' trust and collaborating with civil society organisations. Alternatively, alliances can be forged with suppliers different from large private energy companies such as renewable energy cooperatives as shown in the [REScoop Plus project's 'energy solidarity' initiative](#).

## Mobilising actors often disregarded in energy poverty projects



**There is scope to look beyond the stakeholders customarily involved as partners in energy poverty interventions (e.g., local governments) in order to incorporate disregarded actors trusted by and in direct contact with vulnerable households such as professional home care workers.**

Going beyond the usual suspects in energy poverty partnerships (i.e., social services, local governments, utility companies, etc.), the ASSIST project pilot case in the Maresme county north of Barcelona is training professional home care workers (a majority of which are women) as Home Energy Advisors (HEA). They are trusted individuals with access to

***"The fact that practically most home care workers are women illustrates the gendered character of low-paid labour and energy vulnerability among the working poor."***

vulnerable elder population. ASSIST is the only experience identified in this review actively involving professional home care workers as 'field agents' for locating energy poverty cases and providing household level support. The project has also found out that a significant percentage of professional home care workers find themselves in difficulties, thus contributing to raising awareness of energy poverty among precarious female workers. This experience helps identify previously undetected links between energy poverty, health, ageing and disabilities since home care

workers are often needed as care providers for dependent persons. The fact that practically most home care workers are women clearly illustrates of the gendered character of low-paid labour and energy vulnerability among the working poor.

## Considering unrecognised vulnerable groups

**The vulnerability of 'less deserving' population segments (e.g., university students living in poor-quality rented private accommodation) needs to be recognized.**

Energy poverty research and policy prioritize household categories often identified as vulnerable (e.g., families with unemployed members; with underage children or disabled; single-parent households; elders living alone) but fail to recognise the vulnerability of 'less deserving' population segments like university students living in poor-quality rented private accommodation [22]. Acknowledging this gap, the [SAVES2 project](#) has reached out to over 100,000 students when they are looking at moving into the private rented sector to encourage them to make housing choices that minimise their vulnerability by, e.g., demanding to see the Energy Performance Certificates (EPC) of the property in order to avoid poor-rated properties and therefore creating more demand for efficient rental properties.



## Respect and trust-building in household engagement strategies



Direct, face-to-face interaction with households requires a well-thought engagement strategy that respects people's privacy and autonomy following principles of ethical practice in social care.

Key for effective, smooth implementation of vulnerable consumer engagement and empowerment activities is a well-thought, considerate and ethical strategy for approaching households in local pilot sites. In this regard, the REACH project experience is particularly valuable, especially its [training modules for communication with low-income households](#) aimed at instructing energy advisors how to respect households' privacy and autonomy and to behave in the homes of visited households. The principles of REACH's code of ethical practice in social care are shown below:

<p><b>REACH Code of ethical principles in social care</b></p> <ul style="list-style-type: none"> <li>• Respect of human dignity and uniqueness</li> <li>• Energy advisers must: <ul style="list-style-type: none"> <li>- Protect dignity, privacy, autonomy and individuality of households/clients</li> <li>- Respect their culture and values</li> <li>- Strive to use understandable language and level of communication</li> <li>- Protect their confidential data and talk respectfully about them in their absence</li> </ul> </li> </ul> <p><small>Co-funded by the Horizon Energy Europe Programme of the European Union</small> 5/8</p>	<p><b>REACH General behaviour and language</b></p> <ul style="list-style-type: none"> <li>• Friendly behaviour</li> <li>• Patience in answering questions</li> <li>• Appropriate choice of words</li> <li>• Complete sentences</li> <li>• Communication in "advisory capacity"</li> <li>• Explaining and demonstrating</li> </ul> <p><small>Co-funded by the Horizon Energy Europe Programme of the European Union</small> 6/8</p>
<p><b>REACH Behaviour in the household 1/2</b></p> <p>Adviser should:</p> <ul style="list-style-type: none"> <li>• Be aware that he is in someone else's home, therefore it is necessary to behave appropriately</li> <li>• Maximum two persons/advisers</li> <li>• "Forms" of greeting and departing</li> <li>• Have a friendly and open approach</li> <li>• Proceed in the way as he would want to be treated</li> <li>• Introduce himself with full name and surname</li> <li>• Offer his hand – handshake should be firm and hard, as in this way we express positive intentions</li> <li>• Keep an eye contact – when meeting other people our eyes are speaking</li> <li>• Ritual of greeting includes a smile</li> <li>• Enter the dwelling and be seated only when invited</li> <li>• Can accept an offered drink, except alcohol</li> </ul> <p><small>Co-funded by the Horizon Energy Europe Programme of the European Union</small> 7/8</p>	<p><b>REACH Behaviour in the households 2/2</b></p> <p>Adviser should:</p> <ul style="list-style-type: none"> <li>• In the introduction establish a comfortable atmosphere with pleasant chatting</li> <li>• When starting with the 'advising', explain procedures</li> <li>• Request customer's approval when entering other rooms</li> <li>• When doing measurements, explain what is going on</li> <li>• In the end of the first visit, notify the customer of the next visit</li> <li>• When installing saving devices, explain its function and how it is used and request approval for installation</li> <li>• When finishing 'advising', explain further procedure</li> <li>• Leave contact informations, so the customer can call if needed</li> </ul> <p><small>Co-funded by the Horizon Energy Europe Programme of the European Union</small> 8/8</p>

