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TRAINING GUIDE

POWERING CITIZENS PROJECT

ENERGY POVERTY ADVISOR TRAINING

Comparative **R**esearch **N**etwork:

POWERING CITIZENS

Co-funded by the European Union

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Energy Poverty Advisor Training

POWERING CITIZENS

Empowering energy citizenship among energy-poor people through joint actions

PROJECT CODE: **101147083-POWERINGCITIZENS-CERV-2023-CITIZENS-CIV**

Published 2025 by Comparative Research Network e.V., Berlin

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BGF - Balkan Green Foundation (Kosovo)

ECREC - European Center for Researching, Education and Consulting (Netherlands)

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Cover picture: Small-scale hydropower plant (hydraulic turbines room), Image courtesy of Renpower Group Srl.

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Last update: 31st of May 2025

ISBN 978-3-946832-74-4

This eBook was edited and published in the framework of the 101147083-POWERINGCITIZENS-CERV-2023-CITIZENS-CIV

Co-funded by the European Union

SUMMARY

The POWERINGCITIZENS Training Course is designed to empower citizens, particularly young people, to understand, assess and take action on energy poverty. Combining theoretical knowledge with practical tools and engaging activities, the course equips participants to promote energy efficiency, engage meaningfully with vulnerable communities, and take part in discussions shaping local and national energy policies.

As a central element of the broader POWERINGCITIZENS project, the training supports the development of inclusive, sustainable energy communities throughout Europe. Delivered by a consortium of partners, Università Politecnica delle Marche (UNIVPM), Initialising Energy Balance Towards Zero (INZEB), Balkan Green Foundation (BGF), Environmental and Territorial Management Institute (ETMI), European Center for Researching, Education and Consulting (ECREC), and Comparative Research Network e.V. (CRN), the course is tailored to regional needs through both local and international sessions, ensuring relevance and accessibility for diverse audiences.

The accompanying Training Guide provides a comprehensive overview of the course's core concepts, methodologies, and hands-on tools. It features interactive learning modules, case-based activities, and adaptable lesson structures that reflect input from both trainers and participants. These flexible formats allow for easy customisation to fit different community contexts and learning environments.

All training materials, including localised versions, are freely available at poweringcitizens.eu. They serve as valuable resources for community leaders, educators, Non-Governmental Organisations (NGOs), and local authorities working to foster citizen-led energy initiatives and build resilient, equitable energy futures.

TABLE OF CONTENTS

LIST OF ACRONYMS

BGF	Balkan Green Foundation
CCS	Carbon Capture Storage
CEC	Citizen Energy Community
CfD	Contract for Differences
CRN	Comparative Research Network
DIISM	Department of Industrial Engineering and Mathematical Science
DSO	Distribution System Operator
EC	European Commission
ECREC	Stichting European Center For Researching, Education And Consulting
EEG	Renewable Energy Act
EIHP	Energy Institute Hrvoje Pozar
EIT	European Institute of Innovation and Technology
EnWG	Energy Industry Act
EPAH	Energy Poverty Advisory Hub
EPOV	European Energy Poverty Observatory
ERO	Energy Regulatory Office
ETMI	Environmental And Territorial Management Institute
ETS	Emission Trading System
EU	European Union
EV	Electric Vehicle
GETA	Gaming for Energy Transition of Rural Areas
GHG	GreenHouse Gas
H2020	Horizon 2020
HE	Horizon Europe
IEA	International Energy Agency
INZEB	Initialising Energy Balance Towards Zero
IRENA	International Renewable Energy Agency
IT	Information Technology
KIC	Knowledge Innovation Community
NECP	National Energy and Climate Plan
NES	National Energy Strategy
NFE	Non-Formal Education
NGO	Non-Governmental Organisation
OECD	The Organization for Economic Cooperation and Development

OER	Open Educational Resources
OSS	One-Stop-Shops
PITE	Plan for the Ecological Transition
PBL	Netherlands Environmental Assessment Agency
PV	Photovoltaic
REC	Renewable Energy Community
RED	Renewable Energy Directive
UBA	German Environment Agency
UNIVPM	Università Politecnica Delle Marche
V2G	Vehicle-to-Grid
VAT	Value Added Tax
VET	Vocational Education and Training
VZBV	Federation of German Consumer Organisations

1. INTRODUCTION

1.1. OVERVIEW AND OBJECTIVES OF THE POWERINGCITIZENS PROJECT

The POWERINGCITIZENS project empowers young people and vulnerable communities across Europe and the Western Balkans to tackle energy challenges through education, collaboration, and advocacy. Among them, energy poverty remains a pressing issue; by 2021, 6.9% of EU households were behind on utility bills, 6.4% could not maintain adequate indoor temperatures, and around 34 million Europeans were unable to keep their homes warm [1, 2].

This Training Guide supports the project's mission by providing practical tools and knowledge to foster energy citizenship and promote a just, inclusive energy transition. Developed in partnership with leading European institutions, the guide includes key strategies, activities, and training methods, such as workshops, energy cafés, and policy dialogues, that enhance community engagement and energy efficiency.

Special focus is given to underrepresented groups including single-parent households, elderly individuals, and rural youth. For example, the International Training Course in Ancona, Italy (January 14-16, 2025) equipped youth workers with practical skills to support energy-poor communities and implement local solutions.

Community involvement is central to the project's approach. By encouraging joint energy actions and participatory dialogue, POWERINGCITIZENS strengthens social inclusion and ensures that marginalised voices help shape energy policies. Also, the project aligns with European Youth Goals, particularly Sustainable Green Europe and Moving Rural Youth Forward, and contributes to the European Climate Pact by fostering grassroots action on climate and energy [3].

1.1.1. TARGET GROUPS

The project focuses on four key groups. The first group consists of young energy mentors, who might also include recent graduates and civil society members who receive training on energy poverty, social inclusion, and community engagement. The second group includes young energy-poor citizens, individuals living in social housing or rural areas who benefit from mentorship, educational resources, and community integration. The third group comprises energy-poor citizens, broader vulnerable populations who face barriers to participating in energy policy discussions and accessing affordable energy solutions. Finally, the fourth group refers to local and national policymakers, who can actively contribute to alleviating energy poverty by taking important actions such as implementing economic policies to reduce the financial burden of energy bills or incentivising energy efficiency interventions in buildings.

1.1.2. APPROACH

The project employs a comprehensive strategy to achieve its objectives. Educational initiatives provide tailored training programs to develop energy literacy among young people. Community dialogues, such as energy cafés and discussion forums, allow citizens to share concerns and learn about available support measures. Policy advocacy engages policymakers to recognise and address the differential energy needs of marginalised communities.

The POWERINGCITIZENS focuses on three key areas:

EDUCATION: Central to the project's approach is the development of tailored training programs aimed at enhancing energy literacy among young individuals. These programs equip participants with the knowledge and skills necessary to understand energy consumption, implement energy-saving practices, and effectively support energy-poor communities.

COMMUNITY: The project fosters community engagement through initiatives like energy cafés. These interactive events create spaces where local citizens can connect with experts, share their energy-related challenges, and collaboratively explore solutions by empowering individuals to voice their concerns, learn about available support measures, and participate actively in the energy transition process.

POLICY ADVOCACY: Recognising the importance of inclusive policymaking, POWERINGCITIZENS engages directly with policymakers to highlight and address the diverse energy needs of marginalised communities. The project advocates the inclusion of vulnerable groups, such as single-parent households, young people, and rural residents, in energy transition policies.

1.1.3. EXPECTED IMPACT

Through practical training, community engagement, and policy advocacy, POWERINGCITIZENS empowers young people to drive an inclusive energy transition across Europe, focusing on:

EMPOWERING YOUNG ENERGY AMBASSADORS: Tailored programs equip youth with skills to understand energy poverty, assess local needs, and support vulnerable groups through community-based solutions.

ESTABLISHING ENERGY ADVISORY TEAMS: Trained mentors and young people from energy-poor backgrounds deliver workshops and personalised guidance, promoting energy efficiency and awareness at the local level.

INFLUENCING POLICY-MAKING: Initiatives like energy cafés enable citizens to voice concerns; insights are compiled into policy reports presented to national authorities, ensuring grassroots perspectives shape legislation.

PROMOTING SOCIAL INCLUSION: The project actively involves marginalised groups—such as single-parent households, the elderly, and rural residents—in energy dialogues, enhancing equity and participation.

ALIGNING WITH EUROPEAN PRIORITIES: Supporting the European Youth Goals and the European Climate Pact, POWERINGCITIZENS advances social justice, sustainability, and youth engagement in line with EU goals [3].

1.1.4. PROJECT PARTNERS

UNIVERSITÀ POLITECNICA DELLE MARCHE - UNIVPM (ITALY)

UNIVPM participates in the project through the Department of Industrial Engineering and Mathematical Science (DIISM), which is part of the Faculty of Engineering. DIISM coordinates the Bachelor's and Master's degree programs in Mechanical Engineering and Industrial Engineering, supported by state-of-the-art laboratories and Information Technology (IT) facilities. Currently, DIISM is involved in more than 40 EU-funded projects, including Horizon 2020 (H2020), Marie Curie, and Erasmus+, as well as national and regional initiatives. UNIVPM is also a member of European Institute of Innovation and Technology (EIT) Climate-KIC, a Knowledge Innovation Community established by the EIT, which promotes knowledge sharing and innovation to address climate change and foster a sustainable society.

INZEB ASTIKI MI KERDOSKOPIKI ETAIREIA - INZEB (GREECE)

INZEB is a non-profit organisation dedicated to knowledge aggregation, documentation, and dissemination of energy-saving strategies in the building sector and the built environment. It has a strong track record in energy poverty mitigation, energy communities development (particularly for young people), and innovative financing for energy projects. INZEB actively engages youth and promotes societal participation to transform challenges into opportunities for sustainable growth. The organisation has been addressing energy poverty since 2016 through numerous reports and publications, including fighting energy poverty through innovation: challenges, opportunities, and solutions (2021) and fighting energy poverty through innovation: the challenges (2020).

BALKAN GREEN FOUNDATION - BGF (KOSOVO)

BGF is a regional organisation committed to fostering inclusive and sustainable development in the Western Balkans. BGF empowers citizens, especially vulnerable communities, to actively participate in the energy transition. Through regional initiatives, the foundation strengthens policies in key sectors such as sustainable energy, environment, and economy. Recognised as a

key strategic partner for regional and global institutions, BGF plays a crucial role in promoting sustainable development, advancing democratic participation, and ensuring the inclusion of young people in decision-making processes.

ENVIRONMENTAL AND TERRITORIAL MANAGEMENT INSTITUTE - ETMI (ALBANIA)

ETMI is dedicated to environmental and territorial management, collaborating with experts to promote sustainable development at regional, national, and international levels. The organisation conducts research and studies to facilitate the transfer of new technologies in areas such as renewable energy, conservation, and sustainable urban planning. ETMI actively engages youth through various national and international programs, empowering them to contribute to environmental solutions. With extensive experience in project planning and management, ETMI has successfully implemented numerous initiatives to encourage civic participation and address environmental challenges.

STICHTING EUROPEAN CENTER FOR RESEARCHING, EDUCATION AND CONSULTING - ECREC (NETHERLANDS)

ECREC promotes entrepreneurship and green innovation through research, training, and consultancy. Its team consists of experts with over 30 years of experience in energy, environment, and business development. The foundation provides training programs to diverse stakeholders, including young people, migrants, and social housing residents, focusing on employability, environmental protection, and innovation. ECREC also conducts research and consultancy on circular economy, renewable energy, and urban development, while supporting new business models in agriculture, energy, and water management. The foundation plays a key role in mentoring and evaluating projects, ensuring quality outcomes aligned with sustainability goals.

COMPARATIVE RESEARCH NETWORK - CRN (GERMANY)

Comparative Research Network e.V. (CRN) specialises in education, research, and civic engagement, working to inspire and empower individuals while raising environmental awareness. The organisation facilitates youth participation in intercultural learning and dialogue through non-formal education and international projects. CRN also fosters social cohesion by promoting discussions between local citizens and policymakers on diversity and democratic engagement. Through Erasmus+ and other EU programs, CRN helps young people access educational opportunities, develop professional competencies, and enhance employability. Its mission is to build a more inclusive and carbon-neutral society by supporting active citizenship and sustainable community development.

1.2. PURPOSE OF THE GUIDE

The Training Guide is a practical resource for trainers aiming to develop or replicate courses for young energy advisors. It draws on project findings, including research reports, surveys in the Balkans, and participant experiences, to offer a structured, community-based approach to tackling energy poverty. The guide supports educators in training youth to promote sustainable energy practices and assist energy-poor households.

It incorporates and refines indicators from the Energy Poverty Advisory Hub (EPAH) and introduces new ones for better local assessment. Developed by international partners, it includes best practices, adaptable modules, and interactive tools tailored to different socio-economic contexts. Emphasising participatory learning, the guide helps young advisors engage communities, conduct audits, and suggest cost-effective solutions.

Available as a free Open Educational Resource (OER), the guide is designed for long-term use in advancing energy justice and sustainability.

1.3. TRAINING AND ITS AIMS

The training program aims to equip young people with the knowledge, skills, and tools needed to address energy poverty in their communities. It fosters active citizenship and social inclusion through practical, community-based learning.

1.3.1. BACKGROUND AND OBJECTIVES

Through Non-Formal Education (NFE) methods, the training builds practical skills in energy management, community outreach, and intercultural communication. It aims to develop a network of informed youth leaders equipped to support vulnerable communities and drive inclusive, local energy solutions. Ultimately, the project fosters a citizen-led, bottom-up approach to energy justice, adaptable, scalable, and grounded in real-world needs.

1.3.2. TRAINING METHODOLOGY AND APPROACH

The training was conducted outside formal learning environments to maximise impact and accessibility. Participants were introduced to a variety of non-formal education methods, including group discussions, hands-on activities, and peer-to-peer learning. These activities promote intercultural dialogue and help participants develop key competencies such as teamwork, problem-solving, and organisational skills.

The POWERINGCITIZENS methodology emphasises inclusivity and adaptability, recognising the diversity of participants' backgrounds, experiences, and learning preferences. Trainers are encouraged to cultivate an environment of trust, openness, and mutual respect, where all voices are heard and valued. The POWERINGCITIZENS consortium partners consider it important to ensure the highest degree of engagement. Thus, the sessions are designed to be as participatory as possible, often involving co-creation exercises, simulations, real-life problem-solving scenarios, and reflective dialogue. The methodology adopted for the training program is carefully aligned with the project's overall objectives and is informed by a thorough needs assessment conducted during the proposal development phase.

1.3.3. DEVELOPMENT AND STRUCTURE OF THE TRAINING FORMAT

The training format was developed collaboratively by partner organisations, with UNIVPM taking the lead in designing and coordinating the production of training modules. This development process ensured that the training content remains context-sensitive and informed by diverse regional realities. Contributions from each partner enriched the materials with practical insights and case-based learning from across EU countries and the Western Balkans. Modules are structured around thematic pillars such as energy poverty diagnosis, citizen engagement, Renewable Energy Communities (RECs), and policy advocacy. Each module contains interactive components, real-world examples, and adaptable exercises, allowing trainers to customise the training experience based on participant profiles and local priorities.

To guarantee the quality and relevance, the training materials went through a series of reviews and refinements, followed by final adjustments based on the participants' and trainers' experiences. The final version of the training format is available on the project website poweringcitizens.eu, in English as well as partners' languages, to facilitate widespread implementation across different regions.

1.3.4. INTERNATIONAL TRAINING SESSION

The program featured an International Training Course in Ancona, Italy, bringing together representatives from different countries. Each participating country sent three participants, who took part in the energy mentors training. Each partner organisation conducted the participant selection process, prioritising transparency, gender balance, inclusivity, and considering criteria such as geographical proximity, interest in the energy sector, and, where possible, previous experience in energy-related fields. Special emphasis was placed on ensuring participation from underrepresented communities, including those living in rural areas, experiencing economic hardship, or belonging to minority groups. This targeted outreach reinforces the project's commitment to inclusivity. The project leader, CRN, was overseeing the selection process to ensure compliance with the established criteria.

Such international experience is not only educational but also fosters cross-cultural collaboration, allowing participants to exchange insights and best practices with peers from diverse backgrounds. The resulting network helps solidify a transnational movement for energy justice. Energy mentors trained during the international training course later facilitated local training sessions in their respective communities, engaging citizens across multiple countries.

Ongoing mentorship and post-training engagement strategies are implemented to maintain momentum after the sessions conclude, encouraging participants to take initiative in their communities and contribute to a shared repository of tools and stories.

1.3.5. TRAINING IMPLEMENTATION AND EXPECTED OUTCOMES

Following the International Training Course, each partner organisation implemented local training sessions to extend the program's reach. These sessions focused on equipping additional advisors from vulnerable communities with the skills needed to address energy poverty effectively. This practical orientation is critical in bridging the gap between knowledge and action. Participants engaged in field-based exercises and collaborative assessments, learning to tailor energy-saving solutions to varied socio-economic and geographic contexts.

Following the local trainings, the energy advisors are equipped to provide tailored energy advice to their communities, offering personalised recommendations for energy efficiency and cost-saving strategies. To further extend outreach, the project partners will organise energy cafés, which are citizens-centered public events creating inclusive spaces for dialogue and reducing stigma around energy-related challenges.

