



# CORDIS Results Pack on an inclusive energy transition

A thematic collection of innovative EU-funded research results

May 2024



Citizen engagement  
for affordable  
and sustainable  
energy solutions

A photograph showing a diverse group of people from various ethnicities and ages, all holding glowing incandescent lightbulbs. The lightbulbs are arranged in a circular pattern, symbolizing ideas and innovation. The people are smiling and looking upwards, suggesting a positive and collaborative atmosphere.

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# Editorial

Achieving a citizen-centred and inclusive energy transition requires harnessing affordable and clean energy solutions while facilitating the active participation of consumers in line with the aims of the European Green Deal. This CORDIS Results Pack highlights 15 EU-funded projects that are making this happen.

As stated in the [European Pillar of Social Rights](#), energy is an essential service that every EU citizen is entitled to. Adequate heating, cooling, lighting, hot water, and energy for cooking and powering appliances are all necessary for a decent standard of living. Energy poverty occurs when a household lacks access to these essential energy services, with recent estimates showing that in 2022 [more than 40 million Europeans were unable to keep their home adequately warm](#). Providing tailored energy efficiency and structural measures, including building renovation and renewable energy solutions to energy-poor households can help lower their energy bills and improve living conditions and well-being.

Energy communities can have an important role to play in engaging citizens in the transition. Communities can help citizens to collectively implement sustainable energy projects while providing environmental, economic or social community benefits for their members. They can also mobilise private investments in clean energy technologies and increase the public acceptance of renewable energy projects.

The EU regulatory framework demonstrates Europe's commitment to alleviating energy poverty and supporting community energy. This includes rules on the [energy performance of buildings](#) to support citizens in their efforts to improve their homes, and the [revised Energy Efficiency Directive](#), which requires Member States to alleviate energy poverty by empowering and protecting those affected.

The framework also acknowledges collective efforts in the energy transition. The [Renewable Energy Directive](#) and [Internal Market for Electricity](#) directive include definitions of energy communities and ask Member States to enable them to participate in the energy market on an equal footing with other actors.

## 15 projects put citizens at the centre of the energy transition

The Horizon 2020 Energy Efficiency programme (2014-2020) and its successor, the LIFE Clean Energy Transition programme (2021-2027), provide funding for a wide range of activities towards an energy efficient, renewable energy-based, climate-neutral and resilient economy. This CORDIS Results Pack on an Inclusive Energy Transition presents 15 EU-funded projects helping to shape the green transition for the benefit of all citizens.

A number of projects presented help alleviate energy poverty through efficiency measures, enabling uptake of renewable energy solutions, building the capacity of relevant actors and cooperating with other initiatives such as the [Energy Poverty Advisory Hub - EPAH](#). [ComAct](#) coordinated homeowners to unlock energy efficient improvements in multi-family apartment buildings. [COOLTORISE](#) piloted measures to reduce the impact of heatwaves in low-energy efficient households. [EmpowerMed](#) supported women in the Mediterranean to tackle energy poverty.

In addition, [EnergyMEASURES](#) provided personalised household energy management measures. [STEP](#) trained consumer and frontline organisations to support energy-poor households. [ENPOR](#) aimed to make energy poverty in the private rented sector more detectable and measurable. Meanwhile, [SocialWatt](#) aided utilities, energy companies and other stakeholders in identifying energy-poor households to address energy poverty.

Another set of projects aims at facilitating collective actions in the field of energy. [NRG2peers](#) built a web platform to enhance uptake of next-generation peer-to-peer energy communities. [UP-STAIRS](#) developed one-stop shops for providing information and advice on energy communities. [DECIDE](#) pinpointed the best ways to communicate and interact with energy communities. [GRETA](#) built frameworks to help communities achieve their own decarbonisation goals. Researchers from [eCREW](#) helped households jointly exploit electricity generation.

Finally, some of the projects presented developed collective and community-based approaches to combat energy poverty. The [CEES](#) project is creating an energy solidarity toolkit for energy cooperatives to address energy poverty, while [Sun4All](#) helped vulnerable households switch to renewable energy and reduce their energy bills. Finally, [POWERPOOR](#) supported energy-poor citizens to implement energy efficiency measures and participate in joint initiatives, such as energy communities.

# Powering together for energy solidarity

Energy communities strive to make energy more affordable and accessible by democratising its production and consumption. An EU-funded project is boosting this effort by providing these communities with tools to combat local energy poverty and vulnerability.

Driven by collective citizen actions, energy communities (ECs) are a powerful force in the clean energy transition. By empowering individuals and groups to establish, own and operate local energy supplies, they are restructuring how energy systems work and allowing members to benefit from lower utility bills.

Partners involved in the EU-funded [CEES](#) project are encouraging ECs to go one step further by supporting the 'just' aspect of a clean energy transition. They use the term 'energy solidarity' to describe an EC's commitment to alleviate energy poverty among members and the measures by which they can do it.

"CEES is investigating how energy communities can take a more active role in tackling energy vulnerability at a local level," notes

CEES communications coordinator Marilyn Smith. "Energy solidarity emphasises the spirit of community members helping each other and ensuring that vulnerable households do not have to solely rely on state aid or social assistance."

## Practical actions for energy solidarity

The CEES partners have implemented an array of measures to demonstrate energy solidarity, each tailored to the needs and particularities of local contexts. 'Soft measures' refer to actions



*We emphasise the spirit of community members helping each other and providing a safety net for vulnerable households so that they do not solely rely on state aid or social assistance.*



that are cost-effective and easy-to-organise – such as providing warm blankets, blocking chimneys that cause cold draughts or sharing tips on how to optimise energy use. ‘Hard measures’ – such as insulating roofs and walls or changing windows – focus on improving the dwelling’s energy efficiency.

“CEES partners have hosted a number of energy cafes to boost understanding of energy usage, complemented by home visits to offer tailored advice for energy savings,” states Smith. “In Portugal, for example, Coopérnico is championing the concept of ‘spending wisely’ over saving energy. CEES acknowledges the fact that many vulnerable households already under consume and many Portuguese households consider being cold at home as normal.”

“In Croatia, CEES partner ZEZ raised funds to distribute cozy kits that provide immediate warmth until long-term improvements can be made to the efficiency of people’s homes or heating systems,” adds Smith. “While these devices do not solve the root problem of cold homes, they mitigate its effects and set the stage for further interventions.”

On the hard measures side, Les 7 Vents (France) implemented a ‘3 SR’ – shared, supported, self-renovation – approach for home renovations to improve energy efficiency. This helps reduce labour costs by having one professional from the building industry guiding volunteers willing to share the workload. The benefitting family supplies meals and is expected to volunteer on other work sites to ‘return the favour’.

## Identifying barriers to energy policies

CEES is also investigating how legal and regulatory frameworks help or hinder energy solidarity, and the financial and non-financial measures ECs need to consider when aiming to help vulnerable households.

“While the EU acknowledges the potential of energy communities in tackling energy poverty, CEES partners have encountered several legal and policy hurdles that hinder their efforts,” states Smith.

Croatia, for example, does not yet recognise energy poverty in any legislation, so there are no data on who is affected. Also, current law on ECs undermines applying a solidarity approach. Typically, people must pay an initial fee to join an EC. But if a vulnerable household pays this fee in order to have lower energy expenditures in the future, the state immediately cuts assistance for ongoing or overdue bills.

Additionally, while CEES partners have found that there is public support for energy solidarity, many ECs face challenges when trying to raise funds. Typically having the legal status of small cooperatives, they cannot offer tax benefits to donors (as can non-profit associations).

CEES partners’ experience in tackling energy poverty will be compiled into an Energy Solidarity Toolkit. The toolkit will guide other ECs on resource allocation and choosing feasible, context-specific actions.

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### PROJECT

**CEES - Community Energy for Energy Solidarity**

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### COORDINATED BY

Snap! Solutions in Portugal

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### FUNDED UNDER

Horizon 2020 - ENERGY

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/101026972](http://cordis.europa.eu/project/id/101026972)

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### PROJECT WEBSITE

[energysolidarity.eu/](http://energysolidarity.eu/)



# Efficient, cost-effective energy upgrades for low-income households in multi-family buildings

Privately owned multi-family apartment buildings in certain European regions are home to a significant proportion of energy-poor households. An EU-funded project offers solutions demonstrating that high-cost renovations to improve energy efficiency in such buildings are indeed feasible.

