dialogues

Energy citizenship
for a sustainable future

Deliverable 5.2

The Experts' Perspective on Building Local Energy Citizenship

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1 Executive Summary

The overarching aim of the DIALOGUES project is to support the Energy Union via operational research concerning energy citizenship, hence encouraging citizens to take a central role in the low-carbon energy transition. The pathways to achieving this transition rely on the engagement of citizens with energy-related topics, awareness of greenhouse gas emissions caused by their individual choices, energy equity, and energy justice. In this respect, DIALOGUES aims to operationalise, contextualise, measure, and support the framework environments, policies, and institutions enabling the emergence of inclusive energy citizenship.

To this end, Deliverable 5.2, “The experts’ perspective on building local energy citizenship” aims to foster direct participation of actors through enhancing dialogue between citizens, policymakers, public authorities, municipalities, and consumer organisations. It further targets to understand citizens’ (politicians, decision-makers and other stakeholders) positions in the energy transition debate and process and to provide a synthesis of pathways to energy citizenship based on project findings. This approach also improves inclusivity and shared ownership of the energy transition. In this context, DIALOGUES particularly focuses on the gender dimension as a cross-cutting phenomenon for inclusivity in the energy transition. In this regard, it utilises the results of 82 semi-structured in-depth interviews with experts from eight partner countries of DIALOGUES, namely, Austria, Bulgaria, Germany, Greece, Italy, Norway, Switzerland, and Türkiye, for co-creating this engagement process. For each country, the experts are selected from people with certified knowledge, direct experience, and involvement in the energy transition in that country and from among non-certified experts, including individual activists. In this sense, the focus on 'experts' aims to better understand how the energy transition is currently represented to ensure more inclusive processes through DIALOGUES. Hence, the experts include public and private sector members, such as public administrations, representatives of utility companies, NGOs, and community associations.

The semi-structured in-depth interviews with experts from the stakeholders in local energy systems are analysed to reveal the reasons for local citizens' engagement (or non-engagement) with the energy transition and energy initiatives. In this way, this report aims to capture the perspectives of the experts on how the energy transition and energy citizenship are framed, with a focus on the current progress in terms of energy citizenship, what challenges are involved in terms of building energy citizenship, and which components of the society are included or excluded in the energy transition and energy citizenship debates in each country. The report also contributes to understanding inter-social and intra-social processes concerning energy citizenship. An analysis of energy initiatives in relation to inclusive energy citizenship will also be analysed in Task 3.3 of DIALOGUES.

The main aspects utilised in analysing the experts’ perspective on building local energy citizenship involve the experts’ viewpoints on facets including technical knowledge,

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process knowledge and interpretative knowledge (Bogner et al., 2009). In this regard, the report classifies the experts' perspectives as:

The technical knowledge pertains mainly to the expert profile, with a focus on the roles and responsibilities of the experts in relation to supporting the energy transition.

The process knowledge refers to the experimentations, structure and interactions within the organisation, engagement of actors, and social and individual dynamics.

The interpretative knowledge aspect pertains to the key issue and challenge of encouraging participation in the energy transition, with particular focus on inclusivity concerning dimensions such as gender, socio-economic background, and age. At this point, the experts are asked to provide their opinions about how the challenge of enlarging and enhancing citizen engagement may be alleviated, especially considering hard-to-reach parts of the society.

The results of Deliverable 5.2. provide information on the themes and pathways towards energy transition and energy citizenship. Regarding the technical knowledge, the results provide perspectives of experts representing varying roles and responsibilities in different countries. This contributes to understanding how energy transition and energy citizenship are conceptualized and implemented in distinct countries and organizations. Concerning the process knowledge, the results illustrate that expert interviewees have experiences at various levels, including the regional or municipality levels, as well as national and even international levels. The most successful initiatives underlined by the experts are initiatives with broader participation, energy communities and energy cooperatives, and initiatives that local governments support. On the other hand, experts identified political and legislative barriers, frequently changing regulations, and bureaucracy, lack of public awareness/knowledge and failure to achieve inclusivity (e.g, particularly for gender, migration, and socio-economic/socio-cultural representation) as the significant obstacles to the energy transition initiatives. Furthermore, the experts' perspectives demonstrate that social change can be mainly achieved through collaboration and cooperation which make dissemination of relevant knowledge and energy communities significant. The results pertaining to the interpretative knowledge show that inclusivity was reflected as the most prominent dimension concerning energy citizenship. In this sense, inclusivity was mostly associated with fair participation, gender equality and justice. In addition, experts resulted that economic reasoning, financial concerns, environment, and health-related considerations shape citizens' participation in the energy transition.

2 Introduction and Scope

The DIALOGUES project aims to support the Energy Union, utilising operational research on energy citizenship to enable citizens to take a central role in the energy transition. In doing so, DIALOGUES will operationalise, contextualise, measure, and support the framework environments, policies and institutions that allow deep, inclusive energy citizenship to emerge. DIALOGUES defines energy citizenship as "the degree to

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which, and the ways in which, the goals of a sustainable energy transition enter into the everyday practices of an individual" (Biresselioglu et al., 2021). The pathways to achieving inclusivity in terms of energy citizenship rely on the engagement of citizens with energy-related topics, awareness of greenhouse gas emissions caused by their individual choices, energy equity, and energy justice. To this end, one of the important pillars of the DIALOGUES approach is to foster direct participation of citizens through enhancing dialogue between citizens, policymakers, public authorities, municipalities, and consumer organisations. This approach also enhances inclusivity and shared ownership of the energy transition.

Work Package 5 of DIALOGUES aims to contribute to citizen engagement via establishing the foundations for the intervention methods and focusing on the potential approaches for designing forms of citizen engagement. In this respect, Work Package 5 aims to bring the energy citizenship assessment tool into the field and get into direct dialogues with citizens in the countries represented in DIALOGUES, politicians, decision-makers, and other stakeholders. Hence, the main objectives are to further understand their positions in the energy transition debate and process, co-design intervention methods and engagement formats applicable in diverse contexts through collaborative work with academics, policymakers, and practitioners, and provide a synthesis of pathways to energy citizenship based on project findings. Within this context, Deliverable 5.2 of DIALOGUES, “The experts’ perspective on building local energy citizenship”, aims to (1) provide insights based on the experts’ perspectives on building energy citizenship for understanding how energy citizenship is currently framed, (2) present how experts understand the energy transition by country, and comparatively across different countries, as well as (3) which parts of the society are included in these framings and whether segments of the society are excluded from such framings.

This deliverable will also support the set-up of the Citizen Action Labs that will be conducted in the context of Work Package 5 of DIALOGUES. In the context of DIALOGUES, a Citizen Action Lab (CAL) is a “person-centered experiment that explores ways to co-create, support, and deepen energy citizenship, through the engagement of diverse actors in a bounded space and time” (Clément et al., 2022). The interviews analysed in this report also act as opportunities for collecting data for Tasks 3.1-3.4, contributing particularly to Task 3.3 through the understanding of the inter-social and intra-social processes on energy citizenship, and filling identified gaps in the database (T4.1).

Facilitating local dialogues with citizens, municipalities, and local stakeholders is one of the main tools of the DIALOGUES project, as DIALOGUES involves a substantial stakeholder exchange component. Through the analysis of the expert interviews, this report also encourages deeper energy citizenship by co-creating empowerment strategies in real-world settings that target collective action, social innovation, governance arrangements, policies, and power dynamics. The overall process is designed as a co-creation approach that utilises social learning to reveal perspectives on energy citizenship and shared visions of sustainable energy futures.

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The semi-structured in-depth expert interviews aim to identify real-life, contemporary experiences and knowledge bases over time via detailed data collection from multiple sources. The interviews were conducted in eight different countries to assure representation, and recruitment was performed to foster the representation of contrasting situations.

To this end, D5.2 “The experts’ perspective on building local energy citizenship” utilises the results of 82 semi-structured in-depth interviews with experts from eight partner countries of DIALOGUES, namely, Austria, Bulgaria, Germany, Greece, Italy, Norway, Switzerland, and Türkiye, for co-creating this engagement process. For each country, the experts are selected from people with certified knowledge and direct experience and involvement in the energy transition in that country, as well as from non-certified experts, including individual activists. In this sense, the focus on 'experts' aims to better understand how the energy transition is currently represented to ensure more inclusive processes through DIALOGUES. For this purpose, three types of stakeholders are identified as experts for the semi-structured in-depth interviews. These are public actors (energy policy makers at local, regional and national levels, including executives or officers in the municipal or mayor offices), energy suppliers (both public and private utility companies); citizen organisations (such as NGOs, associations, activist groups, members of professional chambers, academicians, representatives of private companies).

The semi-structured in-depth interviews with experts from the stakeholders in local energy systems are analysed to reveal the reasons for local citizens' engagement (or non-engagement) with the energy transition and energy initiatives. In this way, this deliverable aims to capture the perspectives of the experts on how energy transition and energy citizenship are framed, with a focus on the current progress in terms of energy citizenship, what challenges are involved in terms of building energy citizenship, and which components of society are included or excluded in the energy transition and energy citizenship discussions in each country. The deliverable also contributes to understanding inter-social and intra-social processes related to energy citizenship.

The main aspects utilised in analysing the experts’ perspective on building local energy citizenship involve the experts’ viewpoints on facets, including technical knowledge, process knowledge and interpretative knowledge (Bogner et al., 2009). This theoretical framework was utilized both in designing the interview guide and in the analysis stage. In the interview guide, these three knowledge types were utilized to defined the context and framework of the interview questions, in order to provide a synthesis of pathways to energy citizenship. In the analysis stage, the knowledge types helped to systematically categorise expert responses in terms of their missions within the organisations, daily practices, implementation/experiences, perceptions toward energy citizenship, social and individual dynamics, inequalities, inclusivity and justice. Three different kinds of knowledge introduced by Bogner et al. (2009) include:

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- "technical knowledge", which "contains information about operations and events governed by rules, application routines that are specific to a field, bureaucratic competences, and so on";

- "process knowledge" which "relates to the inspection of and acquisition of information about sequences of actions, interaction routines, organisational constellations, and past or current events";

- "interpretative knowledge" which refers to "the expert's subjective orientations, rules, points of view and interpretations".

As a result, the analysis provides main themes and pathways toward energy transition and energy citizenship:

- Regarding technical knowledge, it is seen that the experts from different countries have diverse roles and responsibilities, ranging from end customers to climate activists, representatives of utility companies, and policymakers, with a common primary focus on advancing the energy transition.
- Concerning process knowledge, the experts highlighted raising awareness of concepts such as the energy transition, mobility, sustainable transportation, and renewable energy resources. From the perspective of process knowledge, lack of inclusivity, where primarily women, younger age groups, and individuals from different ethnic backgrounds or lower socio-economic statuses are excluded, was concluded as a significant barrier. Moreover, the experts argued that energy cooperatives, energy networks, energy actions, and individual actions motivate citizens to engage in the energy transition. On the contrary, lack of public interest and awareness, regulatory framework, and legislative barriers pose significant barriers for the citizens' engagement.
- The results pertaining to interpretative knowledge have implications in terms of inclusivity and justice, and they show that lack of inclusivity stands out as a key diversity problem. The impacts of gender discrimination, ethnic discrimination or the effect of socio-economic status are discussed as the main hurdles for a just energy transition process. In this sense, inclusivity and procedural justice, recognition justice, and distributive justice are seen as the prerequisites of a fair energy transition. For example, consideration of the underrepresented groups and the hard-to-reach parts of the society is required to enhance energy citizenship.

In what follows, this report defines the methodology utilised for the semi-structured in-depth interviews and the analysis of the interview results, an overview of recruitment and sampling methodologies used, and the expert profiles (Section 3). Section 4 provides a comprehensive analysis to frame energy citizenship with insights from the expert interviews. Subsection 4.1 provides an analysis of the actors in the energy citizenship process. Subsection 4.2 focuses on experimentations, structure and interactions, and perspectives on the engagement of actors are provided in Subsection 4.3. Subsection 4.4 discusses social and individual dynamics, the inclusivity dimension is examined in

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Subsection 4.5, and justice and future perspectives are elaborated in Subsection 4.6. Subsection 4.7 provides the key points not mentioned in the previous subsections but are still relevant to the energy citizenship context. Emerging themes for DIALOGUES energy citizenship pathways are illustrated in Section 5. Concluding remarks are presented in Section 6.

3 Methodology

The overall methodology of Deliverable 5.2 of DIALOGUES is a co-creation approach using social learning to reflect on energy citizenship and shared visions of sustainable energy futures. This deliverable utilises semi-structured in-depth interviews with expert stakeholders engaged in supporting energy transition initiatives that involve citizens. The interviews aim to understand, from the experts' perspective, why citizens engage or do not engage with the energy transition and energy initiatives in the associated countries. These semi-structured in-depth interviews reveal the knowledge and experience of experts, including the best practices, using detailed and in-depth data collection.

When appropriate, sharing previous experience and opinions may facilitate and enrich the data collection for DIALOGUES and contribute to, for instance, the co-design of Citizen Action Labs with the implementation partners. This signifies the question of the content collected during these interviews. According to Van Audenhove and Donders (2019), "expert knowledge" is the result of both "experience, education and scholarship" and the "specific position a person holds in certain processes or in a group" (p.181). More importantly, this knowledge "is generated during the interview exchange rather than that it resides in fixed form in the expert and is excavated by the interviewee" (Van Audenhove and Donders, 2019). This definition of expert knowledge aligns well with DIALOGUES' intention to co-design citizen engagement. In this respect, interviewees can be regarded as experts and citizens engaging in the energy field.

According to Bogner et al. (2009), technical knowledge pertains mainly to the operations and events governed by rules, application routines and bureaucratic competencies specific to a field, demonstrated in the context of the interviews through the roles and responsibilities of the experts in relation to supporting the energy transition.

Process knowledge refers to "the inspection of and acquisition of information about sequences of actions, interaction routines, organisational constellations, and past or current events" (Bogner et al., 2009). During the interviews, process knowledge is addressed through experimentations, structure and interactions within the organisation, engagement of actors, and social and individual dynamics. Experimentations involve the experiences of energy citizenship with a focus on the concrete activities and projects of the experts within their organisations to reveal the previous or ongoing initiatives implemented by these organisations to support the energy transition. Another component of experiences is how the organisation considers the dimensions such as gender, socio-economic background, and age in the implemented or supported initiatives. Structure and interactions within the organisation aim to assess whether

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certain parts of society are underrepresented in the experts' organisations, the gender composition of their organisations and in the governing bodies, the specific challenges that these people face, along with potential pathways to resolve these challenges and foster their engagement with the energy system. The general perspective on the engagement of actors mainly aims at assessing in which ways individuals engage in the energy transition, existing initiatives, successes, and failures, along with specific issues women are facing in the energy transition and whether this differs across other dimensions such as class, age, and race. The social dynamics section aims to capture the experts' perspectives on how social change should occur regarding energy usage and which drivers, including individual behaviour change, political reforms, collective actions, and technology-driven solutions, can contribute to such change.

According to Bogner et al. (2009), the interpretative knowledge aspect refers to "the expert's subjective orientations, rules, points of view and interpretations", addressing the key issue and challenge of encouraging participation in the energy transition. At this point, the experts are asked to provide their opinions about how the challenge of enlarging and enhancing citizen engagement may be alleviated, especially considering hard-to-reach parts of society. This involves the topic of inclusivity, referring to the motivators and barriers for encouraging civic engagement in the energy transition, along with the potential methods, digital tools, and individual or collective approaches that can be utilised. The topic of justice refers to how a just energy transition can be framed in terms of dimensions such as expected levels of participation, the territorial scale of participation, and the size of the community. The last topic is related to future perspectives. It aims at identifying what types of initiatives are seen as promising by the experts and which tools can be employed to include a higher diversity of people in decision-making and to adapt energy services to different needs.

In DIALOGUES, interviewers focus on experts' process and interpretative knowledge to understand how the experts understand pathways to energy citizenship. This approach calls for purposive sampling and semi-structured interviews.

Following the "Operational Guidelines for Conducting Semi-Structured In-depth Interviews" prepared for Task 5.2 by IUE and UNIGE teams, the sampling methodology for the expert interviews is selected as purposeful sampling. Purposive or purposeful sampling is a way of "identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest" (Palinkas et al. 2015; Kalu, 2019; Suri, 2011). There are various selection methods such as "maximum variation sampling", "extreme case sampling", "homogeneous sampling", "criterion sampling", and "snowball sampling". The choice depends on the research population's availability and goal. The goal may vary from identifying all the significant variations of phenomena to focusing on outliers and marginal situations. In DIALOGUES, both homogeneous and extreme case sampling are relevant and complementary. The first ensures a systematic analysis of mainstream energy actors' positions and facilitates cross-national comparison. Focusing also on contrasting cases would then allow for identifying the specificities of the energy field in each country and improve the team's understanding of pathways to energy citizenship.

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The purposeful sampling implemented in these expert interviews series of DIALOGUES identifies three kinds of actors which are public actors (energy policy makers at local, regional, and national levels, including executives or officers in the municipal or mayor offices), energy suppliers (both public and private, utility companies) and citizen organisations (NGOs, associations, activist groups, members of professional chambers, academicians, representatives of private companies, etc.). Accordingly, two methodological criteria were considered to maximise the possibility of generalising the interviews' outcomes and providing adequate input for extrapolation (Eisenhardt, 1989): (1) Representation: The interviews were conducted in various countries and selected based on the adequate distribution of the DIALOGUES project's foci, and (2) Contrasting Situations: The interviewees were chosen to represent contrasting situations in terms of their roles and responsibilities.

The number of in-depth interviews performed by partners involved in Task 5.2 of DIALOGUES was determined considering the PMs allocated per partner and the fact that the in-depth interviews provide useful and reliable results. The effort required for each interview was determined based on an estimate of 15-20 hours per interview, including the process of recruiting, implementation, transcription, and translation. The interviews were recorded and conducted in the native languages of the associated partner. To test and fine-tune the implementation of the in-depth interviews in respective countries, one pilot study was conducted by a partner or member that has not previously been involved in an in-depth interview study. Accordingly, the number of interviews conducted per country is shown in Table 1 below.

COUNTRY	NUMBER OF INTERVIEWS
Austria	11
Bulgaria	10
Germany	10
Greece	10
Italy	10
Norway	11
Switzerland	10
Türkiye	10

Table 1. Number of Interviews that were conducted by each country

For deciding the potential expert interviewees, specific criteria have been determined to achieve homogeneous sampling. These criteria include institutional diversity (public authorities, private companies and NGOs, or associations), level of expertise and experience in local energy systems, geographic location of employment (i.e., employment with organisations located in various regions of the country), the scale of intervention (from the most local initiatives to a larger level), degree of involvement with citizens (direct participation in energy initiatives or coordination role), and gender balance. For the recruitment of the first interviews, professional and personal networks of the DIALOGUES partners were reached out to, followed by snowballing and purposeful sampling to define the sample. The in-depth interviews conducted within the

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framework of DIALOGUES T5.2 are representative in terms of gender distribution and sectoral distribution. Table 2 summarises expert characteristics and profiles.

INTERVIEW CODE	COUNTRY	ROLE
INAT1	Austria	Head of Innovation Department of Austrian Energy Utility
INAT2	Austria	Senior Expert at the Austrian Regulation Agency
INAT3	Austria	CEO of Austrian Energy Consulting Company
INAT4	Austria	Senior Expert for Energy Communities in Federal Government
INAT5	Austria	Senior Expert in Austrian Energy Cooperation Start-up
INAT6	Austria	Senior Expert for Gender/Inclusivity in Austrian non-profit research organisation
INAT7	Austria	Senior Expert for Technology Acceptance at an Austrian University
INAT8	Austria	Senior Project Manager at a research centre for energy efficient construction
INAT9	Austria	Senior Expert for Energy Communities in Federal Government
INAT10	Austria	Professor of Psychology/ Expert for energy citizenship topics at an Austrian University
INAT11	Austria	Project Manager of a Sustainability Consulting Company
INBG1	Bulgaria	Senior expert at a local municipality
INBG2	Bulgaria	Academic (expert on energy topics)
INBG3	Bulgaria	Expert at the local municipality
INBG4	Bulgaria	Expert at a national CSO that campaigns for energy sustainability
INBG5	Bulgaria	Expert at an energy agency providing energy sustainability solutions to national and local authorities and enterprises
INBG6	Bulgaria	Two experts (senior and mid-level) at the Energy and Climate Division of a national NGO campaigning for environmental and energy sustainability
INBG7	Bulgaria	Senior expert on energy innovations and environmental issues at a national utility company
INBG8	Bulgaria	Entrepreneur, member of a non-profit association of business enterprises and experts interested in RES
INBG9	Bulgaria	Senior expert on energy topics at a local municipality
INBG10	Bulgaria	Representative of a local municipality
INDE1	Germany	CEO of a digital platform for energy citizenship projects
INDE2	Germany	CEO of a network for energy citizenship
INDE3	Germany	Board of a renewable energy cooperative and political activist
INDE4	Germany	Head of the political representation of an energy enterprise
INDE5	Germany	Member of the German parliament (Green Party)
INDE6	Germany	Former member of the German parliament (Social Democratic Party)

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INDE7	Germany	Board of a renewable energy cooperative and active member of FridaysForFuture initiative
INDE8	Germany	CEO of an NGO supporting intercultural ecological work
INDE9	Germany	Project leader for energy citizenship initiatives
INDE10	Germany	Board of a renewable energy cooperative
INGR1	Greece	University Professor
INGR2	Greece	University Professor
INGR3	Greece	High-level energy consultant in Ministry of Environment and Energy
INGR4	Greece	High-level representative in RES Association
INGR5	Greece	Founder of an Energy Cooperative
INGR6	Greece	High-level officer in Ministry of Environment and Energy
INGR7	Greece	High-level officer in the Electricity Distribution Network Operator
INGR8	Greece	High-level officer in Energy Communities Federation
INGR9	Greece	Mayor of a small island
INGR10	Greece	Vice Mayor of a big island municipality
INIT1	Italy	High-level representative of an environmental NGO
INIT2	Italy	SME energy efficiency
INIT3	Italy	High-level representative energy cooperative
INIT4	Italy	Entrepreneur, scientific director, Business NGO
INIT5	Italy	Head of energy agency
INIT6	Italy	Energy cooperative executive manager
INIT7	Italy	Architect
INIT8	Italy	Energy cooperative executive manager
INIT9	Italy	Foundation executive manager
INIT10	Italy	Physicist and environmental engineer
INNO1	Norway	Representative of a public agency that support energy reduction and sustainable transformation measures
INNO2	Norway	Academic expert with expertise in people-centred and gender sensitive approaches to energy transitions
INNO3	Norway	Representative for a member-owned organisation working to make the construction and real-estate sector more sustainable
INNO4	Norway	Representative of environmental interest organisation
INNO5	Norway	Representative of a local government with expertise in civic involvement and co-creation processes
INNO6	Norway	Energy advisor in a county council administration
INNO7	Norway	Project leader with expertise in leading a community development and capacity building project
INNO8	Norway	Entrepreneur entering the energy sector to establish a new business model
INNO9	Norway	Representative of an environmental interest organisation
INNO10	Norway	Representative of an association organising small-scale power plants
INNO11	Norway	Representative of a large European actor organising and representing small power plants

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INCH1	Switzerland	Consultant in an environmental NGO
INCH2	Switzerland	NGO director and elected representative
INCH3	Switzerland	High-level representative from private utility company and representative from private utility company
INCH4	Switzerland	Representative from private utility company
INCH5	Switzerland	Head of an energy community network
INCH6	Switzerland	Representative of the cantonal energy department
INCH7	Switzerland	Researcher in social science, expert in sustainable practices
INCH8	Switzerland	Energy consultant for public authorities
INCH9	Switzerland	High-level representative of the federal energy department
INCH10	Switzerland	Climate activist
INTR1	Türkiye	High-level representative from the Ministry of Energy and Natural Resources
INTR2	Türkiye	High-level representative from Metropolitan Municipality
INTR3	Türkiye	Director of research-oriented environmental NGO
INTR4	Türkiye	Journalist/Activist
INTR5	Türkiye	High-level Representative from Private Utility Company
INTR6	Türkiye	Consultant to Local Government on Climate Change and Sustainability/Author
INTR7	Türkiye	High-level Representative from State-owned Electricity Generation Company
INTR8	Türkiye	Representative from a National Committee of Women in Energy Sector
INTR9	Türkiye	Representative of a Professional Network for Women in Turkish Energy Sector
INTR10	Türkiye	Coordinator of Turkish Section of NGO Coalition Network

Table 2. Expert characteristics and profiles

The in-depth interview guideline was designed and prepared by IUE and UNIGE teams. Following the guideline, each partner started the recruitment process in their country. The recruitment procedures began in December 2021, and the in-depth interviews were conducted between January 2022 and April 2022. The duration of the in-depth interviews was 45-90 minutes per interview. A total of 82 in-depth interviews were carried out in partner countries. All interviews were recorded, following the consent of the informants through written and signed consent forms provided in Appendix A. Then, the recordings of the expert interviews conducted in national languages were transcribed and translated into English by each partner. Each partner submitted the translated and anonymised versions of their interviews to the DIALOGUES repository. The IUE team designed a sample template for reporting the results of the interviews. Then, each partner utilised the template, conducted systematic coding, and shared their preliminary analysis with the IUE team. After collecting the country reports prepared by each partner, the IUE team utilised the transcriptions, and country reports, performing further systematic coding.