1.3.6. LOCAL TRAINING STRATEGIES

The local training sessions were designed to transfer the knowledge and skills gained during the international training to communities across partner countries. To ensure relevance and impact, each partner tailored the training structure to fit local conditions, addressing specific energy challenges, community needs, and cultural contexts. This adaptive approach allowed for greater inclusivity and effectiveness in reaching vulnerable groups. In the following sections, each partner outlined how the proposed general structure was customised to their local realities, the reasons behind these adjustments, and the outcomes of these modifications. This iterative process, guided by participant evaluations, was crucial in shaping the final version of the training, ensuring it is both practical and community-centered. Moreover, ETMI and BGF have conducted an energy poverty assessment on specific, vulnerable areas in Albania and Kosovo, respectively, by using EPAH indicators and new ones proposed in the POWERINGCITIZENS project. In particular, the energy poverty mentors applied the knowledge and methodology gained in the International Training Course in Ancona to assess energy poverty and train local, rural youth.

ITALY (UNIVPM)

UNIVPM has conducted five local training sessions in high schools (each lasting two hours) and one local training session at the university for Erasmus students (six hours). Compared to the International Training Course held in Ancona in January 2025, the local training sessions were adapted and redesigned to suit the target audience. Specifically:

LOCAL TRAINING IN HIGH SCHOOLS: The target audience consisted of high school students, who generally have no prior knowledge of the energy sector. To ensure their understanding of the topics covered in POWERINGCITIZENS, the training was simplified to provide essential knowledge, enabling students to develop awareness of energy poverty and cultivate critical thinking on potential solutions. Student interaction was a key component, encouraging them to reflect on the issue and propose possible measures for its alleviation. At the end of the training, an online quiz, specifically designed in the Kahoot format, was introduced, which generated enthusiasm and active participation among the students.

LOCAL TRAINING AT THE UNIVERSITY FOR ERASMUS STUDENTS: The target audience for this training consisted of students from various countries who were attending UNIVPM for a semester or internship. Within the course, some Italian Ph.D. students from UNIVPM have participated as well. Given their diverse backgrounds, the training structure was adapted to account for different national contexts, as each country experiences energy poverty at varying levels with specific challenges to address. While the core content remained the same, focusing primarily on the situation in Italy rather than in other project partner countries, a significant portion of the training was dedicated to interactive discussions between trainers and students, as well as among the students themselves. This exchange was crucial in broadening the understanding of energy poverty beyond the EU, extending the discussion to non-EU countries such as Serbia and Ukraine. By engaging in these discussions, participants not only deepened their awareness of global energy poverty issues but also gained insights into solutions that have been implemented in certain countries but not yet in their own. This outcome is particularly impactful, as students return to their home countries equipped with valuable knowledge that can be applied locally. In turn, this helps extend the reach of the POWERINGCITIZENS project and fosters potential future collaborations, contributing to a more objective and comprehensive approach to energy poverty assessment.

ALBANIA (ETMI)

ETMI organised a two-day local training session at the Atelie Center in Shkodër focusing on the topic of energy poverty and empowering citizens through joint actions in the energy sector. The activity was held with the participation of students from different age groups, mainly from high schools.

Since the participants had limited prior knowledge of the energy sector and issues related to energy poverty, the structure of the training was carefully adapted to provide basic and

accessible information. The aim was to raise awareness and encourage critical thinking on these topics, engaging participants in a simplified, yet meaningful learning process. The training was planned and delivered in a simplified format from the originally proposed one, specifically to better suit the target group and their level of understanding of the topic.

During the first day, participants were introduced to the project and the concept of energy poverty, relevant indicators, and the influencing factors. Group discussions and individual work focused on electricity usage, satisfaction regarding energy needs, and its impact on household budgets. At the end of the training session, the young participants had the opportunity to express their ideas about their "dream home" in terms of energy efficiency.

The second day focused on the topic of energy efficiency and measures for saving energy at home. This day focused more on group work, where participants shared their experiences and discussed possible future measures, including investments in high-energy-performance buildings. The activity concluded with the completion of evaluation forms, collecting feedback from participants to improve similar future activities.

During the third day, the young energy advisors, who were guided by Edona Lekaj from ETMI, carried on the energy poverty assessment in three administrative units of the Municipality of Shkoder in coordination with the local, rural youth. The assessment included at least 50 households that actively shared their concern and feedback on the energy situation of their families. The ETMI staff further analysed the outcomes from the questionnaires and shared them on social media, which will then be used to further influence policies for energy poverty alleviation.

GREECE (INZEB)

INZEB organised a five-hour local training session in Athens, gathering 14 participants, mainly university students but also individuals from other backgrounds interested in energy issues. The training focused on energy poverty, energy efficiency, and citizen empowerment within the energy transition.

The session was designed to be interactive and accessible, given the diverse knowledge levels among participants. It began with an introduction to the POWERINGCITIZENS project and an overview of energy poverty, including its key indicators and social impacts. Particular attention was given to the Greek context, discussing factors influencing energy poverty and available support mechanisms.

To bring a practical perspective, representatives from the Municipality of Athens were invited to present the work of the Athens Energy Poverty Alleviation Office and the Athens Energy Portal. This segment allowed for an open discussion with participants, who raised questions and exchanged ideas on local initiatives and citizen support structures.

Additionally, a presentation was delivered on the recent diagnosis process of energy poverty in 20 municipalities across Greece. This diagnosis, implemented by INZEB as part of the technical assistance supported by the EPAH, offered valuable insights into the current situation, challenges, and opportunities for addressing energy poverty at the local level. Sharing real diagnostic results helped participants understand the importance of data-driven planning and evidence-based policymaking.

The training concluded with group reflections on strategies to promote energy efficiency and address energy poverty at the community level, with participants expressing a strong interest in further engagement through municipal programs and citizen-driven actions.

KOSOVO (BGF)

BGF hosted a full-day training in Prishtina, gathering 28 engaged young people (aged from 18 to 30 years old) from across Kosovo to critically explore the intersecting dimensions of energy poverty, energy efficiency, energy communities, and just transition. Framed within the broader objectives of the POWERINGCITIZENS project, the event aimed to shift public discourse away from depoliticised energy debates and toward the systemic inequalities embedded within Kosovo's current energy system.

The training responded to an urgent reality: Kosovo remains structurally dependent on polluting lignite coal, hampered by ageing infrastructure and an underdeveloped renewable energy sector. Without institutionalised social protections or regulatory accountability, this dependency manifests not only as an environmental concern but as a deepening social crisis. For rural families, particularly rural women, low-income households, and informal workers, energy poverty means more than financial strain: it signifies exclusion from the right to a dignified life. The training sought not only to inform but to problematise energy issues, positioning young people as critical actors in envisioning and shaping more equitable energy futures.

Of the five-session training, two sessions were delivered by Kosovar energy advisors who had previously participated in the International Training Course in Ancona, Italy. Their contribution brought new critical perspectives, well-researched materials, and grounded experience into the conversation.

The first session offered a systemic overview of Kosovo's energy sector, critically highlighting how institutional inaction and reliance on short-term solutions have left citizens increasingly exposed to energy insecurity. The lack of public investment in efficiency measures and grid decentralisation was framed not just as a technical failure, but as a form of structural neglect.

The second session provided an analysis of energy efficiency policies and practices, or more accurately, the lack thereof. Participants discussed how energy inefficiency deepens social inequality, especially in under-resourced municipalities where public infrastructure is already compromised.

The energy poverty session situated energy poverty as a socio-political issue, rather than a purely economic one. Drawing on both regional research and lived realities, an important highlight of this session was the presentation of the Kamenica case study, which illustrated how energy poverty materialises on the ground. Based on the conducted survey, the study traced how families in Kamenica experience seasonal energy deprivation, and how this intersects with individual and family incomes, housing quality, heating options, energy efficiency, and municipal-level policy gaps. The case study served as a concrete entry point for imagining place-based solutions and participatory energy governance.

Gender inequities in the Energy and Environmental Sector session grounded energy policy in feminist political economy, offering a structural critique of how gendered labour divisions and care burdens intersect with energy exclusion. It highlighted the disproportionate impact of energy poverty on rural women, single mothers, and women in informal or unpaid labour, particularly in winter months when caregiving becomes more energy-dependent. The discussion emphasised the urgent need to embed gender-responsive budgeting and planning into energy strategies and to challenge the male-dominated nature of both policymaking and the energy workforce.

The training culminated in a facilitated debate and idea lab, where participants synthesised the day discussions into tangible proposals. Youth participants emphasised the need for:

- Decentralised energy planning with municipal participation.
- Legal recognition of energy poverty as a category of vulnerability.
- Targeted subsidies and social protection schemes.
- Legal reforms to support energy communities and prosumers.
- Gender audits in national energy planning.

Rather than treating young people as passive recipients of knowledge, this session reaffirmed their role and agency as active creators of vision, critique, and substantive alternatives.

NETHERLANDS (ECREC)

The training organised by ECREC in The Hague followed a participatory, inclusive and context-sensitive methodology, inspired by both best practices in non-formal education and the specific needs of Dutch youth affected by energy poverty. The programme was designed to strike a balance between providing theoretical knowledge and stimulating practical reflection and personal engagement. To create a safe and welcoming environment, the day started with informal introductions and interactive icebreakers. The facilitators introduced the goals of the POWERINGCITIZENS project and the importance of citizen involvement in addressing energy poverty. A key objective was to move away from abstract policy language and instead use personal experiences, practical tips, and local context to make the topic tangible. The training relied on a mix of short presentations, group discussions, lived-experience exercises, and a quiz to reinforce key messages. Participants were encouraged to reflect on their energy habits and challenges, and to co-develop localised solutions.

The training session was delivered successfully. The participants also engaged in a facilitated group discussion about energy use in their homes, levels of comfort, and common frustrations (e.g. high bills, cold rooms, etc.). A short presentation on the Dutch energy context and European policy frameworks provided essential background. This was followed by small group activities focused on identifying specific barriers and potential solutions in participants' neighbourhoods. These activities led to rich exchanges and some early ideas for local actions. One of the most engaging elements was the energy poverty quiz, which offered a playful yet educational moment. Participants answered multiple-choice questions that tested their understanding of the causes, consequences, and possible remedies for energy poverty. The training concluded with a plenary reflection session in which participants shared personal insights, moments of recognition, and possible next steps.

GERMANY (CRN)

The training conducted by CRN was addressed to an international group of master's program students and civic service volunteers. Most of the participants had no prior knowledge about the energy systems in Europe. The programme focused on the introduction to energy transition, energy poverty, and the role of communities in sustainable solutions. The materials from the international training were shortened and adapted to the participating group's knowledge. The session began with a welcome and introductory activities, followed by presentations on the project's objectives, energy statistics in Europe, and the role of women in the energy sector.

Next, a hands-on group exercise allowed participants to analyse a chosen country's energy situation using real-time data, exploring aspects like energy production, supply, emissions, and electricity generation. The training also included an interactive AnswerGarden activity to gather perspectives on energy poverty, its causes, and who should take the lead in addressing it. Participants then worked in groups to analyse energy challenges in specific locations, brainstorm solutions, and assess the potential role of RECs. Both group activities utilised the worksheets available in this guide. The training concluded with a presentation of group findings, discussions, and an evaluation session.

1.3.7. TRAINERS' EXPERIENCES

INTERNATIONAL TRAINING COURSE

The International Training Course was a key initiative within the POWERINGCITIZENS project, aimed at fostering active energy citizenship among communities, with a special focus on individuals experiencing energy poverty. Spanning three days, the course provided a comprehensive, interdisciplinary approach to understanding the complex interplay between energy production, distribution, policy, and social equity. The course was structured to gradually

build participants' knowledge and capacity, enabling them to become engaged actors in the energy transition processes both at the local and European levels.

The trainers who took part in the International Training Course shared an overall very positive experience. They observed that trainees were, for the most part, highly engaged throughout the sessions. Most participants actively contributed to discussions and group activities, though some trainers noted that the level of participation varied among individuals, depending on their background knowledge and language skills. Methods such as group discussions, case studies, role-playing exercises, and hands-on activities were seen as particularly effective in fostering engagement and helping trainees connect theoretical knowledge with practical application. Additional elements, like the use of "fun facts" and digital tools, also contributed to creating a more dynamic learning environment. Despite these successes, trainers identified some barriers to participation, especially related to different levels of English proficiency and varying prior knowledge of technical topics. Digital access issues, however, were not reported as significant obstacles.

The training structure itself received strong praise, with trainers agreeing that it was well-organised, easy to follow, and provided clear guidance for delivering the content. The materials were regarded as useful and well-designed, although some trainers suggested improvements. These included shortening some presentations to maintain attention levels, increasing opportunities for digital interaction, and ensuring a more cohesive and professional visual style in the materials.

In terms of learning outcomes, trainers felt that trainees successfully grasped the key concepts presented during the course. Topics such as energy typologies, RECs, and broader energy transition principles were relatively easier for participants to understand. However, trainees struggled more with highly technical subjects, like the specific characteristics of renewable technologies, as well as complex social issues such as energy poverty and related policy discussions. While many trainees reported feeling confident about stepping into the role of energy mentors, a significant number expressed only moderate confidence, highlighting the need for additional support. Based on these observations, trainers strongly recommended providing more hands-on training opportunities, ongoing mentorship and coaching, and easy access to digital resources and tools to help trainees consolidate their learning after the course.

Several trainers also identified standout individuals who demonstrated strong potential to become effective energy mentors. The duration of the training was considered appropriate by most trainers, though one comment suggested that, given the density and intensity of the material, the schedule might have been demanding for some trainees. Throughout the course, trainers adapted their methods based on real-time observations: they increased the use of interactive and non-formal education methods, provided additional explanations where prior knowledge was lacking, and prioritised peer learning and practical exercises to deepen understanding.

In their final reflections, trainers expressed their appreciation for the organisation and effort put into the course, particularly acknowledging the contribution of the coordination team. Their feedback not only confirmed the overall success of the training but also provided clear directions for future improvements. The emphasis on maintaining trainee engagement, offering ongoing post-training support, and refining materials and methodologies will ensure that the next editions of the course are even more effective in preparing a new generation of skilled and confident energy mentors.

LOCAL TRAININGS

ITALY (UNIVPM)

Delivering the POWERINGCITIZENS local trainings in Italy was an insightful and engaging experience. The feedback collected from the Italian sessions of the POWERINGCITIZENS training program provided valuable insights into the experience and effectiveness of the course delivery. Based on survey responses, the average trainee engagement score was 3.5 out of 5, indicating a moderate to high level of participant involvement. Similarly, the average score reflecting trainees' grasp of key concepts also stood at 3.5, suggesting a fair level of understanding, with some room for improvement. Non-formal education methods, such as interactive activities, practical exercises, and peer learning, were particularly appreciated, earning a high effectiveness rating of 4 out of 5. This demonstrates that such methods played a significant role in enhancing trainees' learning experiences. Regarding confidence in taking on the role of energy mentors, responses were split: one respondent felt "somewhat" confident, while the other expressed full confidence, reflecting differing levels of readiness among participants. A notable barrier identified was a lack of prior knowledge among some attendees, although another respondent reported no barriers at all, suggesting mixed backgrounds and preparedness. The training materials, including worksheets and presentations, received an average usefulness score of 4, indicating they were generally well-designed and helpful. Overall, the Italian sessions appear to have been effective, with engaged participants and a positive response to both the training content and format, while also highlighting areas where additional support or refinement could further enhance future sessions.

One of the most valuable aspects of the trainings was the working group session. Trainees were encouraged to analyse real-life energy poverty issues in different regions, identify key problems, and propose solutions that could be applied in practice. This collaborative exercise not only enhanced their understanding of energy communities and potential role in addressing energy poverty but also encouraged teamwork and problem-solving.

ALBANIA (ETMI)

The training began with a brief introduction to the POWERINGCITIZENS project and its objectives. Our goal was to create a friendly and collaborative environment, so we started with a simple overview explaining what energy poverty is and why it is an important issue for our communities. The most dynamic part of the session was the group discussion on household energy use, how satisfied participants felt with indoor temperature, lighting, or air quality. This section generated a lot of interest, as participants began comparing experiences and becoming more aware of issues they may have previously considered normal.

The feedback collected from the sessions in Albania provided valuable insights into the training experience and the effectiveness of its delivery. According to survey responses, participation was interactive. It became clear that the most effective method for keeping participants engaged was through practical examples.

Trainers expressed that the format of the training was well-structured and easy to understand, and participants were able to grasp key concepts throughout the sessions. The duration of the training was considered sufficient for the planned content. Training materials and presentations were evaluated as useful and well-designed.

In conclusion, trainers recommended offering additional support to participants through more practical training activities and simulations, in order to reinforce learning and increase their confidence in taking on the role of energy mentors.