The EU-funded [ComAct](#) project is addressing energy poverty in Central and Eastern Europe and the Balkans. These regions are home to the most energy-poor populations in Europe, largely owing to energy-inefficient buildings that result in high energy bills and health problems. What is special in these regions is that most buildings are privately owned and house a diverse mix of residents, many of whom are struggling with energy poverty.

"ComAct operates on the principle that building-level communities are unique entities, mostly functioning within legally binding frameworks. We understand that the operational challenges of these communities are a major obstacle to investing in energy efficiency," notes project coordinator Zita Kakalejcikova. "To address this, we specifically target buildings that are on the brink

of being able to undertake energy efficiency investments, with the help of standard national subsidy schemes."

Project aid to lower the threshold for such investments includes tailored technical advice, specific financial products and community empowerment.

## Enlarging the scope of energy poor buildings

ComAct also recognises that energy efficiency in privately owned multi-family buildings requires coordinated action from the building community. "Despite policy support for energy-efficient renovation in many European countries, a considerable number of building owners cannot access such funding. Given this, we classify these buildings that cannot utilise these mainstream subsidy schemes as energy-poor," explains Kakalejcikova.

The project focused on 'energy poor buildings' which is particularly relevant in Central and Eastern Europe (CEE), the former Soviet Republics, and the Balkans, where the majority of the housing stock comprises multi-apartment buildings with socially mixed household compositions, including a high share of energy poor home owners. As most energy efficiency interventions need to be implemented at building level,



recognising this type of energy poverty is critical to elevate energy efficiency discussions to a higher policy level.



*We focused on creating strong communities – so-called ecosystems – of homeowners, local authorities, businesses, financial institutions and civil organisations interested in energy efficiency renovations. To this end, we implemented stakeholder engagement and community involvement strategies, established resource centres and incorporated local activists via stakeholder advisory groups.*

## Project activities

ComAct tested its concept in five countries – Bulgaria, Lithuania, Hungary, North Macedonia and Ukraine – chosen to represent different sub-regions of Central and Eastern Europe and the Balkans. A household survey was conducted across these pilot locations to identify energy-poor households, with 1 000 questionnaires distributed among 200 households in each country. “A survey with 1 000 households in the 5 pilot countries revealed that 25 % of lower-income households spend over 15 % of their income on energy, with 39 % struggling to keep warm and 44 % to keep cool. Single elderly women were identified as the most energy-poor group,” highlights Kakalejcikova.

“We focused on creating strong communities – so-called ecosystems – of homeowners, local authorities, businesses, financial institutions and civil organisations interested in energy efficiency renovations. To this end, we implemented stakeholder engagement and community involvement strategies, established resource centres and incorporated local activists via stakeholder advisory groups,” adds Kakalejcikova. Capacity-building activities such as training,

consultancy and coaching were also organised to enhance community engagement.

ComAct connected homeowner associations with financial institutions to promote and test financial opportunities for energy efficiency upgrades. On the technical side, optimal energy efficiency solutions were developed, and energy audits were conducted to provide tailored advice.

Energy poverty in households and buildings involves many factors such as income, energy prices and efficiency. “While low-income households are typically associated with energy poverty, we found that organisational issues often supercede income problems. Thus, poorer yet well-organised communities may benefit more from subsidy schemes than disorganised, wealthier ones,” concludes Kakalejcikova.

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### PROJECT

**ComAct – Community Tailored Actions for Energy Poverty Mitigation**

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### COORDINATED BY

Nadácia Habitat for Humanity, International in Slovakia

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### FUNDED UNDER

Horizon 2020 - ENERGY

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/892054](http://cordis.europa.eu/project/id/892054)

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### PROJECT WEBSITE

[comact-project.eu/](http://comact-project.eu/)

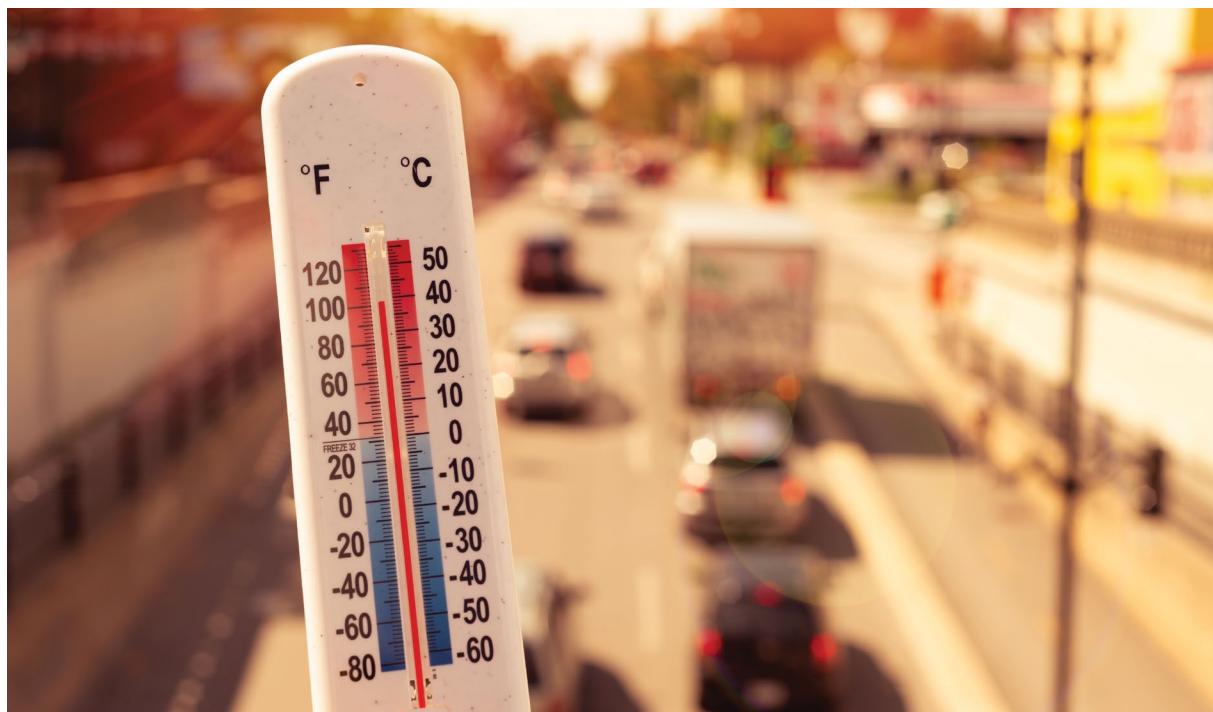
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# Empowering vulnerable households to keep homes adequately cool during summer

An EU-funded project seeks to reduce summer energy poverty in vulnerable households – an often overlooked side of the broader energy crisis. The initiative raises awareness of how to retain indoor comfort and lower energy use during heatwaves.

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Eurostat 2022 data shows that 9.3 % of the EU's population struggle to keep their homes warm, owing to low income, high energy costs and inefficient energy usage in homes. Furthermore, around 19 % reported discomfort from heat in the summer, suggesting that energy poverty also includes cooling needs. Many households lack air conditioning or often limit its use to reduce costs.

The EU-funded [COOLTORISE](#) project is committed to mitigating summer energy poverty among European households. To this end, it has implemented several initiatives to educate and support households in improving their energy consumption habits. The initiatives spearheaded by COOLTORISE are being rolled out in four EU countries – Bulgaria, Greece, Spain and Italy.

## A series of workshops promoting awareness

"One such initiative is the summer energy culture workshops, designed to advise vulnerable consumers on the efficient use of energy during summer and motivate behavioural changes that leverage passive cooling strategies," notes project coordinator Carmen Sánchez-Guevara. "These include preventing heat entry, promoting night ventilation and reducing internal heat gains from lighting and cooking."

Energy bills workshops were conducted to ensure a clear understanding of energy bills for households. In these workshops, social tariff schemes were reviewed, equipping potential beneficiaries with knowledge and guidance on how to access them. They catered for around 15 households per session.