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The results of the in-depth interviews were checked and analysed through triangulation. Triangulation is a significant part of the methodology of Task 5.2 to ensure the credibility and validity of the conclusions drawn from the in-depth interviews. As Denzin (1970) discussed, there are four types of triangulation: data, methods, researcher, and theory, to reinforce the robustness and solidity of the analysis. From DIALOGUES' perspective, researcher and data triangulation are employed together. By doing so, three different researchers bring their method skills, using three different types of triangulation. To this end, the three types of actors with diverse perspectives, roles, and experiences were defined and selected. The triangulation is further supported by comparing and aligning the data from the interviews with findings from literature and earlier studies and utilising different researchers to study the same corpus of text.

The triangulation method enabled us to derive themes and parameters regarding energy citizenship through systematic coding. This deliverable utilised open coding, axial coding, and selective coding (Holton, 2010; Vollstedt and Rezat, 2019; Böhm, 2004). In the initial stage, open coding was employed to frame the text data and divide it into smaller pieces as labelled words or phrases in the form of codes. "Inclusivity", "gender", "ethnic", "discrimination", "energy communities, "energy cooperatives", "procedural justice", "recognition justice", and "distributive justice" are some of the example codes for the open coding stage. The codes derived from the first stage were combined in the next phase. Axial coding was conducted to identify the similarities and differences and to categorise the open codes. This categorisation is reflected in the subsections of Section 4.

Moreover, in the axial coding stage, the interlinkages between the concepts and codes were detected and demonstrated, identifying the intersections and variances among the corpus. In the final stage, selective coding was applied to re-evaluate the collected themes and re-read the existing corpus to extract quotations and shed light on the emerging themes for DIALOGUES energy citizenship pathways.

Figure 1 illustrates the methodological framework implemented for Deliverable 5.2 of DIALOGUES.

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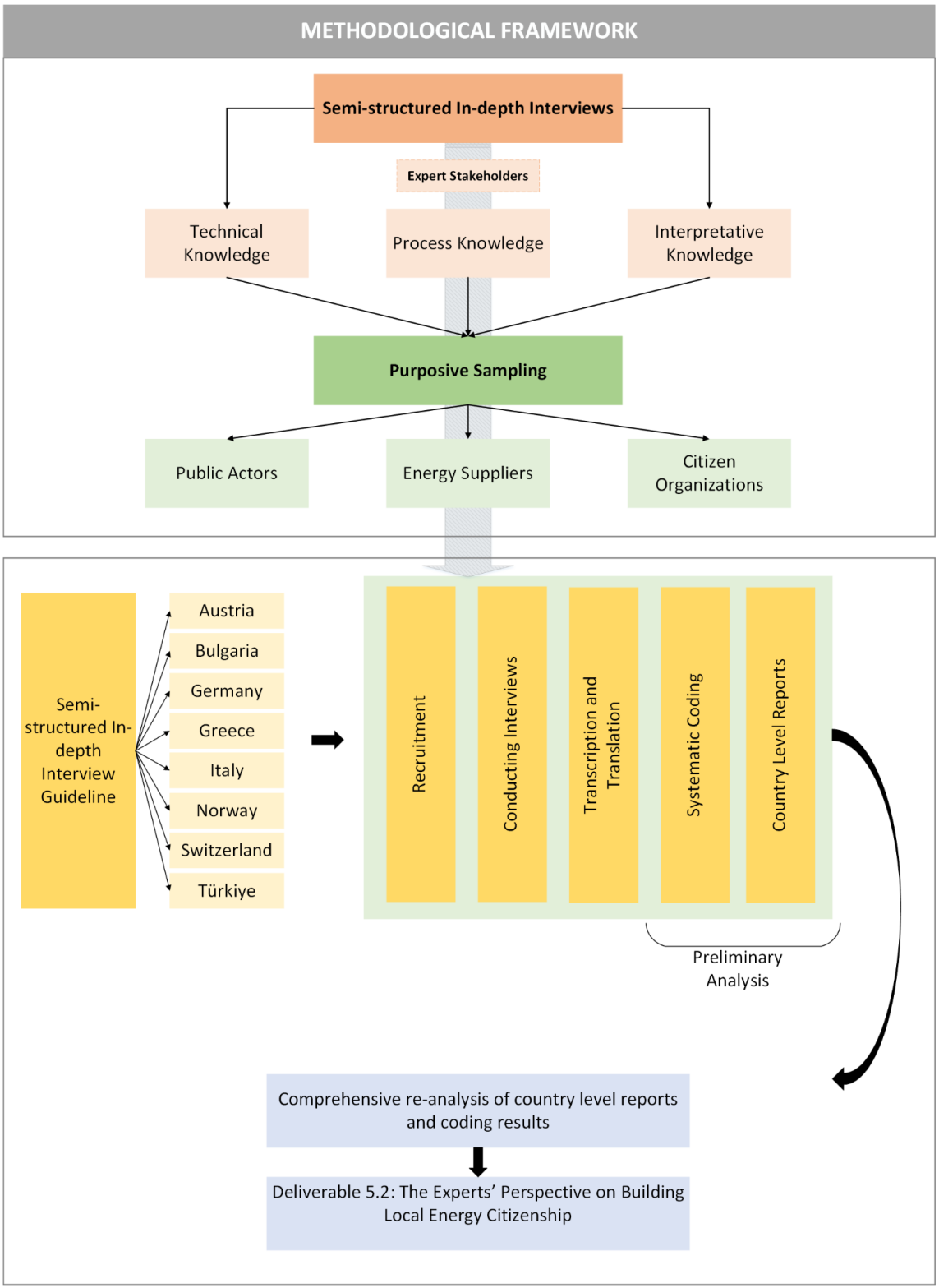

Figure 1. Methodological Framework

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4 Framing Energy Citizenship: Evidence from Interviews

DIALOGUES Deliverable 5.2 utilizes the key elements to analyse experts' perspectives on building local energy citizenship, including their views on technical knowledge, process knowledge and interpretive knowledge (Bogner et al., 2009). In this regard, drawing from the interviews with the experts, this section categorizes several themes under technical, process, and interpretative knowledge to examine how the experts understand pathways to energy citizenship.

Technical knowledge refers to the roles and missions of the experts in their organizations concerning supporting the energy transition. In this regard, it examines who the key actors are and their previous and current positions in the energy transition process. As discussed in section 4.1. “Actors in Energy Citizenship”, the expert interviewees from different countries have varying roles and missions regarding their organizations and responsibilities. However, what they have in common is that they all play an active role in the energy transition in their countries.

Process knowledge refers to experts’ experimentations, structure and interactions within the organization, engagement of actors, and social and individual dynamics (see sections 4.2. “Experimentations, Structure and Interactions”, 4.3. “Engaging Actors” and 4.4. “Social and Individual Dynamics”). In this regard, main themes for experts’ process knowledge were outlined: First, experts’ experiences regarding their organizations’ previous or ongoing initiatives to support the energy transition and their organizations’ attitudes toward gender, socio-economic background and age were highlighted. Second, specific challenges that underprivileged groups face in the energy system and how experts’ organizations engage individuals in the energy transition were discussed. Third, the experts’ organizations’ successful and failed initiatives for energy transition were identified. Last but not least, experts’ perspectives on how social change and awareness regarding the energy transition occur were examined.

Interpretative knowledge refers to the experts' subjective perspectives on and interpretations of critical issues in the energy transition (see sections 4.5. “Inclusivity” and 4.6. “Justice and Looking Ahead”). Accordingly, experts' opinions about motivations and barriers to citizens’ participation in the energy transition and their suggestions to overcome challenges of citizen engagement, particularly in hard-to-reach parts of society, are among significant themes. This knowledge aspect also involves the topic of inclusivity, focusing on experts' perspectives on potential tools for encouraging civic engagement. The experts' perspective on justice is another significant theme in interpretative knowledge. This aspect mainly examines experts’ views on the expected levels and territorial scale of participation in the energy transition. Finally, as stated below, interpretative knowledge also involves the experts' future perspectives regarding promising initiatives and their recommendations to include a higher diversity of people in energy decision-making.

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4.1 Actors in Energy Citizenship

This section addresses technical knowledge, which refers to the information about operations and events governed by rules, application routines specific to a field, and bureaucratic competencies (Bogner et al., 2009). A framework for the technical knowledge of the experts is constructed through the experts' narratives in terms of the actors and their roles/responsibilities within the field concerning the energy transition. Concerning the objectives of the deliverable report, this section serves the first objective of DIALOGUES Deliverable 5.2. to provide insights based on the experts' perspectives on building energy citizenship for understanding how energy citizenship is currently framed.

The experts' tasks and organizations in associated countries are diverse, where the majority are related to the energy transition. The selection of experts in related countries is based on a mix of gender and expertise criteria and was made considering their role as public actors, energy suppliers or representatives of citizens' organizations. Accordingly, experts in different countries have a wide range of tasks, including active roles in local municipalities, representatives in civil society organizations, founders of energy cooperatives and communities, senior positions in public institutions, senior managers in private utility companies, journalists, academicians and members of parliaments. Experts' diverse roles and missions provide different facets of knowledge regarding the energy transition process in their countries. In this regard, while many experts reflect more economical and political focus, others focus on social justice and inclusion in the energy transition process.

A number of experts are affiliated with energy communities and energy cooperatives, which are among the significant actors supporting the energy transition. Many experts highlight the importance of energy cooperatives in supporting the energy transition. A number of expert interviewees in Italy and Germany work in an energy cooperative, making local people part of the energy transition. For instance, the main aim of the energy cooperative, where one of the experts in Italy works, is to allow people, especially those who live in condominium contexts, to actively participate in the energy transition by essentially sharing the ownership and financial results of renewable energy production plants. Similarly, two interviewees from the energy communities in Greece actively support the development of energy communities within Greece and the EU. Furthermore, a number of expert interviewees in Norway underline the role of energy networks that foster collaboration between local and regional authorities. The same experts also mention the connection between these authorities and energy companies in terms of connecting citizens and businesses in Norway. Furthermore, experts in Switzerland regard energy cooperatives as a further step for improving individuals' engagement with the energy transition. However, they also add that the cooperatives are still seen as marginal projects in Switzerland and are reserved for specific groups of the population (such as retired, living in the suburbs or small villages, and rather educated). This may be explained by the fact that energy distribution in Switzerland is regional and that utility companies have invested in local renewable energy production.

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> “The energy communities, there is a lot going on, there are a lot of private initiatives in a lot of communities."
>
> INAT4, Austria, Senior Expert for Energy Communities in Federal Government
>
> “We build solar power and organise it as a community and teach it in self-construction... And we wanted to teach people how to handle and build renewables.”
>
> INDE3, Germany, A board of a renewable energy cooperative and political activist
>
> “There are two initiatives, two networks that I think have worked very well. One was that we had energy networks in XXX region, when we collaborated with energy companies […] And the result was about 40% energy savings.”
>
> INNO6, Norway, Energy advisor in a county council administration

Another significant group of actors in the context of the energy transition and energy citizenship is municipalities. Almost all expert interviewees highlight the important role of municipalities in supporting the energy transition. For instance, experts in Austria highlight that municipalities are seen as a tool for building trust and motivating citizens for the energy transition. The municipalities also have the role of information disseminators in Austria. Similarly, the experts in Bulgaria underscore the active role of municipalities in building renovation for both private and public buildings. As a specific example, the respondents mention installing solar panels for lighting and heating in public spaces. Nonetheless, the expert interviewees in Bulgaria also pointed out the necessity for more direct involvement of citizens in the design and implementation of municipality initiatives. Overall, the positive role of municipalities in bridging between citizens and energy projects is agreed upon by almost all expert interviewees.

> “We have internally organised ourselves […] to have a unit in the municipal administration that answers specific questions by citizens related to energy and energy efficiency.”
>
> INBG1, Bulgaria, Senior expert at a local municipality
>
> "[…] Steps are taken to reduce carbon emissions in public transportation. For example, bus use was common, especially on the coastline, but a tram project was implemented a few years ago to reduce carbon emissions and relieve traffic here […] Renewable energy sources are also used in our metropolitan municipality buildings […]
>
> INTR2, Türkiye, High-level representative from Metropolitan Municipality

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"Convincing them (municipalities) that this expansion is a good thing, even if there are these big windmills [...] standing around. But at the end of the day, it was achieved because the communities were ... on board."

INAT1, Austria, Head of Innovation Department of Austrian Energy Utility

"In 2018 so the county together with our municipality got 50 million NOK to foster a smarter transportation system. It was about putting citizen involvement at the forefront […]"

INNO5, Norway, Representative of a local government with expertise in civic involvement and co-creation processes

Concerning the involvement of actors, several expert interviewees highlight that political and legislative barriers, frequently changing regulations and bureaucracy are important barriers against the energy transition initiatives in their respective countries. For instance, many experts in different countries, including Austria, Bulgaria, Germany, Norway and Türkiye, identify bureaucracy as a shortcoming that decreases the success of initiatives toward energy transition.

"Failure is actually one thing, that you fail because .... municipal policy decides against it."

INAT4, Austria, Senior Expert for Energy Communities in Federal Government

"So in general for energy transition I would wish above all less bureaucracy. I think it's not a question of financial support […] So less bureaucracy would be great, even for communities."

INDE3, Germany, Board of a renewable energy cooperative and political activist

"[…] When it comes to examples of initiatives, they generally get stuck in legislation. There is nothing successful in that sense yet […]"

INTR4, Türkiye, Journalist/Activist

"It works very well in pilot projects, but in mass, in scaling, it is probably still more likely to be a failure....".

INAT1, Austria, Head of Innovation Department of Austrian Energy Utility

Another significant challenge that adversely affects the participation of actors in energy-related initiatives is the diversity problem. Many experts admit that inclusivity in the energy sector of their countries is insufficient and needs to be improved. Considering the participation and inclusivity in Türkiye's energy sector, the experts highlight inadequate participation from all segments of society in the transition. Mainly, women and youth do not actively participate in the energy transition in Türkiye, implying a lack of inclusivity.

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Female experts in Italy expressed their difficulties in being accepted as women in the energy sector in Italy. Similarly, experts in Germany and Norway admit that they have a diversity problem regarding gender and language, which they have tried to overcome.

> "We don't have diversity yet in our case. It is predominantly men who take part in the consultations that we have… there is still, I would say, the classic image or the classic persona of energy citizens, i.e., white men who are socio-economically in a very good position."
>
> INDE1, Germany, CEO of a digital platform for energy citizenship projects

> "[…] When we look at sustainability or transformation, I observe that it is especially male-oriented. They do not accept this; whether it is negative discrimination, it will be discrimination against young people or women […]"
>
> INTR8, Türkiye, Representative from a National Committee of Women in Energy Sector

> "I think we need to focus on the language. That's definitely our aim, to create a language that uses as few technical terms as possible."
>
> INDE1, Germany, CEO of a digital platform for energy citizenship projects

> "[…] We can say that, as a company, we are in a good position. But in general, I do not see that women are at the forefront of energy transformation and efficiency in Türkiye or that women are interested in this issue […]"
>
> INTR5, Türkiye, High-level Representative from Private Utility Company

Weak environmental or community-oriented motives among citizens appear as another crucial barrier to energy citizenship. For instance, municipalities and civil society organizations in Bulgaria contend that there is a general lack of public awareness and challenges concerning accessibility of information in terms of energy-saving behaviour or shifting from the consumer to the prosumer role. Similarly, the perception fallacy in Türkiye regarding energy is seen as one of the barriers to energy citizenship in Türkiye.

> "[…] In most cases environmental sensitivity is not the first driver that makes people take the decision to make their building more efficient. However, there are some more educated people, certainly fewer than the former, who are more sensitive to ecological issues. These are mainly young people; among older people we have not encountered this type of sensitivity."
>
> INIT2, Italy, SME energy efficiency

> "[…] Citizens mostly associate energy with electricity, but it is important to inform the public on issues such as citizenship and participation. Energy has long been

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encoded in people's minds as a commercial commodity, and this is a hazardous situation. However, energy is a right, so it should be recognized".

INTR6, Türkiye, Consultant to Local Government on Climate Change and Sustainability/Author

Figure 2 demonstrates the key parameters associated with the actors in energy citizenship.

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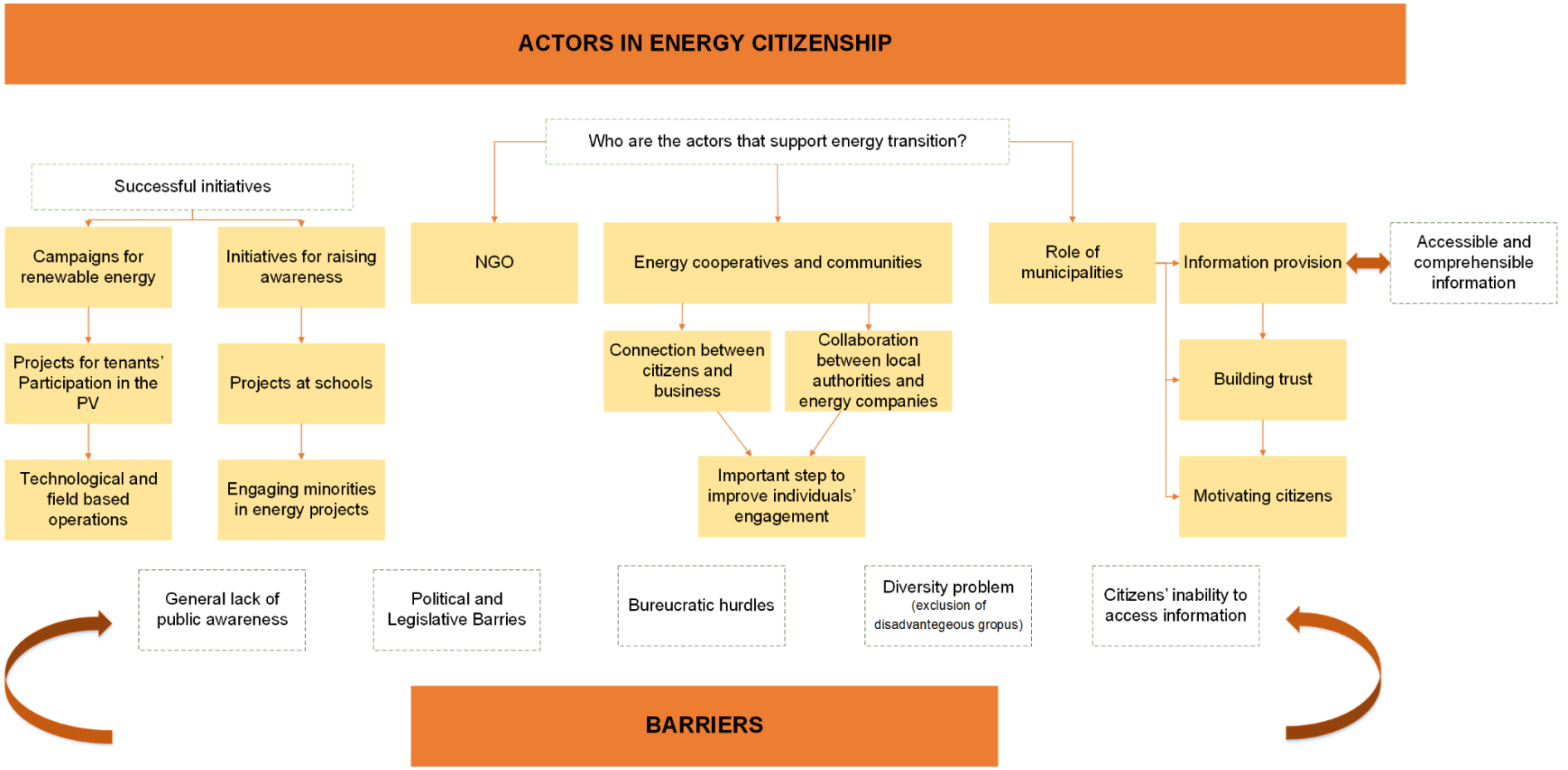

Figure 2. Parameters for actors in energy citizens

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4.2 Experimentations, Structure and Interactions

This section focuses on the experimentations associated with previous or ongoing initiatives implemented by the experts' organisations to support the energy transition, along with pointers as to why they were successful or not. This discussion also involves an analysis of the role of participatory methods and which actors were excluded from the process, connecting to how the dimensions of gender, socio-economic background, age, etc. are taken into account concerning the initiatives. This section also derives evidence from the interviews regarding the structure and interactions within the organisations of the experts, with a focus on whether certain parts of society (e.g., women, people of colour, people with a migrant background, or people with a low level education) are underrepresented as well as whether there are potential remedies. Hence, taking over from the preceding section (Section 4.1), where the actors in energy citizenship are elaborated on, this section deals with how the representation of different groups within energy-related organisations is reflected by structures and organizations, and addresses potential issues faced by underrepresented groups. In this sense, this section is related to all the objectives of the deliverable report, in terms of providing insights based on the experts' perspectives on building energy citizenship, presenting how experts understand the energy transition in their country and which parts of the society are included and excluded in the energy transition process of their countries.