GREECE (INZEB)

The training was hosted in Athens and gathered 14 participants, mainly students, but also individuals from diverse backgrounds, creating a dynamic and engaging learning environment. Given the participants' varied levels of familiarity with the topic, the training structure was designed to be accessible, using clear explanations, real-life examples, and interactive discussions. A key highlight of the training was the participation of representatives from the Municipality of Athens, who presented the municipality's initiatives for alleviating energy poverty, including the Energy Poverty Alleviation Office and the Athens Energy Portal. This practical example helped participants understand how local authorities can play a pivotal role in supporting vulnerable groups. Additionally, a presentation was delivered on the recent diagnosis process of energy poverty in 20 municipalities across Greece. This diagnosis, implemented by INZEB as part of the technical assistance supported by the EPAH, offered valuable insights into the current situation, challenges, and opportunities for addressing energy poverty at the local level. Sharing real diagnostic results helped participants appreciate the importance of data-driven planning and evidence-based policymaking.

From the trainer's perspective, the group was enthusiastic, curious, and responsive, which greatly contributed to the dynamic of the session. The trainer observed that the mixture of

students and participants from other backgrounds created richer discussions, as diverse viewpoints were brought into the conversation. While the overall level of knowledge at the start of the training varied significantly, the trainer felt that by the end of the session, there was a clear improvement in the participants' grasp of key concepts related to energy poverty, energy efficiency, and citizen empowerment.

In conclusion, the Greek training successfully combined theoretical knowledge, real-world practices, and interactive learning approaches. Both participants and trainers agreed that such trainings are vital in building a new generation of informed and active citizens who can contribute meaningfully to addressing energy poverty and promoting a just and inclusive energy transition in Greece.

KOSOVO (BGF)

The training was organised into five in-depth sessions, each designed to question the multi-layered nature of energy systems in Kosovo, moving from sectoral overviews to intersectional critiques and civic energy alternatives. The format prioritised dialogue, collective learning, and critical analysis.

From the trainer's perspective, the experience was both intense and deeply rewarding. The structure of the sessions allowed space for honest, often difficult conversations, especially when participants began connecting policy failures to their own communities and lives. The presence of local energy advisors brought a groundedness that shifted the tone from abstract critique to practical urgency, and their interventions often sparked moments of recognition and resonance among participants.

What stood out most to the trainer was the way young people claimed the space: not just as learners, but as active thinkers and challengers. They were not afraid to push back, question narratives, or bring their own stories into the room. By the end of the training, it was clear that many participants were leaving not just with new knowledge, but with a sharpened sense of purpose and a clearer idea of how they might act on the issues discussed.

NETHERLANDS (ECREC)

From the perspective of the ECREC trainers, the session was both inspiring and instructive. The diversity of the group, in terms of background, knowledge level, and personal connection to the topic, brought depth and richness to the discussions. Trainers noted a strong sense of openness and curiosity among participants and were particularly moved by how quickly a sense of trust was established.

The interactive methods, such as personal storytelling and group brainstorming, worked well to keep participants engaged. Trainers did have to adapt the timing on through improvising due to

initial delays, but the flexibility of the format allowed this. One challenge observed was the wide range in energy literacy among participants. Some of them were already familiar with basic concepts, while others needed more foundational explanation. This highlighted the importance of adaptable content and scaffolding information.

In the end, the trainers came away with a sense of accomplishment and optimism. They emphasised the importance of follow-up engagement to maintain momentum and build on the energy and ideas sparked during the session.

GERMANY (CRN)

CRN observed that the participation during the local training sessions was mixed, while some trainees were actively engaged, especially during practical exercises, others remained more passive. There were minimal barriers to participation. One trainee had limited English skills, but this was mitigated by the presence of common languages within the group, allowing full participation in group activities. However, some trainees seemed overwhelmed by the volume and complexity of information. Methods that proved most effective in maintaining engagement included case studies, and the use of digital platforms. Interactive and hands-on activities were particularly successful in encouraging involvement and deepening understanding.

In terms of structure and content delivery, the training format was generally clear and easy to follow. One trainer noted that while the structure was sound, certain parts could benefit from further clarification or adjustments to better align with participants' knowledge and interests. However, which topics require more or less emphasis can vary depending on the group and often cannot be determined in advance. The training was rated highly for helping trainees grasp key concepts, with scores of 4 and 5 out of 5. Topics like EU energy policies and country comparisons were easier for trainees to understand, while more detailed content proved more challenging. Non-formal education methods were found to be effective, with trainers giving high ratings for their ability to improve understanding. Trainees showed moderate confidence in applying tools to assess energy poverty and in stepping into the role of energy mentors. The duration of the training was seen as sufficient for the planned content, though not enough to explore some topics in greater depth. Training materials, such as worksheets and presentations, were rated highly in terms of usefulness and design. Finally, trainers recommended additional support for trainees in the form of more hands-on training, ongoing mentorship and coaching, and follow-up sessions to reinforce learning and build confidence in their roles as energy mentors.

1.3.8. PARTICIPANTS' FEEDBACK

INTERNATIONAL TRAINING COURSE

The International Training Course received highly positive feedback from participants, reflecting a well-structured, engaging, and effective learning experience. Based on both quantitative and qualitative responses, the training appears to have succeeded in fulfilling its educational objectives while also fostering interaction and enthusiasm among participants.

A significant portion of the respondents, 58.3%, agreed that the training objectives were clearly defined, with 41.7% strongly agreeing. This indicates that almost all participants entered the training with a clear understanding of its purpose and expected outcomes. The clarity of objectives likely contributed to the strong sense of focus and engagement observed throughout the sessions.

The training content was praised for its logical structure and ease of comprehension. Half of the participants (50%) strongly agreed and 33.3% agreed that the content was organised and easy to follow. Although a small minority expressed neutrality (8.3%) or disagreement (8.3%), the overall impression was largely favourable.

Regarding the relevance of the topics covered, 50% of participants strongly agreed they were both interesting and useful, while an additional 33.3% agreed. The inclusion of real-world case studies and the ability to interact with subject-matter experts, such as the guest speaker from Greece, further enhanced this aspect, as noted in the open-ended feedback.

Time management was another strong point. A balanced 41.7% agreed and 41.7% strongly agreed that sufficient time was allowed for each topic. This feedback suggests a well-paced program that avoided overwhelming participants while allowing ample time for reflection and discussion.

An especially well-received element of the training was its integration of theory and practice. 66.7% of respondents strongly agreed that there was a good mix of theoretical content and case studies. This alignment with adult learning best practices was further echoed in comments highlighting the engaging nature of the workshops and collaborative group work.

In terms of delivery methods, 50% of participants agreed and 33.3% strongly agreed that the instructional approaches, such as lectures and PowerPoint presentations, were appropriate for the training context. Participants also appreciated the clarity of language used throughout the sessions, with 58.3% agreeing and 41.7% strongly agreeing that the vocabulary was easy to understand.

Trainer performance was another high point. Half of the participants (50%) strongly agreed that the trainers were knowledgeable, and 58.3% said the trainers' enthusiasm helped keep them

engaged. The materials were similarly well-received: 50% of participants strongly agreed that the presentation of content helped facilitate learning, with an additional 41.7% agreeing.

Feedback on logistics was also largely positive. The meeting facilities were found adequate and comfortable by 58.3% of participants who strongly agreed, and 33.3% who agreed. Catering arrangements were particularly well-received, with 75% strongly agreeing that the food and refreshments were of a good standard.

Qualitative feedback offered further insight into what participants valued most. Respondents cited interactivity, real-life examples, dynamic case studies, and the opportunity to network with peers from across Europe as highlights of the experience. Specific praise was given to the trainers' clear communication and engaging style, which contributed to maintaining a lively and immersive atmosphere.

As for areas of improvement, responses were relatively few and minor. Some participants suggested increasing interactivity, simplifying explanations in certain presentations, or enhancing the practical application of theory. A few comments pointed to the need for more dynamic sessions or slightly shorter overviews, particularly those covering broad policy frameworks.

LOCAL TRAININGS

ITALY (UNIVPM)

Attending the POWERINGCITIZENS local trainings at UNIVPM was an enriching experience that allowed the trainees to deepen the knowledge of energy poverty and actively participate in discussions about sustainable energy solutions. The well-structured sessions provided both theoretical insights and practical exercises, making the learning process highly engaging.

The training evaluation responses suggested an overall positive experience among participants, with certain aspects standing out more than others. Approximately 45% of respondents agreed that the objectives of the training were clearly defined, while an additional 24% remained neutral, and around 10% disagreed. This indicates that although many found the training's goals to be well communicated, there remains a notable portion of participants who felt uncertain or unconvinced by the clarity of the objectives.

The organisation and accessibility of the training content were received quite favourably. Nearly 43% of respondents agreed that the material was organised and easy to follow, with an additional 30% indicating strong agreement. Only a small minority, around 7%, disagreed. The topics themselves were also appreciated, with over 63% of participants affirming their relevance and usefulness, while only one individual expressed dissatisfaction.

When it came to the time allocated to each topic, 50% of participants felt it was sufficient, while 36% remained neutral, and a small portion, roughly 13%, disagreed. The balance between theoretical content and practical case studies was also positively perceived, with about 43% agreeing and an additional 18% strongly agreeing. These responses reflect a general satisfaction with the structure and rhythm of the sessions.

In terms of delivery methods, including lectures and visual aids, 46% agreed they were appropriate, and 25% strongly agreed. A similar trend was observed regarding how these methods assisted learning: about 47% agreed, while another 12% strongly agreed. This reflects that most participants found the delivery style to be supportive of their understanding.

The clarity of language used during the course was positively noted by 50% of participants, with an additional 28% expressing strong agreement. Trainer competence was clearly recognised, with 47% acknowledging the trainers' knowledge and another 22% strongly agreeing. The trainers' enthusiasm was slightly less emphatically praised, with about 36% agreeing and 27% strongly agreeing, but still reflected an overall sense of engagement.

As for logistics, about 50% of respondents found the meeting facilities adequate and comfortable, with nearly 22% expressing strong agreement. Catering services received a similar response: roughly 44% agreed with their quality, and another 25% strongly agreed. A small minority expressed dissatisfaction, particularly with catering, where 6% strongly disagreed.

Qualitative feedback further supports the overall positive trend. Many respondents appreciated the interactive elements of the training, especially the group work and exercises. Comments such as "I really enjoyed the group work," "The training brought new insights," and "Active engagement in topic" reflect a preference for hands-on, collaborative experiences. Conversely, suggestions for improvement included requests for more discussion time, more entertaining delivery, and minor logistical tweaks such as better time management or calendar reminders. A few responses indicated that all aspects needed improvement, while others stated there was nothing they would change.

ALBANIA (ETMI)

The feedback collected from participants showed a very positive evaluation of the training, particularly regarding its structure, delivery method, and the encouraging atmosphere created by the trainers. The majority of participants emphasised that the training objectives were clearly defined and that the content was well-organised and easy to understand. The topics covered were considered engaging and valuable, perceived as relevant to the context and real challenges faced by the community.

91.7% of participants rated the teaching methods used, including lectures and group work as appropriate and supportive, while 8.3% expressed a neutral opinion. The language and vocabulary used during the training were generally perceived as clear and easy to understand.

The majority of participants stated that the materials used contributed positively to their engagement and involvement throughout the training. Participants also expressed very positive comments regarding the trainers. 91.7% stated they “strongly agreed” and 8.3% “agreed” that the trainers demonstrated deep knowledge, high motivation, and created an engaging and supportive learning environment. The way materials were presented was also seen as a helpful element in facilitating and enhancing the learning process.

In conclusion, participants stated that the training went well overall and that they received useful information throughout. One particularly appreciated aspect of the training was the development of group work and discussions, which participants considered an effective way to stay engaged and active during the sessions.

GREECE (INZEB)

The POWERINGCITIZENS local training in Athens, Greece, gathered 14 participants, including students and citizens from various professional backgrounds. Participants’ evaluations were collected at the end of the session and covered key aspects of the training experience:

Approximately 80% of participants agreed or strongly agreed that the training objectives were clearly communicated from the beginning. This clarity helped maintain focus and understanding throughout the session. Around 75% of participants agreed that the methods used, mixing lectures, discussions, case study presentations, and questions and answers, were well chosen and supportive of achieving the training objectives.

About 70% of the participants agreed that the combination of theory and real examples (e.g., the municipal diagnoses) helped them better understand the complexity of energy poverty and possible solutions while 85% of participants strongly agreed or agreed that the language and terminology used were accessible, even for those who were new to energy topics. Trainers made efforts to simplify concepts without oversimplifying the challenges.

90% of participants noted the trainers’ enthusiasm and engagement during the session, helping to keep attention levels high over the five hours and 100% of respondents agreed that the trainers demonstrated deep knowledge of the subject matter, and appreciated the inclusion of real project examples (e.g., the EPAH technical assistance in Greek municipalities). Regarding the materials, about 80% of participants found the training materials, including presentations and discussion guides, to be logically organised, easy to follow, and relevant to the session content.

Participants praised the strong practical dimension of the training, especially the sharing of real-world experiences from municipalities. They expressed interest in future, longer workshops that include more group exercises and role-playing activities. From the trainer's perspective, the group showed high motivation, asked thoughtful questions, and benefited greatly from the real examples presented. A small suggestion from participants was to integrate even more interactive elements in future sessions to further boost engagement.

KOSOVO (BGF)

The participants brought their authenticity and curiosity into conversations that rarely center youth. The evaluation data collected from the participants not only speaks to the effectiveness of the program's content and structure, but also reveals something more vital: how knowledge, when rooted in context and care, can spark critical reflection, shared purpose, and a sense of agency.

A majority of the participants, over 70%, felt that the objectives of the training were communicated clearly from the outset. There was a strong sense that the sessions were not just informative but purpose-driven. The facilitators and energy advisors, including those previously trained in Ancona, employed practical tools like interactive presentations, locally relevant examples, and storytelling to connect broader policy issues with everyday energy challenges. As one participant put it in local slang, the language was "down-to-earth, accessible, and relatable".

Participants responded particularly positively to the sessions on energy poverty, energy efficiency, and energy communities. The integration of the Kamenica case study grounded abstract concepts into lived realities, showing how energy vulnerability is experienced differently across communities in Kosovo. Many participants emphasised how the discussions helped them connect systemic issues, like the absence of a public safety net in energy policy, to the structural barriers marginalised groups face. Nearly 67% said that the learning methods used helped them better conceptualise and internalise the issues, especially where civic participation intersects with sustainability.

Participants were moved not only by the information shared but also by the people delivering it. More than three-quarters of the group described the trainers as both highly competent and passionate. The environment encouraged curiosity, challenged assumptions, and opened up room for critical thinking.

Beyond content, the comfort and atmosphere of the training played a big role in shaping participant impressions. The training space was seen as accessible and well-equipped, with 83% affirming it provided a good environment for focus and engagement. Food and logistics also received strong positive feedback, contributing to a well-rounded experience that respected participants' needs and time.

As one participant noted informally, *"Qekjo nuk po doket veç një trajnim, po ma shumë si një bisedë që na përket neve."* ("This does not feel like just a training; it feels more like a conversation that belongs to us.").

What Emerged: Suggestions and Seeds for Future Action.

In their open feedback, several participants expressed a desire for more time to explore specific topics in depth, such as the role of municipalities in energy transitions or how youth can shape legal frameworks for community energy. Others suggested improvements in air circulation or

seating setup, minor but important notes that reflect a level of care and attentiveness from the group.

What is most striking, however, is the shared sense of possibility that emerged throughout the day. The participants were not just absorbing information, they were making connections, asking bold questions, and, crucially, envisioning themselves as part of the solution.

NETHERLANDS (ECREC)

The training offered participants a structured blend of theoretical learning and practical activities, successfully fostering awareness and engagement around energy poverty and sustainable energy transitions.

Feedback from the post-training evaluation confirms the program's strong impact. A majority (60%) of participants agreed that the training objectives were clearly defined, with 25% expressing strong agreement. Nevertheless, 15% remained neutral, suggesting that while the majority understood the goals, there is room to improve how these objectives are conveyed.

In terms of content delivery, approximately 60% of participants found the materials to be well-organised and easy to follow, and an additional 30% strongly agreed, highlighting a high level of satisfaction with the structure. Most respondents (90%) found the topics useful and engaging, although a minority (15%) expressed dissatisfaction.

The balance of time allocated across different subjects was viewed positively by 60% of participants, while 25% remained neutral. The mix between theoretical content and case studies received moderate approval: 35% agreed it was well-balanced, with only 10% strongly agreeing and 15% disagreeing, indicating that future iterations might benefit from a clearer or more dynamic integration of theory and practice.

As for the delivery methods, such as lectures and visual presentations, 60% of participants found them appropriate, and 20% strongly agreed. Learning support was equally well-received: nearly 50% felt the delivery methods aided their understanding, although 45% were neutral, suggesting this is another area where enhancement is possible.

Language clarity was a strong point: over 60% of respondents agreed or strongly agreed that the terminology used was easy to comprehend. Trainer expertise was consistently acknowledged, more than 80% of participants felt the trainers were knowledgeable and enthusiastic, with 45% specifically praising their passion and ability to sustain interest.

Logistical aspects such as venue comfort and catering services received particularly high marks. About 85% of attendees found the facilities adequate, with a similar percentage praising the quality and sufficiency of the catering. These practical considerations played a role in creating a pleasant and focused learning environment.

Qualitative feedback added further depth to the analysis. Participants praised the interactive format and the opportunity to engage in meaningful dialogue. Comments such as “Echt leerzaam” (Truly educational), “It was very interactive,” and “That I have learned a lot of things” indicate that hands-on learning left a strong impression. Suggestions for improvement ranged from desires for deeper content application and better time management to ensuring stricter control over background noise and clearer session planning.