To ensure accessibility for single-parent households, particularly those headed by women, COOLTORISE also organised Coolkids workshops. These events entertained children with 'energy arts and craft' activities, teaching them basic energy-saving strategies while their mothers attended adult-related workshops allowing women to balance workshop attendance and caregiving responsibilities.

## Practical support services

"In addition to organising educational workshops, we provided advice on installing indoor kits – 'coolkits' – to improve summer energy conditions. To encourage participation, we delivered these kits to certain households. These included items like fans, LED light bulbs, socket strips, smart meter sockets, blinds or window sunscreens," highlights Ana Sanz Fernández, researcher from the coordinator, the Technical University of Madrid. Trained summer energy poverty agents assisted in specific cases like elderly households.

## Climatic shelters to protect urban areas

Another objective has been to encourage collective interventions in community courtyards to help reduce microclimate temperatures and provide a cooler environment for surrounding residences. "It is crucial to note that cooling energy demands within dwellings strongly depend on outdoor conditions and cannot be mitigated exclusively by implementing indoor solutions," states Sanz-Fernández.

"Findings from an earlier project highlighted how urban heat islands can increase cooling needs by up to 40 % more than rural areas. This underscores the need for localised temperature-reducing interventions to achieve indoor thermal comfort in urban settings," notes Sánchez-Guevara. Complicating matters, certain energy-poor households often reside in collective housing with open spaces or community courtyards that often exist in a degraded state.

After identifying potential areas for hygrothermal improvements, COOLTORISE developed collaborative solutions with the households involved, considering the physical features and orientation of the communal outdoor spaces. By the project end, a minimum of 20 interventions will be completed, involving approximately 300 households.

Ultimately, a heat warning alarm service was offered to residents to prevent heat exposure during summer. Implemented in collaboration with public health institutes, meteorological services and civil protection agencies, customised alerts and prevention tips were sent through mobile applications.

"We seek to raise awareness of summer fuel poverty and promote resource-efficient solutions to cope with heatwaves. We also hope to influence policy and best practice development by engaging decision-makers and publishing scientific papers," concludes Sanz-Fernández.



*We seek to raise awareness of summer fuel poverty and promote resource-efficient solutions to cope with heatwaves. We also hope to influence policy and best practice development by engaging decision-makers and publishing scientific papers.*

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### PROJECT

**COOLTORISE - Raising summer energy poverty awareness to reduce cooling needs**

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### COORDINATED BY

Universidad Politecnica de Madrid in Spain

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### FUNDED UNDER

Horizon 2020 - ENERGY

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/101032823](http://cordis.europa.eu/project/id/101032823)

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### PROJECT WEBSITE

[cooltorise.eu/](http://cooltorise.eu/)

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# Cultivating the burgeoning diversity of community energy initiatives

EU-funded research has explored diverse ‘collective energy actions’ and delivered mix-and-match tools to empower these innovative initiatives.

Increasingly decentralised energy resources and a growing contribution of renewable energy sources is highlighting the essential role of citizen engagement in achieving the EU’s ambitious goals. The EU-funded [DECIDE](#) project set out to develop a ‘recipe for success’ when establishing collective energy actions.

## Collective energy actions: not one size fits all

DECIDE discovered that there are many existing approaches to energy management involving citizens. The project looked into more than 40 such initiatives in 12 Member States and found that most could not be classified as energy communities according to the [definitions in EU legislation](#). According to project coordinator Lucija Rakocevic of [THINK E](#): “There was a high degree of diversity across Europe and even within the same region or town. Motivations of the actions were similar but their organisation and priority activities varied significantly.”

## The right stuff: mixing and matching elements according to need

With no silver bullet in sight, DECIDE created ‘building blocks’ that can be combined in different ways to help citizen energy actions

grow. Among them are two games that proved to be excellent at engaging a broader and more diverse group of stakeholders: one to raise awareness and one to help form an action plan.

The board game called ‘The power of community’ was designed to give users a sense of what collective energy actions and the energy transition are. People from 5 to 80 years old enjoyed playing it. The [online game](#) ‘Your energy vision’ helped interested stakeholders map out their priorities for a collective energy action.



*“In addition to the citizen energy games, the project created descriptions of 7 business models and 13 energy services, along with a checklist for legally setting up an initiative. Our project website hosts the knowledge hub with reports, webinars, podcasts and more,” notes Rakocevic. Finally, the [Energy Communities Hub](#) aimed at mapping citizen energy community (CEC) or renewable energy community (REC) initiatives in different Member States with a focus on the regulatory environment.*

## Throwing a wider net, quantifying benefits

DECIDE’s research led to two key recommendations. “To better understand the citizen energy landscape, we should

*In addition to the citizen energy games, the project created descriptions of 7 business models and 13 energy services, along with a checklist for legally setting up an initiative. Our project website hosts the knowledge hub with reports, webinars, podcasts and more.*



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expand the focus to collective energy actions and not only RECs and CECs. In addition, we need quantifiable and widely used key performance indicators (KPIs) so the research community can compare results to better understand their actual benefits," notes Rakocevic.

DECIDE developed a list of KPIs to support collaboration, among them social KPIs that capture the benefits energy communities have on decreasing energy poverty. Similarly, "together with the BECoop project, we formed a group of sister projects related to energy communities and other collective energy actions. More than 15 Horizon 2020 projects now meet once a month to discuss ongoing activities and how we can create synergies."

DECIDE has shown that citizen engagement in the energy transition goes beyond RECs and CECs. It has also laid the foundations for identifying, supporting and learning from these diverse energy actions involving citizens that will [contribute to achieving Europe's ambitious goals](#).

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**PROJECT**

**DECIDE - Developing Energy Communities through Informative and collective actions**

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**COORDINATED BY**

TH!NK E in Belgium

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**FUNDED UNDER**

Horizon 2020 - ENERGY

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**CORDIS FACTSHEET**

[cordis.europa.eu/project/id/894255](http://cordis.europa.eu/project/id/894255)

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**PROJECT WEBSITE**

[decide4energy.eu/](http://decide4energy.eu/)



# Community renewable energy webs overcome barriers to energy inclusivity

An innovative household cooperation energy management scheme gives small consumers and prosumers the administrative support they need to focus on maximising benefits.

The EU is a global leader on renewable energy technology and its deployment. More and more organisations and households are getting onboard, producing electricity from renewable energy sources like the sun.

The 2018 revision of the Renewable Energy Directive introduced new provisions for citizens to play an active role by enabling renewable [energy communities](#) and self-consumption of renewable energy. However, participation is still limited, partly due to the administrative capabilities that are necessary within the energy communities.



*[The local energy retailers] take on all administrative responsibilities including organisational matters, billing and conflict resolution so the community renewable energy webs (CREWs) can focus on increasing their community benefits.*

## Generating benefits, not bureaucracy

The eCREW project's business model brings together consumers, prosumers and energy retailers. The energy retailers – the local energy providers – act as so-called community administering entities. "They take on all administrative responsibilities

including organisational matters, billing and conflict resolution so the community renewable energy webs (CREWs) can focus on increasing their community benefits," explains project coordinator Johannes Reichl of the [Energy Institute at the Johannes Kepler University Linz](#).

Furthermore, the project's innovative scheme of household cooperation in energy management enhances inclusivity, since even households without their own photovoltaic systems (PVs) can benefit from solar energy. "This removes the barrier typically disconnecting lower income households or those living in multi-apartment buildings from the energy transition and renewable energy production," notes Reichl.

## A phone app and game make CREWs transparent and effective

[eCREW's app](#) is a customised version of the 'Energy Cockpit' of partner GreenPocket. It provides CREW members (energy customers) with information regarding their electricity consumption and energy flows in the community. It tells them when surplus electricity from PVs is available in their community, and when to save money by exploiting this surplus for their power demand.

At the same time, CREW members learn how much electricity they use every day and on what their consumption depends



with the PEAKpoker game. It also helps them to identify additional electricity savings opportunities through comparison and ranking among similar households. Furthermore, it creates a friendly competition in which users are motivated to shift their demand to hours with solar electricity production to be more efficient than their neighbours.