The focus of the projects and initiatives discussed by the experts come from a wide spectrum. For instance, a number of the projects or initiatives in Austria focus on the regional level, especially the municipal level, whereas others are on the national and international levels. Similarly, several projects in Greece that advance green energy, e-mobility, and innovative mobility services are carried out at the municipal and ministry levels. A number of the expert interviewees in Germany are about efforts to integrate climate protection concepts with municipalities, universities, citizen organisations, and international institutions. Regarding initiatives implemented to support the energy transition, the experts identify common characteristics making them successful. In this respect, most of the experts give examples of projects that enable citizens to participate in the energy transition in their associated countries. The experts in Austria point to their organisations' successful endeavours such as initiatives involving cooperation with the building sector, ministries or universities, and projects that assist people to participate in sustainable energy production. Likewise, a number of experts in Switzerland regard initiatives carried out in schools as particularly successful. Accordingly, granting children the role of energy ambassador is expected to influence the parents, creating positive spillover effects from the classroom to the home. Specific quotes about the successful initiatives in different countries mentioned by expert interviewees are as follows:

> "The "Mietstrommodell", where every tenant can also participate in the PV, even if it doesn't belong to them, but they do benefit from it. So this is a concrete example where we have succeeded and the cooperation is very fruitful and we think that it can certainly be expanded."
>
> INAT5, Austria, Senior Expert in Austrian Energy Cooperation Start-up

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"[…] With the energy transition, we will go from oil to renewable energy, we will use less energy, we will have local energy solutions, we will work both practically and politically to help people. I would say it is a very successful campaign which now means that we do not use fossil oil boilers in Norway."

INNO4, Norway, Representative of environmental interest organisation

"[…] We carry out both technological and field-based operations related to reducing electricity losses from generation to transmission and distribution of electricity. We are also trying to work on Green Energy […] Thus, we are trying to support electricity generation based on renewable energy sources.

INTR5, Türkiye, High-level Representative from Private Utility Company

"[…] We opened a solar laboratory for heat technicians in one of the vocational high schools in another town in the coal mining regions… That is, after 100 years of existence, they will now have the opportunity to train specialists in RES, which is a great success for us."

INBG4, Bulgaria, Expert at a national CSO that campaigns for energy sustainability

Concerning participatory methods or approaches, experts refer to different initiatives in their organisations regarding raising awareness and supporting the energy transition. For instance, the experts in Austria highlight that a number of projects focus explicitly on the involvement of citizens in decision-making processes. On the other hand, most projects mentioned by the experts in Switzerland are related to behavioural change targeting households and aiming to involve individuals as energy consumers. Furthermore, the experts in Germany point to the need for seeking ways to engage migrant communities and include them in energy projects and campaigns.

"We have different event formats, and we have multilingual materials, we have strategic partnerships, so we create access points for migrant communities who otherwise have little access to the environment and climate change issues."

INDE8, Germany, CEO of an NGO supporting intercultural ecological work

"It is important to enable the community population to have a permanent say, for example, in issues relevant to the community. That would simply be this participatory approach."

INAT4, Austria, Senior Expert for Energy Communities in Federal Government

"We have some projects that have looked at how we can influence consumer behaviour by giving them information. This is not about involving consumers but rather by giving them information. And by "educating them" if I may say […] And

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> we have various projects that have looked at how information can impact consumer choice."
>
> INCH9, Switzerland, High-level representative of the federal energy department
>
> "[…] Awareness studies are carried out. It is sought to raise awareness about efficient energy use with stakeholders such as non-governmental organisations, associations and universities. We are trying to increase our masses with an ascending acceleration, especially in the last five years […]"
>
> INTR5, Türkiye, High-level Representative from Private Utility Company

Concerning representation of different groups within energy-related organisations, two main issues are highlighted, pertaining to i) gender and ii) socio-economic background (migration, education, or age). Regarding gender issues, almost all interviewees agree that energy is a male-dominated sector. Still, experts in several countries, including Switzerland, Norway, Germany, and Italy, express that they also witness change within their organisations. A number of experts in Switzerland and Greece were surprised by the question regarding gender dynamics concerning the energy transition. These experts did not have a perspective that they developed earlier on this topic, but they found it an important question.

Experts commonly commented on women's representation in the energy sector, emphasizing that the sector was mainly male-dominated. For instance, most experts in Türkiye believe that Türkiye's energy sector is still male-dominated and women's participation in the energy sector is challenging. These experts think that this is mainly caused by gender discrimination. Namely, the energy sector in Türkiye generates more jobs and higher salaries for male employees. In addition, according to experts in Switzerland, even though there is an ongoing feminisation in the energy sector in Switzerland, it is rather slow, especially for top management positions.

The quotations taken from expert interviews on women's underrepresentation in their organisations are presented below:

> "There are still prejudices and discrimination, maybe not openly and obviously, but implicitly towards people with a low socio-economic background or a migration background or even gender, depending on the discipline."
>
> INAT10, Austria, Professor of Psychology/ Expert for energy citizenship topics at an Austrian University
>
> "[…] Currently, women's participation in the energy sector is not yet at the desired level. In management, for example, we have a female legal adviser at the electricity generation company, but there is no female manager other than her. Increasing women's participation has been discussed, but there are many obstacles for women, such as social roles […]"

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INTR7, Türkiye, High-level Representative from State-owned Electricity Generation Company

"I experienced struggles myself at the beginning of my involvement. We had four male board members who didn't want to delegate much. These four knew everything and it was kind of inefficient and others couldn't get involved. So they learned that at some point."

INDE10, Germany Board of a renewable energy cooperative

"Regarding gender, I think that the energy sector, and to a large extent, also the education side of the energy sector, at the university, is by far one of the most gendered industries we have."

INNO2, Norway, Academic expert with expertise in people-centred and gender-sensitive approaches to energy transitions

However, it is worth noting that there are several promising developments regarding gender balance in the expert interviewees' organisations in the relevant countries. For instance, according to one Greek interviewee working for the Ministry of Environment and Energy, the gender issue has started to be discussed at all levels of Greek society. In one of the development programs, the Exikonomo program, there is a special provision for single parents. Similarly, many energy cooperatives in Italy have taken various actions and have been involved in a research project that investigates gender inequalities in energy cooperatives and the energy sector. A group of energy cooperatives in Italy decided to draw up a regulation. According to this regulation, not only the individual that signs up as the subscriber for the energy bill but also their family members can be active stakeholders of the cooperative. In this way, this regulation allows women or children as family members to interact more with the cooperative and participate more actively in the initiatives. Furthermore, regarding cooperative workers in Italy, one expert reveals that there are examples of both women and men assigned to high-level roles, even if most of the staff are male. According to the observations of a representative of a public agency in Norway, many talented female civil engineers hold key positions in the energy field in Norway. The quotations regarding positive developments taken from expert interviews are depicted below:

"I think there are more women now in [the organisation]. It has evolved towards more women in important positions. I know that we have a group [....] I was initially part of it. With all these stories of...women's strikes, there was also a whole internal movement […]"

INCH4, Switzerland, Representative from private utility company

"[…] At the membership level, both women and men are represented, as well as both young and older people…in future, some actions should be taken to increase women participation in these roles".

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INI6, Italy, Energy cooperative executive manager

"The goal [of our training] is basically that as many of the women as possible then go to the supervisory board in the next step. Our supervisory board has about 10 people, one of them is currently a woman."

INDE3, Germany, Board of a renewable energy cooperative and political activist

"[…] In Türkiye, we know that renewable energy sources provide more job opportunities for women. While a maximum of 500 women work in the coal sector across Türkiye, half of those working at the wind power plant in Kayseri are women […]"

INTR4, Türkiye, Journalist/Activist

A number of experts emphasise that it is hard to find qualified and interested female employees for the energy sector, since women are less interested in energy issues, partially due to the male dominance of the field . Austrian expert interviewees point out that even though smaller organisations in Austria would like to hire more women, there are hardly any women applying. In general, the smaller organizations in Austria face a labour supply shortage. In addition to women's social roles in care work, the experts think this is because women are less likely to pursue technical studies, especially in the energy sector. Hence, most experts in Austria share the perception that more women role models are needed to appeal to younger generations. Furthermore, cultural codes in some countries, including Türkiye, discourage women from working in the energy sector. These codes may even be effective in educational guidance where technical classes or majors are typically not seen as fit for women. Experts in Türkiye state that the cultural codes and social norms are the drives for gender discrimination in the energy sector. The most striking norms are the social responsibilities of women and the common belief that men are more successful in engineering positions. Therefore, the number of women engineers in Türkiye's energy sector is limited.

"[…] When we meet very qualified women in the energy sector, they are often already very engaged and have different projects. But maybe for them it is sometimes also not so attractive to become active in this rather technical and men dominant environment."

INDE7, Germany, Board of a renewable energy cooperative and active member of Fridays for Future

"[…] Due to the expectation of the social-cultural code, the cost of starting a family and getting married is very high in Türkiye, especially compared to Europe. Due to this cost scale, men have to work harder and earn more than women [...]"

INTR1, Türkiye, High-level representative from the Ministry of Energy and Natural Resources

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Projects are carried out to attract more women in the energy field. For instance, three experts in Germany emphasise that their energy cooperatives have initiated a training program to change the mind-set that women tend to underestimate themselves even if they have the same level of expertise as their male counterparts. One such example is the 'Women Engage for a Common Future', which offers support for women to increase their expertise in the energy transition if they are interested in it. The goal is basically that more women join boards of energy cooperatives or other official bodies to increase the visibility of female experts. Similarly, experts in Italy believe that if there is adequate space and encouragement, more women will participate in the energy field:

> "[…] I expect that in the most virtuous projects, there will be more female participation if they are given the space. This space must be created, in formal or informal networks, to encourage and enhance the role of women. Participatory energy communities from below do not need technical knowledge, it is an energy revolution that relates to the social and the social aspects are generally felt very strongly by women."
>
> INIT3, Italy, High-level representative energy cooperative

There are examples of experts' organisations where more women are employed. For instance, one of the experts in Norway explains that two out of three members of his environmental interest organisation are women. This expert thinks that women are more caring and more engaged in this area.

> "In our association, we are all women, so we are unbalanced as to the male presence, the Board of Directors was all male but now it has expired and needs to be renewed, while the assembly, which is composed of mayors and delegates, is mostly female."
>
> INIT5, Italy, Head of energy agency
>
> "We have 32 people and 20 of them are female workers."
>
> INAT4, Austria, Senior Expert for Energy Communities in Federal Government
>
> "With regard to the issue of gender, our team is made up of a majority of women, around 60%, and I am a woman as chairman."
>
> INIT3, Italy, High-level representative energy cooperative

Concerning socio-economic diversity (migration, age, or education) in the energy transition process, expert interviewees point to significant inequalities and underrepresentation of particular groups in relevant societies. Experts in Germany identify people with a migration background as the main underrepresented group, especially non-German speakers or people of colour. However, the German experts also refer to differences across types of organisations. For instance, underrepresentation is more frequently observed in smaller organisations that work in cooperation with local

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entities in Germany. According to the experts in Austria, the main identified barriers observed in their organisations are the language gap and cultural differences. Furthermore, experts interviewed in Italy maintained that there was massive underrepresentation of parts of society in their organisations. However, the same experts also highlighted their opinion that this underrepresentation was not a result of discrimination but rather related to the qualifications set forth for applying for the job and the accessibility and comprehensibility of the relevant information provided. A number of experts working for the local government in Türkiye observe a low representation of minority groups in white-collar jobs in Türkiye, and the energy sector is not an exception. In Norway, one of the interviews points to the unfavourable situation of immigrants who also lack access to networks (social capital, access to resources, and knowledge about local issues) in the county, making them even more vulnerable.

> "We are not an international organisation where English is the common language."
>
> INAT1, Austria, Head of Innovation Department of Austrian Energy Utility
>
> "[…] As far as renewable energy is concerned, people with a migration background don't really take part in the energy transition in our projects and in Germany neither."
>
> INDE3, Germany, Board of a renewable energy cooperative and political activist
>
> "[…] There is an overlap between poverty and immigrant background. And we have to deal with that in a much better way."
>
> INNO6, Norway, Energy advisor in a county council administration
>
> "[…] There is no representation of ethnic minorities or people from foreign countries, they are welcome, but there are no targeted efforts to cover this lack. At the level of the leadership of the regional association, you need to have skills and knowledge to be able to argue about regional policies and technical aspects. This could be an obstacle (for people with a migratory background or from an underprivileged group) because they may not have knowledge of the territorial contexts."
>
> INIT1, Italy, High-level representative of an environmental NGO

There are also more egalitarian organisations encouraging participation from people with different backgrounds. For instance, an expert interviewee in Italy states that their cooperative is an open initiative to all who want to participate; the only requirement is to have an energy bill, thus, being an energy user.

> "The people who work in our association are all very specialised, there are two people who work with us who are not university graduates and who have

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> administrative roles, but we need very specialised people, at least now for the projects we are carrying out."
>
> INIT5, Italy, Head of energy agency
>
> "[…] We are actually very diverse in the organisation. We have migrant backgrounds, we have different educational backgrounds, but also educational levels."
>
> INAT6, Austria, Senior Expert for Gender/Inclusivity in Austrian non-profit research organisation
>
> "For the rest, nor age or gender, or other sociodemographic variables matter on the possibility to be a member of the cooperative."
>
> INIT6, Italy, Energy cooperative executive manager
>
> "In the international competition, I tried to include mainly people with different backgrounds and educational levels in the working group."
>
> INIT7, Italy, Architect

Concerning representation of different educational levels, the majority of the employees in organisations of the Austrian expert interviewees have an academic background, while those without a university degree work in more administrative tasks. According to expert interviewees in Italy, there is no explicit discrimination in their organisations regarding persons with a migratory background or without academic education. In contrast, a number of experts in Germany pointed out that all of their colleagues are academics.

> "And there are few non-academic ones here, and if there are, then they are in the administrative area, so to speak."
>
> INAT7, Austria, Senior Expert for Technology Acceptance at an Austrian University
>
> "We mainly cooperate with professionals with quite high technical skills, at least a diploma but mainly engineers and architects […]"
>
> INIT2, Italy, SME energy efficiency

Concerning economic status, the majority of experts point out that people with high socio-economic levels are more likely to be involved in the energy field. In Norway, for instance, almost all experts point to the unfair distribution of the costs and benefits of the energy transition, referring to the fact that most of the existing measures aimed at fostering citizens' uptake of green technology and innovations target high-income people who have access to the funds for the required investments. Similarly, support schemes for energy efficiency renovations in households and electric vehicle incentives can almost

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exclusively be utilized by more wealthy people. A number of experts in Germany think that the main reason why fewer women and people with migrant backgrounds participate in their cooperative is that they have lower income levels. Similarly, various experts in Italy maintain that energy cooperative partners are from wealthy economic backgrounds. Experts from energy cooperatives in Italy point out that no specific activities have been performed to include disadvantaged groups in their energy cooperatives, apart from the social bonus (i.e., an automatic measure) or the possibility of making the payments in instalments. Meanwhile, these experts also stated that they started to resonate with the problem and are trying to collaborate with other associations and entities that deal with energy poverty. Furthermore, a Greek expert working for the Ministry of Environment and Energy states that they have provisions for some social groups, for instance, poor households have free electricity through energy communities, and they get a much larger grant guarantee. Other interviews also mention the underrepresentation of groups with low socio-economic levels, as depicted below:

> "[…] As far as I can see, no villagers are lobbying for an energy cooperative. Non-governmental organisations or professional chambers do it on behalf of villagers […] There are no workers yet in the just transition of the energy transformation. So no worker says get me out of the mine, give me a job in the energy sector, in the solar energy sector […]"
>
> INTR4, Türkiye, Journalist/Activist

A number of experts in Türkiye also report efforts in their organisations to overcome challenges associated with income inequality, urban disadvantages, and disabilities.

> "[…] Places with urban disadvantages were selected in the large city with a population of higher than 4 million. More disadvantaged parts of the city were chosen instead of the most developed districts of the city. Therefore, while the project was being prepared, the issues such as income inequality in the city were also considered […]"
>
> INTR6, Türkiye, Consultant to Local Government on Climate Change and Sustainability/Author

Lastly, there are also different remarks from experts on the relation between age and participation in the energy field. According to several experts, being in a young age group is a disadvantage for being a member of an energy cooperative. For instance, an expert from a cooperative in Germany states that young people often do not have the finances to become a member of the cooperative. On the other hand, experts in Norway maintain that young people stand out as the most environmentally concerned part of the population, as well as the most engaged with the transition.

> "[…] We can have young people who have become members in recent years as part of a wave of climate activists motivated by school strikes."

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> INNO4, Norway, Representative of environmental interest organisation

Experts in Norway also explain that their organisations are aware of the role of senior citizens in the energy field and seek to engage the elderly people in their projects.

> "[…] This is also a very important aspect of the elderly's role in the climate fight. This is our job, to support children and young people […] We are also working on the idea of arranging courses for the elderly, to make them safer faced with these digital aids."
>
> INNO9, Norway, Representative of an environmental interest organisation

Figure 3 summarises the key parameters for structure and interactions.

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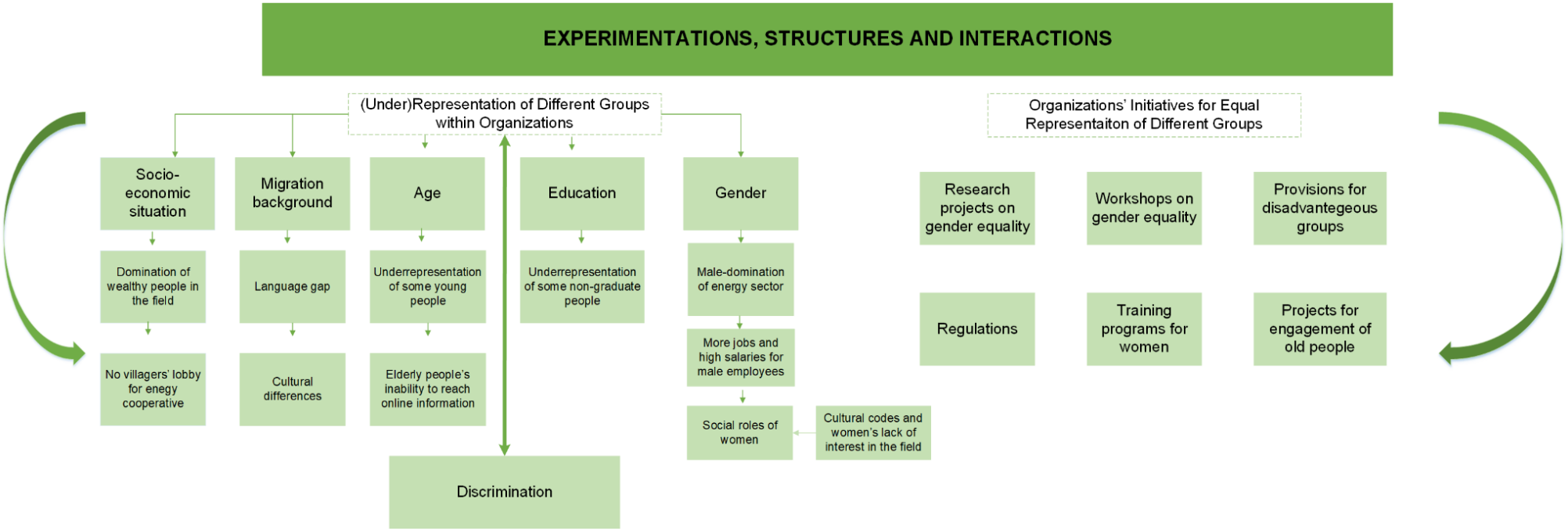

Figure 3. Parameters for experimentations, structures and interactions

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4.3 Engaging Actors

This section deals with how citizens currently participate in the energy transition and includes examples of successful and less successful projects in associated countries. Hence, this section pertains to first two objectives of DIALOGUES Deliverable 5.2, through an analysis of the experts' perspectives on building energy citizenship and demonstrating how experts understand the successful and less successful initiatives regarding energy transition in their countries.

There are several ways for citizens to engage in the energy transition in each country. The type of individual engagement also varies among experts and organisations. A number of experts in Italy express that citizens' participation levels in energy transition initiatives depend on various factors, including age, socio-economic status, territorial scale (local initiatives seem to raise more participation), and political and structural support. Similarly, experts in Switzerland witness varying participation dynamics among different parts of the population. Despite some limitations, there are several initiatives of experts' organisations that seek to engage citizens in the energy transition:

> "Local authorities...are very committed and try to implement different projects, topics, and specific projects in their communities".
>
> INAT5, Austria, Senior Expert in Austrian Energy Cooperation Start-up
>
> "We carried out an important project, a 900-kW wind turbine, which was connected last autumn, a project that was very popular and well attended, … that gave us a lot of satisfaction."
>
> INIT3, Italy, High-level representative energy cooperative
>
> "[…] We have moved on with the campaign, having meetings to tell people that they can carry out everything from re-insulation, replacement of windows, control systems, sun on the roof and such."
>
> INNO4, Norway, Representative of environmental interest organisation
>
> […] There were a few central market actors, which were very important for the development of energy citizenship in Germany - enterprises like the EWS Schönau or Greenpeace Energy/Planet Energy."
>
> INDE4, Germany, Head of the political representation of an energy enterprise

Experts in Germany provide the example of the Alliance for Energy Citizenship as a network to share knowledge about collective action, such as energy citizenship. Accordingly, the Alliance for Energy Citizenship organises events related to energy citizenship. It is also a significant organisation lobbying for energy citizenship. The network has initiated an international platform called EUCENA, to teach about energy citizenship. Furthermore, experts in Germany also perceive EWS Schönau, a citizen-

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organised initiative that established their local electricity grid in the 1990s, as an essential enabler and role model of energy citizenship. An initiative in a German region (Erzgebirge) where citizens build their solar power plants and link them with electromobility is a significant step toward reducing emissions. Other examples from German experts are Rescoop, Bürgerwerke and the initiatives in Mecklenburg Vorpommern, which are seen as successful initiatives for energy citizenship. For experts in Italy, PNRR (National Recovery and Resilience Plan) is a significant example of an initiative because it supports all activities that can help reduce energy costs and conserve resources for sustainability, including measures to improve the reliability and flexibility of the energy system. Accordingly, PNRR involves younger citizens in sustainable transportation initiatives with the creation of bicycle lanes or the development of environmentally friendly transportation in Italy and also aims to finance start-ups to implement the ecological transition.

> "[…] There is an incentive for the small household user as these regulatory policies and regulations develop. In this sense, everyone can produce electricity. For example, incentives are given by providing specific equipment for roof applications […]"
>
> INTR5, Türkiye, High-level Representative from Private Utility Company

Several experts in different countries point out that people can engage in the energy transition at an individual level. For instance, various stakeholders in Bulgaria express that many citizens are becoming interested in renewable energy (RES) technologies (mostly photovoltaic and solar panel installations), and are installing household RES systems. Other popular energy shifting practices in Bulgaria include the replacement of coal and firewood for residential heating with pellets. Experts in Türkiye mention that people can install rooftop solar panels in their houses and produce electricity. Similarly, experts in Germany explain various ways of individuals' participation in the energy transition, including shifting to a green tariff and installing renewable power plants, saving energy, becoming active in energy initiatives, and switching to regional and green suppliers. According to experts in Norway, people can adopt smart energy measures at home, by purchasing new technology such as solar panels, decreasing their houses' heating temperatures, joining meat-free Mondays, repairing their products instead of purchasing new ones, participating in smart agriculture networks or others, or getting involved with urban development. Meanwhile, the experts also argue that citizen engagement is rare and can be challenging at an individual level, and it is easier when citizens gather in associations or teams in Norway, such as in some neighbourhoods.