Overall, the ECREC local training served as a valuable experience that not only broadened participants’ understanding of energy poverty but also inspired action. It equipped them with the skills and confidence to engage their communities and promote a more equitable and sustainable energy future.

GERMANY (CRN)

The feedback from participants indicates that the training was well-received overall, especially in terms of structure, delivery, and the atmosphere created by the trainers. Most participants felt that the training objectives were clearly defined and that the content was organised and easy to follow. A strong majority appreciated the relevance of the topics, which were considered both interesting and useful.

A large majority of participants (71%) strongly agreed that the objectives of the training were clearly defined, and the content was well-organized and easy to follow, with the remaining 29% agreeing, indicating full agreement across the group. When it came to the relevance and usefulness of the topics, 71% agreed, while 14% strongly agreed, and 14% were neutral.

While several participants felt that the time allocated for each topic was sufficient (57%), a few mentioned that the sessions could have benefited from more time for discussion or deeper exploration of certain areas. The mix of theoretical content and practical case studies was particularly appreciated, with 57% strongly agreeing and 43% agreeing, as it made the training feel dynamic and grounded in real-world issues.

Participants responded positively to the delivery methods used. Lectures and group work were seen as appropriate and helpful (71% strongly agreed and 29% agreed). The language and vocabulary used during the training were mostly clear and accessible, though one participant found certain aspects more challenging to follow. Still, the majority felt the materials helped them engage with the content effectively. Feedback on the trainers was particularly positive. All participants (100%) either strongly agreed (86%) or agreed (14%) that trainers were knowledgeable and enthusiastic, which helped maintain interest and created a motivating learning environment, and that the materials were presented in a way that supported learning. When asked what they liked most, over 85% of participants highlighted group work, hands-on exercises, and peer collaboration as the most enjoyable and effective elements. Suggestions for improvement focused on allowing more time for discussions (mentioned by 43%) and better

tailoring of topics to participants' interests (around 29%). One participant expressed interest in additional content that could support the group work.

In summary, the training was favourably reviewed in terms of structure, content, and delivery, with particularly strong appreciation for the trainers and interactive learning methods. Minor adjustments, such as refining content depth and allocating more time for dialogue, could make future sessions even more effective.

1.3.8. TRAINING PROGRAM FINALISATION AND DISSEMINATION

Upon completion of the training program, the materials have been translated into multiple languages and shared among project partners for implementation and dissemination in their respective regions. The training format serves as a reference guide for future initiatives and is available through the project website. Additionally, the program's outcomes and best practices are presented at dissemination events in each participating country to further promote awareness and engagement, as well as on official social network pages of each project partners' institutions to further spread the main outcomes coming from the POWERINGCITIZENS project. Through this structured and participatory approach, the training program aims to create a lasting impact by building a network of knowledgeable and proactive energy mentors. By empowering young people and citizens with the skills needed to combat energy poverty, the initiative contributes to a more inclusive and sustainable energy future.

2. FINAL TRAINING STRUCTURE

2.1. INTERNATIONAL TRAINING

The course begins with an in-depth exploration of the interconnection between energy systems and statistical analysis, with a particular focus on Europe. The first lecture on Day 1 addresses the current status of energy and statistics in Europe, analysing the impacts of energy policies on statistical trends, especially in light of the EU's long-term goals leading up to 2050. This is complemented by a regional perspective focusing on the Western Balkans, where the current energy landscape and policy impacts were considered within the same forward-looking framework.

The second lecture moves into the realm of renewable energy sources and energy storage systems. Participants gain insights into various renewable energy technologies such as solar, wind, hydropower, and biomass, and how these could be integrated with energy storage solutions like batteries, hydrogen storage, pumped-hydro systems, and thermal energy storage. The lecture includes both numerical models and real-world applications, highlighting different energy contexts.

In the third session of the day, the focus shifts to RECs. The lecture begins with a general definition of RECs and their potential applications in both rural and urban areas. A thorough overview of the EU's regulatory framework for RECs is provided, followed by a discussion on the Western Balkans' evolving regulations in this domain. The session concludes by outlining the goals expected to be achieved through REC deployment.

The final lecture on Day 1 presents case studies on REC pilots and implementations across several European countries, including Germany, the Netherlands, Italy, and Greece, as well as examples from the Western Balkans, such as Albania and Kosovo. These real-world examples offer a practical understanding of how RECs were being developed and adapted in different socio-economic and regulatory contexts.

Day 2 begins by addressing a critical social issue: energy poverty. The first lecture introduces the concept of energy poverty, explores its definitions, the various dimensions it encompasses (e.g., economic, environmental, social), and the key indicators used to assess it. The lecture also examines policy and practical measures to combat energy poverty, providing attendees with foundational knowledge.

This is followed by a lecture focusing on energy poverty in the EU, with case studies from Germany, Greece, Italy, and the Netherlands. The session presents both common trends and country-specific challenges in addressing this pressing issue.

In the third lecture of the day, attention turns once again to the Western Balkans, with a focus on Albania and Kosovo. This session deepens the understanding of regional disparities in energy poverty and the unique challenges faced by these countries.

The final lecture of Day 2 is structured as an interactive roundtable discussion, aimed at identifying which indicators are most relevant for addressing energy poverty in the countries involved in the project. Participants work together to define these indicators and compare them to the online questionnaire that is intended for energy poverty assessment and community engagement.

Day 3 is designed to be highly interactive and hands-on. It begins with working group sessions, where participants collaborate on developing a general methodology for assessing energy poverty across the project countries. The goal is to establish a consistent, yet flexible, framework that could be adapted to various national and local contexts.

The second session continues the group work, focusing on the expected outcomes of the assessments and how to effectively present the results, whether for academic, policy-making, or public communication purposes.

In the third session, participants could have the opportunity to visit specialised laboratories, e.g., facilities focused on hydrogen technology, power-to-power systems, and second-life battery applications. Such visit connects theoretical knowledge with practical innovation in the energy sector.

Finally, the training concludes with a summary session that recaps the main takeaways from the course, offers final reflections, and outlines potential paths forward for applying the knowledge gained.

Below is the structure of the course previously explained.

INTERNATIONAL TRAINING

DAY 1

Day 1, Introduction to the course

Day 1, 1st lecture

- *Energy and statistics: focus on Europe*
- *Energy and statistics in Europe: current status and energy policies' impacts on statistics considering the roadmaps to 2050*
- *Energy and statistics in Western Balkans: current status and energy policies' impact on statistics concerning roadmaps to 2050*

Day 1, 2nd lecture

- *Renewable energy and energy storage systems*
- *Renewable energy sources (e.g., sun, water, wind, biomass, etc.)*
- *Energy storage system (e.g., battery, hydrogen, pumped-hydro, thermal, etc.)*
- *Renewable energy sources + energy storage systems: numerical and real applications in different energy contexts*

Day 1, 3rd lecture

- *RECs: overview of current EU regulatory frameworks and their possible application in rural/urban areas*
- *Definition and applications of a REC*
- *European regulatory framework for RECs*
- *Western Balkans regulatory framework for RECs*
- *Expected goals to be achieved with RECs deployment*

Day 1, 4th lecture

- *RECs: pilots or real applications in Germany, the Netherlands, Italy, and Greece*
- *Case studies in Albania*
- *Case studies in Germany*
- *Case studies in Greece*
- *Case studies in Italy*
- *Case studies in Kosovo*
- *Case studies in the Netherlands*

DAY 2

Day 2, 1st lecture

- *Energy poverty concept and its main indicators and measures to tackle it*
- *Definition of energy poverty*
- *Dimensions of energy poverty*
- *Main indicators to assess energy poverty*
- *Measures to tackle energy poverty*

Day 2, 2nd lecture

- *Energy poverty in the European Union, specifically in Germany, Greece, Italy, and the Netherlands*
- *Overview of energy poverty in the European Union (EU)*
- *Energy poverty in Germany*
- *Energy poverty in Greece*
- *Energy poverty in Italy*
- *Energy poverty in the Netherlands*

Day 2, 3rd lecture

- *Energy poverty in the Western Balkans (Albania and Kosovo)*
- *Overview of energy poverty in the Western Balkans*
- *Energy poverty in Albania*
- *Energy poverty in Kosovo*

Day 2, 4th lecture

- *Which indicators can be used to address energy poverty in the countries involved in the project?*
- *Roundtable, discussion, and their final definition*
- *Design of the online questionnaire to be used by the attendees in doing energy poverty assessment in specific areas and social engagement with people*

DAY 3

Day 3, 1st lecture

Working groups - Part 1

How to carry out the assessment of energy poverty in project countries: definition of a general methodology

Day 3, 2nd lecture

Working groups - Part 2

Results to be achieved and how to present them properly

Day 3, 3rd lecture

Visit to the laboratories (Hydrogen, Power-to-Power system and second-life batteries)

Day 3, 4th lecture

Sum up of the training, conclusions and remarks

2.2. LOCAL TRAINING

The course begins with a welcoming session where participants have the opportunity to get to know each other, fostering an environment of openness and collaboration. This is followed by a presentation of the POWERINGCITIZENS project, introducing its objectives, scope, and expected impact on the energy transition and community empowerment.

The first thematic session focuses on energy and statistics in Europe. The lecture provides an overview of the current state of energy consumption across European countries, alongside a detailed discussion on GreenHouse Gas (GHG) emissions and energy production trends. Participants examine key energy policies within the EU, and the session highlights the data challenges faced when trying to accurately track the energy transition. Attention is given to the EU's Roadmap to 2050, with several case studies illustrating both successes and obstacles in aligning national strategies with EU targets. The lecture concludes with a discussion on key challenges and future directions for European energy systems.

A dedicated session addresses the topic of women in the energy sector, focusing on the gender gap, especially regarding representation in senior leadership roles. The discussion explores the main causes behind this gap, including systemic, cultural, and structural barriers, and prompts reflection on how gender equity could be improved within the field.

Participants then engage in an interactive session exploring the energy situation in their own countries. Using tools like the electricity maps platform [4], they can analyse their national energy systems, including aspects such as energy supply, production, emissions, and electricity use. This segment encourages active engagement and comparative analysis among countries.

The course then shifts to the issue of energy poverty in the EU. This lecture covers the causes of energy poverty, offers a clear definition, and examines its various dimensions, including economic vulnerability, housing quality, and access to energy. Participants reviewed energy poverty across different EU countries, learning how it manifests differently depending on regional and socio-economic contexts. Key indicators used to assess energy poverty are discussed in detail.

A further session provides an overview of RECs. Participants are introduced to the definition and potential applications of RECs and are presented with the European regulatory framework that supports and guides their development. The concept of RECs is positioned as a potentially transformative tool in both urban and rural contexts.

The second half of the course features working group activities designed to promote collaboration and creative problem-solving. The session begins by establishing rules for group work, which are co-created with participants and presented collectively. Each group is tasked with choosing a specific place in their home country, or another participant's country, and analysing it from an energy perspective. They identify potential local problems (e.g., environmental, economic, or energy-related), and then work together to develop possible solutions.

Groups are also asked to discuss the relevance of RECs in their chosen region: could a REC be implemented there? What would it look like? Their insights are recorded using a worksheet. After these sessions, each group gives a presentation of their findings and proposals, which often sparks valuable cross-group dialogue and feedback.

The course concludes with a final wrap-up session, where key takeaways are summarised, and participants reflect on the knowledge shared and developed during the training. The session ends with discussions about next steps and how participants might apply what they have learned in their respective regions and contexts. The following provides a detailed overview of the structure of the local training session.

LOCAL TRAINING

Introduction to the course

- *Get to know each other?*
- *Presentation of the POWERINGCITIZENS project*

Energy and statistics: focus on Europe

- *Introduction*
- *Current Energy Consumption in Europe*
- *Greenhouse Gas Emissions and Energy Production*
- *Energy Policies in Europe*
- *Data Challenges in Tracking the Energy Transition*
- *The Roadmap to 2050*
- *Case Studies*
- *Key Challenges and Future Directions*
- *Conclusions*

Women in the energy sector

- *Gender Gap*
- *Women in Senior Leadership*
- *Main Causes*

Energy situation in the country

(For more interaction, [4])

- *Energy system of country*
- *Energy supply*
- *Energy production*
- *Emission*
- *Electricity*

Overview of energy poverty in the EU

- *Energy Poverty Causes*
- *Energy Poverty in EU Countries*
- *Energy Poverty Definition*
- *Energy Poverty Dimensions*
- *Main Indicators to Assess Energy Poverty*

Overview of RECs

- *Definition and applications of a Renewable Energy Community (REC)*
- *European regulatory framework for RECs*

Working Groups

- *Rules > asking them for rules they'd like, then show them a list on one slide*
- *Working Groups: 1. Choose a place in your country (or one of the countries where people come from, and then pick one and provide insights); 2. Potential problems of the place (e.g., energy, economic, environmental, etc.); 3. Propose potential solutions for tackling the problems in point #2 of this list; 4. Discussion of the proposed ideas/solutions among the working group itself; 5. What about the RECs? Might it be applicable in the region/country where you come from? Presentation of the working groups' results*

Conclusions

3. DETAILS OF THE COURSE STRUCTURE

The following chapters give an overview of the elements of the course, including brief descriptions of the content of the lectures and all additional activities and local modifications.

3.1. ICEBREAKERS

Creating a welcoming and open learning environment starts with building connections among participants. Whether you are working with a community group, students, or university students, taking time at the beginning to help people get to know one another can set the tone for a more engaging and collaborative experience.

In this section, simple ideas for icebreakers and introductory activities that can be adapted to fit the group are offered. For more informal settings, consider using light games or creative prompts. In more academic or professional contexts, a brief round of introductions can be used, where participants share their background and motivation for joining. Starting with these small steps helps create trust and encourages active participation.

SLIDO

Before diving into complex issues like energy poverty, structural inequalities, and community-led alternatives, the training day can begin with a moment to ground, connect, and spark curiosity. Ice-breaking exercises are designed not just to "warm up the room," but to invite personal reflection and uncover how young people *feel* and *think* about energy, an issue often presented as technical, distant, or institutional.

Using Slido, a digital engagement tool, participants of the international training were prompted with open-ended questions such as: *"When I think about energy, what pops into my mind is..."*

What followed was a beautifully organic process: a collective word cloud began to form on-screen in real time, revealing an evolving tapestry of associations, *pollution*, *power*, *injustice*, *future*, *hope*, *access*, *bills*, *sunlight*, *privilege*. Each new word sparks laughter, debate, or recognition, transforming the abstract into something immediately shared and human.

Later, a similar approach is used to introduce the theme of energy poverty, through the question: *"To me, energy poverty is related to..."*

This opened the floor for thoughtful, sometimes emotionally charged reflections (Fig. 1). These early interactions serve not only as effective icebreakers but also as diagnostic tools, allowing facilitators to sense what language and themes resonate with the group.

Figure 1: "To me, energy poverty is related to..."- Slido results from Ancona International Training

Importantly, such icebreakers help to set the tone for a training environment that is interactive, respectful, and participatory, not simply focused on delivering information but co-producing meaning.

These early moments, modest in format but rich in intention, boost the room's collective energy and bring participants into the flow of the day with a sense of ownership, curiosity, and critical engagement.

QUESTION BOX

This game is a fun and simple way for participants to get to know each other. In a circle, one by one, each person picks a random question from a box. The questions are lighthearted or funny, such as *"If you could have any superpower, what would it be?"* or *"What is your favourite way to spend Sunday?" "How many people here do you think you could beat in an arm-wrestling match?"* But they can also be related to the topic of the training and adjusted to the initial knowledge level of the participants. After answering briefly, the next person takes their turn. This activity helps break the ice, encourages laughter, and creates a relaxed atmosphere for the training session.

GUESS WHAT?

This energetic and fun icebreaker helps participants connect and learn surprising facts about each other. Each person gets a sheet of paper taped to their back with a few light, personal questions written on it. Participants mingle, writing their answers on others' sheets, anonymously. After everyone has had a chance to respond to several people, each person removes their sheet, reads the guesses, and gives the correct answers.

EXAMPLE QUESTIONS:

- *Where would you go on your dream holiday?*
- *What food could you eat every day?*
- *If you were an animal, what would you be?*

You can tailor the questions to the group, keep them simple and playful, or add a few related to the workshop topic:

- If you could power your home with any renewable energy source, which would you choose?
- If you were a type of energy, what would you be and why?
- What's one energy-saving habit you're proud of (or would like to start)?

COMMON GROUND ACTIVITY

This simple activity introduces participants to the topic and helps them connect through shared concerns and values related to energy use, sustainability, and energy poverty at the start of the workshop.

MATERIALS NEEDED:

- *Post-it notes (preferably in different colours)*
- *Markers or pens*
- *A large wall, board, or flipchart paper.*

INSTRUCTIONS:

Prepare a few prompts/questions in advance, and try to adjust the complexity to the group. Questions can be related to personal experiences, e.g., *"Write one thing about your personal experience with energy – it could be how you heat your home, reduce electricity use, or deal with high energy bills"*. You can also ask more general questions, e.g., *"What are the main causes of energy poverty? Who should take the lead in solving energy poverty?"*

You can ask questions one by one or provide all questions at once. If possible, assign post-it colours to the different questions. Each person should write at least one answer per question. When ready, participants place their post-its on a shared wall or board. After everyone has posted, ask them to come forward and read what others have written. Together, group similar responses into themes. Finally, lead a brief discussion based on the clusters.