## Lessons learned

The [CREWs in Germany, Spain and Turkey](#) and a large follower community demonstrated the potential for success and the enthusiasm of citizens. They also highlighted a significant and unexpected barrier.

Reichl explains: "Member States still have surprisingly different and incompatible electricity markets and technical standards, hampering the exploitation of eCREW's technical readiness. In contrast to the vast homogeneity of competitors like the USA or China, a new development is required for each of our 27 small markets."

As the regulatory, legal and technical environments are harmonised across borders, the eCREW approach can expand energy inclusivity and accelerate the transition. "Energy communities do not minimise fossil fuels use by their existence. Citizens must shift electricity consumption patterns and to do

so they need information about their current consumption and more efficient options throughout the day.

Combining clever socio-economic incentives with comfort-increasing IT can maximise exploitation of renewable electricity's potential," concludes Reichl. eCREW has demonstrated how this can happen, with the necessary support from regulatory and legal frameworks.

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### PROJECT

**eCREW - establishing Community Renewable Energy Webs - Rolling out a business model and operational tool creating webs of households that jointly manage energy to improve efficiency and renewables uptake**

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### COORDINATED BY

The Energy Institute at the Johannes Kepler University Linz in Austria

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### FUNDED UNDER

Horizon 2020 - ENERGY

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/890362](http://cordis.europa.eu/project/id/890362)

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### PROJECT WEBSITE

[ecrew-project.eu/](http://ecrew-project.eu/)

# Tapping collective assemblies to tackle gender disparity in energy poverty

Direct assistance and social networks support women-led coastal Mediterranean homes affected by energy poverty and provide needed data for policymakers.

As Europe strives to meet the goals of the Green Deal, households affected by energy poverty are at risk of being left behind.

The EU-funded [EmpowerMed](#) project couples personalised support with social empowerment to help residents in coastal areas of six EU countries: Albania, Croatia, Spain, France, Italy, and Slovenia.

## Home energy needs in the pilot sites

Many homes in the pilot areas lack adequate insulation and cooling units. Some households lack pre-installed heating systems and often rely on electricity-based heat sources. Because these areas are popular vacation destinations, some locals must also compete for housing with the tourist industry. Householders often lack stable, well-paying jobs, and are at risk of debt and the threat of disconnection from the power supply.



© EmpowerMed - Miliukontakt Albania

Site visits provide energy poor residents with LED lights, insulation strips, water-saving shower heads and other energy-efficiency devices. Direct contact with householders also helps the project collect information about energy poverty. According to project coordinator Lidija Živčić: "The EmpowerMed project provides insights into the characteristics of affected households, their housing conditions, perceived thermal comfort, difficulty in affording energy, health conditions and the need for empowerment."

## Targeting women experiencing energy poverty

Just as regional aspects impact the nature of energy poverty, so too does gender. A woman is more likely to experience poverty and social exclusion, and these factors raise the likelihood that she will live in a household affected by energy poverty. Because of the traditional division of labour, women tend to spend more time working in the home, further raising their exposure to energy poverty and its negative effects on health and well-being.

Through its engagement efforts, EmpowerMed has gained insight into the particular challenges faced by women. Živčić says: "EmpowerMed shows that women are strong actors in the implementation of solutions to energy poverty and defenders of the right to energy in their homes and communities. We believe women should be at the heart of the EU's just energy transition to help ensure that we leave no one behind."

## Collective advisory assemblies

EmpowerMed has run training sessions to share experiences and know-how across pilot areas and prepare frontline workers. EmpowerMed partnered with a variety of local actors, including social service organisations, local councils, women's clubs and healthcare providers to support vulnerable households.

Collective advisory assemblies (CAAs), a replicable model for peer-to-peer support, are a noteworthy project achievement. Typically gathering 10 to 30 people in a public session, CAAs provide group empowerment for those experiencing energy poverty. EmpowerMed



received the [European Social Innovation Prize](#) in 2023 for this innovative approach.

*The project has directly supported over 2 400 women across Europe. It has hosted almost 130 collective advisory assemblies involving close to 2 400 people, 1 502 of whom were women.*

## Measuring success in the fight against energy poverty

The project has directly supported over 2 400 women across Europe. It has hosted almost

130 collective advisory assemblies involving close to 2 400 people, 1 502 of whom were women.

EmpowerMed has trained over 500 over local actors, and within the project, the partners reached over 8 800 men and women experiencing energy poverty. This resulted in improved well-being, energy savings, as well as economic savings for the households.

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### PROJECT

**EmpowerMed – Empowering women to take action against energy poverty in the Mediterranean**

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### COORDINATED BY

Focus Association for Sustainable Development in Slovenia

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### FUNDED UNDER

Horizon 2020 - ENERGY

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/847052](http://cordis.europa.eu/project/id/847052)

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### PROJECT WEBSITE

[empowermed.eu/](http://empowermed.eu/)

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## Direct engagement benefits energy-poor households

To engage energy-poor households, assessment, analysis and provision of small measures and tailored advice improve energy efficiency behaviours and strengthen support organisations.

According to the latest Eurostat figures, 40 million European citizens are unable to keep their homes adequately warm, and many more are at risk of falling into this dangerous predicament. The EU-funded [EnergyMeasures](#) project engaged householders who are experiencing energy poverty and offered practical solutions for alleviating related challenges in Belgium,

Bulgaria, Ireland, the Netherlands, North Macedonia, Poland and the United Kingdom. The project also worked with key actors such as municipalities, energy authorities, or housing associations to address multi-level institutional contexts affecting energy poverty, and supported policy development.



## Individualised energy engagement plans

The energy challenges facing households in each region are unique. For this reason, the project established an adaptable approach to create tailored advice for energy-poor residents. Collaborating with public, private and social organisations, EnergyMeasures provided energy advice to over 3 900 households.

Once energy-poor households had been identified, site visitors assessed home energy features. This involved collecting data on all aspects of energy consumption, including heating systems, windows and doors, chimneys, lighting and appliances.

Partners then analysed the data and developed a report presenting options for low- or no-cost energy savings through small measures and practical advice. This report was presented to the householder, who was offered follow-up support as needed.

## Humanising energy poverty

The project gives a voice to many who are typically unheard and highlights their lived experience of energy poverty. Small measures and energy advice are shown to offer real help to householders – highlighting the importance of energy literacy and the development of householder agency.

Despite restrictions related to the pandemic, EnergyMeasures managed to deliver an impressive personalised service. According to project coordinator Niall Dunphy: "The project gives a voice to many who are typically unheard and highlights their lived experience of energy poverty. Small measures and energy advice are shown to offer real help to householders – highlighting the importance of energy literacy and the development of householder agency."

Part of increasing householder agency is enabling citizens to find the information they need to make informed decisions. In addition to direct outreach, EnergyMeasures utilised a

variety of online platforms to connect with citizens, including the project's website, bulletins and postings on social media.

The project also explored how energy poverty disproportionately affects women. Dunphy says: "Women's lower incomes are a significant potential contributor to energy poverty. Moreover, the disproportionate burden of caregiving in the home borne by women means that they are experiencing the impacts of an energy-poor household more than men."

Two of the countries involved in the project (North Macedonia and the United Kingdom) have placed a particular emphasis on reaching women-led households, and partners in all countries employ gender-fair language and imaging in communications and outreach.

## Institutional impact of citizen engagement

The data EnergyMeasures collected helped provide a clearer picture of energy poverty in specific communities. This enables municipalities, energy companies and consumer organisations to better meet the needs of citizens.

The project has worked to share its findings with relevant stakeholders through publications and policy briefs. Furthermore, training workshops that prepared frontline workers to positively engage with citizens promoted agency in a vulnerable population.

The causes of energy poverty are complicated and require a multi-level suite of solutions. National policies, building infrastructure and consumer behaviour are all important. By providing tailored advice to individuals, EnergyMeasures helped tackle a growing problem facing EU households.

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### PROJECT

**EnergyMeasures - Tailored measures supporting energy vulnerable households**

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### COORDINATED BY

University College Cork in Ireland

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### FUNDED UNDER

Horizon 2020 - ENERGY

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/894759](http://cordis.europa.eu/project/id/894759)

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### PROJECT WEBSITE

[energymeasures.eu/](http://energymeasures.eu/)

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# Actions to mitigate energy poverty in the private rented sector

Collaborative regional action groups involving key stakeholders, such as landlords and tenants, analyse and revise policies that impact renters in the private rented sector.