> […] As a consumer you have the possibility to...to get involved and then the possibility to give strong signals. Through these purchasing decisions […]"
>
> INCH9, Switzerland, High-level representative of the federal energy department

In addition to the individual level, citizens can generally engage in the energy transition via energy cooperatives and communities. Experts in Germany point out that energy

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cooperatives are a very efficient way to engage in the energy transition because the cooperatives provide economic profit and knowledge to their members. Experts in Switzerland argue that there are several reasons for the participation of citizens in energy cooperatives. Apart from environmental reasons, citizens participate in energy cooperatives because they are willing to become actors in the energy system or to support people living in the same community. At this point, word-of-mouth is important in the sense that people who are involved in energy cooperatives usually hear about these cooperatives through their neighbours and friends. As suggested by the experts in Italy, educating citizens on energy transition-related issues may raise more participation, and the energy cooperative model might be a valid method to involve citizens in the energy transition. As a board member of a renewable energy cooperative in Germany, an expert interviewee refers to the Alliance for Energy Citizenship as a network working effectively in lobbying for energy citizenship and providing knowledge about citizen participation in the energy system. As a journalist/activist in Türkiye, an expert interviewee gives examples of initiatives to establish energy cooperatives in Canakkale and Bursa.

> "[…] There are also energy cooperatives in a German Area (Erzgebirge), which are already pioneers, which are already going further."
>
> INDE4, Germany, Head of the political representation of an energy enterprise
>
> "There was a process in Seferihisar regarding establishing an energy cooperative. There are very well-intentioned initiatives and collective works […]"
>
> INTR2, Türkiye, High-level representative from Metropolitan Municipality

Similarly, energy communities are regarded as significant enablers for citizens' participation in the energy transition. For instance, the predominant view of interviewees in Greece is that the deployment of RES projects should be done through energy communities because, in this way, citizens can be co-investors, co-beneficiaries, and participants in the projects to have economic, environmental, and social benefits. Furthermore, experts in Austria highlight that current engagement does not occur through top-down mechanisms but rather at the regional level in Austria via 'citizen participation models' or 'energy communities'. According to observations of a physicist and environmental engineer in Italy, the energy communities are also particularly effective in Italy.

On the other hand, citizen engagement in the energy transition at the collective level appears to be quite rare in a number of countries. According to the experts in Bulgaria, although there are examples of collective action of citizens to support the energy transition, no energy communities have been established in Bulgaria until today. The main reasons are the lack of public awareness, the lack of a regulatory framework, and incentives to empower citizens to become prosumers and develop energy communities in Bulgaria. Similarly, experts in Germany think that even though energy communities are crucial enablers of energy citizenship and sustainable practices, there is not a sufficient number of energy communities in Germany due to the fact that, in terms of the

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current legislation, Germany has not fully translated the EU directives on energy communities into national law, which is very significant for energy citizenship. According to a head of the energy agency in Italy, energy communities will not thrive as long as "there is no broad evidence of saving in the bills" (INIT5).

While experts in a number of countries reveal that citizens are interested in participating in the energy transition, others point out that there is a lack of public awareness and interest in these issues in their countries. For instance, while most experts in Austria agree that citizens are highly interested in this issue, a number of experts in Italy point out that awareness is certainly deficient at the level of large organisations such as universities, regional governments, and public institutions. Furthermore, according to several experts in Norway, certain topics raise more engagement than others, including forest conservation, energy, and transport solutions. However, according to several experts in Norway, the vast majority do not participate in the energy transition because people lack a long-term perspective on energy issues. Perspectives of experts in other countries differ according to their positions, as depicted in the quotations below:

> "[...] Citizens are now very interested in the topic of energy transition and in the topic of climate change."
>
> INAT1, Austria, Head of Innovation Department of Austrian Energy Utility
>
> "I have the impression that there are people around me who don't give a damn about the environment and who are not going to change anything in their life because others are demonstrating in the street"
>
> INCH8, Switzerland, energy consultant for public authorities
>
> "[…] All my friends who have a garden are asking whether or not they can build solar panels in their garden […] I think the end consumer and the citizens are slowly becoming aware of it […]"
>
> INTR9, Türkiye, Representative of a Professional Network for Women in Turkish Energy Sector
>
> "We try to disseminate both good practices and technologies, but we realise that very often citizens are not yet ready to understand, except in a few cases where we see more sensitivity to the issue […]"
>
> INIT5, Italy, Head of energy agency

To raise public awareness and the engagement of citizens in the energy transition, experts in several countries emphasise their perspectives and their organisations' efforts related to this issue. A foundation's executive manager in Italy points out that the foundation is constantly working to raise awareness of environmental and energy issues through its initiatives and numerous collaborations with research institutions and universities. Furthermore, this foundation in Italy receives approximately 100,000 visitors

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each year, promoting physical engagement. In addition to this, this expert in Italy explains that the internet and social media channels are other useful tools to increase citizen engagement in the energy transition. According to a number of experts in Switzerland, environmental movements and climate strikes are helpful for the energy transition because these movements and strikes can have an impact on agenda-setting and the orientation of future energy policies. On the other hand, other experts in Switzerland do not feel that these protests can have a large influence on the Swiss population's opinions. Regarding the issue, a number of experts in Germany emphasise that 'Fridays for Future' is an important platform for enhancing the participation of young people and, in return, raising their awareness.

Several experts in different countries illustrate the reasons behind individuals' decisions to engage in the energy transition process. A prerequisite for individuals' participation is that pathways for participation need to be citizen-centered. For several experts in Switzerland, Greece, Italy, and Norway, there is a rational economic component that should not be neglected. For instance, an energy cooperative's executive manager in Italy points out the advantages of taking sustainable energy actions, such as a discount on the energy bill. Experts in Norway also emphasise that people are constantly manoeuvring towards their advantages and benefits, indicating no feeling of responsibility in society. In other words, the stated problem is that individuals enjoy the benefits but do not want to share the burden. Furthermore, a number of experts in Germany think that the way people participate in the energy transition depends very much on their socioeconomic status. For instance, a CEO of a digital platform for energy citizenship projects in Germany mentions the classic German image of prosumerism: A rich white male homeowner who builds a solar power plant on his roof. Similarly, experts in Greece emphasise that people need to have the financial capacity in the first place to benefit from Exikonomo funding to make energy upgrades to their homes. Experts in Bulgaria also refer to this issue by stating certain factors, such as the exceedingly high prices of energy, for citizens' engagement in the energy transition.

> "The driver is only economic and not motivational".
>
> INIT5, Italy, Head of energy agency

> "[…] Much of the thinking done around innovation tied to the field of energy transition is rigged around some types of economic interests".
>
> INNO2, Norway, Academic expert with expertise in people-centred and gender-sensitive approaches to energy transitions

> "[…] So they just want to become members but are looking for a financial investment and hope for a good return […]"
>
> INDE10, Germany, Board of a renewable energy cooperative

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In addition to the financial dimension of citizen engagement in the energy field, the majority of the experts in Switzerland believe that citizen participation derives from a combination of different dimensions: monetary interest, beliefs, collective belonging and structural changes. Accordingly, several expert interviewees in Switzerland draw a line between those already convinced about environmental issues and those who are not. For the individuals in the first group, big public conferences, large communication campaigns, public opinion opinion leaders like Greta Thunberg, or cultural products such as the movie “Don’t look up” seem efficient for their engagement. Other social groups in Switzerland can be less concerned by the energy transition because it does not always relate to their daily lives and habits or might be contradictory to their lifestyles. For instance, a consultant in an environmental NGO in Switzerland mentions young students with working-class backgrounds perceive Greta Thunberg as an elitist symbol who discourages their aspiration for reaching higher segments of social classes.

Regarding citizen engagement, experts in several countries point out differences among different groups of their societies. For instance, experts in Norway distinguish between rural and urban citizen engagement. In rural areas, people usually become engaged by means of a concrete case, for example, opposition to a wind energy park. On the other hand, people living in cities in Norway always have the opportunity to get involved with a wide range of topics and activities. Moreover, experts in Norway refer to professional engagement rather than citizen engagement. According to these experts, individuals engage in energy transitions not as citizens but as professionals and workers such as farmers and entrepreneurs. According to expert interviewees in Norway, the reason for this difference is a connection between interest and competence. There are also differences between male and female participation in the energy transition process. A number of experts in Germany state that women face various structural issues (e.g., care work, wealth, and education) and therefore have limited possibilities for participation. In this respect, the board member of a renewable energy cooperative in Germany points out that their network is aware of the issue that women are a minority in energy cooperatives and tries to get in contact with its members to work on this issue. Similarly, experts in Türkiye mention women's structural limitations regarding participation in the energy field. Despite these limitations, Turkish experts also explain some promising developments about women’s engagement in Türkiye:

> “[…] There are even women's associations in the energy sector […] For instance, female employees are still relatively low in Türkiye's energy sector compared to the energy sector abroad […] I believe that as these examples increase, more women will start to study electrical and energy engineering, electrical and electronics […]”
>
> INTR4, Türkiye, Journalist/Activist

Experts in different countries also indicate several failures of citizen engagement in the energy transition and explain the reasons behind them. An extensive range of legal requirements is considered one of the most important obstacles to initiatives in energy cooperatives and communities in different countries, including Austria, Bulgaria,

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Germany and Türkiye. A head of the political representation of an energy enterprise in Germany mentions specific examples of failures in terms of energy citizenship such as greenwashing and lobbyism. Accordingly, the national government in Germany was not supportive of subsidising energy citizenship in the last legislation, while the European Commission was more open-minded. The same expert also mentions another significant setback for energy citizenship in Germany: the changes in auctioning for wind energy in the Renewable Energy Act (EEG). Energy cooperatives that installed many onshore wind power plants in Germany had to participate in auctions to install new power plants. However, these mechanisms favoured larger energy companies. According to the expert, this led to a massive decline in the new installations of wind energy and energy cooperatives in Germany.

Figure 4 provides a framework for the parameters regarding the engaging actors.

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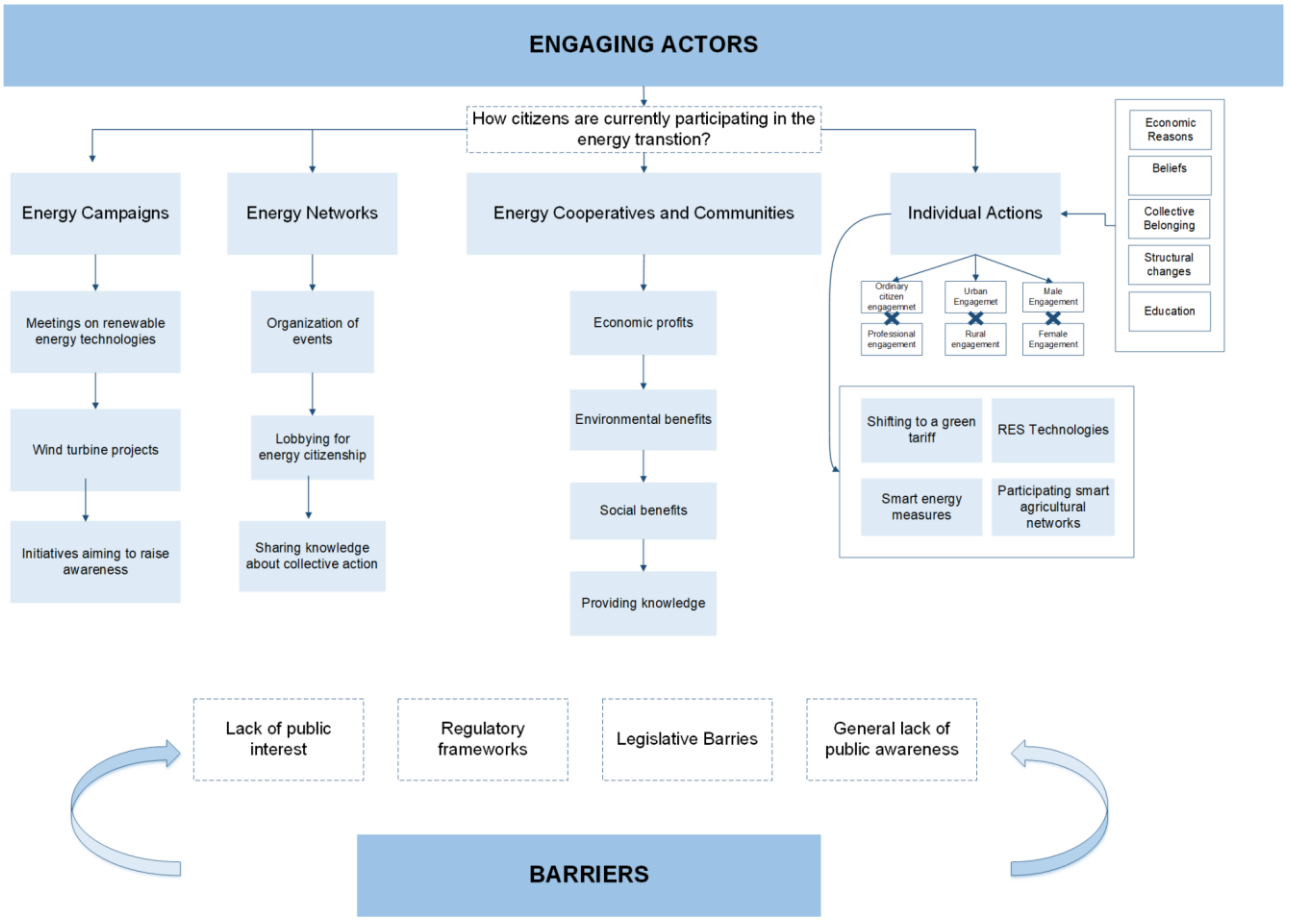

Figure 4. Parameters for engaging actors

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4.4 Social and Individual Dynamics

This section addresses the questions of how social change occurs and how it can be promoted. In this regard, it provides perspectives on the first two objectives of DIALOGUES Deliverable 5.2. in terms of reflecting the experts' perspectives on drivers of social change toward energy citizenship and illustrating how the experts perceive the energy transition process in their countries. Across all interviews conducted in different countries, a set of key themes that drive social change has emerged. One of the most prominent aspects is that collaboration and cooperation are strong drivers of social change. There is much more power in collective actions or measures than in individual ones. For the formation of a collective, however, cooperation is also needed. This issue again requires the involvement of different groups of people to obtain and collect knowledge and disseminate it in public discourse. For example, collective initiatives, civic participation, and other community formations can be identified as particularly essential and by far the most clearly thematised aspect in Austria. These are considered to have a great influence on regional but also supra-regional politics. Initiatives of this kind can strongly advance projects and contribute to implementing technologies or innovations. The role of collective organisations in fostering social change is also discussed in the interviews conducted in Germany, Greece, and Italy. Collective organisations such as energy communities and energy cooperatives contribute to social change by enabling citizens to become active in their energy behaviour within a social context. For example, in Greece, energy communities are perceived as the ideal medium to promote social change in energy with the active participation of citizens in the energy transition. The experts from other countries also mention the role of energy communities:

> "Political pressure. And we definitely need to get better and faster. The only way to do that is through broad participation."
>
> INDE6, Germany, Former member of the German parliament (Social party)
>
> "And I believe that initiatives like ours make a contribution to supporting, informing and communicating movements. Energy transition is something fundamentally important - everyone can make a contribution."
>
> INAT5, Austria, Senior Expert in Austrian Energy Cooperation Start-up
>
> "The best way to go through energy transition is involving and activating citizens, along with public and private initiatives […] In this scenario, energy communities could be an appropriate model to make citizens participate in the energy market and, generally, in the energy sector."
>
> INIT6, Italy, Energy cooperative executive manager
>
> "[…] Change can occur through collective action. It requires a "critical mass" of people involved in civil disobedience to make governments take their responsibilities more seriously."

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INCH10, Switzerland, Climate activist

The experts believe that personal precautions and attempts are important triggers for social change. Individual responsibility can be named as particularly essential. Individuals need to build up a sense of responsibility in the energy transition to make their contribution. Strong awareness-raising campaigns and promotions are needed to increase people's knowledge in the energy field. The experts in Austria and Türkiye frequently highlight the significance of individual responsibility for social change. Similarly, a representative from a renewable energy cooperative in Germany argues that social change is often triggered by the individual's motivation to do something differently. However, the expert also believes that individuals are further motivated in case the technology that comes with the change is innovative and attractive to citizens and, even more importantly, if it saves money for the individual. The German expert also thinks that political reforms are needed to make it easier for citizens and cooperatives to implement more sustainable behaviour.

> "And above all, personal responsibility could be communicated so easily, because the majority of us have children, grandchildren - I don't want to leave them a pile of broken pieces. They should also have a future worth living someday and not even bigger construction sites. The generational thinking has to be simple and then maybe you can do it."
>
> INAT8, Austria, Senior Project Manager at a research centre for energy efficient construction
>
> "Everyone should keep their carbon record book and follow their carbon footprint […] It will be expensive, but it will become affordable in the long run […]"
>
> INTR1, Türkiye, High-level representative from the Ministry of Energy and Natural Resources
>
> "Social change should start with the consumers' preferences. Nevertheless, it is not just a consumer issue but also about the house we build, the electrical appliances we sell and the electricity used in industry. For example, today we were complaining about the electricity bills; however, while walking in the evening with my brother, we saw that all the stores were closed at night, but all the neon lights were on […]"
>
> INTR4, Türkiye, Journalist/Activist

A significant barrier to individuals' motivation and social change in Germany is mostly bureaucracy.

> "I think that social change occurs on the one hand through motivation by citizens and this is often hindered by political regulations and bureaucracy. If the bureaucracy was less, then cooperatives – in my view – are a very good way of

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> achieving social change. Energy citizenship for me is not just about using sustainable energy, but changing a system, making it more democratic."
>
> INDE4, Germany, Head of the political representation of an energy enterprise
>
> "The legal framework in Germany makes social change hard. If energy cooperatives would not have had so many bureaucratic issues, then they would have already succeeded in installing more renewables."
>
> INDE10, Germany, Board of a renewable energy cooperative

As observed in various interviews, individuals' motivation is regarded as a vital issue for social change. When asked about how individual engagement could be fostered, actors do not have single-themed perspectives, but rather consider a diversity of aspects, from the individual factors (actions people might take) to structural factors (changes to regulatory systems or social norms). For example, the experts in Switzerland all agree that people need to feel committed and willing to make changes. They are in favour of encouraging large and inclusive participation. To all of the Swiss experts, the urgency of the environmental situation dictates that both technical, political and behavioural initiatives should be considered. However, there is a broad consensus on the need to go beyond techno-optimism in Switzerland.

> "It is obviously interesting to dig into a certain number of technical things… I'm not saying that we should give up. But to implement the transition I don't think that it's by finding new technologies or by increasing the efficiency of the boiler that we'll save the day."
>
> INCH8, Switzerland, Energy consultant for public authorities
>
> "Decentralisation at the political level is essential as local municipalities would be the most suitable actors to proactively promote local citizens' involvement. Decentralised policies should be accompanied by capacity-building of municipal administrative and expert personnel."
>
> INBG2, Bulgaria, Academic (expert on energy topics)

Another significant parameter for social change is raising awareness. However, it is worthwhile noting that raising awareness might be perceived in a wide spectrum of actions from disseminating flyers to promoting renewable energy systems to challenging societal norms through school education. In this respect, the Norwegian experts point to the importance of showing citizens that the same levels of comfort can be achieved with less consumption by implementing smart energy measures at home. The interviews conducted in Türkiye and Austria clearly show the tendency that social change can only be promoted through a strong awareness of environmental, climate and energy issues. Moreover, funding and supporting measures among citizens must also be in place to raise awareness. Hence, financial support and economic viability are also a key factor in raising awareness and fostering social change.

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> “[…] It is not possible to achieve this transformation without awareness. […] I think that social awareness of energy in Türkiye is not at a sufficient level […] We are incapable of moving towards sustainability, establishing an institutional mechanism for this, or being involved in the processes here as a citizen […]”
>
> INTR2, Türkiye, High-level representative from Metropolitan Municipality
>
> "I believe that at the level of society as a whole, it is simply necessary to create opportunities for action. So, [...] that you create a framework that gives people the possibilities to behave differently. I believe that here, so to speak, not only financial support is important, but above all that of promoting the ability to act.”
>
> INAT2, Austria, Senior Expert at the Austrian Regulation Agency
>
> "Of course, there is a certain fear or anxiety triggered by climate change, i.e. an awareness that climate change exists and perhaps to a certain extent a kind of sense of threat, which then leads to people identifying with it on a collective level and perhaps also looking for community.”
>
> INAT10, Austria, Professor of Psychology/ Expert for energy citizenship topics at an Austrian University

According to the experts, social change starts with a mentality change. For example, one of the experts in Türkiye believes that housewives have a significant role in the energy transition since they spend most of their time doing housework with high relevance to energy consumption behaviours. However, imposing the responsibility only on housewives is not the correct approach. Cultural conventions and expectations should be changed. Only in this way, the transition may be more inclusive. Similarly, the experts in Italy argue that the citizens should be involved in public and private initiatives to change the cultural paradigm.

> "[…] Social change … It is impossible to impose this energy transition job on housewives. I had consulted with a District Municipality in the large city with a population of higher than 4 million. I recommended using a man doing the dishes in the videos of their campaign about energy efficiency or water saving. This is important. We need to change this perception. This is not a job for men or women. Here, I think, intentionally or unintentionally, a problematic role has emerged in terms of gender […] These are, of course, very wrong perceptions; on the contrary, we should give more roles to men in this transformation […]"
>
> INTR4, Türkiye, Journalist/Activist
>
> “The idea is that people should think differently about how to consume energy, thus it is important to change people's cultural paradigm and explain that while until now the energy system has been structured so that production follows demand, now it is necessary to do the opposite.”

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INIT8, Italy, Energy cooperative executive manager

"[…] There first need to be changes in consumer behaviour, such as emergence of consumer demand for (sustainable) energy services."

INBG7, Bulgaria, Senior expert on energy innovations & environmental issues at a national utility company

The role of education and information for social change in the energy transition is frequently emphasised by the experts in Türkiye and Italy. Similarly, a key issue pointed out in most of the interviews in Greece is the importance of informing the citizens about all aspects of renewable energy technologies, from technological solutions to environmental concerns, possibilities of citizen participation and economic benefits. Therefore, providing the correct information and educating citizens are critical for social change. For example, many potential users in Austria lack information about their possibilities and technologies. Increasing knowledge provision and promoting awareness are considered essential by the experts.

"Many have options, but hardly any information. If I can identify with generation plants, then I can also adapt how I behave to a certain extent. The best example is the photovoltaic system. If I have a photovoltaic system on my roof and I know that electricity is only produced when the sun is shining, then I have to buy an electric car. Well, I don't have to plug in the electric car overnight."

INAT9, Austria, Senior Expert for Energy Communities in Federal Government

"Definitely education […] We need to teach children what solar energy is; when the child goes to school, the child needs to see solar energy on the roof, he/she needs to see a small wind turbine in the garden, so he/she will go home and tell his/her mother and father […] If the child grows up in this system, there will be a social transition […]"

INTR9, Türkiye, Representative of a Professional Network for Women in Turkish Energy Sector

"Everything starts with a conscious user. The energy transition begins with a more prudent use of the building. We can design the most efficient house, but if it is not managed properly, it will consume inefficiently."

INIT7, Italy, Architect

"[…] Currently, citizens can earn money from the roof of their homes and earn money from their doorstep […] But people do not know about them. That is why it is crucial to create an agenda or create energy literacy […]"

INTR6, Türkiye, Consultant to Local Government on Climate Change and Sustainability/Author

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From an economic perspective, financial incentives are also regarded as a key component of social change. Experts from Germany mention several policy actions for creating financial incentives to support prosumerism, such as tax reliefs and funding for RES installations. Economic profit is cited as one of the most important drivers of social change. Hence, according to the experts in different countries, the citizens must be provided with possibilities for individual and independent participation. This process also requires the right framework conditions. According to the experts, such participation will not work without subsidies or the use of personal capital.