ENERGY MAP

This activity helps participants reflect on the diversity of energy-related experiences across regions, identify shared challenges, and initiate a discussion on energy poverty and energy justice. It is well suited for international groups, but if all participants are from one region or country, you can zoom in on a national or city map and ask them to represent their neighbourhood or district.

MATERIALS:

- *A large printed or drawn map of the region (depending on the group)*
- *Post-it notes or sticky dots*
- *Markers or pens*.

INSTRUCTIONS:

Place the map on a wall, board, or table.

Give each person one or two post-it notes and ask them to write:

- Where they live/work or where they're most familiar with energy issues.
- A short statement about an energy-related reality from that place (e.g., *"Our heating bills doubled this winter," "We have community solar panels," "Blackouts are common during storms"*).

Ask participants to place their post-it on or near the corresponding area on the map. Invite everyone to walk around and read what others wrote. Then guide a short discussion on similarities or emerging patterns, surprising differences, impact of those differences on experiencing energy poverty or sustainability. This task can also be done using the interactive platform regarding the energy fluxes and production in each EU country, sorted by sources [4].

"WHERE DO YOU STAND?" - OPINION LINE

This activity encourages reflection, reveals diverse perspectives, and opens up a dialogue around complex topics.

INSTRUCTIONS:

Designate a physical line in the room, with one end representing *"Strongly Agree"* and the other *"Strongly Disagree"*. Read out a series of thought-provoking statements related to the workshop theme. Participants move to the spot on the line that best represents their opinion. After each round, invite volunteers to explain why they chose their position. Keep the atmosphere respectful and non-judgmental. Encourage participants to listen to others, even if they disagree. Allow people to stand "in the middle" or shift their position during the discussion.

EXAMPLE STATEMENTS:

- Energy is a human right.
- Renewable energy can fully replace fossil fuels within the next decade.
- Energy poverty only affects low-income households.
- People should reduce their energy use, even if they can afford more.
- Governments are doing enough to support energy transitions.
- Individual actions make a real difference in tackling the energy crisis.

ENERGY BINGO

This fun, fast-paced icebreaker helps participants get to know each other while surfacing shared experiences around energy.

INSTRUCTIONS:

Each participant receives a bingo-style card filled with energy-related prompts or statements. Their task is to mingle and talk to as many people as possible, trying to find someone who matches each description. When they find a match, they write that person's name in the corresponding box. The first person to complete a full row (e.g., horizontally, vertically, or diagonally) calls out *"Bingo!"*. Keep the energy high and the time short (5–10 minutes). Encourage everyone to talk to people they do not already know. Debrief by asking what surprised them or what they learned about others.

EXAMPLES OF PROMPTS:

- Has lived without electricity.
- Uses solar panels at home.
- Has taught or worked on energy issues.
- Is worried about energy prices.
- Has changed their habits to save energy.
- Rides a bike or walks instead of driving.
- Can name three renewable energy sources.

3.2. ENERGY AND STATISTICS: FOCUS ON EUROPE

Europe is transforming its energy landscape to achieve net-zero emissions by 2050. The current energy mix is dominated by crude oil and petroleum products (37%), natural gas (21%), renewables (18%), solid fossil fuels (13%), and nuclear energy (11%).

Several pivotal European policies are driving this transition:

- EUROPEAN GREEN DEAL: Aims for climate neutrality by 2050 through renewable investments, energy efficiency, and carbon pricing [5].
- FIT-FOR-55 PACKAGE: Launched in 2021, targets a 55% GHG reduction by 2030 via ETS expansion and efficiency measures [6].
- RENEWABLE ENERGY DIRECTIVE (RED II & III): Sets a 42.5% renewable energy target by 2030, focusing on hydrogen, bioenergy, and sustainable fuels [7].

In such a context, hydrogen and bioenergy are central to this shift:

- HYDROGEN: IEA's Global Hydrogen Review 2024 notes a doubling of final investment decisions, with low-emission production set to increase fivefold by 2030 [8].
- BIOENERGY: IEA's Bioenergy Annual Report 2023 stresses the need for standardised sustainability criteria and highlights innovation and global collaboration [9].

Monitoring progress faces challenges:

- Lack of standardised reporting across member states.
- Complexity from decentralised systems like local solar and energy communities.
- Need for robust frameworks for emerging technologies like hydrogen.

The IEA's common criteria for sustainable fuels explore harmonising standards to ensure sustainability, support trade, and build consumer trust [10].

Success stories include:

- GERMANY: Energiewende drove renewables to 52.5% of electricity in 2023 [11].
- DENMARK: Over 50% of electricity from wind due to supportive policies [12].
- SPAIN: In 2024, 56% of electricity from renewables, led by solar growth [13].

Key milestones include a 55% emissions cut by 2030 and net-zero by 2050. Tracking electrification, renewable deployment, energy storage, and efficiency is critical to success.

3.3. WOMEN IN THE ENERGY SECTOR

Despite increasing global attention on gender equality, women remain significantly underrepresented in the energy sector, especially in technical and leadership roles. This gender gap limits not only individual career advancement but also the innovation and inclusivity needed for a successful energy transition.

Globally, women account for roughly 25% of the energy workforce, with only 14% in senior management positions at energy firms [14, 15]. While the renewable energy sector performs slightly better, employing about 32% women, disparities remain stark in technical, engineering, and decision-making roles [16]. A range of structural and cultural barriers contribute to these inequalities. Among them are the underrepresentation of women in STEM education, traditional gender roles, and workplace cultures that fail to support inclusion [14,17]. Even when women do enter the sector, they often face unequal pay, fewer promotion opportunities, and greater difficulty accessing leadership networks.

Despite these challenges, there are signs of progress. Many organisations are actively working to improve gender diversity through better data collection, gender-sensitive hiring practices, leadership training, and mentorship programs [15]. For example, the Equality in Energy Transitions initiative and the International Renewable Energy Agency (IRENA)'s research on the gender-energy nexus provide actionable insights into how to foster more inclusive environments.

Efforts to address these disparities are not only about fairness, but they are also essential for a sustainable energy future. Diverse teams bring a range of perspectives that improve problem-solving and drive innovation. By removing barriers and creating opportunities for women, the energy sector can benefit from a broader talent pool and more resilient strategies in the face of global challenges.

3.4. ENERGY SITUATION IN THE COUNTRY

ITALY (UNIVPM)

Italy's energy landscape is guided by its National Energy and Climate Plan (NECP), which outlines the country's strategy to transition towards a more sustainable energy system while meeting EU climate objectives. As part of its commitment to the EU's climate goals, Italy aims to significantly reduce GHG emissions and enhance energy efficiency across various sectors. However, despite progress, challenges remain in meeting ambitious reduction targets and addressing energy poverty [18].

Italy's 2030 target for reducing GHG emissions is set at 33% below 2005 levels for sectors not covered by the EU ETS. This target applies to industries such as transportation, residential heating, and agriculture. However, with the ongoing negotiations under the Fit-for-55 Package, the EU is adjusting emissions reduction obligations for its member states, leading to a revised and more ambitious target for Italy, 43.7% below 2005 levels.

Unlike other EU nations such as France, Germany, and Spain, Italy does not have an economy-wide emissions reduction target beyond its EU commitments. However, in March 2022, Italy adopted the Plan for the Ecological Transition (PITE), which includes a non-binding emissions reduction target of 51% below 1990 levels by 2030. While this plan represents a step toward greater climate responsibility, it lacks enforceability and may not be sufficient to drive the country toward its long-term net-zero goals [19].

To align with the 1.5°C global warming target established by the Paris Agreement, Italy would need to double its current emission reduction efforts. This would require cutting emissions by 61-71% below 1990 levels by 2030, far exceeding its current trajectory. Such an ambitious reduction would necessitate significant investments in renewable energy, industrial decarbonisation, and sustainable mobility.

Energy poverty remains a major issue in Italy, affecting millions of households. In 2021, over 2.2 million families (8.5% of total households) struggled with energy poverty, meaning they faced difficulties in affording adequate energy services, including heating and electricity. This data, drawn from Italy's National Energy Strategy of 2017 (NES) and the 2020 NECP, highlights the urgent need for targeted interventions [20].

Italy's government has introduced a range of policies aimed at alleviating energy poverty. These policies fall into three main categories:

- REDUCING ENERGY COSTS through financial assistance, including energy bill bonuses and tax deductions for vulnerable families.
- ENHANCING ENERGY EFFICIENCY by enforcing building regulations, providing tax incentives for renovations, and promoting the adoption of energy performance certificates.
- PROVIDING DIRECT SUBSIDIES AND FINANCIAL AID to low-income households to help them cope with rising energy costs.

Despite these measures, regional disparities persist, with southern Italy and rural areas being disproportionately affected by energy poverty. Many households in these regions rely on outdated heating systems and have limited access to energy-efficient infrastructure. Additionally, fluctuations in global energy prices have exacerbated financial pressures on vulnerable consumers, underscoring the need for a more robust and comprehensive policy framework.

To meet its emissions reduction targets and improve energy affordability, Italy must accelerate the deployment of renewable energy sources. The country has made progress in expanding solar and wind energy, but further investment is necessary to phase out reliance on fossil fuels. Key initiatives include:

- INCREASING THE SHARE OF SOLAR AND WIND POWER in the national energy mix.
- STRENGTHENING SUPPORT FOR HYDROPOWER AND GEOTHERMAL ENERGY, which have historically played a role in Italy's energy sector.
- ENHANCING ENERGY STORAGE SYSTEMS to improve grid stability and integrate more renewables.
- EXPANDING ENERGY COMMUNITIES AND DECENTRALIZED POWER GENERATION, allowing local consumers to produce and share renewable electricity.

ALBANIA (ETMI)

Almost 60% of the Albanian total energy supply is met through fossil fuels, mostly by oil. The share of modern renewables in final energy consumption in Albania is 42%. In terms of electricity generation, 98% of the electricity is generated from hydropower (2022), the remaining 2% comes from solar Photovoltaic (PV) [21].

The main challenges currently facing the Albanian energy sector include [22]:

- RELIANCE ON HYDROPOWER: Albania has historically relied heavily on hydropower for its renewable energy generation. This dependence makes the energy sector vulnerable to variations in water availability and climate change.
- INTERMITTENCY AND GRID INTEGRATION: Many renewable energy sources, such as solar and wind, are intermittent and can be challenging to integrate into the grid seamlessly. Grid upgrades and energy storage solutions are needed to manage fluctuations in supply and demand.
- REGULATORY AND POLICY FRAMEWORK: Inconsistent or unclear regulatory frameworks and policies may hinder the development of renewable energy projects. A stable and supportive regulatory environment is crucial for attracting investments.
- TECHNOLOGICAL READINESS: The adoption of new and innovative renewable energy technologies may face resistance due to factors such as unfamiliarity, perceived risks, and concerns about reliability.

- LACK OF ENERGY STORAGE: The intermittent nature of some renewable sources necessitates the development of energy storage systems. The absence of efficient and cost-effective energy storage solutions can limit the ability to store excess energy for later use.
- POLITICAL AND ECONOMIC STABILITY: Political and economic stability are crucial for creating an environment conducive to long-term investments in renewable energy projects. Uncertainty and instability can deter investors.
- ENERGY MARKET DESIGN: The design of energy markets can impact the competitiveness of renewable energy. Ensuring fair market conditions and removing barriers to entry for renewable energy providers is essential.

GREECE (INZEB)

Greece's revised NECP [23], published in December 2024, outlines the country's strategy to achieve climate neutrality by 2050. It prioritises cost-effective interventions, relying on mature, affordable green technologies. The plan considers European Commission (EC) macroeconomic forecasts, including stable gas prices (~38 €/MWh) and rising CO_2 prices (up to 490 €/ton by 2050), using carbon pricing as a key driver for decarbonisation. It accounts for renewable energy potential, industrial decarbonisation projects, and emphasises sustainable long-term solutions, limiting reliance on transitional technologies like Carbon Capture Storage (CCS) to hard-to-abate sectors.

Energy security remains a priority, requiring transitional measures to maintain supply while phasing out fossil fuels. The NECP outlines a phased approach: decarbonising electricity, electrifying final energy use, and transitioning hard-to-abate sectors through alternative fuels. Climate change adaptation is integrated into the plan, addressing vulnerabilities such as water scarcity, grid resilience, and impacts on renewable performance. Rising temperatures are expected to reduce heating needs but increase cooling demands. Some of the key NECP 2030 are:

- 58% reduction in GHG emissions (vs. 1990).
- 43% share of renewable energy sources in gross final energy consumption.
- 75.7% share of renewable energy sources in electricity.
- 72.2% renewable energy sources share in buildings.
- 13.4% renewable energy sources in transport.
- Significant increases in sustainable fuels for aviation.

The NECP positions Greece on a progressive, flexible path to climate neutrality, balancing ambition with economic and technical realities.

KOSOVO (BGF)

Kosovo holds some of Europe's largest lignite reserves, estimated at 14.7 billion tonnes, making coal historically attractive for energy security [24]. However, this overreliance is becoming increasingly problematic given global decarbonisation imperatives, regional environmental standards, and EU-aligned climate policy requirements. The country's energy system, designed around centralised thermal power, is thus increasingly misaligned with both regional energy transition goals and Kosovo's long-term development needs.

The national grid in Kosovo remains underdeveloped and vulnerable to shocks. Blackouts and load-shedding remain common during periods of high demand, particularly in winter. Grid infrastructure is characterised by high transmission and distribution losses, exceeding 20% in some areas, significantly above EU averages [25]. This inefficiency places further pressure on generation assets, increases costs for end-users, and weakens system reliability.

Kosovo is also a net electricity importer during peak periods, making its system sensitive to external energy market volatility. The 2021–2022 European energy price crisis exposed this vulnerability, with sharp increases in electricity tariffs and growing public dissatisfaction.

Recognising these challenges, Kosovo has made modest but meaningful progress in diversifying its energy portfolio. The Energy Strategy 2022–2031 sets a target to increase the share of renewable energy sources to at least 35% of electricity generation by 2031, focusing primarily on solar and wind energy [26]. Notable projects include the Bajgora Wind Farm, which became operational in 2021 with a capacity of 102.6 MW, and the Kitka Wind Farm (32.4 MW), which collectively represent the most significant steps toward non-coal generation to date.

However, the integration of renewable energy remains limited by regulatory gaps, insufficient grid readiness, and the lack of flexible generation or storage capacity, which are essential for accommodating variable renewable energy sources. Moreover, while the Law on the Promotion of the Use of Energy from Renewable Sources (2024) aims to harmonise with EU RED II/III directives, secondary legislation to operationalise this framework, including grid access rules, permitting, and community energy models, remains underdeveloped [27].

POLICY FRAMEWORK: Kosovo has taken legislative steps to align with the EU's energy acquisition. The Law on Energy (No. 05/L-081), the Law on Energy Efficiency (No. 06/L-079), and the 2024 Renewable Energy Law collectively form the basis for a more sustainable and integrated energy policy. Additionally, the draft NECP, expected to be finalised by 2025, aims to outline Kosovo's long-term decarbonisation, security, and efficiency goals in line with the European Green Deal and Western Balkans Green Agenda.

However, alignment is still largely normative and aspirational, as Kosovo lacks the administrative capacity, investment pipelines, and legal certainty required to implement EU-aligned targets effectively. For instance, the absence of a common definition on energy poverty and a dedicated

regulatory framework for RECs, illustrates the gap between strategic vision, operational readiness and structural challenges [28].

NETHERLANDS (ECREC)

The Dutch government has committed to reducing GHG emissions by at least 55% by 2030 compared to 1990 levels. This target covers all sectors not included in the EU ETS, such as transportation, the built environment, and agriculture. These efforts are part of the broader European Green Deal and the Fit-for-55 package, which imposes higher climate ambitions on all EU member states.

In addition to its binding EU targets, the Netherlands aims to achieve climate neutrality by 2050. This goal is supported by the Dutch Climate Agreement [29], a multi-stakeholder plan outlining key measures to reduce emissions across five sectors: electricity, built environment, industry, mobility, and agriculture.

Despite this, recent assessments by the Netherlands Environmental Assessment Agency (PBL) indicate that current policies may fall short of reaching the 2030 targets [30]. Achieving full alignment with the 1.5°C goal of the Paris Agreement would require more decisive action, including accelerated emissions cuts and structural investments in energy infrastructure and behaviour change.

Historically reliant on natural gas, both domestically produced and imported, the Netherlands is now in the process of shifting to a more sustainable mix. As of 2023 [31]:

- Fossil fuels still supply around 80% of total energy demand.
- Renewable energy accounts for roughly 16% of final consumption, mostly from wind, solar, and biomass.
- The use of coal is being phased out, with the last plants scheduled to close or convert to sustainable alternatives by 2030.
- Domestic natural gas extraction from Groningen is being halted due to induced earthquakes.

To support the transition, the government is investing in large-scale offshore wind development, solar PV expansion, and the electrification of transport and heating systems. Yet, the energy transition remains uneven, particularly in terms of regional development and public participation.