The cost of energy and the need for energy efficiency renovation have contributed to an increase in energy-poor residents throughout Europe. In the private rented sector (PRS), there is a lack of information about who is at risk of energy poverty and what their needs are. The goal of the EU-funded ENPOR project has therefore been to make energy poverty more detectable and measurable, while supporting the adaptation and implementation of policies tailored to the needs of the PRS in Austria, Croatia, Germany, Greece, Estonia, Italy, and the Netherlands.

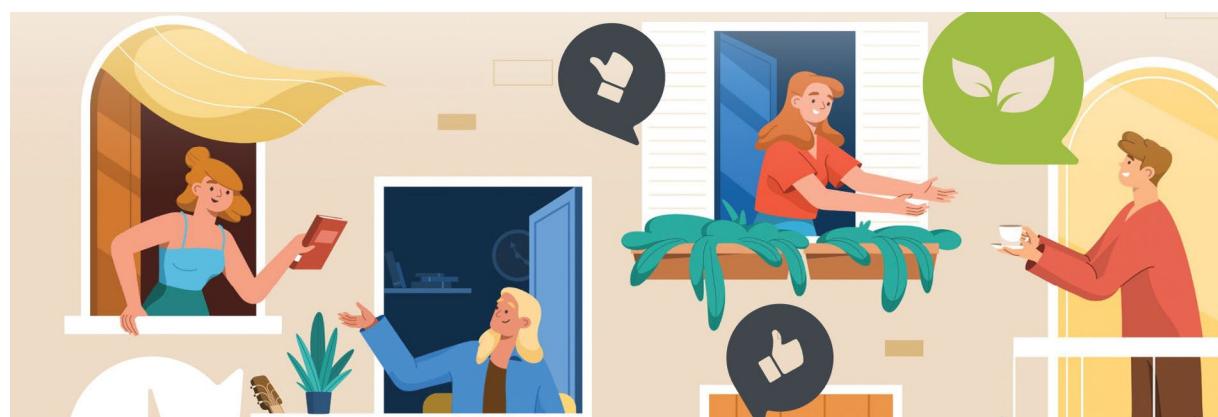
## Regional action groups

Energy poverty has many causes, but for energy-poor tenants, renovation presents an additional challenge. For example, homeowners benefit directly from energy efficiency upgrades. Not only do they save money on the cost of energy resulting from reduced demand, but their property values increase. However, landlords do not have similar perceived incentives for improving their property, as their tenants are the ones who will benefit from the energy savings which landlords must invest in.

This concept, known as the split incentive, further exacerbates energy poverty among tenants, who tend to live in worse-performing buildings.

A key feature of ENPOR is the coordination of REgional ACTion (REACT) groups to represent the interests of both landlords and tenants when creating solutions to address split incentives. REACT groups bring together a wide variety of stakeholders, including property owners, tenant and consumer associations and related market actors. In collaboration with government representatives, REACT groups examined 10 policies impacting the PRS in the 7 European countries.

To address the energy needs of different regions, ENPOR conducted a thorough review of 114 existing policies to clarify where guidelines and practices fall short in addressing the needs of energy-poor renters. Project coordinator Vlasis Oikonomou says: "The REACT groups participated in updating and adjusting national policies for the PRS, which were selected based on their impact factor for energy-poor tenants."





## Updating policies to fight energy poverty

The policies that ENPOR addresses target training and information, grants for renovation and programme support. In Italy, the pilot policy aims to invigorate information and training campaigns for landlords, tenants and building managers regarding opportunities for energy efficiency renovation and practices for improving energy use. In Estonia, the targeted policy addresses access to the national renovation grant – an important tool for reducing energy poverty. Adjustment of this policy opens the door to apartment building communities that want to upgrade their building.

The pilot in Germany includes tailored advisory tools and use of an innovative prepaid metering model and app. To participate, residents switch from their current electricity provider and adopt a digital prepaid meter that allows the consumer to closely monitor energy use. As part of the Greek pilot, the Energy Efficiency Obligation Scheme was modified to include targeted guidance by the energy suppliers to energy poor households, and public aid was adjusted with specific budget allocations for energy poor households and a subsidy for landlords of rented buildings.

In addition to the policies addressed by ENPOR, the project has been able to offer a wealth of data on energy poverty in the PRS through the launch of an [Energy Poverty Dashboard](#). This tool, organised by country and region, allows users to visually study the geographies of energy poverty indicators and policies catering to the PRS. Moving forward, it will be beneficial for countries to maintain the upgraded policies, but greater consideration of the data from the energy poverty dashboard in decision-making processes is also important.

Finally, in order to combat the split incentives issue, a [Split Incentive Quantification Tool](#) has been developed to calculate the split in energy investments required between landlord and tenant, based on the benefits they reap.

Energy poverty, particularly in the PRS, is a growing problem and difficult to solve. ENPOR, by focusing on inclusive co-creation practices, is moving in the right direction. Oikonomou states: “ENPOR’s impacts are numerous, but most importantly, the project has heightened awareness and understanding of energy poverty in the PRS among policymakers and stakeholders.”

*ENPOR's impacts are numerous, but most importantly, the project has heightened awareness and understanding of energy poverty in the PRS among policymakers and stakeholders.*

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### PROJECT

#### **ENPOR – Actions to Mitigate Energy Poverty in the Private Rented Sector**

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### COORDINATED BY

The Institute for European Energy and Climate Policy  
in the Netherlands

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### FUNDED UNDER

Horizon 2020 - ENERGY

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/889385](http://cordis.europa.eu/project/id/889385)

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### PROJECT WEBSITE

[enpor.eu/](http://enpor.eu/)

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# Europe invests in active energy engagement

Data collection and the collaborative creation of tools related to energy citizenship result in a better understanding of factors that influence behavioural change.

Innovations in green energy solutions are transforming the energy landscape. To optimise the uptake of new technologies and boost the use of renewable energy, it is necessary to

educate and empower people to participate in the green transition. The EU-funded [GRETA](#) project conducted pilot studies in communities across Europe to assess the needs of citizens

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and develop frameworks to guide communities towards achieving their own decarbonisation goals.

## A range of case studies

The project's case studies in Germany, Spain, Italy, the Netherlands and Portugal address the needs of diverse communities. In three cases, GRETA partnered with existing energy communities.

Northeast of Bologna, the project worked with [GECO](#) to meet the needs of an area that includes residents living in poverty. In Spain, the project coordinated with [UR BEROA](#), which serves a relatively wealthy and well-educated neighbourhood. The Portuguese case study worked with the energy cooperative [Coopérnico](#), the first energy cooperative in the country. The study focuses on the behaviour of actively engaged energy citizens.

The Netherlands endeavours to have all neighbourhoods natural gas-free by 2050. The case study focuses on how citizens and municipalities work to facilitate this transition. In Germany, the project looks at how a virtual community using the [Earnest App](#) can enhance energy citizenship in the city of Darmstadt.

The final case study of the project is EU-wide and addresses the uptake of electric autonomous mobility networks. Since the development of these technologies is still emerging, the case study centres on input from experts and policymakers rather than consumers.

## Utilising survey data

Researchers developed a Europe-wide survey to gain insight into the perspectives of residents, companies and policymakers. Survey results include roughly 10 000 responses from 16 countries. In addition to the multinational survey, GRETA gathered data from public and private resources and energy, infrastructure and community-oriented datasets.

Results allowed GRETA to formulate a better understanding of how residents engage in energy citizenship. According to project

coordinator Annika Wolff: "We used the survey data as the basis for identifying distinct types of energy citizen personas, ranging from people who are indifferent to the transition to those who are highly active advocates for green actions. The energy citizen personas will in time be utilised in co-creation activities with different stakeholders in positive energy districts to help inform the innovation of new digital services."

## Co-designing guidelines

In addition to granting insights into energy citizen personas, GRETA used the data gathered to spearhead the co-creation of guidelines, models and other framing documents that can be used by any party wishing to facilitate energy engagement.