> "The public gives incentive mechanisms for social change in energy. It is subsidised to a certain extent by incentive mechanisms, and after a certain period, it is expected to establish behavioural patterns and reflect on behaviours. This is the classical method used all over the world […]"
>
> INTR6, Türkiye Consultant to Local Government on Climate Change and Sustainability/Author
>
> "If the incentive for shared energy is no longer 110% but 60%, nothing will happen anymore. Municipalities that allocate resources on a non-repayable basis make things happen… Zero-interest loans are not interesting. …. In this sense the political aspect is decisive".
>
> INIT3, Italy, High-level representative energy cooperative
>
> "Other critical drivers of social change would be policies aimed at providing citizens with the economic security and financial support mechanisms to be able to pursue energy citizenship."
>
> INBG1, Bulgaria, Senior expert at a local municipality
>
> "Some people are less motivated and interested in sustainable energy decisions, those can be addressed through incentives or new technology [...] Society is different. Some people become active in the energy transition because they are interested in the technology, others want to make money depending on their personal circumstances."
>
> INDE4, Germany, Head of the political representation of an energy enterprise

From an economic perspective, significant barriers that hinder energy communities as a means of social change are the difficulty of finding suitable land to develop a project, challenges concerning receiving loans from financing institutions, especially for non-profit energy communities, uncertainty regarding market development, and the lack of know-how and time for residents who are not energy professionals. Moreover, it has been observed that the favourable conditions offered to energy communities have occasionally been misused, thus undermining the community. Particularly, the experts in Greece report that these barriers need to be addressed with targeted measures for a successful social change.

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Energy transition through social change requires a functional and practical mix of bottom-up and top-down measures. The expectations from policymakers include the creation of framework conditions and regulations. Meanwhile, those measures should be implemented transparently and the burden should not be imposed on the public. Hence, the role of proper laws, decisions and political reforms enforced by the top management is key to social change. For instance, nearly all experts in Bulgaria maintain that legislative, policy and political changes at the national level are paramount for social transformation. Many of them emphasise the need for unambiguous, foolproofing legislation which can support energy citizenship. Several interviewees feel strongly that the cumbersome administrative procedures, in particular in relation to RES uptake, should be simplified and prolonged time frames should be reduced. Hence, targeted policies aimed at encouraging citizen participation in the energy transition need to be introduced.

> "I believe we have "green thinking" […] We are talking about green projects, green jobs, afforestation, to first make the environment in which we live greener, more acceptable for all of us, to turn to renewable energy sources. Here I think the opportunities are very significant. Again, the legislative framework and administrative procedures only need to be slightly changed."
>
> INBG10, Bulgaria, Representative of a local municipality
>
> "Decisions taken from the top are very effective in energy transformation […] Laws and rules can be effective for this because we, as a Turkish society, are a society that follows the rules quickly […] There must be a carrot or punishment (stick) at the end; that is, people do not act spontaneously with internal motivation […]"
>
> INTR7, Türkiye, High-level Representative from State-owned Electricity Generation Company
>
> "The necessary legislative changes can be enacted very quickly and easily as long as there is political will and decision-makers cease to be primarily guided by electoral concerns."
>
> INBG8, Bulgaria, Entrepreneur / Member of a non-profit association of business enterprises and experts interested in RES
>
> "Social change can occur with an ambitious vision prepared by the government because all investments will align behind it. Energy transformation cannot start locally […]"
>
> INTR3, Türkiye, Director of research-oriented environmental NGO

According to experts from Austria, policymakers must not avoid their responsibilities and must clearly and transparently commit to the energy transition. The information must be provided and communicated, and subsidies for conversions and new technologies must

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be expanded for individuals. The political task is primarily to provide information and measures for improvements and recommendations for action.

> "I think it is also the task of politics to face up to this challenge. I can't do that as an individual citizen, can I? I don't think that I can be expected to be informed about all the interrelationships, so to speak, and politics naturally has the task of gathering expertise, i.e. to create this larger overview and therefore perhaps also to propose a better system or to point a system, I'll put it this way, a bit in the right direction."
>
> INAT10, Austria, Professor of Psychology/ Expert for energy citizenship topics at an Austrian University

> “Participation could be encouraged by a greater transparency of energy prices and an easier legal and administrative access to the energy grid.”
>
> INCH5, Switzerland, Head of an energy community network

Creating trust in society is also an important driver for social and individual dynamics. To this end, the experts in Austria believe that this can be done through public discourse and the involvement of diverse groups of people. According to the widespread opinion of the interview participants, every individual must feel involved in promoting social change. Know-how and awareness can also be strengthened through a public and transparent approach.

From a different perspective, a number of experts provide a combined point of view based on the embedded role of technological improvements, technological solutions, and institutional frameworks. For example, an expert from Germany argues that people start processes of social change. Then, this window of opportunity opens up for more significant social change, and this is often an excellent chance for new laws and regulations. On the other hand, experts from Greece believe that when it comes to technology, it is not the most advanced technology, but the one in which the local population can also participate will provide the solution. Similarly, several experts from Norway criticize the excessive focus on technological-driven measures and point out that the main challenge is not the lack of sufficient technology but the implementation and uptake of it by citizens. For instance, RES development support will be more robust in smaller local communities if the members of these communities understand that they can participate in the co-design of technical solutions and benefit from these solutions.

> “Individuals really tend to live in routines and patterns. Changing that is rather difficult and a complex social process, because many people never change their behaviour, some change it when they talk about issues with their family and friends and others react to political measures. It will always be a mix of different aspects leading to social change, but also the development of new technologies and the institutional framework allowing change to happen.”

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INDE1, Germany, CEO of a digital platform for energy citizenship projects

Experts also highlight the influence of technology on social change. The further development of digital tools and their potential effects were often mentioned. In this sense, advancing technological solutions and automation are needed to drive change. Technological advances can make the everyday life of individuals more manageable, while they can also reveal possibilities that have not yet been considered. This is mainly about collective solutions, which can be spread, for instance, via social media, and thus lead to more attention and popularity.

> "[...] We can change it this way and everyday life will perhaps look different, but that doesn't mean worse. And we can certainly make a contribution with technological solutions, strive for automation and the like […]"

INAT2, Austria, Senior Expert at the Austrian Regulation Agency

Figure 5 shows the parameters for social and individual dynamics.

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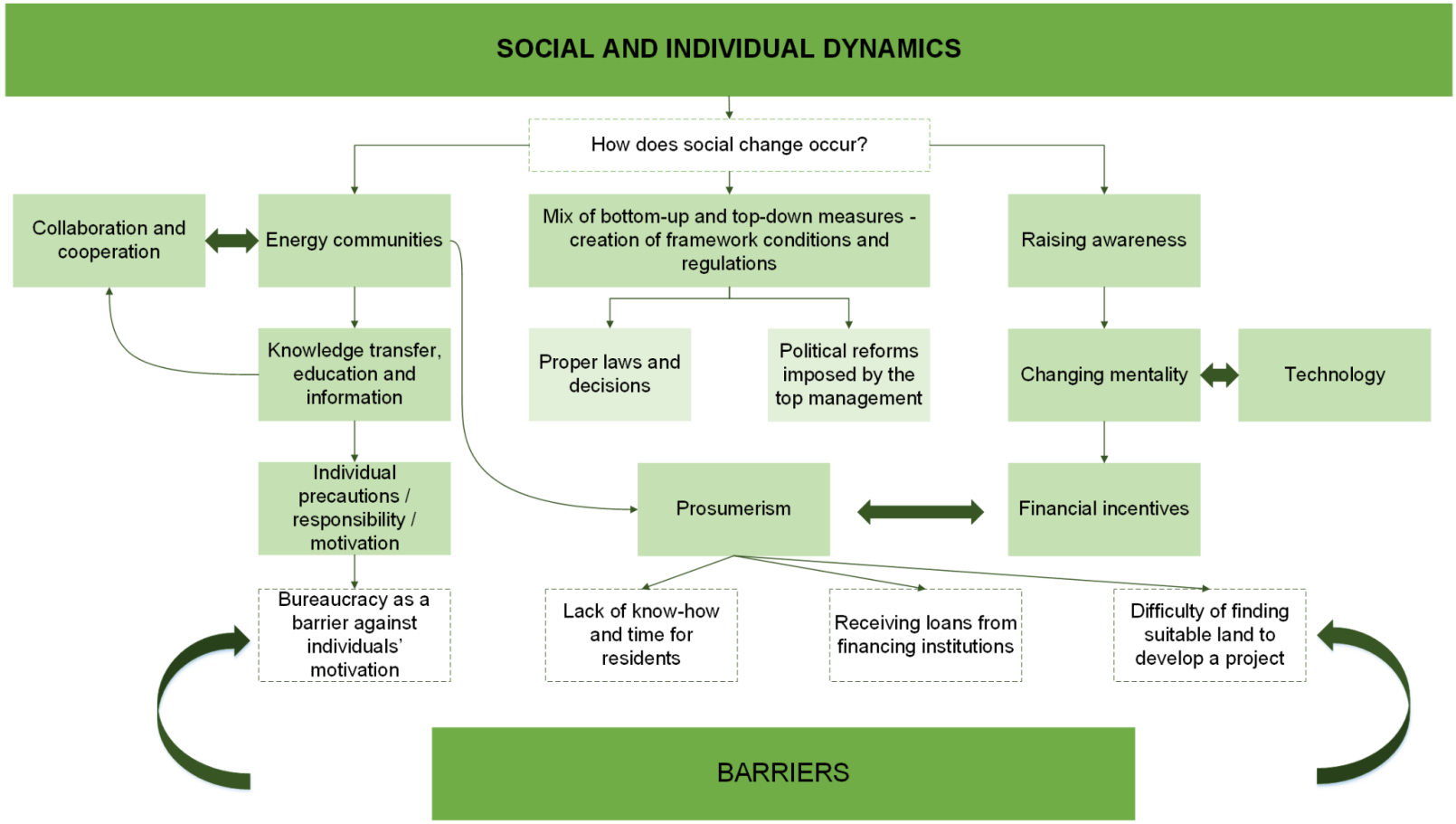

Figure 5. Parameters for engaging actors

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4.5 Inclusivity

Barriers and opportunities for encouraging civic engagement in the energy transition are discussed in this section, including which methods and digital tools can be utilised and whether individual or collective approaches need to be prioritised. Therefore, this section is mainly related to the third objective of the deliverable report, since it deals with the experts' perspectives on which parts of the society are included and excluded in the energy transition process and examines opportunities and barriers to civic participation in the energy transition. The discussion in this section is also closely correlated with that of Section 4.6 on "Justice and Looking Ahead" since inclusivity is closely related to equitable participation as well as to the dimensions of gender, age, origin, and education. In other words, it is about the inclusion of all different groups and their participation. The dimensions of age, urban-rural differences, gender, and the socially disadvantaged appear to be essential. Particular attention must be paid to these groups to ensure diversity.

> "But then it's about really looking at the groups more closely. Who does this actually affect? Does it refer to gender and to what extent are they discriminated against; are they from the countryside or from the city or what age are they? Which variable comes to the fore? Quite simply, it always needs a precise analysis."
>
> INAT6, Austria, Senior Expert for Gender/Inclusivity in Austrian non-profit research organisation
>
> "Involving citizens in decision-making processes is fundamental to the energy transition. However, it is necessary to enable everyone to understand and choose with information and education campaigns."
>
> INIT10, Italy, Physicist and environmental engineer
>
> The executive manager of the foundation does not see particular problems with access to energy transition at the gender level, but identifies possible barriers in age, economic and educational levels.
>
> INIT9, Italy, Foundation executive manager

While the perspective on inclusivity is broadly discussed along several dimensions, including age, urban-rural differences, gender, and the socially disadvantaged in Austria, in Switzerland, it is mainly approached from the perspective of income, where the experts are worried about the effects of the energy transition on poor households. From this perspective, the experts in Switzerland discuss the importance of door-to-door initiatives and the enrolment of energy ambassadors. Regarding gender inequalities in Switzerland, the experts did not report specific projects or initiatives to ensure that women feel included. When asked about specific issues women might face regarding

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energy, experts from Switzerland agreed that the question was relevant but they had not thought about it beforehand.

> "I would say that for me it is an essential theme but that for the moment it is not present... not very present. […] I have the impression...I really have...the feeling that on eco-feminism, things like that, there is really something more to do"
>
> INCH7, Switzerland, Researcher in social science, expert in sustainable practices

In the further course to conceptualise "inclusivity", it becomes increasingly clear that gender, in particular, plays an important role. For the interview partners in Austria, it is indispensable to further include women in technology. To achieve this, women have to be inspired and encouraged starting from their childhood. Decisions are mostly made at management levels and in politics, and women must be represented much more at these levels.

> "So when it comes to political decisions, they are usually made by decision-makers from the executive floors. And you have to make sure early on that women get into the top echelons. The same applies at the political level, in the city councils, in the municipal councils, in the various committees."
>
> INAT3, Austria, CEO of Austrian Energy Consulting Company

Equally important is a greater representation of women in various fields. According to the interviewees, technology is still male-dominated, and clearly, more women are needed in these areas. Women should also benefit from equitable distribution and access to knowledge. For example, one challenge that needs to be alleviated is that single mothers have more problems and need more support.

> "But when it comes to single mothers, for example, we are already noticing that it is mainly women who contact us when they have problems with energy and the like."
>
> INAT2, Austria, Senior Expert at the Austrian Regulation Agency

People with a migration background, younger people, and those with lower incomes are particularly in need of access to knowledge and resources. Knowledge must be accessible and communicated; everyone should feel included and part of the whole.

> "In many cases, the groups you mentioned do not feel addressed by the energy transition. I see different reasons for this. I can't make a contribution; I have a rented flat. In the case of migrants, this is often a general communication deficit. And these groups often don't feel they belong in general. The energy transition is also perceived as an issue of Austrian society to which they do not feel they belong or by which they do not feel accepted.

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INAT5, Austria, Senior Expert in Austrian Energy Cooperation Start-up

Concerning inclusivity, the experts prioritise the significance of the opportunities for encouraging civic engagement in the energy transition. The cited opportunities are as following:

- Collective action/energy communities in energy transition:

The model of the energy communities can be a tool that allows interaction with the citizens at the individual level. The experts from Italy believe that collective action and energy communities lead to the involvement of citizens in making strategic decisions on the type of energy model in their neighbourhood, even in their country. Energy communities allow citizens to become protagonists and more aware of their responsibilities in the energy transition.

> "Collective action allows for social interaction. Successful energy initiatives are also successful, because of the people and the social benefits they offer. Many energy initiatives in Germany offer events or bar nights where members can get to know each other and discuss different topics."
>
> INDE3, Germany, Board of a renewable energy cooperative and political activist
>
> "The right energy transition for me is one that starts from the bottom up, the energy community must respond to local needs and must be tailor-made, a whole network of local stakeholders must be involved during the feasibility phase, which must not only be technical but also and above all social. You are not just putting up panels or wind turbines, you are building a type of community that could then carry out many other initiatives."
>
> INIT3, Italy, High-level representative energy cooperative
>
> "There is a big opportunity for tackling energy poverty through energy communities, because they enable a stronger focus on the social context of energy. However, the implementation process of the EU-Directive is lacking behind in many countries. The reason for that is that many member states don't know of the potentials of energy communities, but that centralist actors like grid operators and big energy companies are also afraid of financial losses."
>
> INDE9, Germany, Project leader for energy citizenship initiatives
>
> "User involvement is crucial in achieving energy transition, however, in the past years, renewables have been left to private initiatives and, thus, citizens' representativeness is missing in the energy market. Citizens participation is necessary to energy transition, for example in the model of energy communities."
>
> INIT6, Italy, Energy cooperative executive manager

- Society's ability for fast adaptation to digitalization

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"I think digital adaptation is one of the things that surprises me in Türkiye. In other words, I have not seen a society that adapts to technology so fast, either in America or Europe. Therefore, I can say this for the city level as well […]"

INTR6, Türkiye, Consultant to Local Government on Climate Change and Sustainability/Author

- Young and dynamic civil society

"Civil society is open to communication. So this is an opportunity […] It is an opportunity that our society, whose majority is young, is much more prone to communication. We are also a country that uses communication tools extensively […]"

INTR5, Türkiye, High-level Representative from Private Utility Company

- Potential of renewable energy projects

"This is a big opportunity for renewables in connecting more people locally and creating local profits."

INDE7, Germany, Board of a renewable energy cooperative and active member of fridays for future

- Successful and ambitious public authorities and local governments

"Local government should have a much more important role than the current one […] The contribution of local government to central planning could be very important as it is the one who knows the specific local needs, especially regarding the location of RES plants. Local authorities should be actively involved at all stages from planning to implementation. Local authorities could involve their residents through information workshops and contribute to or participate in the creation of energy communities. It has the potential to contribute to operational issues such as finding land or using municipal facilities such as the roofs of municipal buildings for the installation of photovoltaic panels."

INGR8, Greece, High-level officer in Energy Communities Federation

"[…] At this point, guidance from public authorities is critical. For example, the Metropolitan Municipality of the large city with a population of higher than 4 million has a vision for it. For instance, it has an energy company with renewable energy production."

INTR6, Türkiye, Consultant to Local Government on Climate Change and Sustainability/Author

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"[…] an ambassador program to teach people to be role models for the energy transition and to inspire more people to get involved."

INDE10, Germany, Board of a renewable energy cooperative

- Availability of technological tools

"[…] the development of digital tools, such as smart meters and energy calculators, during the advent of Covid-19 […] They have the potential to address barriers to civic participation in the energy transition."

INBG6, Bulgaria, Two experts (senior and mid-level) at the energy & climate division of a national NGO campaigning for environmental and energy sustainability

"[…] There are so many apps that people can follow what they are doing. Many projects aim to measure people's carbon emissions daily […] People may say in the future: "the weather is sunny today so that we can generate electricity with the panel on the roof, and we can earn money"."

INTR6, Türkiye, Consultant to Local Government on Climate Change and Sustainability/Author

"A big potential in using digital tools, because you can provide and bundle information for everyone. However, citizens must invest the motivation and time to research and use their platform. In the long-run, the digital platform may be a consultancy tool which can grow systematically."

INDE1, Germany, CEO of a digital platform for energy citizenship projects

"Apps can be used to provide useful feedback on when it is better to consume renewable energy based on their availability, however, this solution may constitute a barrier for older people. Indeed, older people might be less familiar with technology and, thus, be far from some potential activities of the energy communities."

INIT8, Italy, Energy cooperative executive manager

- Regular training programmes, education, or information evenings to raise awareness:

Knowledge provision and information transfer are essential instruments for raising awareness. Through knowledge, people can be integrated and enabled to participate in the energy transition. Broad knowledge among the population usually increases the demand for sustainability. Public actors must inspire citizens by guaranteeing that their contribution counts.

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"So I think there really is a lot more that could be done. When it comes to civic engagement, a lot is done through personal relationships. And I have topics like energy roundtables, events, information events and so on that can achieve a lot."

INAT3, Austria, CEO of Austrian Energy Consulting Company

"An opportunity which seems that Italy is adequately working on is school education by promoting pro-environmental and sustainability-like activities."

INIT8, Italy, Energy cooperative executive manager

"Providing information and knowledge about different relevant topics help people to become aware and engaged […]"

INNO1, Norway, Representative of a public agency that support energy reduction and sustainable transformation measures

"We can have young people who have become members in recent years as part of a wave of climate activists motivated by school strikes."

INNO4, Norway, Representative of environmental interest organisation

- Economic motive and incentives

"In order to encourage commitment, it is necessary to communicate very well the benefits that would be gained in the quality of everyday life."

INIT2, Italy, SME energy efficiency

"[…] making it profitable to save energy, helping to make the right choices, economic incentives are a strong driving force."

INNO10, Norway, Representative of an association organising small-scale power plants

"A simple lever is the economic one, where you can highlight an effective saving people understand, if they save people accept the change. Highlighting the economic aspect and that a transformation is fundamental to stop climate change and environmental emergency can provide the basis for social change."

INIT1, Italy, High-level representative of an environmental NGO

"[…] support schemes to facilitate the adoption of smart energy and or energy efficiency measures […]"

INNO4, Norway, Representative of environmental interest organisation

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The experts also mention the barriers to civic engagement in the energy transition. These are:

- Difficult structures and regulations / bureaucratic barriers / legal framework:

For example, in Germany, the legal framework and bureaucratic situation make it difficult to implement initiatives and projects for sustainable behaviour. One of the reasons for this complicated situation is lobbyism by big companies which do not want to share more profit with local and regional energy companies or the citizens. Similarly, in Norway, political risk and uncertainty, counterforces in the grid industry, the administration regarding power supply, and bureaucratic formalities limit the development of small-scale hydropower.

> "For a normal citizen, the current legislation makes renewable energy projects so complicated that they would give up quite fast."
>
> INDE1, Germany, CEO of a digital platform for energy citizenship projects
>
> "[...] there are so many bureaucratic hurdles that many people don't even want to do it. I think it needs to be simplified and you need the staff to do the whole thing."
>
> INAT8, Austria, Senior Project Manager at a research centre for energy efficient construction
>
> "There are two major barriers for civic engagement in the energy transition. On the one hand, the legal framework in Germany makes it difficult to implement sustainable projects […]"
>
> INDE1, Germany, CEO of a digital platform for energy citizenship projects
>
> "Regulatory authorities for energy are hindering the streamline operations between the private and corporate markets for electricity."
>
> INNO8, Norway, Entrepreneur entering the energy sector to establish a new business model

- Lack of implementation/opportunities, lack of knowledge/communication, and lack of trust:

Lack of proper guidance and non-availability of the right information providers led misinformation to spread. According to the experts in Türkiye, communication is both a threat and an opportunity in this context.

> "Another barrier is the information deficit on how to implement renewable energy projects. With our digital platform, we hope to support individuals and collective actors in implementing projects. There is a huge potential to build more solar systems on roofs, especially in cities. However, this is often so complicated,

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because of bureaucracy, but also because people are lacking information that we are hoping to provide more information about potential solar projects."

INDE1, Germany, CEO of a digital platform for energy citizenship projects

"I see the non-implementation of these plans as an obstacle. Sustainable energy plans are now being prepared, so they need to be implemented […] How many people in Türkiye know about the Green Deal? […] It is necessary to remove that curtain in front of people and show them the opportunities here […]"

INTR6, Türkiye, Consultant to Local Government on Climate Change and Sustainability/Author

"A major barrier to local government involvement in the energy transition in Greece is the lack of capacity, particularly in smaller municipalities […] The lack of technical knowledge is the most important issue and therefore municipalities need both technical and financial support."

INGR6, Greece, High-level officer in Ministry of Environment and Energy

- Lack of consciousness and awareness, and ignorance

"[…] There is also the fact that the public is not very conscious of these issues, and they are not conscious at all of the individual support. As I said, they only think about bills. Perhaps the current economic situation forces people to do so.

INTR8, Türkiye, Representative from a National Committee of Women in Energy Sector

"The main factors impeding energy citizenship in Bulgaria include: a low level of public awareness regarding the energy transition, in particular RES; ignorance or miscomprehension of the key aspects and requirements of the energy transition by politicians at all levels of governance; lack of community consciousness, mutual trust and propensity for cooperation among citizens which hamper collective action; popular scepticism of models and concepts promoted by the EU; climate sceptic perceptions and negative public opinion of RES as politicised and expensive energy choices."