A complementary strategy to empower household while gaining their trust and respect is to explicitly deal with energy supplier complaints, unfair practices and consumer rights when offering support and advice to households – see the [ASSIST project's factsheet 'Consumer rights – how to avoid risks?'](#) as an example. This approach may be particularly useful for those reporting previous negative experiences or ongoing disputes with energy suppliers.



## Addressing the digital transformation of domestic energy

**Emerging forms of energy poverty caused by the ongoing digital transformation of the energy sector need to be identified and addressed for protecting disengaged, vulnerable consumers less capable of adapting to time-of-use tariffs, dynamic pricing and the overall smartification of domestic energy use.**



The smartification and digitalisation of domestic energy provision, especially in countries that have rolled out smart meters on a large scale like Italy or Spain, is progressing at the expense of disengaged, vulnerable consumers less capable of adapting to time-of-use tariffs, dynamic pricing and the corresponding transformation of energy technologies and practices [11]. As the [SMART-UP project description](#) states, “consumers do not have access to clear/easy to read and understand information on smart meters; vulnerable consumers are desperately in need of specific energy advice relevant to them and general info on energy consumption and smart meters”.

In response to this transformation, the [toolbox of the REScoop Plus project](#) has identified two best practices relevant for addressing these emerging forms of energy vulnerability:

- [Ecopower’s “One Tariff Structure”](#) addresses the complexities of Belgian electricity markets by offering a ‘one price per kWh’ tariff for all customers of the cooperative, regardless of where they live or how much they consume. The cooperative sets the tariff every year, depending on taxes, transportation costs and energy prices.
- [Som Energia’s InfoEnergia](#) service is offered with no extra costs to all customers of this Spanish cooperative. In addition to the monthly electricity invoice, Som Energia sends InfoEnergia’s personalized reports based on individual household consumption data collected through smart meters with tips for load-shifting and tariff optimization as well as recommendations for adjusting individual household’s maximum contracted power.

## Challenging dominant ownership arrangements and energy provision modes

**Envisioning more democratic, participatory forms of energy system governance and ownership following principles of inclusive energy citizenship is crucial for vulnerable households and individuals participate in and benefit from the low-carbon transition.**

Most of the previously assessed experiences tacitly assume or reinforce currently existing energy provision modes based on privately owned energy generation and distribution assets and for-profit supply. In contrast with those, this report highlights a few projects that challenge the status quo by putting forward alternative ways in which citizens can actively participate, decide on and benefit from a more democratic energy system:

- The [ENTRUST project](#) explicitly aims to move beyond the 'energy as a commodity' paradigm by developing the concept of 'energy citizenship' as a "theoretical lens through which the human factors of the energy system are explored [and as a way] to empower [community] members to contribute to the shaping of 'their' energy system in the context of the low-carbon transition".
- In a more applied fashion, the [SCORE project](#) identifies consumer (co-)ownership of renewable energy as the cornerstone for the success of energy transitions. SCORE operationalizes [CSOP \(Consumer Stock Ownership Plan\)](#) to "enable consumers – especially those without savings or access to capital credit [...] to become (co-)owners of the utilities that supply them and thus to benefit from the profits and actively participate in decision-making".
- The [Interreg POWERTY](#) project promotes the uptake of renewable technologies by the energy-poor, in the acknowledgment that vulnerable consumers are often excluded from renewable energy investments.

## 5 CONCLUSIONS



This review of previous experiences provides a critical assessment of EU-funded projects in the fields of energy, environment and society, with a focus on energy poverty, gender, health and the Mediterranean coastal context as the main dimensions of the EmpowerMed project. It identifies

gaps and issues in relevant EU projects (past and ongoing) and highlights key lessons learned and replicable tools and measures to be considered by EmpowerMed partners in the design and practical implementation of project activities.