These materials include templates for workshops, community level indicators (CLIs), community transition pathways (CTPs) and energy citizen contracts (ECCs).

The project co-created CLIs and CTPs for all case studies. For three of the studies GRETA facilitated the creation of ECCs. In the Italian case study, the ECC will be utilised in developing the [climate city contract](#) for Bologna.

Globally, Europe is in the vanguard for achieving carbon neutrality in the coming decade. New technologies and renewable energy are key to reaching this objective, but so is active citizen engagement. By researching factors related to energy citizenship, GRETA has contributed to reaching this ambitious goal.

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### PROJECT

**GRETA – GReen Energy Transition Actions**

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### COORDINATED BY

LUT University in Finland

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### FUNDED UNDER

Horizon 2020 - ENERGY

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/101022317](http://cordis.europa.eu/project/id/101022317)

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### PROJECT WEBSITE

[projectgreta.eu/](http://projectgreta.eu/)



*We used the survey data as the basis for identifying distinct types of energy citizen personas, ranging from people who are indifferent to the transition to those who are highly active advocates for green actions. The energy citizen personas will in time be utilised in co-creation activities with different stakeholders in positive energy districts to help inform the innovation of new digital services.*

# Connecting neighbours in direct-energy-sharing business models

A web platform supports the uptake and operation of peer-to-peer energy trading with tools to help create energy communities and leverage demand response opportunities.

[Energy communities](#) – citizen-driven energy actions – enable local stakeholders to join forces in innovative ways to benefit from and contribute to the energy transition. [Peer-to-peer](#) (P2P) energy trading has emerged as an interesting prosumer model without central intermediaries. Energy consumers can purchase low-cost electricity directly from their neighbour, eliminating the need for traditional energy suppliers and giving participants more control over their energy production and use.

User-centred residential energy communities could have a significant impact on increasing the contribution of renewable energy sources and reducing energy use and emissions, contributing to the achievement of Europe's ambitious climate neutrality goals for 2050. The EU-funded [NRG2PEERS](#) project has developed a web platform to enhance uptake of next-

generation P2P energy communities. The platform was piloted in nine use cases throughout Europe.

## Accelerating on-boarding of energy community members

The NRG2PEERS web platform hosts various tools. The 'Readiness Level Indicator' helps those interested in becoming a P2P energy community determine how ready they are to do so. It also provides suggestions on how to increase readiness. Three separate modules assess user, organisational, as well as technological and infrastructural readiness. Users receive a report by email.



"The 'Readiness Level Indicator' demonstrated adaptability beyond its initial purpose, evolving into an effective awareness-building and conversation-provoking tool," notes project coordinator Simona D'Oca of [Huygen Engineers & Consultants](#).

The website's 'Advisory App' section provides information on P2P energy communities. It can help anyone – including potential, current and future members – address challenges. By using this website, users can create or join a community and participate in a users' forum, connecting with stakeholders. Finally, the 'Open Data Solution' is designed to give third parties who have a contract with an energy community access to their energy community's data.



*The NRG2PEERS project has delivered results in achieving its energy efficiency and sustainability goals and demonstrated the adaptability of its platform and tools across diverse European communities. The successful integration of behavioural strategies, renewable energy initiatives and operational optimisations underscores the project's holistic approach to fostering positive change via P2P energy communities.*

## Encouraging change and adoption of smart demand response services

The NRG2PEERS project has investigated smart demand response mechanisms and flexibility services to optimise energy consumption and peak demand at community level. They target financial savings, CO<sub>2</sub> and environmental savings, and local energy self-reliance.

According to D'Oca: "NRG2peers' work has optimised energy use via two actions: shifting the loads of electrical appliances like space heaters, washing machines and dishwashers or selectively turning on electrical storage devices. These specific actions are not meant to reduce the delivered energy, but rather to allocate the same final energy to different times, enabling primary energy savings due to increased use of renewables." In addition, NRG2PEERS conducted successful information and awareness campaigns to encourage behavioural changes.

## Energy sharing benefits communities and the environment

The NRG2PEERS undertook testing and validation in carefully chosen pilots, involving some 356 households. Results indicate energy and CO<sub>2</sub> emissions savings from behavioural changes as well as from operational changes via community-level optimisation leveraging smart demand response mechanisms.

"The NRG2PEERS project has delivered results in achieving its energy efficiency and sustainability goals and demonstrated the adaptability of its platform and tools across diverse European communities. The successful integration of behavioural strategies, renewable energy initiatives, and operational optimisations underscores the project's holistic approach to fostering positive change via P2P energy communities," notes D'Oca. The NRG2PEERS project has shown the potential of community-driven, sustainable energy practices in our global energy landscape.

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### PROJECT

**NRG2PEERS - Towards a new generation of EU peer-to-peer Energy Communities facilitated by a gamified platform and empowered by user-centred energy trading mechanisms and business models.**

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### COORDINATED BY

Huygen Engineers & Consultants in the Netherlands

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### FUNDED UNDER

Horizon 2020 - ENERGY

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/890345](http://cordis.europa.eu/project/id/890345)

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### PROJECT WEBSITE

[nrg2peers.net/](http://nrg2peers.net/)



# Empowering energy-poor citizens to mitigate energy poverty

Around 41 million people experience energy poverty in the EU, and it is the most vulnerable who bear the brunt of this crisis. An EU-funded project is supporting a fair and inclusive energy transition, ensuring that everyone can have access to sustainable energy.

The [European Green Deal](#) sets out to ensure an energy transition that is socially just and inclusive. It supports the transformation of the EU into a fair and prosperous society with a modern and competitive economy.

The EU-funded [POWERPOOR](#) project developed support programmes for energy-poor citizens, ensuring they will be part of the clean energy transition. It provides tools to municipalities, citizens and relevant stakeholders to identify households in energy poverty, assess their energy consumption and implement behavioural changes and low cost small-scale energy efficiency interventions to reduce their energy expenses. The project also supported energy poor households to participate in joint energy initiatives or to leverage innovative financing schemes.

"We also go a step further by encouraging the operation of energy communities or cooperatives. We seek to guide individuals on leveraging innovative financing schemes such as crowdfunding to enhance energy efficiency or establish an energy community," notes project coordinator Eleni Kanellou.

## A citizen-centric approach

POWERPOOR is fostering knowledge and experience-sharing, showcasing best practices and providing necessary tools and know-how to stakeholders. This ranges from interested



*The POWERPOOR approach places citizens at the heart of the solution. It trains and certifies energy supporters and mentors who act as local heroes working to mitigate energy poverty.*

individuals to policymakers and municipalities eager to take action in their regions to alleviate energy poverty.

"The POWERPOOR approach places citizens at the heart of the solution. It trains and certifies energy supporters and mentors, who act as local heroes working to mitigate energy poverty," adds Kanellou. Energy supporters are citizens engaging with energy poor households and providing advice to implement energy efficiency interventions. Energy mentors typically collaborate with a municipality to support energy-poor households' participation in energy communities, as well as to set up alternative financing schemes, such as crowdfunding campaigns.

## Project activities

POWERPOOR activities were implemented across eight countries across Europe – Bulgaria, Croatia, Greece, Spain, Estonia, Hungary, Latvia, and Portugal. "We developed four training modules covering a range of topics, including understanding energy poverty, conducting home energy audits, engaging with energy-poor households, innovative financing schemes and planning actions to mitigate energy poverty on a local scale," highlights Kanellou.

In total, 1 178 energy supporters and mentors have been trained and certified, out of more than 2 200 individuals who



followed the 66 POWERPOOR training activities organised. A broad network to support energy poverty alleviation was therefore created.

By the project end, 23 energy poverty alleviation offices (EPAOs) staffed by energy mentors were established across various municipalities in the target countries. The offices serve as a one-stop shop of all the POWERPOOR related information. Local authorities, through the EPAOs, found an efficient way to prove their interest and care for the citizens. In total, more than 7 700 energy-poor households were directly supported by energy supporters and mentors, through home visits or consultations.

"Municipalities that have adopted the POWERPOOR approach and established an energy poverty alleviation office can serve as beacons of information on how to operate a one-stop shop for energy-related services. They can share their experiences regarding the operation of such offices and discuss the challenges they have faced," underlines Kanellou.