INBG1, Bulgaria, Senior expert at a local municipality; INBG4, Bulgaria, Expert at a national CSO that campaigns for energy sustainability; INBG9, Bulgaria, Senior expert on energy topics at a local municipality

"There is a lack of awareness, especially at the level of local governance institutions, of the specific challenges faced by vulnerable and disadvantaged groups and insufficient political will to promote their engagement."

INBG2, Bulgaria, Academic (expert on energy topics)

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- Infrastructural barriers

  "Barriers could be represented by infrastructural shortcomings such as, for example, not providing citizens of an adequate public transportation service or an adequate and usable network of cycling paths."

  INIT8, Italy, Energy cooperative executive manager

- Cultural codes and social vulnerabilities

  "[…] Some people are not ready for it in terms of their cultural code. It is necessary to understand the Turkish middle class properly. The Turkish middle class wants everything to be fair and thinks they work and deserve the most. So, they do not want to be on equal terms with others.

  INTR1, Türkiye, High-level representative from the Ministry of Energy and Natural Resources

  "Elderly people and pensioners are also considered a vulnerable group by several stakeholders, partly due to their potential restricted mobility and financial difficulties."

  INBG5, Bulgaria, Expert at an energy agency providing energy sustainability solutions to national and local authorities and enterprises

- Country-specific barriers deriving from the social and economic situation

  "A big issue is energy poverty in Germany and people with little income must pay energy fees but don't receive financial benefits from the energy transition […] There are more substantial problems when it comes to participation: Women have less money, less wealth and less time. Therefore, for them, it is more difficult to engage in general."

  INDE6, Germany, Former member of the German parliament (Social party)

  "Most of the primary barriers to the involvement of vulnerable and disadvantaged groups are intransigent underlying social problems which require systemic solutions, namely: poverty and economic precarity; under-education; social marginalisation; and lack of targeted policies to promote participation. When it comes to the Roma minority, economic deprivation, marginalisation and low level of education are the major obstacles to the involvement of its members as energy citizens."

  INBG5, Bulgaria, Expert at an energy agency providing energy sustainability solutions to national and local authorities and enterprises

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"Another big obstacle is the shortage of skilled workers in Germany. There are not enough handymen to install renewable power plants, especially in cities."

INDE3, Germany, Board of a renewable energy cooperative and political activist

"The German ecosystem on energy citizenship is quite large and hardly considered that many people are excluded from participating in the energy system. He finds it particularly unfair that energy-poor households don't have the money to invest in renewable energy but pay the costs of the feed-in tariffs for renewable energy projects for others on the energy bill."

INDE4, Germany, Head of the political representation of an energy enterprise

- Economic barriers

"One of the barriers for civic engagement is the distribution of wealth and income. People with little money have little opportunity to participate. Even energy cooperatives sometimes have high costs for member shares (f.e. up to 1000€)."

INDE3, Germany, Board of a renewable energy cooperative and political activist

"Not being able to adopt energy efficiency measures at home […]"

INNO1, Norway, Representative of a public agency that support energy reduction and sustainable transformation measures

"People with no money do not have limited possibilities of participation. Of course, they can participate in a political way or through protests, but this all takes time. Often people who don't have a lot of money don't have a lot of time [...] Because for a person with a house and a car; it is easy to be an energy citizen. They have the resources to build a solar power plant, and they directly profit from it. But tenants or people with little money can hardly become active about their energy production."

INDE4, Germany, Head of the political representation of an energy enterprise

"Financial resources and their uneven distribution are a big burden for citizens to participate in the energy transition because they can't invest in sustainable projects."

INDE5, Germany, Member of the German parliament (Green party)

- Time constraints

"People usually claim that engagement is too time consuming, and commitment is very difficult to maintain over time."

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INNO7, Norway, Project leader with expertise in leading a community development and capacity building project

The lack of common goals was also defined as a solid barrier, particularly in Austria. Individuals' interests often precede community interests, and people hesitate to take responsibility for the sake of sustainability goals. Structural solutions need to be found for everyone not only on a local but on a global level, as mentioned in the preceding sections.

Figure 6 illustrates the parameters of inclusivity.

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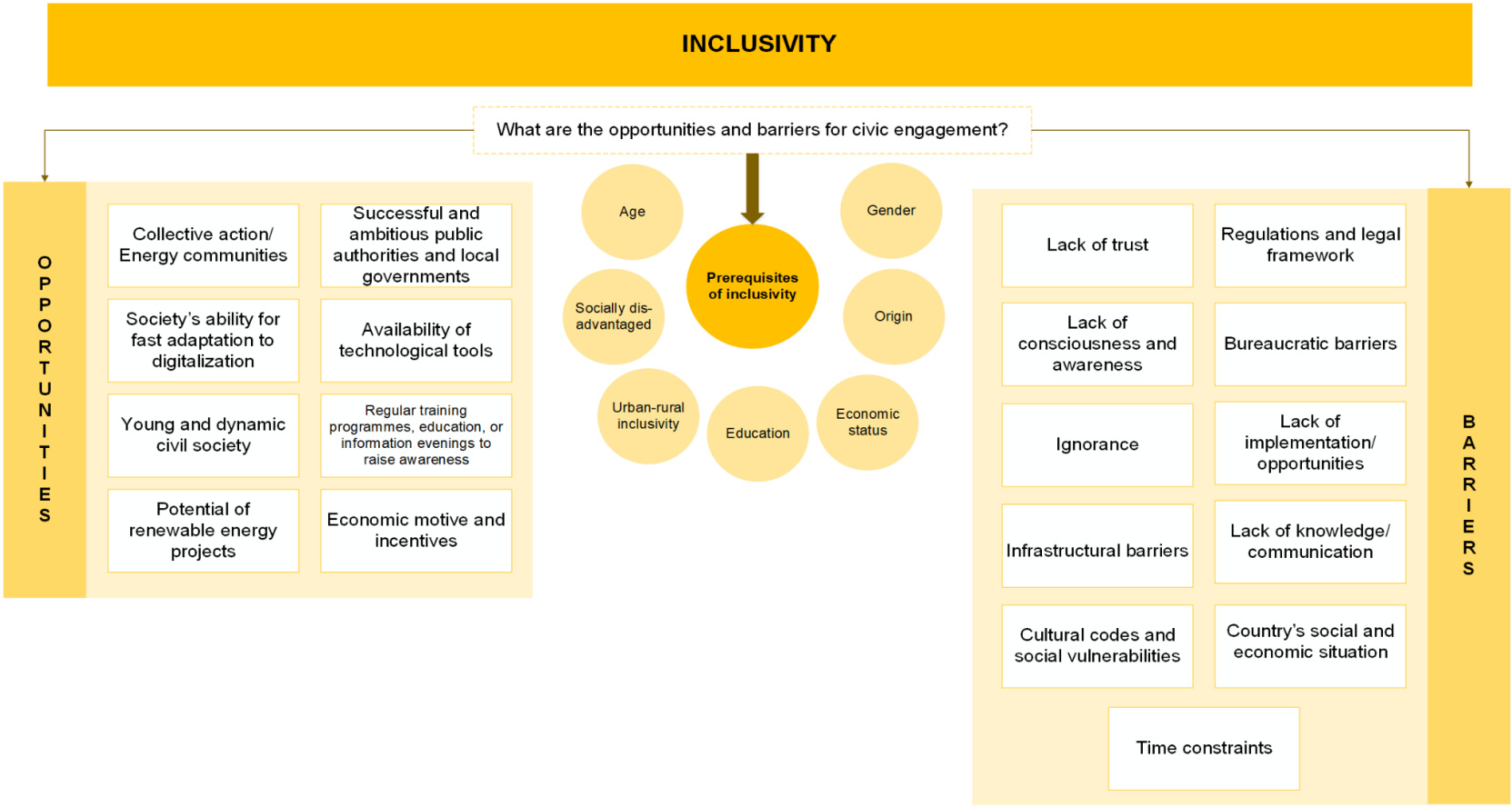

Figure 6. Parameters for inclusivity

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4.6 Justice and Looking Ahead

This section discusses the ingredients and prerequisites of a just energy transition, along with examples of the most promising initiatives. This section also elaborates on how diverse people can be included in decision-making and what could further be done to include people with diverse characteristics when adapting energy services. In this way, it contributes to the third objective of this deliverable by presenting the experts' perspectives on ways to achieve a just energy transition and civic participation through the inclusion of different groups in the energy transition process in their countries. It is a common assumption from the expert interviews that a just transition involves citizens making decisions about their living area and receiving the benefits of the transition. The benefits should not be limited to environmental benefits such as clean air; they should also include social and economic benefits. These benefits should be shared fairly with all citizens, local businesses, and municipalities.

Another focus is on reliable communication and participation in the energy transition. The interviewees attach great importance to the population's participation and transparent transmission of information. Without a voice for all population groups, justice cannot be achieved. Besides, strong participation of the population is essential for comprehensive justice and the inclusion of all segments of society. Most experts were very uncertain about how a just energy transition could be achieved but were more certain that more diversity is needed.

> "So, I don't know if we can achieve that, that we always have a great diversity in participation and that everyone is represented somehow. But of course it would be good if the feeling was there."
>
> INAT10, Austria, Professor of Psychology/ Expert for energy citizenship topics at an Austrian University
>
> "The most important next step would be the decentralisation and citizen involvement in political processes"
>
> INBG2, Bulgaria, Academic (expert on energy topics)
>
> "Energy cooperatives or other means of participation in the energy transition are not known in the migrant community. So there must be more information about it for that community."
>
> INDE6, Germany, Former member of the German parliament (Social Democratic party)
>
> "[...] Participation means that you are actually involved from the start of a process. That's how we have organized our youth work, separated as a sub-project, co-creation from the start [...] We try to facilitate the process so there is real participation and co-creation."

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> INNO7, Norway, Project leader with expertise in leading a community development and capacity building project

According to experts, efforts to engage disadvantaged groups, ethnic groups, and women in energy transition, supporting projects, regulations, and incentive systems (e.g., communication projects that combine Green Energy and the role of women) are keys to include diverse people in the energy transition.

A fair energy transition requires socially designed costs. The different population segments must be addressed, and, above all, energy costs must be communicated transparently.

> "A fair energy transition must also create true costs in the various energy sectors. To make transparent what kind of energy costs how much and why? And which tax levers are used to favour renewable energies and put fossil energies in a worse position, via the cost side."
>
> INAT5, Austria, Senior Expert in Austrian Energy Cooperation Start-up

A just energy transition is mainly associated with the necessity to build a more democratic energy system and the need for more fair energy consumption. In other words, it is related to who has access to certain energy services. Those two dimensions could be framed as procedural justice and distributional justice. Regarding procedural justice, experts in Switzerland have stressed the importance of improving access to information and knowledge within educational programs. Swiss experts agree on this vision of a just energy system, who are more interested in the collective dimension of energy citizenship and wish that each individual can be part of future decisions.

- Universities and scientific research

  > "[…] I think the most critical participation in energy transition here is the participation of the universities because universities are institutions that carry out academic studies in this context and carry out R&D studies."
  >
  > INTR2, Türkiye, High-level representative from Metropolitan Municipality
  >
  > "I would say a transition in which... everyone can... could participate to the extent... of the possible... well to the extent of their means... And who could benefit from the fruits of this transition […] And not waiting for everyone to be engaged because I don't think that's possible. […] So I think we have to find ways to include everyone"
  >
  > INCH5, Switzerland, Head of an energy community network

- Raising awareness

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> "The first prerequisite for a just energy transition is the awareness of the existence of such a concept."
>
> INBG1, Bulgaria, Senior expert at a local municipality
>
> "It is necessary to provide a transition process in which all segments of society can be involved and meet their needs. At the same time, raising awareness is very important in this process. Therefore, a developed communication network should be established in the entire energy sector […]"
>
> INTR5, Türkiye, High-level Representative from Private Utility Company

- Decentralisation

> "[…] we are not talking about a transition; we are talking about replacing some elites with other elites. We can…close all the polluting companies…replace them with large RES projects… But this is not really the transition. We will green our energy system, but if this is not decentralised, we will not be able to really achieve an effect that can be transferred to the various sectors."
>
> INBG2, Bulgaria, Academic (expert on energy topics)

From the German experts' perspective, it is very challenging to create a just energy transition or a just energy system. It has been discussed that power, land, and income are already very unevenly distributed in the population. Therefore, it is vital to have the ability to create an impact in the energy system on the individual level and on the political level, by reorganising markets and power. A relevant quote from Norway is presented below:

> "Justice is often not easy […] The system heavily benefits those that own things and have the ability to capitalise on change. Different models to even out unreasonable differences between those who are already well off and those struggling."
>
> INNO9, Norway, Representative of an environmental interest organisation

- Gender equality

> "[…] There should be gender equality because production processes are changing. These male-dominated excuses, or rather the excuses that lead to male domination, are disappearing. That is why I think we see an energy sector that will include women in employment via the mentality of gender equality […]"
>
> INTR4, Türkiye, Journalist/Activist

In terms of environmental issues and protection of lifestyles, experts believe that environmental issues should systematically be taught at school. Furthermore, according

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to the experts in Switzerland, improving democracy is also about shifting the country's economic priorities to ensure that future generations can have safer access to sustainable and local energy. The experts in Türkiye shared similar opinions, as depicted below:

> "[…] The third indispensable part is energy efficiency and an environment where we use less energy […]"
>
> INTR4, Türkiye, Journalist/Activist
>
> "In the regional sense, protecting the lifestyles of local people is indispensable […] The benefits of the transformation must be spread equitably and fairly […]"
>
> INTR10, Coordinator of Turkish Section of NGO Coalition Network

- Financial participation

> "It should be legally obligatory for anyone who lives close to a wind park if offered financial participation. If people don't have the money to invest, then the municipality should be involved and profit from the renewable energy plants."
>
> INDE5, Germany, Member of the German parliament (Green party)
>
> "It is to say to ourselves 'we have an envelope and we must share it in a way that is equitable with regard to...at least the vital needs that everyone must be able to satisfy'"
>
> INCH8, Switzerland, Energy consultant for public authorities

There is also a need to optimise implementation processes regarding the fair distribution of energy. There must be structural facilitation in application processes and especially assistance in implementation. Structural facilitation also refers to a fair distribution of energy. People must be aware of what energy they get and what they pay for it. Central authority is also seen as essential in a fair energy transition. It is responsible for creating framework conditions and regulations through a top-down approach. Establishing the legal framework of the energy transition is also emphasised by the experts.

> "Of course, politics is called upon to create the framework conditions."
>
> INAT3, Austria, CEO of Austrian Energy Consulting Company
>
> "I think the policy and legal ground of energy transition should be determined […] I think the most critical pillar of this should be education […] It should be explained what sustainable energy and energy democracy are and what the duties and responsibilities of citizens are […]"
>
> INTR2, Türkiye, High-level representative from Metropolitan Municipality

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Regarding the "most promising initiatives", a strong focus was placed on energy communities. Trustworthy communication channels are needed to inform the population. Energy communities are considered to be one of these channels. Such communities should also be organised regionally and should be part of a common network. Besides, public actors should understand how to integrate these communities effectively into the system. There is a need for clear regulations between suppliers and consumers. Financial reasons must not restrict access to energy.

> "[…] are those that involve communities that are not too large, a small village, a neighbourhood in a big city, a small municipality, are the ideal size for creating energy communities. You need a size where involvement is easier where you can do a door-to-door activity, both for greater inclusion and for real transformation. A community of neighbours, which could also be between small companies, but where the size has to be medium, not too big nor too small."
>
> INIT1, Italy, High-level representative of an environmental NGO
>
> "[…] Cooperatives and individuals should have a share here. These are indispensable components of a just energy transition […]"
>
> INTR4, Türkiye, Journalist/Activist
>
> "Energy community could be a good model to involve citizens. However, the application and, more generally, the best solution to find highly depend on the territorial scale."
>
> INIT8, Italy, Energy cooperative executive manager

Women's organisations are among the most promising initiatives.

> "[…] Women's organisations are a positive development. I think they have an incredible impact. Türkiye can make a rational energy transformation […]"
>
> INTR1, Türkiye, High-level representative from the Ministry of Energy and Natural Resources

Figure 7 summarises the parameters for justice.

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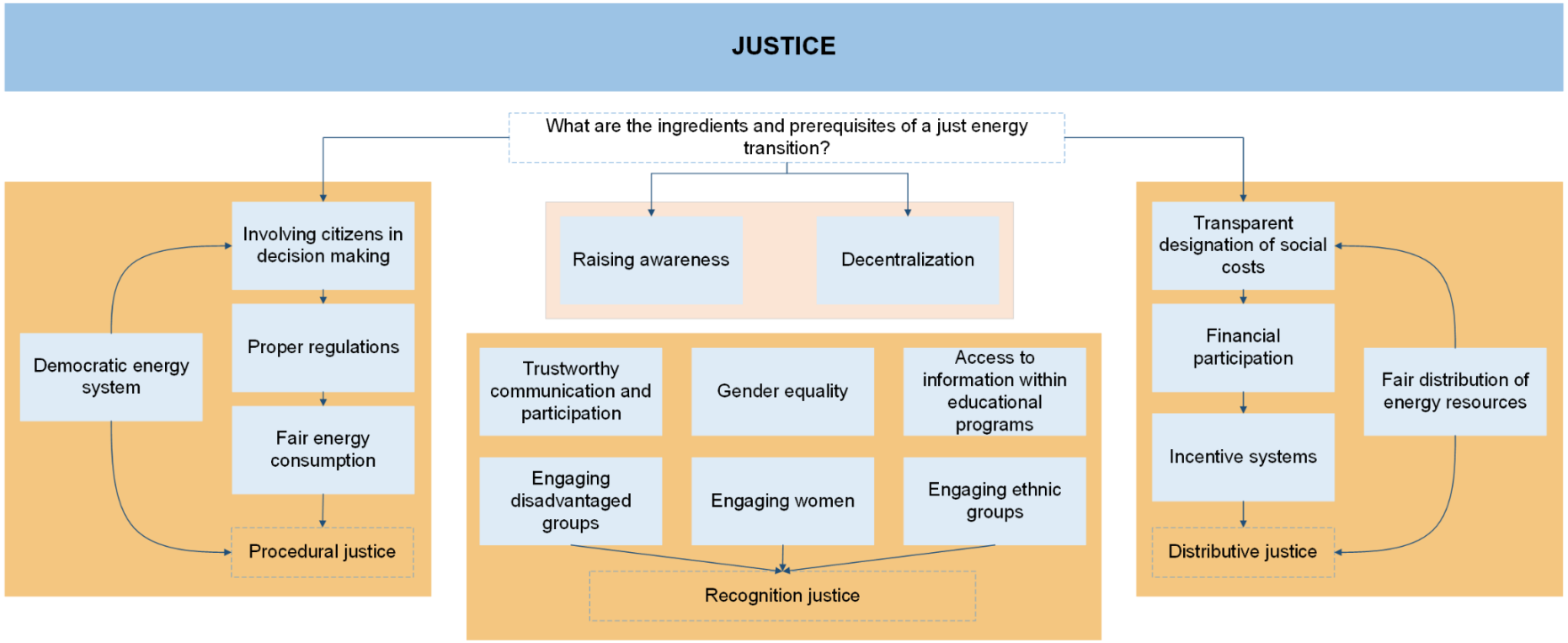

Figure 7. Parameters for justice

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4.7 Further Insights from Expert Interviews

This section gives an overview of additional topics that were not mentioned in previous sections but are still relevant to energy citizenship.

One of these topics pertains to the shared sense of identity in society in terms of energy citizenship. Most experts from Austria believe that this is not achieved. One of the barriers in this regard is the lack of transparency. The experts also point out to the fact that changes often take place on a smaller scale, for example, in energy communities or are driven forward by pilot projects, whereas the energy transition should be encompassing, involving all segments of society.

The interviews conducted in Bulgaria reveal that citizens' energy choices are primarily motivated by economic reasoning, and financial concerns tend to override environmental, health-related and other considerations. For example, concerning residential heating, people choose the most affordable rather than the optimal option. Several respondents argue that efforts to transform energy use should be considered, and citizens should be shown the (economic) benefits of sustainable energy choices, such as RES uptake. Moreover, awareness for the successful examples of civic engagement appears to be an important factor in encouraging energy citizenship. Therefore, information regarding good practices and working initiatives within the country (and not so much from abroad) should be disseminated. The more immediate these initiatives' proximity to citizens, the stronger their positive influence.

The interviews conducted with German experts reveal that the role of political reforms is two-fold in German society. Political reforms may hinder energy citizenship, but they can also help to foster citizenship. A number of German experts state that these political reforms will have a big impact on the success of energy citizenship, and the new federal government will hopefully boost citizens to be more in touch with the energy system. Political incentives are needed to motivate people to act more sustainably or to change their behaviour. Moreover, it is important to support citizens who are motivated to change something about their energy behaviour. However, German people are often overwhelmed by the steps to realize renewable energy projects. Therefore, there must be more public interaction points to interested individuals for sustainable energy behaviour. German interviewees also believe that a just energy transition would be organized "by the people" and "for the people". Hence, a more just economic system and more solidarity between citizens are desired in Germany. One way to address more diverse people is to find 'bridge builders'. To this end, people who are interested in sustainability in the community and who can support the mission of sustainable action by carrying information back into their community should be identified. According to German experts, another way to include more diverse people in the energy system is to create more links between individuals and energy production and consumption. Young people and kindergarten kids should be encouraged to visit wind power plants and learn about the energy system at an early age to be connected with the energy system in which they live. On the other hand, German experts believe that energy utilities can contribute to a more inclusive energy system because many people have the know-how and would

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support the development of energy communities. Therefore, the territorial scope is important because citizens know each other, and there is more of a positive local effect. In this sense, energy advisors might be an efficient tool for social change in energy behaviour and raising social awareness in Germany. People are often unaware of their energy usage in Germany, whereas energy justice requires individuals to be aware of energy usage, choose their energy mix, and see what is important to them.

In Greece, islands, especially the non-interconnected ones, face more difficulties, and technical solutions are harder to implement. Therefore, a need emerges for particular interventions to do something simple. In that perspective, there is a form of discrimination because of technical issues that need to be addressed. The interviews in Greece also show that large and numerous installations that are not related to fulfilling the energy needs of small islands, combined with the topography of steep mountains, can cause great visual disturbance and make social acceptance difficult. The existing tools and maps showing the suitable locations for installing wind turbines also appear as a negative factor, as they do not reflect the actual space occupied by the installations that are finally implemented. Also, another concern is related to the effort to make the energy transition of the islands in a holistic way, for example, only installing an individual RES on an island without having a holistic plan does not work for the energy transition. Hence, the questions should not only be about RES, which is very basic and a significant point of friction with local communities but should also include all the other issues that are not solved by the interconnections. In addition, they have to do with issues such as energy saving, transport, infrastructure, and the circular economy. Another takeaway concern in Greece is the gender dimension. There is a difference in the perception of gender in the energy transition. An example given by one of the interviewees is that in a house renovation, women would tend to upgrade the bathroom compared to men, who would not have it as a priority since they do not spend so much time in it. In the same way, special attention should be given to mothers with children when it comes to reaching out to that group; different communication tools should be used, which might need to be more personalised or done online due to time availability. Thus, a stakeholder engagement plan has to consider these different communication tools.