GERMANY (CRN)

Germany's energy mix is undergoing a significant transformation as the country shifts from fossil fuels to renewables. As of 2023, renewable energy sources accounted for approximately 52% of Germany's electricity generation, with onshore wind (22%), solar PV (12%), and biomass (7%)

being the largest contributors. Fossil fuels still play a role, particularly lignite (17%) and natural gas (13%), although their share has been declining steadily. Nuclear energy was phased out entirely in April 2023, marking a major milestone in Germany's Energiewende (energy transition).

Germany is committed to becoming climate-neutral by 2045 and has built a robust policy framework to achieve this goal. Its Climate Action Law, introduced in 2019 and aligned with EU and international commitments, sets legally binding emission reduction targets: 65% by 2030, 88% by 2040, and net-zero by 2045 [32, 33]. The law also assigns annual carbon budgets to sectors like energy, transport, and buildings, though a 2023 reform introduced more flexibility by allowing cross-sectoral compensation.

To speed up progress, Germany launched the Climate Action Programme 2023, emphasising renewable energy expansion, clean industry, and decarbonised agriculture. Targets include supplying 80% of electricity from renewables by 2030, supported by 215 GW of solar PV, 115 GW onshore wind, and 30 GW offshore wind [34, 35].

A key tool in Germany's strategy is carbon pricing in the transport and building sectors. Starting at €25/ton in 2021, the price rose to €45 in 2024 and will reach €55 in 2025, before moving to a market-based system under the EU ETS II by 2027. Revenues, €40 billion by 2024, have supported green initiatives and social relief, with estimated emissions reductions of 12.4 million tonnes by 2035 [32]. Despite progress, challenges persist. In 2023, Germany cut emissions by 10.1%, largely due to mild weather and economic slowdowns. Yet, the transport sector exceeded its emissions cap by 13 million tonnes, and Germany is projected to fall 126 million tonnes short of its EU targets by 2030 [32].

Energy security remains strong, with one of Europe's most reliable grids and just 12.2 minutes of average outages in 2022 [36]. To manage growing renewable inputs, Germany is expanding its grid with over 509 km of new lines completed and 3,000 km in planning [34]. The building sector is being modernized with funding for heat pumps and network upgrades, while the transport sector is pushing for cleaner public transit and a 45% emissions cut for trucks by 2030 [37]. Looking ahead, Germany is also planning for negative emissions post-2045 and sustainable biomass use under long-term strategies and the national carbon removal roadmap.

3.5. OVERVIEW OF ENERGY POVERTY IN THE EU

Between 8% and 16% of the EU population experiences energy poverty, depending on the indicator used. Notably, many energy-poor individuals are not classified as income-poor [38]. Energy poverty varies widely across EU countries due to geography, climate, resource availability, infrastructure, policy, and cultural perceptions. In Greece and Bulgaria, around 30% of the population is energy poor based on at least two indicators, while in Western and Northern Europe, this drops below 5% [39]. Subjective indicators, such as the inability to keep homes warm, show stark contrasts, from nearly 0% in Sweden and Luxembourg to about 40% in

Bulgaria. Missed utility payments show similar disparities. However, the 2M indicator (households spending more than twice the national median on energy) shows more consistent results, with 10% in the Netherlands and Hungary, and over 20% in Sweden, Malta, and Latvia. These differences highlight the need for context-specific national policies and careful indicator selection when assessing and addressing energy poverty across the EU.

3.6. OVERVIEW OF ENERGY POVERTY IN PARTNER COUNTRIES

ITALY (UNIVPM)

As of 2023, energy poverty affects about 2.2 million families in Italy (8.5% of households), driven by low incomes, high energy costs, and poor housing efficiency. Rates fluctuated significantly, rising from 11.6% to 21.3% between 2010 and 2012 due to economic strain, then declining to 14.1% by 2018 [40]. Italy has introduced key policies to address this issue:

- ENERGY COST REDUCTIONS: Bonuses like the energy subsidy provide automatic support to low-income households, cutting electricity bills by 30% and gas by 15%.
- EFFICIENCY IMPROVEMENTS: Programs like Ecobonus offer tax deductions for energy upgrades, especially in social housing. From 2000 to 2022, overall energy efficiency improved by 20%, with the industrial sector leading gains at 1.4% annually.
- RENEWABLE ENERGY: Renewables covered 19% of Italy's energy use in 2022, slightly above the EU average of 18.4%, reducing dependence on fossil fuels.
- INCOME SUPPORT: Broader subsidies help low-income families afford essential energy services, enhancing social inclusion.

These initiatives support Italy's goal, as outlined in its NECP, to reduce energy poverty below 8% [41, 42]. Ongoing efforts remain vital to meet this target and ensure equitable energy access.

ALBANIA (ETMI)

Energy poverty in Albania lacks a clear definition and systematic monitoring. Law No. 43/2015 defines a 'vulnerable customer' based on social status, but not specifically in energy terms (Article 95). Currently, 37% of Albanians face energy poverty, far above the EU average of 5%, often relying on wood for heating, which poses health risks [43]. Albania does not define electricity poverty but identifies seven categories of socially vulnerable customers under Law No. 9355 (2005) and its amendments [43]. Residential electricity consumption has become the largest in the country, rising significantly post-1990. This trend slowed after 2006 due to energy price hikes, alternative sources like natural gas, and economic diversification [44]. Still, households pay relatively high electricity rates, 11.4 ALL/kWh (0.09 €/kWh), the second-highest in the Western Balkans [45]. By 2030, Albania aims to:

- Define energy poverty nationally.

- Establish a monitoring system.
- Recommend targeted measures.
- Conduct a study to assess prevalence and root causes.

These steps are crucial to formulating effective policies for reducing energy poverty.

GREECE (INZEB)

Energy poverty remains a significant issue in Greece, especially after the 2011 economic crisis. Under the NECP [23], Greece aims to reduce energy poverty by 50% by 2025 and 75% by 2030 from 2016 levels. The 2024 NECP stresses the need for a long-term strategy, while also ensuring immediate support for vulnerable households. An action plan launched in September 2021 outlines quantitative criteria for identifying energy-poor households and proposes targeted policy measures via financial tools and market mechanisms. A monitoring system was also introduced, requiring annual reports that assess energy poverty trends, adjust policies, and recommend corrective actions. Monitoring combines data from the European Energy Poverty Observatory (EPOV) and national sources. The key indicator is the I & Ileq index, which identifies households whose energy costs are under 80% of the required minimum and whose income is below 60% of the national median (OECD equivalence scale). Based on Family Budget Survey data:

- In 2021, 12.4% of Greek households were energy poor (513,000 households), down from 13.8% in 2016 (573,000 households).
- This reflects a 10% relative reduction over five years, though a slight rise occurred from 12.0% in 2020.

Table 1: Calculation of Energy Poverty Levels

Year	Condition I	Condition II	Condition Ileq	Indicator I & Ileq
2016	59%	21%	19%	13.8%
2017	57%	22%	18%	12.5%
2018	57%	21%	16%	11.1%
2019	55%	21%	17%	11.2%
2020	55%	23%	18%	12.0%
2021	62%	23%	18%	12.4%

These findings highlight gradual progress, with sustained monitoring and adaptive policies crucial for achieving Greece's 2030 targets.

KOSOVO (BGF)

Energy poverty in Kosovo is closely linked to economic hardship and systemic energy sector challenges. Around 15.8% of households spend more than 10% of their income on electricity, meeting the "electricity poverty" threshold [24]. Many face unpaid bills, disconnections, or limited usage that compromises health and comfort. The housing stock is largely inefficient, especially pre-1999 constructions lacking insulation and modern heating. In 2017, 43% of households couldn't afford adequate winter heating, a trend still visible in rural and peri-urban areas [46]. Most rural homes rely on wood or coal stoves, while access to central heating is limited and often unaffordable [47, 48]. Institutionally, Kosovo's response has been fragmented. The Law on Energy Efficiency (06/L-079) [49] promotes energy upgrades but lacks targeted measures for low-income households. Electricity subsidies exist under social programs, but they do not fully address rising prices or special needs [50]. The two-block tariff system by the Energy Regulatory Office (ERO) aims to protect low-income users but often fails to match real consumption patterns, especially in winter. Recent price hikes have worsened affordability [51]. Although Kosovo's Energy Strategy 2022–2031 prioritises reducing energy poverty, no dedicated national action plan exists. The forthcoming NECP may address this, but as of 2025, it remains in draft form without clear implementation mechanisms.

NETHERLANDS (ECREC)

Energy poverty affects 7-10% of Dutch households (550,000–800,000), mainly in poorly insulated rental homes. Vulnerable groups include single parents, the elderly, and low-income families [52]. Government measures to combat this include [53]:

- COST RELIEF: Energy price cap (2023), one-time energy allowance, reduced energy taxes.
- EFFICIENCY IMPROVEMENTS: Subsidies for insulation, retrofitting support for social housing, and minimum energy label rules.
- LOCAL SUPPORT: Energy coaches, municipal grants, and pilot projects.

However, barriers like digital illiteracy and administrative hurdles limit access. Energy poverty is higher in rural and northern areas with poor housing and outdated systems [54]. Structural challenges, like renters' lack of control, grid congestion, and untailored national policies, risk deepening inequality. A just energy transition requires inclusive policies focused on renovations, local energy initiatives, grid upgrades, accessible subsidies, and stronger multi-level coordination. Energy poverty is a key test of the fairness of the Dutch climate strategy.

GERMANY (CRN)

Germany integrates energy poverty into its broader social welfare framework. The constitution ensures access to essential energy services [55]. For social benefit recipients, heating and hot water costs are fully covered under Social Codes II and XII, while electricity is included in a regularly adjusted welfare allowance [56]. Extra support is available for decentralised hot water systems. Disconnection protections limit cutoffs: electricity can only be shut off if unpaid bills exceed €100 and no repayment plan is made; gas follows similar principles [57]. In 2018, only 6% of households warned about electricity cutoffs and 3% for gas were actually disconnected [58]. Though not officially defined, energy poverty often refers to spending over 10% of income on energy [59]. Post-2022, it rose sharply: 6.2% of households could not adequately heat homes, and 4.7% fell behind on energy bills (EU-SILC 2024). Vulnerable groups include unemployed people, retirees, single parents, and residents of poorly insulated buildings [60]. In 2022, 40% of middle-income households (60–80% of median income) were affected, nearly double pre-crisis levels [59]. In 2023, Germany expanded housing subsidies, raising average support from €180 to €370/month and covering 5% of households, with €0.40/m^2 added for energy-efficient homes [61]. Still, experts like Öko-Institut and VZBV call for €17 billion in energy retrofits for low-income homes, expected to cut demand by 9.5 TWh, emissions by 2.6 Mt, and save €20 billion over time [60].

3.7. OVERVIEW OF RECS

RECs are associations of citizens, companies and local authorities that share the production of energy from renewable sources for self-consumption. Their goal is to decentralise energy production, making it more sustainable and efficient. These communities operate on a voluntary basis, are locally managed, reinvest profits in community services and promote renewable energy such as photovoltaics, wind and hydropower.

ADVANTAGES OF RECS:

- Economic: incentive tariffs for shared energy.
- Environmental: reduction of emissions through the use of clean sources.
- Social: combating energy poverty in the most vulnerable areas.

EU REGULATION AND LEGISLATION:

The EU introduced the RED II (2018) and RED III (2023) Directives to foster the development of RECs by regulating financial support, self-consumption and cooperation between Member States. Italy transposed RED II with Legislative Decree 199/2021 and will have to comply with RED III by 2025.

OBSTACLES FOR RECS:

- Regulatory: complex bureaucratic processes and lack of clear guidelines.
- Financial: limited access to funds and high initial costs.

- Technical: difficulties in integrating with the electricity grid and lack of specialised expertise.

EU SUPPORT:

The EU supports RECs through funding such as Horizon Europe (HE) and the Just Transition Fund, also offering technical assistance and collections of good practices.

3.8. RECS IN PARTNER COUNTRIES

ITALY (UNIVPM)

RECs are growing quickly in Italy, backed by EU directives RED II [62] (transposed in 2021 [63]) and the upcoming RED III (2025), which promote decentralised renewable energy production and sharing. RECs enable local solar and wind projects that reduce reliance on external sources and lower costs through self-consumption and feed-in tariffs. Italy uses smart grids, energy storage, and EV charging to balance energy use, supported by smart meters for real-time management. RECs also help combat energy poverty by providing affordable clean energy in areas like Naples, improving social inclusion and resilience. They contribute to emissions reduction and grid efficiency, demonstrated in Osimo and Ancona. Universities such as UNIVPM advance REC development through EU-funded projects focused on smart energy and community engagement [64]. RED III and emerging technologies like blockchain will further strengthen Italy's REC sector, advancing a decentralised, sustainable energy future.

ALBANIA (ETMI)

Albania is shifting its energy mix from a heavy reliance on hydropower, which accounts for about 95% of its capacity, towards solar and wind energy [65]. In April 2023, Law No. 24/2023 aligned with the EU's RED (2018/2001), introducing feed-in tariffs, power purchase agreements, and enabling RECs to produce, consume, and sell renewable energy. Support mechanisms include feed-in tariffs for small renewables, auctioned utility-scale projects under a contract for differences scheme, net-metering for systems up to 500 kW, and customs exemptions on equipment [65]. Despite this framework, REC development remains limited, with only one established in Kutë, where solar panels power public services. Albania's solar and wind potential is significant, and initiatives like the REC4EU project address regulatory and technical barriers to expand RECs and foster regional cooperation [66].

GREECE (INZEB)

Greece introduced energy communities with Law 4513/2018 to promote social economy, sustainability, and combat energy poverty. By 2022, over 1,300 communities, mainly focused on

PV projects, were established. Law 5037/2023 updated the framework, distinguishing RECs and Citizen Energy Communities (CECs), offering financial incentives but facing grid capacity challenges that delay some projects. The Just Development Transition Programme supports coal-region communities, though network limitations persist. One-Stop-Shops (OSS) for support services still need further development. As of September 2024, Greece has 1,742 active energy communities: 1,685 under Law 4513/2018, and 40 RECs plus 17 CECs under Law 5037/2023. Leading regions by installed capacity are Central Macedonia (340.1 MW), Thessaly (264.8 MW), Eastern Macedonia and Thrace (205.2 MW), Central Greece (123.4 MW), and Western Macedonia (113.5 MW). Self-production projects total 665 MW (July 2024), with 616 MW from net metering and 49 MW from virtual net metering (28 MW by communities, 21 MW by others). However, 9% of requested capacity (194 MW) was cancelled, and 50.6% of pending projects (1,123 MW) await approval, including 291 MW linked to energy communities. This growth highlights Greece's active citizen-led renewable transition but also underscores the need for improved regulatory and technical support.

KOSOVO (BGF)

Kosovo's REC development is limited by incomplete regulatory and institutional readiness despite progress in aligning with EU frameworks. As of early 2025, no legally constituted REC exists, and key legal infrastructure is lacking. The 2024 Law on renewable energy promotes renewables but does not specifically recognize or regulate RECs as required by RED II and RED III. The absence of secondary legislation, covering administrative guidelines, licensing, financial incentives, and grid access, hinders practical implementation. Kosovo's energy laws, including Law Nr. 05/L-081 on energy and Law Nr. 06/L-079 on energy efficiency, provide a general framework but omit REC-specific provisions. This gap contradicts RED II requirements that energy communities face no discrimination or excessive regulatory burdens. The 2022–2031 Energy Strategy and draft NECP set renewable goals (35% by 2031) but lack detailed plans for community-led initiatives [67,68]. Kosovo's strong solar potential and local resources like small hydropower and biomass offer opportunities for decentralised renewable systems, yet remain underutilized due to missing legislation and support. RECs could advance civic participation and equitable energy access in Kosovo's fragile post-conflict context, enhancing institutional trust. International support from EU programs such as the Just Transition Mechanism and Green Agenda for the Western Balkans is available, but Kosovo needs enforceable laws enabling REC creation, operation, and scaling. Critical reforms include secondary legislation on REC legal status, licensing, financial incentives, and inclusive participation provisions. Without these reforms, Kosovo risks missing a key chance to develop a socially just and sustainable energy system.

NETHERLANDS (ECREC)

The Netherlands has not fully implemented the EU's RED II and RED III definitions but has a strong tradition of energy cooperatives operating like RECs. Key policies include the 2021 Subsidie Coöperatieve Energieopwekking Scheme, offering 15-year feed-in tariffs for cooperative solar, wind, and small hydro projects [69]; the 2019 climate agreement aiming for 50% community co-ownership of onshore renewables [70]; and the Omgevingswet, empowering municipalities to support community energy [71]. Dutch RECs, mainly citizen-led cooperatives, co-finance and co-own renewable installations, relying on feed-in tariffs, local energy sales, and reinvesting surplus revenues. Growing residential solar self-consumption is complemented by smart meters, battery storage, flexible tariffs, and pilot smart grid and V2G projects. Supported by Topsector Energie and Living Labs, RECs promote social inclusion and combat energy poverty through partnerships with social housing, municipalities, and energy coaches. Initiatives in Amsterdam, Groningen, and Achterhoek showcase their role in emission reduction, grid independence, and biodiversity-friendly renewables. Universities like TU Delft and Hanzehogeschool contribute via EU-funded research on community engagement and smart grids. National platforms (Energie Samen, Hier Opgewekt) provide legal and networking support. RED III's forthcoming implementation will enhance REC legal recognition, enabling peer-to-peer trading, energy sharing in apartments, and decentralized flexibility markets. Emerging technologies like blockchain and AI-driven optimization are explored by cooperatives and start-ups. With coordinated policies, Dutch RECs are positioned to drive a democratic, decentralized energy transition aligned with national and EU climate goals.