Most of the 20 projects assessed respond to the terms of reference established in the Horizon 2020, Intelligent Energy Europe (IEE) and similar funding calls and therefore adhere to the principles and priorities established by EU institutions. For instance, this tendency becomes particularly clear in the energy savings through behaviour change goal of calls such as 'Mitigating household energy poverty' (LC-SC3-EC-2-2018-2019-2020) to which EmpowerMed belongs. In view of this report, enlisting energy saving criteria among other criteria to which proposals should answer represents a flawed understanding of energy use among households affected by energy poverty and may hence lead to ineffective action. The uncritical adoption of the calls' requirements for delivering energy savings risks reinforcing structural driving forces of energy poverty when interventions are insensitive to the difficulties experienced by (vulnerable) people when dealing with increasingly complex energy markets based on profit maximization and 'energy as commodity' principles.



In response to those concerns, this review calls for careful partnerships, respectful engagement and impactful action with the aim to demonstrate that more equitable, democratic forms of domestic energy provision are feasible and necessary to guarantee the right to energy of European citizens. In particular, the following key learnings are reported:

- **Energy poverty, health and gender:** Beyond customary thermal comfort-based understandings of energy poverty, insufficiently recognized, self-declared forms of household stress and discomfort related to domestic energy need to be prioritized, especially issues around arrears, debt and disconnections. The mental health impacts of these conditions are significant despite the human health dimensions of energy use (not only energy poverty) being largely absent in EU projects. Gender dimensions are also often missing or downplayed with some of the reviewed previous experiences reinforcing gender stereotypes and heteronormative household models in dissemination and outreach materials to appeal to the 'average' citizen. Interventions thus need to acknowledge the gendered nature of domestic energy use and should address gender-specific drivers leading to the feminization of energy poverty.

- **Sensitivity to insufficiently recognized differences:** Above-the-average incidence of energy poverty in the Mediterranean and Central and Eastern Europe requires paying special attention to regional vulnerability factors and to solutions suited to the socio-environmental realities of coastal areas. The vulnerability of 'less deserving' population segments (e.g., university students living in poor-quality



rented private accommodation) needs to be equally recognized. Pre-paid forms of domestic energy such as bottled gas and solid fuels deserve special consideration because they are more often used by households affected by energy poverty and may lead to self-disconnection in cases of severe vulnerability.

- **Energy savings and behaviour:** Unlike initiatives targeted to businesses and the general public where energy savings are expected, projects dealing with energy poverty need to carefully avoid further suppressing the demand of households whose level of energy service consumption is below the minimum required for a life with dignity. In fact, delivering energy saving and carbon emissions reduction through behaviour change can conflict with the everyday reality of energy vulnerable households who often engage in very careful domestic energy

consumption practices that sometimes result in underconsumption. This bias observed in previous experiences calls for alternative assessment frameworks looking beyond 'hard' energy-saving metrics to be put in place to adequately measure the empowering effects of interventions.

- **The risk of market-like and 'assistentialist' action:** Household engagement strategies that treat the vulnerable like 'clients' may result in people's disempowerment and the unwillingness or reluctance to get involved in energy poverty alleviation. There is thus a need to go beyond a symptomatic treatment of energy poverty and to (re-)empower affected households by emphasizing their agency while providing for their immediate needs.



- **Careful engagement and partnership for impactful action:** Interventions need to be guided by knowledge

gained through real-life practice and the lived experiences of people affected by energy poverty. Direct, face-to-face interaction with households requires a well-thought engagement strategy that respects people's privacy and autonomy following principles of ethical practice in social care. There is also scope to look beyond the stakeholders customarily involved as partners in energy poverty interventions (e.g., local governments) in order to incorporate actors often disregarded and yet in direct contact with the everyday reality of the vulnerable, e.g., professional home care workers. Finally, effective engagement and impactful action are achieved by building sensible alliances with partners respected and trusted by the target population. This call for caution refers to consortia participated by for-profit energy companies with reputational issues and reported unfair treatment of vulnerable consumers.

- **Looking into the future and fair transitions:** Emerging forms of energy poverty caused by the ongoing digital transformation of the energy sector need to be identified and addressed for protecting disengaged, vulnerable consumers less capable of adapting to time-of-use tariffs, dynamic pricing and the overall smartification of domestic energy use. Envisioning more democratic, participatory forms of energy system governance and ownership following principles of energy citizenship is crucial for vulnerable households and individuals participate in and benefit from the low-carbon transition.



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