All interviewees in Italy seemed to enjoy thinking about questions concerning their organisations and the contexts in which they are operating. Questions on inclusivity, participation, gender, and justice for these experts are part of the energy discourse. Still, they were not optimistic that value orientation in these matters would have much influence in their field of action if economic benefits were not the main driver. There is a heavy ideological overweight in the Italian energy discourse (and in many other fields), with well-sounding hypocrisy in the general statements and very little to show for it on the ground. “Participation” ranks high as a value and rarely means more than “information” in practice. DIALOGUES should therefore refrain as much as possible from affirmations on the desirability of energy citizenship and its elements, and instead, it should articulate as concretely as possible how its promotion will translate into tangible action. To differing degrees, all interviewees ascribe a high relevance to politics, which is no surprise given the general weakness of ecological culture in Italy. National politics

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should provide the framework conditions for renewables and energy efficiency such as the 120% bonus and favouring self-production and distribution of energy in energy communities. Local politics should act as a pathfinder and pacemaker, using the mayor's and local politicians' authority to gain the confidence, above all of the "common people". On the other side of the coin, a way to the energy transition in Italy could be thinking about the local level but also knowing and considering what is going on in Europe and, more generally, in the world. In Italy, this double perspective could be useful to adapt suitable models imported from other countries but also to export the models that work well in the country. The energy transition is regarded as a complex process in Italy. A great benefit can come from the collaboration of the public administration with organisations which protects the country's assets and values. Moreover, the PNRR is an excellent tool to radically change Italian society, promoting a development characterised by less social inequality and in which people and the environment are at the centre of all production processes.

In Norway, a business idea is currently developing where the aim is to change parts of the energy system's structure. Several informants state that small-scale hydro-production is changing, as the Norwegian companies have withdrawn from investing largely because of dramatically low returns. Private actors also show an increased interest in building these facilities on their land. The power grid is costly to build. Assuming that battery technologies were good enough to store locally produced energy outside the grid, from a combination of wind power, hydropower and solar, these battery technologies could be a local energy alternative for the community. At the time, finding systems that could stand the fluctuations was challenging.

The interviewees in Switzerland were very interested in the DIALOGUES project. All of them believe citizen participation is a key dimension of the energy transition, although they do not share a common understanding of what this participation entails. They also welcomed questions on inclusivity and gender and demanded more scientific input on this matter. They would very much appreciate it if future research results were shared with them.

The expert interviews in Türkiye imply that a set of parameters influence energy transition and hence the involvement of citizens in the energy transition process. Financial matters are seen as more dominant in Türkiye due to the economic dynamics of the country. Experts highlight that even the interest in renewable energy resources is recently affected by financial concerns. Therefore, Türkiye's current economic dynamics could be an obstacle to Türkiye's green transition. Therefore, experts underline that financial and economic concerns could emerge as significant factors in the energy transition of Türkiye as a rapidly developing economy. In recent years, Türkiye has pursued varying initiatives to accelerate its energy transition through investments in carbon-neutral technologies, renewable energy resources, and e-mobility. Türkiye's energy policy currently prioritizes the utilization of indigenous resources.

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5 Emerging Themes

The analysis of the 82 semi-structured in-depth interviews conducted with experts in Austria, Bulgaria, Germany, Greece, Italy, Norway, Switzerland, and Türkiye provides perspectives of the experts concerning the energy transition and energy citizenship. These perspectives lead to identifying and categorising the emerging themes, as depicted in Figure 8.

These themes are valuable for the DIALOGUES project from different angles. First, since these themes are based on the interviews conducted very recently, they reflect the contemporary expert viewpoints pertaining to the energy transition and energy citizenship in the respective countries. Second, these results can be utilised for a more elaborate framing of the energy citizenship concept within the context of DIALOGUES. Finally, they contribute to establishing the specific dimensions concerning the pathways to energy citizenship, which is central to DIALOGUES. Moreover, the processes, drivers, barriers, and interactions between them are also identified.

Concerning the energy citizenship process, as evidenced from the previous and ongoing initiatives, the most-cited examples are based on raising awareness of concepts such as the energy transition, mobility, sustainable transportation, and renewable energy resources. A critical highlight concerning the previous and ongoing initiatives is the lack of inclusivity, where primarily women, younger age groups, and individuals from different ethnic backgrounds or lower socio-economic statuses are excluded. The emerging themes reflect the development of a set of perspectives concerning the inclusivity issue from various viewpoints. For instance, as a reason for the lack of inclusivity, the inherent diversity problem stands out as a key factor. In this respect, structure and interactions also play an essential role through, for instance, the impacts of gender discrimination, ethnic discrimination or the effect of socio-economic status. In the context of gender discrimination, the energy sector is characterised as a male-dominated sector, with more jobs and higher salaries for male employees. Socio-cultural codes and social responsibilities of women, including maternity, child care, and family care, are identified as the main issues. On the other hand, the impacts of the diversity problem or lack of inclusivity can be observed through the adverse effects on collaboration and cooperation towards energy citizenship, for instance, via energy communities. A two-way interaction can be observed in terms of inclusivity and procedural justice, recognition justice, and distributive justice, which are the prerequisites of a just energy transition.

Another main heading of the emerging themes is identified through the experts' perceptions on engaging actors, that is, how citizens engage in the energy transition. At this point, an overall perspective points to the themes pertaining to collective action, such as fostering energy cooperatives, energy networks, energy actions, and individual actions. It is worthwhile noting that there is a stronger emphasis on collective actions than individual actions. According to the experts, barriers concerning the engagement of actors are a lack of public interest and awareness, regulatory framework, and legislative barriers. The drivers to achieving citizen engagement can also be categorised as those

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referring to collective action and those referring to individual action. These themes are categorised under social and individual dynamics.

Regarding collective action, the main driving themes are collaboration, cooperation, proper laws, proper managerial decisions, and awareness-raising initiatives for social change, education, and financial incentives. The individual-oriented counterparts are individual carbon footprint tracking, energy efficiency measures, and mentality change.

An analysis of the emerging themes reveals that both engagements of actors and social and individual dynamics are closely related to the structure and interactions. Although the identified themes may stress the existence of a number of structural challenges impacting the pathways to inclusive energy citizenship in the current conjuncture, a number of opportunities are also cited. These include infrastructural constructs such as the availability of technological tools along with the ability for fast adaptation to digitalisation, governmental capacity including successful and ambitious public authorities, especially local governments, social assets such as young and dynamic civil society, and supportive mechanisms such as education and raising awareness. In contrast, the inherent diversity problem stands out as an unsolved reality for collective action.

Hence, mapping the emerging themes, including the process phases, barriers, drivers, and their interactions, also suggest a framework for conceptualising energy citizenship and operationalising pathways to energy citizenship and energy transition.

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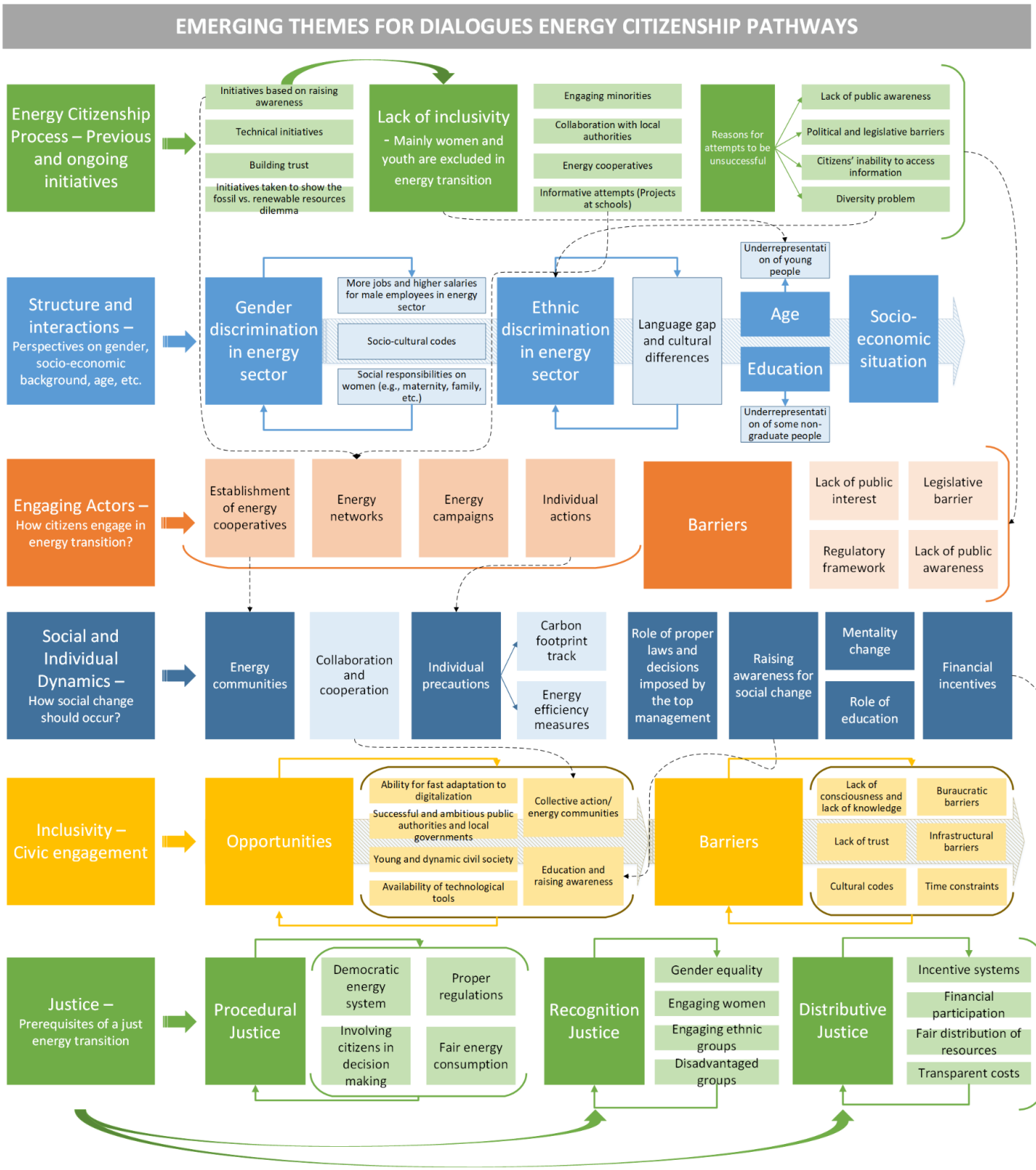

Figure 8. Emerging themes for DIALOGUES energy citizenship pathways

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6 Conclusions

This report contributes to the overarching aim of the DIALOGUES project, which is stated as supporting the Energy Union through operational research on energy citizenship to enable citizens to take a central role in the energy transition. To this end, the main focus of Deliverable 5.2, “The experts’ perspective on building local energy citizenship”, is utilising the dialogue between citizens, policymakers, public authorities, municipalities, and consumer organisations to identify how the process can be framed to foster direct participation of citizens in energy citizenship and energy transition.

To facilitate local dialogues with citizens, municipalities, and local stakeholders, 82 semi-structured in-depth interviews were conducted with experts from 8 DIALOGUES partner countries, namely, Austria, Bulgaria, Germany, Greece, Italy, Norway, Switzerland, and Türkiye. These interviews were aimed at contributing to a co-creation process for citizen engagement. The experts were selected from public actors (energy policymakers at local, regional and national levels, including executives or officers in the municipal or mayor offices), energy suppliers (both public and private utility companies); citizen organisations (such as NGOs, associations, activist groups, members of professional chambers, academicians, representatives of private companies), that either possess certified knowledge and direct experience and involvement in the energy transition in their respective countries, or non-certified experts, including citizens, consumers, and individual activists.

The report utilises the results of semi-structured in-depth interviews with politicians and ‘expert’ stakeholders in local energy systems. Through the interviews, the experts were asked to provide their viewpoints on how energy citizenship is currently framed, how experts understand the energy transition in their countries, which parts of the society are included in these framings and whether segments of the society are excluded from such framings. The expert interviews were analysed to provide a thorough understanding of the current debate and practice of energy transition and the inclusive process of energy citizenship. Hence, this approach encourages deeper energy citizenship by co-creating empowerment strategies in real-world settings that target collective action, social innovation, governance arrangements, policies, and power dynamics. In doing so, social learning was utilised in co-creation to reveal perspectives on energy citizenship and shared visions of sustainable energy futures.

The expert interviews and the subsequent analysis were based on the three facets of technical knowledge, process knowledge and interpretative knowledge.

Technical knowledge pertains mainly to the expert profile, with a focus on the roles and responsibilities of the experts for supporting the energy transition. In this sense, the experts from different countries have diverse roles and responsibilities, ranging from end customers to climate activists, representatives of utility companies, and policymakers, with a common primary focus on advancing the energy transition.

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Process knowledge refers to the experimentations, structure and interactions within the organisation, engagement of actors, and social and individual dynamics. The expert interviews reveal that the experiences are at various levels, including the regional or municipality levels, as well as national and even international levels. The foci of these initiatives vary from e-mobility to photovoltaic projects or integrated climate protection projects. In general, initiatives with broader participation, energy communities and energy cooperatives, and initiatives that local governments support are identified as successful implementations. On the other hand, political and legislative barriers, frequently changing regulations, and bureaucracy pose significant barriers to the energy transition initiatives. Failure to achieve inclusivity and being unable to achieve participation from all segments of society in the energy transition initiatives also stand out as the main barriers. The main dimensions of diversity are observed as gender (women), age (younger age groups), and language (non-native speakers). One final barrier emerges as the citizens' weak environmental or community-oriented motives, mainly due to a lack of public awareness and accessibility of information.

Structure and interactions within the organisation aim to assess whether certain parts of society are underrepresented in the experts' organisations, the gender composition of their organisations and in the governing bodies, the specific challenges that these people face, along with potential pathways to resolve these challenges and foster their engagement with the energy system. Along the same lines with inclusivity, the gender dimension comes into the picture where experts from all countries state that the energy sector is a male-dominated sector, with increasing shares of female employees in some countries such as Switzerland, Norway, Germany and Italy. However, even in these countries, the more strategic jobs are still dominated by males. In this respect, training programs, NGOs featuring and supporting women in the energy sector, and social support programs for women provide the potential for overcoming these barriers. Along with gender, socio-economic diversity (migration, age or education) is observed as a barrier resulting in inequalities and underrepresentation for people with a migration background, non-native speakers, or people of colour. Interestingly, socio-economic status also emerges as a determining factor, where people with high socio-economic levels are more likely to be involved in the energy field. Similar reasoning holds for younger people that do not have enough finances to participate in energy initiatives.

The social dynamics section targets to capture the experts' perspectives on how social change should occur regarding energy usage and which drivers, including individual behaviour change, political reforms, collective actions, and technology-driven solutions, can contribute to such change. Two dimensions the experts emphasise in this respect are collaboration and cooperation. A mediator for these dimensions is information provision and dissemination of relevant knowledge in public discourse. As expected, collective organisations are mentioned as important actors in fostering social change. For instance, energy communities enable citizens to become active in their energy behaviour and link it to their region in a social context.

The interpretative knowledge aspect pertains to the key issue and challenge of encouraging participation in the energy transition. At this point, the experts are asked to provide their opinions about how the challenge of enlarging and enhancing citizen engagement may be

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alleviated, considering the hard-to-reach parts of the society. According to the evidence from the expert interviews, the types and levels of participation vary considerably between experts and organisations. In terms of future perspectives and initiatives promising the inclusion of a higher diversity of people in decision-making and adapting energy services to different needs, one factor is participation in local initiatives and support from the local governments. It is worthwhile to note that more contemporary potential pathways to foster participation rely on dynamics that may stimulate the younger citizens, such as sustainable transportation initiatives, micro-mobility implementations, and financing of start-ups to implement the ecological transition. The experts also mention more conventional dimensions such as government initiatives, energy communities, increasing awareness and information provision.

Along with all interviews, inclusivity appears to be the most significant dimension concerning energy citizenship. Participation, gender, and justice emerge as complementary topics. Factors such as economic reasoning, financial concerns, environment, and health-related considerations also need to be considered in terms of their impact on the viability of energy citizenship for individuals. In this sense, awareness and examples of successful implementations of civic engagement are important factors for encouraging energy citizenship.

Technical feasibility, capacity, and infrastructure availability are significant drivers impacting energy citizenship.

As part of the political infrastructure, national strategies and policies define the general framework conditions for energy transition, energy citizenship, and implementation. Hence, the policies of the central and local governments may act as a pathfinder and pacemaker to foster collaboration between the energy market players, energy communities, organisations, associations, and individuals.

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7 Appendix

7.1 APPENDIX A

Semi-Structured In-depth Interview Protocol

Opening

The following introductory section is suggested to be utilised and adapted according to the expert's position.

Hello, my name is *[Interviewer's Name]* from *[Interviewer's Organization]*, and I would like to welcome you on behalf of the DIALOGUES Project members, a H2020 project that aims to conduct operational research pertaining to energy citizenship, enabling citizens to take a central role in the energy transition. Thank you for agreeing to take part in this interview as your point of view is very important for us to progress in the right direction. The interview aims to understand why local citizens are engaging (or not) with the energy transition and energy initiatives.

I would like to remind you that this interview session will be taped because we don't want to miss any of your comments. However, I would like to assure you that the discussion will be kept anonymous in accordance with research governance policies, information sheet and consent form.

I would also like to note that there are no right or wrong answers, and we care about your opinions. Therefore, please try to be as precise and detailed as possible so that we do not miss your experiences, feelings, and views on the topics we discuss.

Engagement

The European Union's Green Deal and the Paris Agreement require immediate actions to make Europe the first carbon-neutral continent by 2050. To this end, energy transition and climate neutrality are critical, encompassing the primary need to involve citizens in this process with a citizen-centric approach. Therefore, from DIALOGUES' research perspective, energy citizenship is framed as a linkage between the European Union's strategic objectives to reach these ambitious goals and citizens' contribution to this purpose, focusing on citizen engagement with "energy topics, awareness of GHG emissions, equity and justice".

DIALOGUES defines energy citizenship as "the degree to which, and the ways in which, the goals of a sustainable energy transition enter into the everyday practices of an individual". Hence, understanding why the local citizens are engaging (or not) with the energy transition and energy initiatives matters in the context of energy citizenship. This is likely to be examined via getting into direct dialogues with politicians, decision-makers and expert stakeholders in local energy systems. This entails to conduct in-depth data collection through interviews to be performed in partner countries to reach vast information.

The following interview guide should be applied to each interview.

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Questions

Before starting with the main questions, the partners might expect the interviewees to provide a priori information about the energy transition in their country (e.g., rules, regulations, key actors, key dates, energy sources, etc.) in a short form.

The following questions intend to give the general canvas of the interview. However, depending on the interviewee's position and the specificities of each context, the question can be adapted, some may be skipped, and others may be added.

First, I would like to start by asking you questions regarding your structure, its goals and its position in the energy field.

Technical knowledge:

1. Expert Profile:

• Can you tell me about your roles and responsibilities, in your organisation, in relation to supporting the energy transition?

Process knowledge:

Now, I would like to move on to your concrete activities and projects within your organisation.

2. Experimentations:

• Could you tell me about previous or ongoing initiatives implemented by your organisation to support the energy transition and explain why you think they were successful or not (what was achieved, did it rely on participatory methods, who was excluded)?

• In what way does your organisation work to take into account gender, socio-economic background, age, etc., when it comes to initiatives you implement or support?

3. Structure and interactions within the organisation:

• Are certain parts of society underrepresented in your organisation, e.g. women or men (and what exactly is the gender composition in your organisations and the governing bodies?), people of colour, people with a migrant background, people without an academic education etc.?

• What would you say are the specific issues these people are facing in your organisation? What do you do about this, and what do you think should be done?

As explained before, we are interested in the way people engage with the energy system and wonder how to foster this engagement.

4. Engaging actors:

• In what way do citizens currently engage in the energy transition? Can you give examples (of people, groups of people, initiatives, successes, or failures)?

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• What would you say are women's specific issues in the energy transition? How does that differ according to other social features of women (class, age, race…)?

5. Social and individual dynamics:

• How do you think social change should occur regarding energy usage (individual behaviour, political reforms, collective actions, technology-driven solutions….)?

Interpretative knowledge

We know that encouraging participation in the energy transition is a key issue but also a challenge because some people may be hard to reach. We would like to understand how you perceive and address the challenge of enlarging and enhancing citizen engagement.

6. Inclusivity:

• What would you say are the barriers and opportunities for encouraging civic engagement in the energy transition (which methods, with digital tools, individually or collectively)?

7. Justice and looking ahead:

• In your opinion, what would a just energy transition involve (expected levels of participation, the territorial scale of participation, size of the community, etc.)? What do you see as the most promising initiatives, and why?

• What could be done to include diverse people in decision-making? And what more could be done to include diverse people in adapting energy services to different needs?

• Any final remarks?

Information Sheet

Introduction

I am *[Interviewer's Name]*, from *[Interviewer's Organization].* I am conducting a study on co-designing and mapping energy citizenship pathways based on the reflections on energy citizenship and shared visions of sustainable energy futures. I will give you information about the interview procedures and invite you to be part of this research.

Purpose of the Project

Funded by EU Horizon 2020 (H2020) framework program, DIALOGUES will support the Energy Union with operational research on energy citizenship that enables citizens to take a central role in the energy transition. To reach this objective, the project will Operationalise, contextualise, measure, and support the framework environments, policies and institutions that allow deep, inclusive energy citizenship to emerge to reach this objective. The semi-structured in-depth interviews planned to be conducted with 'expert' stakeholders in local energy systems aim to understand why local citizens engage (or not) with the energy transition and energy initiatives.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022585

Type of Research Intervention

This research will involve your participation in a semi-structured in-depth interview that will take 45 minutes to one hour.

Participant Selection

You are invited to participate in this research because we feel that your experience as a politician or 'expert' stakeholder in local energy systems can contribute much to our understanding and knowledge of local citizens' engagement with the energy transition in *[Interviewee's Country]*.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not.

Procedures

We are asking you to help us learn more about local citizens' engagement with the energy transition in your country. We are inviting you to take part in this research project. If you accept, you will be asked to participate in an interview with me.

Duration

The research takes place 36 months in total.

Risks

The research does not entail any risk to you as a participant.

Benefits

There will be no direct benefit to you, but your participation is likely to help us find out more about our research subject.

Confidentiality

We will not be sharing information about you with anyone outside the research team. The information that we collect from this research project will be kept private and used anonymously. Any information about you will have a number or another identifier instead of your name.

Sharing the Results

Nothing that you tell us today will be attributed to you by name. If any part of your statements is used in a research or a project report, it will be anonymised.

Right to Refuse or Withdraw

You do not have to take part in this research if you do not wish to do so. You may stop participating in the interview or focus group at any time that you wish.

Who to Contact

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022585

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact me via: *[Interviewer's Email Address].*

This proposal has been reviewed and approved by *[Interviewer's Organization]* Ethics Committee, a committee whose task is to ensure that research participants are protected from harm. If you do have any further questions about the Committee, please get in contact with *[Contact for Ethics Committee in Interviewer's Organization].*

Certificate of Consent

Statement by the interviewee

I have been invited to participate in research about "Co-designing and mapping energy citizenship pathways". I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions, and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study.

Would you agree to be added to our mailing list to receive more information about the project? (Yes/No)

Would you be willing to be involved further in this research? (Yes/No)

Name of Participant

Signature of Participant

Date

Statement by the researcher

I have accurately read out the information sheet to the potential participant and to the best of my ability made sure that the participant understood the research details.

I confirm that the participant was allowed to ask questions about the study, and all the questions asked by the participant have been answered correctly to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

A copy of this Informed Consent Form has been provided to the participant.