GERMANY (CRN)

Germany has 2,500–3,000 energy communities, contributing about 3% of renewable electricity. Recent shifts from fixed feed-in tariffs to competitive markets have increased financial uncertainty, limiting new REC formation. Governance is multi-level: the federal government sets energy laws, Länder define targets, and municipalities handle planning, often as shareholders. However, no national REC strategy exists, leaving their future role unclear. There is no single legal definition for energy communities; instead, forms like Bürgerenergiegesellschaften and cooperatives operate under the Renewable Energy Act (EEG) and Energy Industry Act (EnWG), focusing on social benefits, local ownership, and democratic control. Challenges include complex permitting, funding difficulties, and slow smart meter adoption, which hinder REC growth and limit low-income household participation. Recent policies exempt RECs from competitive tenders if projects stay below 18 MW (wind) or 6 MW (solar), and federal/state grants and loans support community projects. Regional and national platforms offer training, info, and advocacy.

Notable examples:

- Ellhöft's wind park integrates wind, solar, and hydrogen, reinvesting profits locally.
- Wildpoldsried generates 500% more energy than it uses.

- Feldheim is fully self-sufficient in electricity and heating.

Energy communities can reduce energy poverty by lowering costs and boosting local resilience, but high upfront costs and complex rules remain barriers.

3.9. WORKING GROUPS

3.9.1. RULES

It is important that we follow certain rules when working together. Ask the participants what the most important rules are when working together.

In any group setting, especially one composed of individuals from historically marginalised, underrepresented, or differently empowered backgrounds, it's crucial to recognise that inequalities can shape who feels entitled or able to speak, whose knowledge is validated, and whose contributions are centered or sidelined. Thus, beyond structure, we must cultivate practices that actively dismantle these barriers and uplift all voices.

Miscommunication may arise, assumptions may go unchallenged, and valuable contributions may be overlooked. The purpose of these rules is to create a respectful, inclusive, and productive environment where every participant feels safe and encouraged to speak. They serve as a foundation for equitable participation, ensuring that everyone's voice is valued and that differing viewpoints can be shared openly without fear of judgment or dismissal.

By committing to these principles, such as active listening, constructive feedback, and shared responsibility, we foster a space where collaboration can truly thrive. We acknowledge that language may be a barrier for some, that knowledge is always shaped by context, and that no single person holds all the answers. These reminders help us remain humble, open-minded, and attentive to one another.

Ultimately, these rules are not simply procedural, they are an intentional effort to support meaningful dialogue, build mutual understanding, and work effectively as a group toward common goals.

"THE RULES" (WORKING GROUPS AND DISCUSSION)

- Self-respect & respect for other people.
- Only one person can speak at a time.
- Teamwork and management are essential for building something up.
- Let's try to be critical (constructively critical).

- English is not our first language, let's keep it in mind.
- We refrain from judging people (we discuss opinions).
- Everyone has a voice.
- We try to understand other people's points of view.
- We assume that we do not have ready answers to all questions.
- If we express a view, we can point out the reasons for this position (arguments).
- Participants have the right to pass or not respond if they feel uncomfortable, without needing to explain themselves.
- Every individual brings to the space valid and legitimate knowledge and solutions constructed in their contexts.
- Recognise that all knowledge is partial and questionable.
- Recognise that discussions, especially on social issues like energy poverty, can evoke emotional responses. We create room for emotions without dismissing or treating them as disorders.

SOLUTIONS AND SUGGESTIONS ON HOW TO AVOID SOME OF THE ISSUES

- Raise awareness of the issue, people might not realise they are behaving in a certain way (use examples observed during the working group).
- Introduce the rules (see above) - general.
- Make specific rules like: - everyone gets the same amount of time to talk, - diverse groups, - female leader of the group.
- Supervise the groups, introduce facilitators in each group.
- Where possible, encourage slower speaking pace, and validate code-switching or informal language as legitimate forms of participation.
- Provide anonymous feedback forms and improve.

ADDITIONAL SUGGESTIONS

- Active listening: Listen to understand, not just to respond. Acknowledge others' points before presenting your own.
- Avoid interruptions: Give speakers time to finish their thoughts before responding or raising new points.

- Confidentiality: Respect the confidentiality of sensitive topics discussed in the group, if relevant.
- Focus on the topic: Stay on topic and avoid derailing the conversation with unrelated issues.
- Use “I” Statements: Share personal perspectives using “I” statements to avoid assigning blame (e.g., “I feel that…” instead of “You are wrong because…”).
- Encourage participation: Actively invite quieter members to contribute to ensure a balanced discussion.
- Be mindful of time: Stick to time limits for speaking and respect the group’s schedule.
- Midway through group work, pause to ask, "Whose voices have we not heard yet? Whose lived experiences are missing from this conversation?"
- Avoid assumptions: Do not assume others' intentions, knowledge, or experiences, ask questions instead.
- Address conflict respectfully: Disagreements are inevitable, but should be addressed respectfully, focusing on ideas, not individuals.
- Take breaks: Allow time for breaks during longer discussions to recharge and reflect.
- Be open to change: Be willing to change your perspective if new evidence or arguments are convincing.
- No dominating the conversation: Ensure no single voice overshadows others, balance is key.
- Use simple language: Avoid jargon or overly complex language to ensure inclusivity.
- Appreciate effort: Acknowledge and appreciate the effort others put into their contributions.
- Body language matters: Be mindful of your nonverbal communication (e.g., gestures, tone, facial expressions) as it can impact the discussion.
- Celebrate diversity: Value and embrace the diversity of perspectives, experiences, and ideas within the group.
- Agree on actions: When decisions are made, ensure clarity on the next steps and who is responsible.
- Incorporate tools for inclusivity: Use tools like sticky notes, collaborative whiteboards, or digital polls so everyone can contribute, even if they are less comfortable speaking aloud.
- Encourage small-group breakouts: If working in a larger group, break into smaller, diverse teams to ensure everyone has more time to contribute.

- Enforce accountability: Periodically review whether the rules are being followed and hold participants accountable (e.g., call out positive behaviours and gently correct problematic ones).
- Evaluate and adapt rules: After a few sessions, revisit the rules with the group to see if they remain relevant or need adjustments.

3.9.2. WORKING GROUP ACTIVITIES

Working group activities are a core component of the training, encouraging collaboration, peer learning, and hands-on problem solving. These sessions allow participants to apply their knowledge, share diverse perspectives, and co-develop practical solutions to energy poverty challenges.

INTRODUCING THE GROUP WORK

Within both the international and local training courses, working group activities play a crucial role in raising participants' awareness of energy poverty, fostering insightful discussions, and encouraging the exchange of opinions and knowledge with individuals who may have different perspectives on the issue. To enhance the effectiveness of these activities, the POWERINGCITIZENS project partners have designed and developed specific, detailed worksheets.

Participants were asked to select a country or region, or come up with an imagined place. The worksheets guide to answer the key questions and facilitate a meaningful discussion. By addressing various aspects of energy poverty, they help create a clear pathway toward a more comprehensive assessment of the issue. Below, these worksheets are presented along with their specific questions:

1. Potential problems of the place (e.g., energy, economic, environmental, etc.).
2. Propose potential solutions for tackling the problems in point #2 of this list.
3. Discussion of the proposed ideas/solutions among the working group itself.
4. What about the RECs? Might it be applicable in the region/country where you come from?

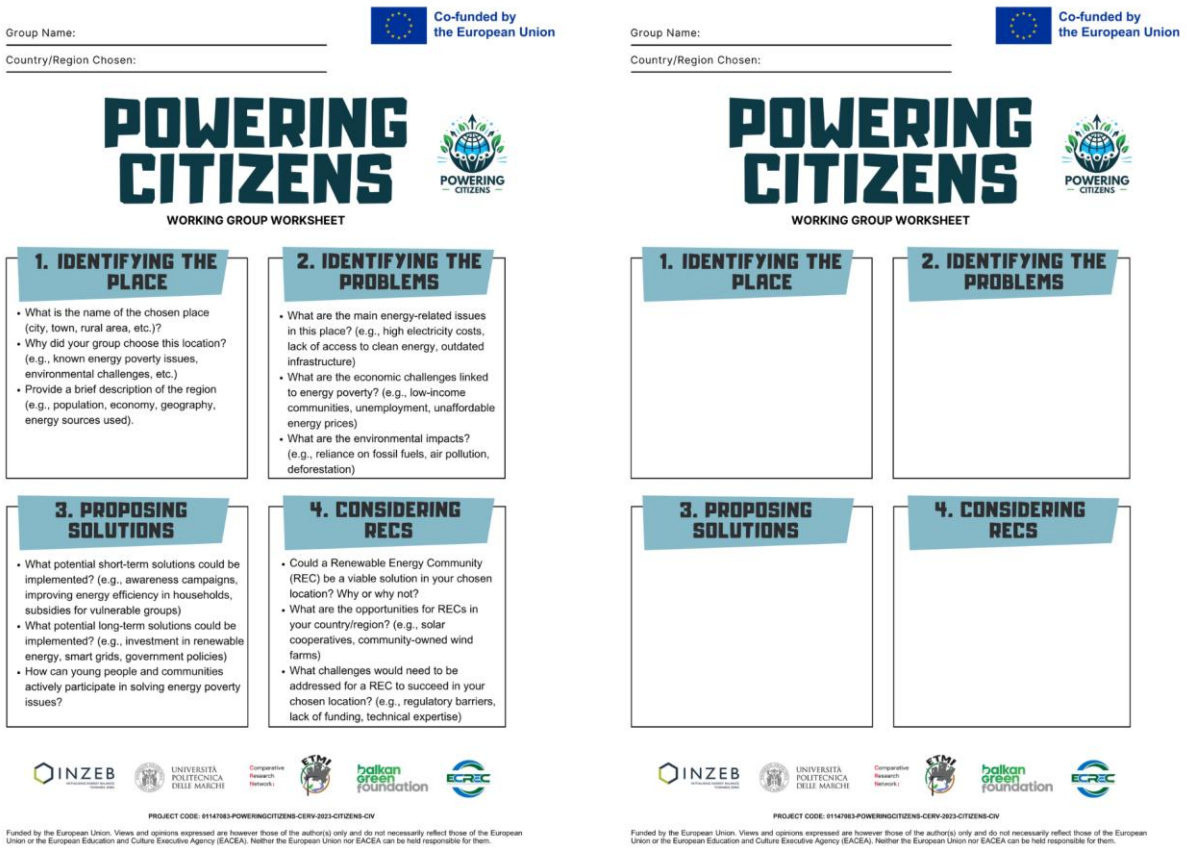

Figure 2: Working group worksheet, guiding questions and answer sheet

GENDER-INCLUSIVE FACILITATION TIPS FOR TRAINERS

During group presentations and discussions, trainers should remain attentive to gender dynamics. Ensure that women and gender-diverse participants have equal opportunities to present and contribute. Encourage balanced speaking time within each group and actively invite women to share their insights, especially in contexts where they may be underrepresented in technical or policy discussions. Remind participants that energy poverty often has a gender dimension, such as the disproportionate impact on single mothers, older women, or women in rural areas, which can enrich the analysis and relevance of the group's findings. Creating a respectful and inclusive environment helps surface diverse perspectives and leads to more holistic solutions.

PRESENTATION OF THE WORKING GROUPS' RESULTS

At the end of the group discussions, each team is invited to present the outcomes of their work to the rest of the participants. This step is essential for sharing researched, local or imagined

perspectives on energy poverty, comparing regional challenges, and highlighting creative solutions developed during the group activity. Presentations can follow the structure of the worksheets, allowing each group to:

- Introduce the chosen place or region and explain why it was selected.
- Outline the key energy-related, economic, or environmental problems identified in that area.
- Share the potential solutions discussed by the group, including both policy-level and grassroots initiatives.
- Reflect on how the group collaborated to refine their ideas and what alternative perspectives emerged during the discussion.
- Consider the applicability of RECs in their context, discussing the opportunities and barriers that might affect implementation.

To support this process, trainers or facilitators may pose the following guiding questions:

- What makes the selected region/place particularly vulnerable to energy poverty?
- Which stakeholders are most affected by the issues you identified?
- Are the proposed solutions realistic in terms of time, resources, and political support?
- Did your group face any disagreements? How did you reach consensus or integrate diverse opinions?
- How do the challenges and ideas presented relate to your own country or experience?
- What role could citizens or communities play in the energy transition of this place?
- In your opinion, would a REC work here? Why or why not?

The presentation phase is not only an opportunity for participants to showcase their critical thinking and creativity but also a moment to learn from the other groups and deepen their understanding of the diversity of energy poverty experiences across the region, Europe and beyond. Trainers are encouraged to moderate this session to connect the presented ideas with real-world practices and foster constructive dialogue among all participants.

WORKSHEET VARIATIONS

This worksheet's variation provides an interactive alternative to traditional presentations, allowing participants to actively engage with energy-related data and develop essential research skills. Instead of passively receiving information, participants can use the given resources or explore online sources to investigate the energy situation in a country of their choice. This hands-on approach helps them learn where to find relevant information, what types of data are available, and how energy-related factors differ across countries.

The worksheet tasks, such as examining electricity mixes, electricity prices, and median income, lead participants to discover a variety of statistics and maps, broadening their understanding of

the topic. Using worksheets before the working groups on RECs can be particularly beneficial, as they equip participants with basic knowledge that enhances later discussions. For instance, during the CRN workshop, one group researched energy data for Sardinia, which later became the focus of their working group discussions, demonstrating how background knowledge strengthens problem-solving and decision-making. Encouraging participants to choose their own country and explore different information sparked curiosity and reinforced their motivation to learn more.

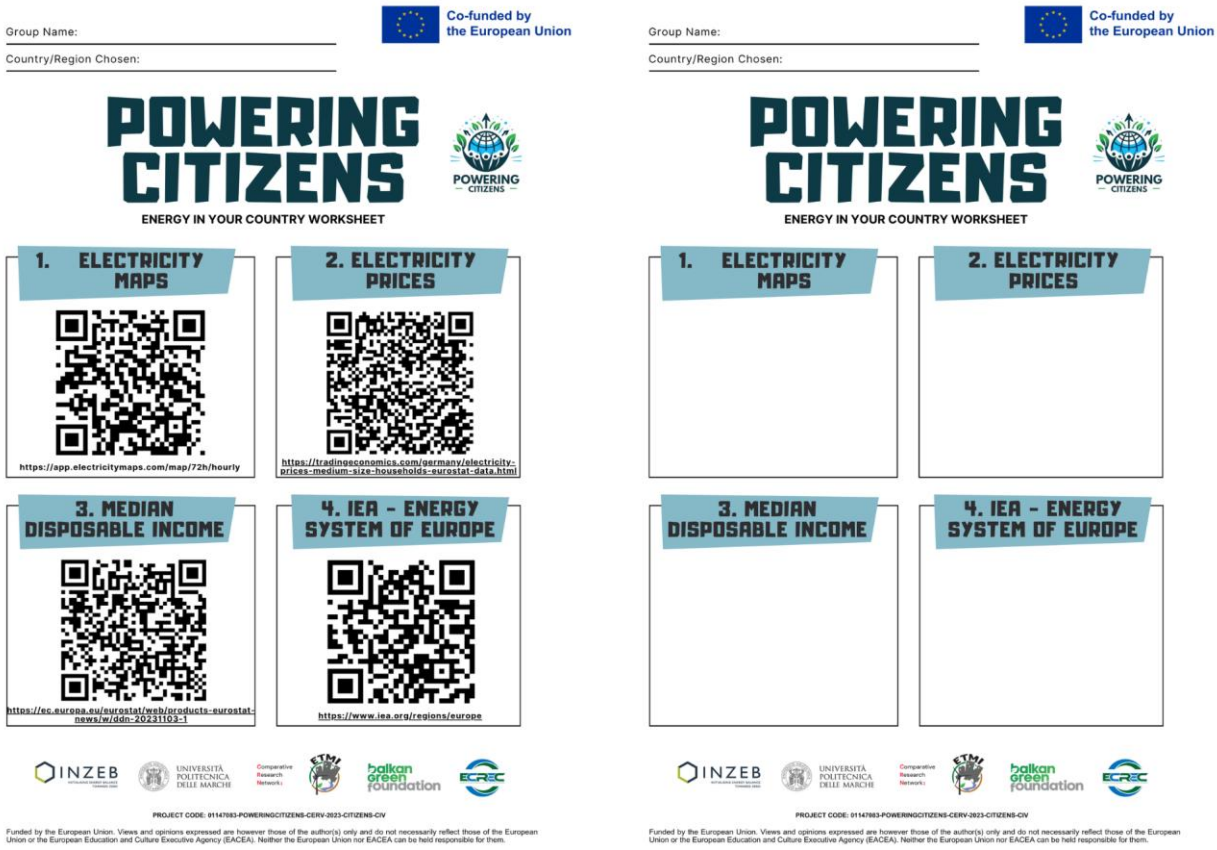

Figure. 3: Energy in your country worksheet, links to relevant websites and answer sheet

4. TOOLS FOR ENERGY ADVISORS

Based on the Gaming for Energy Transition of Rural Areas (GETA) project [73] and the Energy Poverty Tool (GETA tool), a dedicated questionnaire has been developed to measure the level of energy poverty. In creating this questionnaire, 13 key indicators were selected from the EPAH list, as they were considered the most representative and suitable for the local context. These indicators provide a comprehensive framework for evaluating economic vulnerability, housing conditions, and access to essential energy services.