## Innovative integrated solution for mitigating energy poverty

Project partners have also unveiled a user-friendly toolkit, featuring three ICT tools for citizens and energy supporters and mentors. In practice, these tools assist users in identifying whether they are energy poor, assessing their energy consumption and proposing customised behavioural changes and small-scale energy efficiency interventions, and providing information and practical tools on collective energy actions.

The toolkit also includes an energy poverty guidebook for energy planning that contains information on how to incorporate the POWERPOOR approach in local energy planning for municipalities.

52 municipalities across Europe included the POWERPOOR approach as a way to mitigate energy poverty in their Sustainable Energy and Climate Action Plans (SECAPs) or other action plans.

"POWERPOOR used a diverse array of strategies to guide households out of energy poverty towards an improved quality of life. These programmes targeted those struggling with energy costs and promoted alternative financing methods. Energy supporters and mentors providing local support were at the heart of this effort," concludes Kanellou.

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### PROJECT

**POWERPOOR – Empowering Energy Poor Citizens through Joint Energy Initiatives**

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### COORDINATED BY

Ethniko Metsovio Polytechnio, Greece

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### FUNDED UNDER

Horizon 2020 - ENERGY

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/890437](http://cordis.europa.eu/project/id/890437)

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### PROJECT WEBSITE

[powerpoor.eu/](http://powerpoor.eu/)

# Reducing energy poverty: working with utilities and energy companies to deliver effective actions

Decision support tools, diverse stakeholder engagement and policy recommendations support the alleviation of energy poverty and highlight paths to achieve this.

Energy poverty – when a household cannot meet basic domestic energy needs – results from a combination of factors, including low-income, high-energy costs and inefficient buildings. In 2022, almost 1 in 10 people in the EU – more than 41 million people – lived in a home not adequately heated.

To help EU countries alleviate energy poverty, the EU-funded [SocialWatt](#) project focused on supporting utilities, energy companies and other stakeholders in identifying energy poor households, as well as in designing and implementing schemes to address energy poverty. Outcomes contributed to policy recommendations with impact.

## Finding and helping energy poor households

SocialWatt developed three user-friendly [decision support tools](#) for utilities and energy companies. These tools help users identify energy poor households among their customers, compare different sustainable energy schemes and select the best options, as well as monitor and assess the effectiveness of implemented schemes.

According to Andriana Stavrakaki of the [Institute of Communication and Computer Systems](#) and SocialWatt project manager: "More than 25 schemes to alleviate energy poverty were designed, most of which were launched and implemented within the

project timeframe." These resulted in direct benefits to about 12 000 people from renewable energy installations and energy efficiency interventions.

## Capacity building among stakeholders

"Having tools is an asset, but using them effectively is key. Therefore, it is important to build users' capacity so that they are able to use the tools in an intelligent way. Furthermore, it is paramount to ensure that energy-poor households are able to participate in schemes designed to help them. For instance, one of the SocialWatt tools enables users to assess the cost effectiveness of different energy efficiency and renewable energy schemes. This alone may not help them alleviate energy poverty if the energy-poor cannot participate in the schemes, for example due to upfront costs," explains Stavrakaki.

SocialWatt organised eight capacity-building workshops focused not only on the tools' use but also on effectively designing, financing and implementing energy poverty schemes in practice. The project also conducted nine training seminars across Europe to foster the exchange of knowledge and experience.

"SocialWatt engaged various stakeholders including stakeholders from different levels of government, utilities and energy companies, NGOs, social services, energy agencies and academia.



It has increased understanding of how poverty and energy poverty are interlinked, and how dealing with the latter can contribute to alleviating poverty overall," Stavrakaki says.

## Policy recommendations: Energy Efficiency Directive and more

All the activities implemented and the knowledge generated enabled SocialWatt to contribute significantly to the formulation of EU and national policy, surpassing original goals. Most importantly, the project started producing results and outputs during the revision of the EU's [Energy Efficiency Directive](#); SocialWatt was able to provide feedback from the experience of utilities and energy companies in designing actions and schemes targeting energy poor households.

"A key SocialWatt policy recommendation was to introduce in the Energy Efficiency Directive a minimum [ring-fence](#) of energy savings to be delivered in energy-poor households. Therefore, we

were very pleased that the revised Directive now requires EU countries to achieve a share of their energy savings among vulnerable households and those affected by energy poverty," notes Stavrakaki.

Finally, SocialWatt outcomes showed that while utilities and energy companies can play a unique role in addressing energy poverty, there are limits to what they can do and how well they might do it given their commercial targets and regulatory requirements.

"The question remains as to whether utilities and energy companies can or should be the main route to energy efficiency and tackling energy poverty. Nevertheless, SocialWatt has significantly contributed to raising awareness and understanding on what energy poverty is and how to address it," Stavrakaki concludes.



*The question remains as to whether utilities and energy companies can or should be the main route to energy efficiency and tackling energy poverty. Nevertheless, SocialWatt has significantly contributed to raising awareness and understanding on what energy poverty is and how to address it*

### PROJECT

#### SocialWatt - Connecting Obligated Parties to Adopt Innovative Schemes towards Energy Poverty Alleviation

### COORDINATED BY

Coordinated by Institute of Communication and Computer Systems in Greece

### FUNDED UNDER

Horizon 2020 - ENERGY

### CORDIS FACTSHEET

[cordis.europa.eu/project/id/845905](http://cordis.europa.eu/project/id/845905)

### PROJECT WEBSITE

[socialwatt.eu/en/home](http://socialwatt.eu/en/home)



# Addressing the energy needs of vulnerable citizens

Consumer organisations mitigate energy poverty through advocacy and training frontline workers to deliver energy efficiency advice to citizens.

The future of sustainable energy in Europe relies on the empowerment of its energy consumers, however, energy-poor citizens living in substandard homes or suffering from other causes of energy poverty are at risk of being left behind. The EU-funded [STEP](#) project prioritised advice, training and advocacy and worked through existing and new channels to support nine EU countries (Bulgaria, Cyprus, Czechia, Latvia, Lithuania, Poland, Portugal, Slovakia and the United Kingdom) with high rates of energy poverty.

## Sharing best practices for energy savings

Improving the living conditions of energy-poor consumers was a central objective of the project. The [European Consumer Organisation](#) (BEUC) coordinated with national consumer and research organisations to deliver trusted advice about energy saving measures and financial support schemes. STEP partners



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set up national referral networks with frontline organisations and facilitated 150 workshops, reaching over 16 000 consumers.

Over 1 000 frontline workers were trained to identify energy poverty and offer practical advice. The pandemic made this challenging, but the project redirected its outreach efforts. According to project coordinator Sara Patrone: "In overcoming the challenges posed by the pandemic, the project not only demonstrated resilience but also showcased its ability to pivot strategically, ensuring the uninterrupted provision of crucial services during unprecedented times."

By employing multiple avenues to connect with consumers, STEP exceeded its goals. For example, partners created energy advice offices, video materials, and an extensive online training programme in nine languages to advise and train consumers, consumer organisations and frontline workers on energy related matters. They also held special workshops for visually impaired citizens and made programmes for radio and television to ensure broader outreach.

Advice for making no- or low-cost energy efficiency improvements includes tips such as not blocking radiators, insulating attics and using shades and shutters to help cool or heat a home. With the efforts made by STEP to build trust with consumers and deliver tailored advice, the project triggered primary energy savings of up to 38 gigawatt-hours (GWh), highlighting the effectiveness of its approach.

## Consumer organisations guide policy

The most effective solutions for energy savings are still out of reach for low-income households. Renters, in particular, have little recourse when it comes to implementing costly renovations such as replacing windows and doors or installing solar panels. For this reason, STEP delivered advocacy work in addition to direct consumer advice.

STEP's advocacy efforts informed the development of a number of policy recommendations, leading to concrete results at the national level. The [Slovakian partner's](#) efforts led to the government announcement of its first ever home energy renovation programme that would be inclusive of vulnerable consumers. The [Lithuanian partner](#) put forward user-friendly energy bills with an energy advice hotline number printed on the invoice.