The GETA Project is an EU-funded initiative aimed at empowering young people in rural Western Balkan communities to address energy poverty and support the region's energy transition. Running from January 2023 to December 2024, the project brought together four partners: two from the Western Balkans and two from the European Union. GETA focused on equipping youth workers with expertise in energy efficiency and renewable energy through non-formal education methods. A key tool in this process is the GETA webapp, which facilitates the evaluation of energy needs and the development of localised solutions.

Following the selection of indicators, the questionnaires in [74] were created using the EUSurvey platform, allowing them to be completed either online or in physical format (available as pdf under the same link), depending on which method is considered more practical for the target group or setting.

To ensure broad and effective use by all project partners, the questionnaires were translated and adapted into the respective languages of each partner involved. These questionnaires were specifically used to assess the level of energy poverty in households in Albania and Kosovo, offering a clearer picture of the energy-related challenges faced by citizens in both countries.

https://ec.europa.eu/eusurvey/runner/POWERINGCITIZENS

5. CONCLUSIONS AND RECOMMENDATIONS

The POWERINGCITIZENS Training Materials (available at poweringcitizens.eu) and the accompanying Training Guide are invaluable resources designed to equip energy mentors with the critical knowledge, tools, and methodologies necessary to address the complex issue of energy poverty. By providing comprehensive, well-structured international and local training sessions, the program has enabled participants to gain a deeper understanding of energy poverty, promote energy efficiency, and engage effectively with communities to foster a culture of energy citizenship.

The insights gathered from trainers and participants across various partner countries have been instrumental in continuously refining the training approach. These experiences underscore the importance of integrating cultural sensitivity, adapting to local contexts, and utilising interactive learning techniques in addressing energy challenges. The guide is a reflection of these lessons, presenting a flexible yet structured framework designed to be easily tailored by educators, community leaders, and NGOs who are interested in either replicating or adapting the training for use in their own regions.

By broadening the scope of knowledge-sharing and emphasizing the flexibility of the training, this resource encourages local stakeholders to adjust the curriculum to suit their unique regional needs and challenges. It also fosters a collaborative learning environment where different communities can share best practices, strategies, and experiences in combating energy poverty. The comprehensive nature of the guide ensures that it can be applied across various geographic and socio-economic contexts, making it a versatile tool for empowering communities to take control of their energy use and address energy poverty at a local level.

RECOMMENDATIONS

WIDER IMPLEMENTATION AND ADAPTATION

The methods and materials outlined in this guide have been intentionally designed with flexibility in mind, making them easily adaptable to a wide range of contexts. Educators, community leaders, and organizations are strongly encouraged to implement these training modules, tailoring them to reflect the specific needs, cultural nuances, and socio-economic conditions of their local communities. This customization will help ensure that the training resonates with participants and that the methods employed are as impactful as possible. By making adjustments to suit the local context, the program can address the unique challenges faced by different regions, maximizing the potential for sustainable, long-term change. Moreover, local adaptation ensures that solutions remain relevant and practical, empowering communities to take meaningful steps towards improving energy efficiency and alleviating energy poverty.

SELF-EDUCATION AND AUTONOMOUS LEARNING

In addition to being a valuable resource for formal training, the materials provided in this guide are ideal for supporting self-directed learning. Citizens who are passionate about advocating for energy justice can use the guide as a self-study resource, enabling them to independently explore the complexities of energy poverty and discover community-based solutions. Through engaging training modules, interactive activities, and reflective exercises, individuals can develop a deeper understanding of energy challenges while cultivating the skills necessary to engage with others and drive positive change within their communities. By empowering individuals to take control of their learning journey, the guide encourages personal development and fosters a sense of responsibility towards creating more energy-conscious societies.

STRENGTHENING COMMUNITY NETWORKS

Beyond the training sessions themselves, organizing local events such as energy cafés and community workshops can serve as powerful tools for extending the reach of the program and building a more connected, energy-aware community. These informal gatherings provide an opportunity for citizens to exchange knowledge, share experiences, and collaborate on initiatives related to sustainable energy practices. They also foster a sense of community ownership, allowing individuals to take active roles in developing and implementing energy solutions. By nurturing local energy networks, these events can lay the foundation for collective action, creating a ripple effect that encourages widespread participation in energy efficiency programs, while also supporting the creation of locally-driven, sustainable initiatives that respond to the unique needs of each community. By leveraging the strengths of both individual learning and community collaboration, the recommendations outlined in this guide pave the way for a more inclusive, engaged, and sustainable approach to tackling energy poverty and fostering energy citizenship.

INTEGRATION WITH POLICY ADVOCACY

Community leaders who have been trained through this program should be strongly encouraged to engage in both local and national dialogues surrounding energy policies and decision-making processes. These trained leaders, with their deep understanding of energy poverty and community needs, can offer invaluable grassroots perspectives that often go unrepresented in top-down policy discussions. By contributing to the policy conversation, they can advocate for policies that better reflect the real-world challenges faced by communities, ensuring that energy solutions are both inclusive and effective. Furthermore, these insights can help shape more equitable energy policies that prioritize sustainability, affordability, and accessibility for all. The program's focus on community empowerment can thus extend beyond local actions and play a pivotal role in influencing broader energy systems and governance structures.

RESOURCE SHARING AND OPEN ACCESS

All training materials, including modules, guides, and interactive resources, are available at poweringcitizens.eu and should be actively promoted as Open Educational Resources (OER). By making these resources freely accessible to a global audience, the program can extend its impact well beyond the initial geographic boundaries of the project. Open access to these materials enables communities worldwide, regardless of their location or financial means, to engage with and benefit from the knowledge, tools, and methodologies provided. This approach supports a community-driven energy transition on a much larger scale, empowering citizens from diverse regions to address energy poverty, promote energy efficiency, and build sustainable energy solutions in their local contexts. By fostering a culture of knowledge sharing and collaboration, this open access model contributes to creating a global movement towards a more sustainable, equitable energy future.

CONTINUOUS FEEDBACK AND IMPROVEMENT

Just as this guide has evolved through feedback from past participants and trainers, future versions of the guide should continue to incorporate the insights, experiences, and suggestions of new trainers, community leaders, and participants. This continuous process of feedback and iteration will ensure that the training materials remain relevant, effective, and reflective of the evolving challenges and opportunities in the field of energy poverty. It will also allow for the integration of best practices from various regions, further enhancing the guide's adaptability and applicability in different socio-economic and cultural contexts. By remaining open to ongoing input, the program can evolve in tandem with the shifting landscape of energy issues, ensuring it continues to meet the needs of communities and drive long-term, impactful change.

By embracing and acting upon these recommendations, educators, community leaders, and organizations can fully leverage the POWERINGCITIZENS Training Guide to catalyse meaningful change in energy-poor communities. This will not only contribute to alleviating energy poverty but will also promote a more sustainable, just, and equitable energy future for all, laying the groundwork for continued collaboration and progress in the energy transition.

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7. APPENDIX

1. WORKING GROUP WORKSHEET

2. ENERGY IN YOUR COUNTRY WORKSHEET

3. POWERINGCITIZENS ENERGY POVERTY SURVEY

Group Name:

Country/Region Chosen:

Co-funded by the European Union

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WORKING GROUP WORKSHEET

1. IDENTIFYING THE PLACE

- What is the name of the chosen place (city, town, rural area, etc.)?
- Why did your group choose this location? (e.g., known energy poverty issues, environmental challenges, etc.)
- Provide a brief description of the region (e.g., population, economy, geography, energy sources used).

2. IDENTIFYING THE PROBLEMS

- What are the main energy-related issues in this place? (e.g., high electricity costs, lack of access to clean energy, outdated infrastructure)
- What are the economic challenges linked to energy poverty? (e.g., low-income communities, unemployment, unaffordable energy prices)
- What are the environmental impacts? (e.g., reliance on fossil fuels, air pollution, deforestation)

3. PROPOSING SOLUTIONS

- What potential short-term solutions could be implemented? (e.g., awareness campaigns, improving energy efficiency in households, subsidies for vulnerable groups)
- What potential long-term solutions could be implemented? (e.g., investment in renewable energy, smart grids, government policies)
- How can young people and communities actively participate in solving energy poverty issues?

4. CONSIDERING RECS

- Could a Renewable Energy Community (REC) be a viable solution in your chosen location? Why or why not?
- What are the opportunities for RECs in your country/region? (e.g., solar cooperatives, community-owned wind farms)
- What challenges would need to be addressed for a REC to succeed in your chosen location? (e.g., regulatory barriers, lack of funding, technical expertise)

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Group Name:

Country/Region Chosen:

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WORKING GROUP WORKSHEET

1. IDENTIFYING THE PLACE

2. IDENTIFYING THE PROBLEMS

3. PROPOSING SOLUTIONS

4. CONSIDERING RECS

INZEB INITIALISING ENERGY BALANCE TOWARDS ZERO

UNIVERSITÀ POLITECNICA DELLE MARCHE

Comparative Research Network

ETMI

balkan green foundation

ECREC

PROJECT CODE: 01147083-POWERINGCITIZENS-CERV-2023-CITIZENS-CIV

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Group Name:

Country/Region Chosen:

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ENERGY IN YOUR COUNTRY WORKSHEET

1. ELECTRICITY MAPS

https://app.electricitymaps.com/map/72h/hourly

2. ELECTRICITY PRICES

https://tradingeconomics.com/germany/electricity-prices-medium-size-households-eurostat-data.html

3. MEDIAN DISPOSABLE INCOME

https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20231103-1

4. IEA - ENERGY SYSTEM OF EUROPE

https://www.iea.org/regions/europe

INZEB INITIALISING ENERGY BALANCE TOWARDS ZERO

UNIVERSITÀ POLITECNICA DELLE MARCHE

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PROJECT CODE: 01147083-POWERINGCITIZENS-CERV-2023-CITIZENS-CIV

Group Name:

Country/Region Chosen:

Co-funded by the European Union

POWERING CITIZENS

ENERGY IN YOUR COUNTRY WORKSHEET

1. ELECTRICITY MAPS

2. ELECTRICITY PRICES

3. MEDIAN DISPOSABLE INCOME

4. IEA - ENERGY SYSTEM OF EUROPE

PROJECT CODE: 01147083-POWERINGCITIZENS-CERV-2023-CITIZENS-CIV

Energy Poverty Survey

Fields marked with * are mandatory.

This survey aims to identify energy poverty in the EU and Western Balkans—it is being conducted as part of the "POWERINGCITIZENS" project, implemented by Kosovo (BGF), the Netherlands (ECREC), Germany (CRN), Italy (UNIVPM), Greece (INZEB), and Albania (ETMI).

The project is funded by the European Commission through the CERV Program, and aims to empower citizens by promoting clean energy and addressing energy poverty—this includes training and engagement to help vulnerable groups gain fairer and more sustainable access to energy.

Demographic Data

* **Gender**
  - ○ Female
  - ○ Male
  - ○ Non-binary
  - ○ Prefer not to say

* **Age**
  - ○ 18 or less
  - ○ 19-39
  - ○ 40-59
  - ○ 60-79

- 80 or more

* **In which country do you live?**
  - Italy
  - Albania
  - Greece
  - Germany
  - Kosovo
  - Netherlands
  - Other (please specify)

Other:

* **What is your education level?**
  - Lower than upper secondary school
  - High school
  - Gymnasium
  - Bachelor's degree or similar
  - Master's degree or similar
  - PhD or similar
  - Other (please specify)

Other:

Arrears on utility bills

* **In the past 5 years, how many times have you had delays in paying your energy bill?**
  - 0
  - 1-2
  - 3-5
  - More then 5

Inability to keep home adequately warm

* **How do you evaluate the energy efficiency of your building?**
  - Very unsatisfied
  - Unsatisfied
  - Neutral
  - Satisfied
  - Very satisfied

* **Does your house have thermal insulation?**
  - Yes
  - No
  - I don't know

* **What is the age of the building you live in?**
  - Less than 25 years
  - 25-35
  - 36-60
  - Older than 60 years

* **Which is your level of satisfaction/dissatisfaction with the insulation of doors and windows?**
  - Very unsatisfied
  - Unsatisfied
  - Neutral
  - Satisfied
  - Very satisfied

* **Which is your level of satisfaction/dissatisfaction with the energy efficiency of your devices?**
  - Very unsatisfied
  - Unsatisfied
  - Neutral
  - Satisfied
  - Very satisfied

High share of energy expenditure in income

* **How many people work in your household?**
  - 0
  - 1
  - 2
  - 3
  - 4
  - 5
  - More than 5

* **What is your monthly family income?**
  - Less than 300 €
  - 300 – 700 €
  - More than 700 €
  - I don’t know
  - I prefer not to answer

* **What is the portion of the family's income needed to cover energy bills?**
  - Less than 10 %

- 10 – 30 %
- More than 30 %
- I don’t know

Population living dwelling comfortably cool during summer time

* **How do you assess living conditions in terms of comfort during the summer period?**
  - Very unsatisfied
  - Unsatisfied
  - Neutral
  - Satisfied
  - Very satisfied

* **What is the temperature you keep inside your home during the summertime?**
  - < 18°C
  - 18°C – 24°C
  - 25°C – 28°C
  - 29°C – 35°C
  - > 35°C
  - I don't know

Population living in dwellings comfortably warm during wintertime

* **Is your dwelling comfortable in the winter period?**
  - Very unsatisfied
  - Unsatisfied
  - Neutral
  - Satisfied
  - Very satisfied

* **What is the temperature you keep inside your home during the wintertime?**
  - <15°C
  - 15°C - 18°C
  - 18°C - 22°C
  - >22°C
  - I don't know

Population living in dwellings equipped with heating

* **What is the heating system used in your home?**
  - Gas heating (boiler or gas stove)
  - District heating
  - Electric heating (radiators, heat pumps, air conditioning)
  - Wood-burning fireplace

- Underfloor heating (electric or hydronic)
- Biomass heating (pellet or wood stove)
- Other (please specify)

Other:

* **What type of energy carrier (fuel) do you use for heating?**
  - Gas
  - Electricity
  - Coal
  - Wood
  - Renewables
  - Biomass
  - Other (please specify)

Other:

Population living in dwellings equipped with air conditioning

* **How many rooms in your home are air-conditioned?**
  - 0
  - 1
  - 2-3
  - 4-5
  - More than 5

* **How many hours a day is the air conditioner switched on during a summer day?**
  - Less than 1
  - 1-2
  - 3-4
  - More than 4

* **How many hours a day is the heating system switched on during a winter day?**
  - Less than 1
  - 1-2
  - 3-4
  - More than 4

Population living in dwellings with the presence of leaks, damp, and rot

* **Do you have any of the following problems with your dwelling/accommodation?**

- A leaking roof
- Damp walls/floors/foundation
- Mold in window frames or floor
- None of the previous answers

Household electricity prices

* **What is the electricity price for your home?**
  - Expensive
  - Neutral
  - Affordable

Household natural gas price

* **What is the natural gas price for your home?**
  - Expensive
  - Neutral
  - Affordable
  - I don’t use natural gas in my home

Vulnerability to economic difficulties

* **Have you ever had difficulty covering essential expenses such as rent or food over the past 5 years?**
  - Never
  - Sometimes
  - Often
  - Most of the time
  - Always
  - I prefer not to answer

* **Have you ever had to give up attending activities such as dinners with friends, cultural events, or outings because you had to allocate your financial resources to pay energy bills?**
  - Never
  - Sometimes
  - Often
  - Most of the time
  - Always
  - I prefer not to answer

Number of rooms per person and ownership status

* **What is the ownership status of your home?**

- Tenancy
- Own home with mortgage
- Own home without mortgage

* **What kind of housing do you live in?**
  - In an apartment
  - In a single-family house
  - Other (please specify)

Other:

* **How many people live in your home?**
  - 1
  - 2
  - 3
  - 4
  - 5
  - More than 5

* **How many rooms do you have in your home?**
  - 1
  - 2-5
  - More than 5

Type of energy carrier

Indicate the energy carrier for the following services:

* **Heating**
  - Natural Gas
  - Electricity
  - Other (please specify)

Other:

* **Domestic hot water**
  - Natural Gas
  - Electricity
  - Renewables
  - Other (please specify)

Other:

* **Cooling**

- Natural gas
- Electricity
- Other (please specify)

Other:

* **Cooking**

- Natural gas
- Electricity
- Other (please specify)

Other:

* **Lighting**

- Electricity
- Other (please specify)

Other:

Other services

- Natural Gas
- Electricity
- Other (please specify)

Other:

Thank You!

ISBN 978-3-946832-74-4

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