The impact of STEP will outlive the duration of the project, and some partners are currently involved in the [CLEAR-X](#) project on collective purchase schemes. As BEUC energy policy officer Eoin Kelly says: "This multifaceted engagement with policymakers aims to influence systemic change, ultimately benefitting those affected by energy poverty."

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### PROJECT

#### STEP - Solutions to Tackle Energy Poverty

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### COORDINATED BY

The European Consumer Organisation in Belgium

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### FUNDED UNDER

Horizon 2020 - ENERGY

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/847080](http://cordis.europa.eu/project/id/847080)

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### PROJECT WEBSITE

[stepenergy.eu/](http://stepenergy.eu/)



# Renewables for all: promoting a fair energy transition in Europe

An EU-funded project seeks to make renewable energy accessible to vulnerable households suffering from energy poverty, who would otherwise lack the capacity to invest in solar installations.

Energy communities are decentralised, citizen-led initiatives allowing individuals, small businesses and local entities to actively participate in combatting climate change and promoting renewable energy. Over the past 5 years, EU legislation has spurred the growth of these communities across Member States, making them increasingly popular.

These energy communities, however, face significant barriers to their establishment and long-term operations. A critical challenge is integrating a social approach into their business models, especially when it comes to addressing energy poverty. This is where the EU-funded [Sun4All](#) project steps in, contributing valuable innovative and practical solutions.

## A financial scheme to the rescue

Sun4All has been inspired by the '[Solar for All](#)' initiative in New York. The latter is a utility bill assistance programme that funds solar farms to benefit household owners and renters who may not have access to clean energy. Sun4All is adapting this successful model in a European context.

However, Sun4All is more than just an assistance programme – it is a concerted effort to help vulnerable households to switch to renewable energy, thereby reducing their energy bills. "We support the concept of energy communities through shared energy consumption schemes and providing advice on efficient energy management at home," notes project coordinator Camila Canelas.

To this end, project members are testing a financial scheme based on a collective self-consumption model designed to

contribute significantly towards tackling energy poverty. The scheme is being tested in four regions across Europe, expecting to reach 1 200 direct beneficiaries who will receive benefits from photovoltaic installations. It should also involve more than 7 200 vulnerable consumers in the EU in the energy transition.



*We seek to empower beneficiaries, transforming them into active participants in local energy communities and improving their living conditions.*

Sun4All's goals extend beyond merely providing financial support. "We also seek to empower beneficiaries, transforming them into active participants in local energy communities and improving their living conditions," adds Canelas. Another goal is to make Sun4All a stable programme to tackle energy poverty across the EU, contributing to policy development and best practices in energy poverty and capacity building.

## Raising awareness on policy challenges

Project activities are being carried out in Almada (Portugal), Barcelona (Spain), Rome (Italy), and the Communauté de Communes Coeur de Savoie (France). Each pilot location has adapted the 'Solar for All' initiative to its local context, defining an implementation plan that includes eligibility criteria, recruitment and engagement actions, and community work plans. Sun4All also leads a Community of Practice involving 10 other cities and regions that are receiving technical and financial support from the consortium.



Sun4All puts forward actionable policy recommendations and raises awareness on policy challenges related to energy communities and energy poverty. "We have been exploring the regulatory environment at various governance levels – EU, national and local. Issues such as loopholes in legislation, implementation delays, lack of appropriate procedures and insufficient incentives or support all pose hurdles," explains Canelas.

## Energy poverty as a multifaceted challenge

In 2022, energy poverty emerged as a pervasive issue affecting over [41 million Europeans](#), who were unable to keep their homes adequately warm. However, energy poverty extends far beyond this discomfort, it is a multidimensional problem, generated from the combination of low income, high energy expenses and poor energy efficiency in buildings.

Sun4All is demonstrating how energy communities can be harnessed to promote renewable energy, improve living conditions and empower citizens.

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### PROJECT

**Sun4All – Eurosolar for all: energy communities for a fair energy transition in Europe (Sun4All)**

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### COORDINATED BY

Ecoserveis in Spain

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### FUNDED UNDER

Horizon 2020 - ENERGY

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/101032239](http://cordis.europa.eu/project/id/101032239)

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### PROJECT WEBSITE

[sunforall.eu/](http://sunforall.eu/)



# A disruptive business model supports the creation of energy communities

Online and brick-and-mortar ‘one-stop shops’ for information and advice on establishing energy communities generated EUR 135 million investment, nearly double that targeted.

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Citizens and municipalities are increasingly interested in becoming prosumers rather than consumers, and EU legislation supporting local collective energy actions – smaller groups working together with common goals – is accelerating. These actions will play an essential role in meeting the EU's ambitious goals for energy, environment and climate while enabling greater energy independence and financial savings.

Renewable energy communities (RECs) and citizen energy communities (CECs) are [two types of collective energy actions](#) gaining traction. Although similar, their interaction with the energy markets differs and public knowledge and understanding of these concepts is lacking. The EU-funded [UP-STAIRS](#) project set out to accelerate their development by providing a common framework for their establishment and operation based on ‘one-stop shops’ for interested parties.

## A common business model tailored to each use case

UP-STAIRS' one-stop shops were designed to engage and educate the public about collective energy actions and to support cooperation between citizens and local authorities. The services and topics addressed in the [five pilot regions](#) were tailored based on targeted region profiles.

The [one-stop shops](#) provided information such as the potential costs associated with retrofitting a building and provided information about contractors who might carry out the work. They also shared advice about the formation and operation of energy communities and helped connect people who would like to create an energy community.

'Implementation champions' from UP-STAIRS partners, national energy forums, professional bodies or other organisations spearheaded the information and support services. According to project manager Lorena Sánchez Relaño of the International Energy Research Centre at [University College Cork](#): "The implementation champions were trained to train others, to guide and represent the energy communities and to identify opportunities where collective power could benefit all actors."

## One-stop shops exceed targets

The one-stop shops were highly successful, meeting all targets and exceeding them in many cases. Fifty percent more people became involved or engaged in advice and consultation than originally planned and it is estimated that UP-STAIRS generated double its targeted investment (about EUR 135 million in total).

Furthermore, "two pilots responded to interest by promoting and advising on photovoltaic (PV) energy installation, resulting in almost 80 MW of potential new PV installations. When included in expected energy savings, the project achieved almost six times more potential savings than originally expected," explains Pádraig Lyons, head of group at the International Energy Research Centre and project coordinator.

## Lessons learned

The pilots and analyses including targeted workshops with relevant stakeholders identified legislative and practical challenges that were similar across Europe. These included the absence of a community energy roadmap as well as minimal electricity operator engagement and support.

"Energy regulators need to ensure that distribution system operators (DSO) and similar entities have incentives to support the development of energy communities, especially RECs. They have tended to focus their DSO incentives on connecting larger commercial generators rather than smaller-scale community-based generators. This is currently a significant challenge for energy communities across the continent," notes Lyons.

Interestingly, in all pilot regions citizens chose personalised assistance over the UP-STAIRS digital platform, perhaps partially because they were mainly older individuals.

Overall, pilot one-stop shop activities assisted or inspired 321 energy communities. "The UP-STAIRS pilots confirmed that a trusted third party can support consumers in navigating renewable energy, energy efficiency, retrofits and community energy. Furthermore, UP-STAIRS outcomes suggest that one-stop shops are a cost-effective mechanism to accelerate the development of energy communities with benefits for all," concludes Lyons. Knowledge is power – greener power.

  
*The UP-STAIRS pilots demonstrated that a trusted third party can support consumers in navigating the worlds of renewable energy, energy efficiency, retrofits and community energy. The evidence from UP-STAIRS suggests that one-stop shops are a cost-effective mechanism to accelerate the development of energy communities with benefits for all.*

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### PROJECT

**UP-STAIRS – UP-lifting Communities: Structuring collective Action for Sustainable local Transition and Identifying Regulatory Solutions for adopting frontier technologies and disruptive business models**

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### COORDINATED BY

University College Cork - National University of Ireland, Cork in Ireland

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### FUNDED UNDER

Horizon 2020 - ENERGY

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### CORDIS FACTSHEET

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### PROJECT WEBSITE

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# CORDIS Results Pack

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