Name of Researcher

Signature of Researcher

Date

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022585

7.2 APPENDIX B

Energy Profiles of the Countries

This section provides background information regarding the energy profiles of the countries, in which expert interviews are conducted, along with the main characteristics of the countries' energy systems. This includes the energy market structure, policies fostering effective energy transition, the role of individuals and communities in the energy system, and assessment of their fuel poverty and vulnerable groups and aims to complement the understanding and analysis of the information gathered from the experts in associated countries.

7.2.1 Austria

In 2020, Austria's final energy consumption amounted to 1,055 PJ, 29% of which was consumed by industry, 10% by the service sector, 27% by households, 2% by the agriculture sector, and 32% by the transport sector. The total share of renewables in gross domestic energy consumption was 33.6% in 2019 (the latest available data), thus, Austria's target of achieving a 34% share of renewable energy[1] in its gross final energy consumption has nearly been reached.

Austria's national energy production consists mainly of renewable energy. Currently, more than 80% of total energy production comes from renewable sources (see Figure 9 and Figure 10). Oil, coal, and combustible waste comprise only approximately 5% of domestic production.

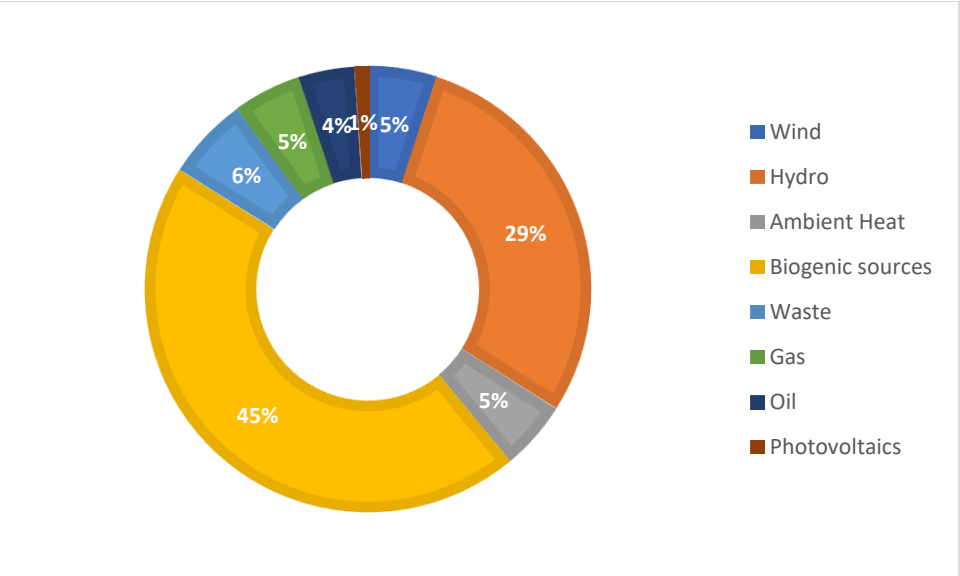

Figure 9. Domestic energy generation in 2020

[1] This share is in accordance with the Renewable Energy Directive (2009/28/EC).

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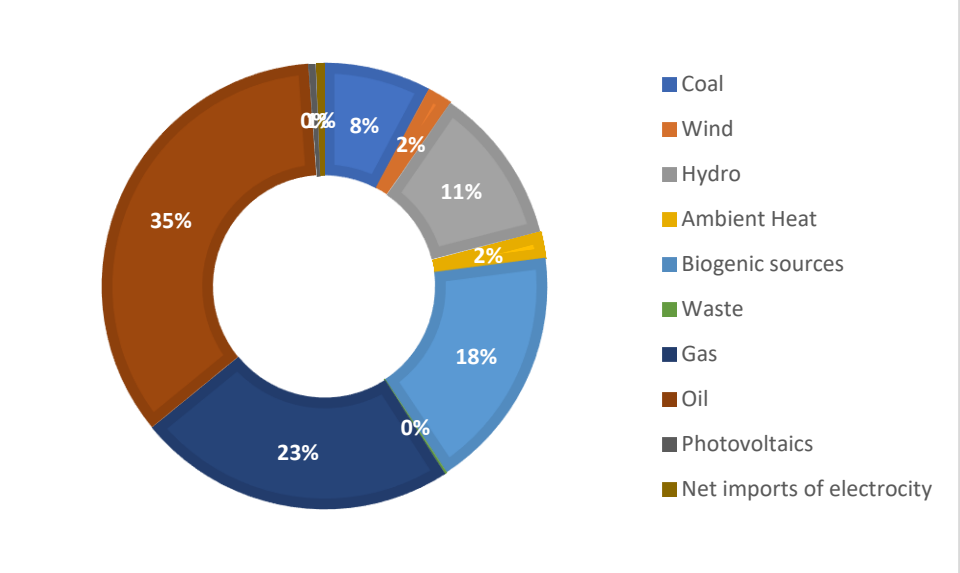

Figure 10. Domestic gross energy consumption in 2020 (Source: Statistik Austria, 2020)

However, Austria is highly energy-dependent, especially regarding imports of gas and oil, which currently account for about 80% of the domestic gross energy consumption.

There are around 3.8 million households in Austria. The household energy consumption has been almost constant since 2017, at the level of 280,000 TJ. Considering the shares of energy sources used by Austrian households, the most notable current development is a decrease in natural gas, which has been prevalent in the past few years. The consumption of electricity has increased dramatically, driven by a substantial increase in heat pumps used for house heating and boilers. This technology has seen an average yearly growth rate of about 6% since 2005. The share of district heating, as well as biogenic energy sources, has steadily increased while the use of heating oil decreases. Oil-based heating systems are no longer allowed to be installed in newly built houses in Austria, and funding schemes to replace existing oil-based systems are in place to encourage households to switch to renewable systems.

Energy costs account for an average of 4.5% of households' income, where 70% of energy costs are associated with heating. For energy-poor households, energy costs are at a much higher 20.3% of the households' income. The most recent assessment of energy poverty in Austria was done in 2019, which showed that around 94,000 households (2.4% of households) in Austria, cannot afford to keep their homes adequately warm and are thus considered energy poor (Statistik Austria, 2019; Federal Ministry Republic of Austria, 2019). The analysis conducted by Austria's national statistics agency highlights that 4.3% of all one-person households and 5.9% of households with people who have a very low educational background were hit particularly hard by energy poverty, making these two groups the most vulnerable in terms of energy poverty.

The current Austrian energy policy is dominated by the country's ambitious goal of decarbonizing the economy by 2040.

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7.2.2 Bulgaria

The energy system in Bulgaria is highly centralised (Balinov, 2021). While the state has made no commitments concerning decentralisation (Peneva, 2021), certain steps in this direction have been undertaken. For example, in late 2020, the electricity market for non-household consumers was liberalised (Ministry of Energy, 2022). The key policy instruments aiming to foster the national energy transition include the National Recovery and Resilience Plan (NRRP), the Integrated National Energy and Climate Plan (2021-2030) (INECP), the Strategy for Sustainable Energy Development until 2030 with a horizon to 2050, the National Climate Change Adaptation Strategy and Action Plan 2030, and the National Programme for Energy Efficiency of Multi-Family Residential Buildings[2]. The main objectives of the national energy and climate policies in the context of EU law have been summarised in the INECP, namely: 1) promoting low-carbon economic development, 2) developing a competitive and secure energy sector, 3) reducing dependence on fuel and energy imports, and 4) ensuring that energy is available at affordable prices to all consumers (INECP, 2020).

These policy instruments are not sufficiently supported by clearly defined long-term goals and a transparent framework for decision-making on climate and energy policies. The ongoing energy crisis exacerbated by the Kremlin's war in Ukraine further raises the need for updated energy and climate security strategy to improve the country's energy independence and diminish the role of fossil fuels in the local economy (CSD, 2022b). Bulgaria needs to transform its energy sector over the next decade by gradually phasing out coal-fired power generation and making significant investments in renewable energy-based (RES) power plants. Bulgaria's goal for increasing the share of RES in final energy demand to 27% by 2030 is expected to be updated through the revision of the INECP in 2023, and with the update of the draft Long-term Decarbonisation Strategy (LTS) by mid-2022. The planned investments in the renewable energy sector are insufficient for transforming the energy mix to reach carbon neutrality by 2050 (CSD, 2022a). The transition is also currently dominated by a focus on large-scale energy projects and less on citizen-driven transformation. For the sake of a more active citizen's participation, the transition needs to be oriented also toward decentralizing electricity production with a leading role for households and small and medium enterprises. In this respect, the excessive focus of the approved NRRP (2022) on expanding the power storage capacity is aligning Bulgaria into two mega projects that do not have clear economic feasibility, among other potential governance and corruption risks (CSD, 2020a). Bulgaria also needs to formulate an effective policy response to counter the negative impacts of the rising EU ETS (EU Emissions Trading System) prices on the structure of the country's electricity market and its industrial competitiveness. The impact of the war in Ukraine on the security of supply and the related, more likely long-term decoupling of the EU from Russia and China further complicates Bulgaria's decarbonisation path (CSD, 2022a).

[2] A number of key policy documents, including the National Renewable Energy Action Plan (2010-2020), the National Energy Efficiency Action Plan (2014-2020), and the Innovation Strategy for Smart Specialisation (2014-2020), have not yet been renewed after their expiration.

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An overview of Bulgaria's current energy mix shows that the economy is still carbon-intensive (Roushkova, 2022). In 2020, the energy sources used in primary energy production were solid fuels (46.4%), nuclear energy (33.3%), biomass and waste (13.2%), hydropower (3.4%), solar energy (1.2%), natural gas (1.1%), wind energy (1%), geothermal energy (0.3%), and oil and petroleum products (0.2%) (INECP, p. 52). When it comes to final energy consumption, these shares were: 34. 8% for oil and petroleum products, 26.2% for electric power, 13.7% for RES, 13.5% for natural gas, 8.1% for thermal power, and 3.6% for solid fuels (ibid, p. 53). As the energy sector has the highest share of total GHG emissions in the country and coal-fired generation of electricity and heat[3] is responsible for more than 90% of the GHGs in the sector, the main efforts for reducing emissions are to be focused on the coal-fired generation of electricity and heat (INECP, 2020, p. 21). However, the national decarbonisation policy "is slow to embrace and manage a clean energy transition" (CSD, 2020b, p.1; 2018, p.2). Stakeholders from CSOs and associations of RES producers have highlighted that the envisioned continued production of energy in coal TPPs[4] is not compatible with commitments related to decarbonisation and RES uptake (Rangelova et al., p. 10; INECP, 2020, p. 41).

As a result of the significant delay in the transposition of the new EU Renewable Energy Directive (RED II) into national legislation, there is no legal framework and no legal definition for prosumers and renewable energy communities in Bulgaria. The implementation of the RED II Directive will not be sufficient for establishing a comprehensive policy framework for renewable energy communities in Bulgaria, as various laws, bylaws, and ordinances need to be updated and synchronised as well. The absence of clear regulations regarding the possibilities for energy communities to sell surplus power to the grid is a major loophole that must be addressed. There have been a number of other obstacles to the proliferation and democratisation of RES, including the policy of providing assistance mainly to large-scale renewable energy installations and keeping electricity prices artificially low (CSD, 2020b, p. 1). The current legislation and national strategic policy documents, including the NRRP, do not recognize or support the role of energy citizens (Balinov, 2021). To date, there is no legal definition of prosumers and energy communities, though this is expected to change with the transposition of the RED II Directive (Couture et al., 2021). Other factors impeding the emergence of energy communities in Bulgaria are the low level of public awareness, the burdensome administrative process, the oligarchic energy model, and the difficulties in accessing affordable financing (CSD, 2020b; Couture et al., 2021).

Ensuring energy justice is also a critical policy challenge in Bulgaria. From a regional perspective, energy poverty is among the main factors impacting energy security in Eastern Europe, especially in Russia's invasion of Ukraine (CSD, 2022b; 2022c). Bulgaria is the EU member state most affected by energy poverty (CSD, 2021, p.2;

[3] Approximately 40% of electricity is generated in lignite power plants (CSD, 2020b).
[4] The INECP foresees a relatively small reduction in the use of solid fuels in the next decade: in regard to primary energy production, the planned decrease is from 46.4% in 2020 to 36.3% in 2030.

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OpenExp, 2019, cited in Tzanev, 2020)[5]. This problem is only expected to become more acute given the rising prices of energy sources and inflation (Benov, 2021). A major obstacle to effectively addressing energy poverty is the lack of a legal definition of this term (Peneva, 2021, p. 92). One of the reforms in the Bulgarian NRRP foresees the establishment of a working group for developing a definition of energy poverty and relevant measures to tackle it. Experts have pointed out that the existing model of state assistance to energy-poor households is unsustainable[6] and excludes key stakeholders such as businesses and financial institutions (CSD, 2020c, p.8; Benov, 2020).

7.2.3 Germany

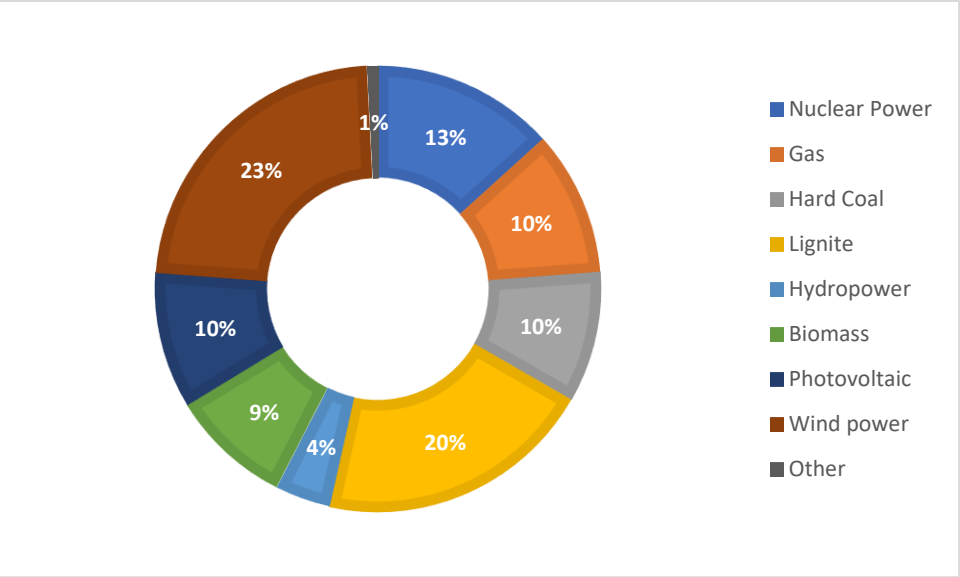

Figure 11. German electricity mix 2021 – share of all energy sources in the net electricity production (source: Fraunhofer ISE, 2021)

In 2021, the German electricity mix was composed of 46% renewables and 54% conventional energy sources, while the electricity mix has been shifting in favour of renewables over the recent years (see Figure 11). In terms of electricity generation in Germany, the conventional energy mix currently consists of hard coal and lignite, natural gas, and nuclear power. Wind energy, photovoltaics, biomass, and hydropower contribute to the renewable energy mix. A total of 490 terawatt-hours (TWh) were fed into the power grid in Germany in 2021. This is 2% more than the previous year (481 TWh). According to preliminary results from Fraunhofer ISE (2021), energy supplied from renewable sources was 224 TWh. Wind power was the most critical energy source for electricity generation in 2021, accounting for 23% of the total amount of electricity fed into the grid, followed by lignite with 20% (Federal Environment Agency, 2022).

[5] Bulgaria's EDEPI score (0.7) is quite below the scores of the other two states at the bottom of the list – Slovakia (8.4) and Hungary (6.2) (OpenExp, 2019, Tzanev, 2020).
[6] Annually, 100 mln lv is expended through state aid provided to poor energy households (MLSP, 2020). A serious issue is the subsidised use of firewood and coal for heating in residential buildings (CSD, 2020b, p. 1).

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In 2021, 19.7% of Germany's final energy consumption was covered by renewable energies. In 2020, with a share of 19.3%, Germany had already exceeded its target of 18% set under the EU Directive on the Promotion of Renewable Energies (2009/28/EC). However, to achieve the more ambitious future EU climate targets, faster growth will be necessary for the future. In a year, a total of 467 billion kWh of energy was generated from renewable sources. 50% of this came from renewable electricity production, 43% from the renewable heat sector, and 7% from biogenic transport fuels. Overall, the share of renewable energy sources has developed positively in recent years. However, there are significant differences between the individual sectors. While the share of renewable energy in gross electricity consumption has more than doubled in the last ten years and was 41.1% in 2021, the shares in heating (16.5%) and transport (6.8%) are increasing only slowly.

The increasing use of renewable energy displaces fossil energy sources and contributes to the reduction of climate-damaging greenhouse gases. In 2021, renewable energies avoided greenhouse gas emissions of around 221 million tons of CO_2 equivalents. In Germany imports of various energy sources cover about 70% of energy needs. The primary energy sources imported are mineral oil, gas, hard coal, and uranium. When electricity production costs are considered, photovoltaics is currently the cheapest form of electricity generation in Germany, with 2-6 Ct/kWh.

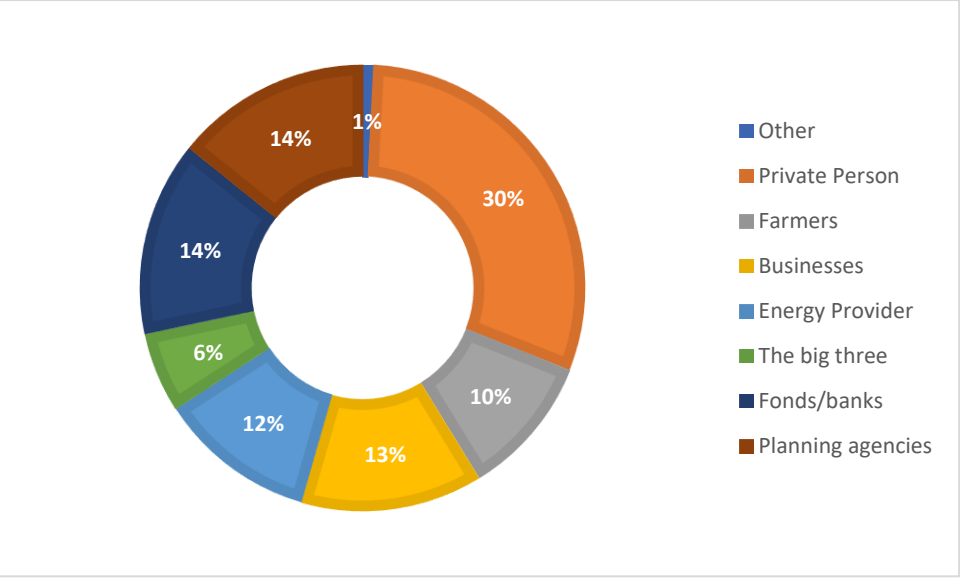

Figure 12. The ownership structure of renewable energies in Germany

Citizens play a key role in a successful energy transition in Germany. Almost one-third of the installed capacity of plants for generating electricity from wind, solar, bioenergy, hydropower, and geothermal energy is owned by private households (trend: research 2020) (see Figure 12). If farmers are included, the figure is even higher than 40%. While private households often own solar power plants, energy cooperatives are involved in building onshore wind power plants. Germany has around 850 energy cooperatives with 200,000 members (DGRV 2022). Approximately 1.3 million citizens have installed a PV plant in their family homes (Energy storage, 2021).

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However, the share of citizen energy is declining compared to previous years, according to a press release from the Renewable Energy Agency, which states that citizen energy is still the central pillar of the energy transition (Renewable Energy Agency, 2021). Ten years ago, when the ownership structure of renewable energies was first examined, more than half of the installed capacity was in the hands of private individuals and farmers. By 2016, the share of citizen energy had fallen to 42%, and in 2019, it had fallen again slightly to 40.4%. At the same time, the share of planning agencies, large companies, energy utilities, and funds/banks has increased.

The extent to which the ownership structure is shifting away from citizens in favour of larger investors is shown by the shares in new power plants being built. Energy utilities - especially the large and international energy suppliers - are becoming much more involved. Together, they will be accountable for around one-third of newly constructed renewable power plants in 2019. In 2016, the share was just 22%. Commercial enterprises increased their share from around 12% to 16%. The planning agencies have lost the highest amount of shares. Their share had fallen from around 16% to 7% due to the weak expansion of onshore wind energy (see Figure 13).

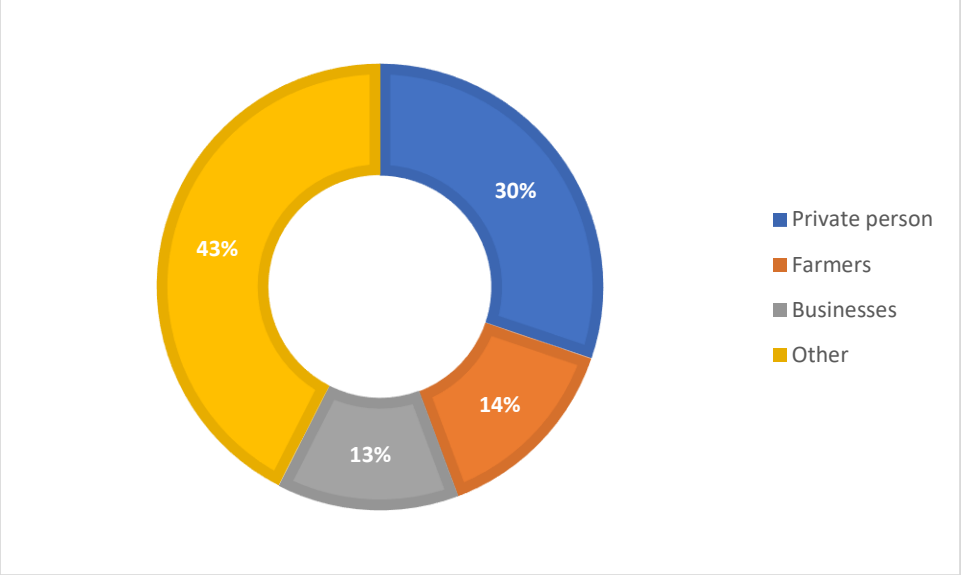

Figure 13. The share of renewable energies with regards to the ownership structure in 2019 (source: trendresearch, 2020)

The legal framework for energy citizenship was first created with the cost-covering remuneration according to the Aachen Model (1989) and then with the Electricity Feed Act (1991) and finally with the feed-in tariff the Renewable Energy Act (EEG) (2000). The Renewable Energy Act regulates the feed-in tariffs private households receive by installing renewable energies (e.g., photovoltaics) and the taxes they pay (e.g., 'sun tax'). It also defines the mechanisms for auctions to build wind power plants. It regulates energy cooperatives and other forms of collective energy production. It also sets ground rules for renewable energy projects for tenants.

The German government is working on a new draft for the Renewable Energy Act (2023). It will have several changes concerning energy citizenship (Groß, 2022). For example,

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the current draft states that "citizens' energy companies" will be exempted from the tendering obligation for certain ground-mounted photovoltaic systems and wind turbines.

In Germany, energy sharing is not translated into national law yet, even though this should have been done by July 2021. The German government is called upon to examine the extent to which models for the inclusion of renewable energy communities as defined in the EU Renewable Energy Directive for their electricity privilege are possible. The German government also needs to propose cost-effective measures to strengthen energy citizenship.

The guaranteed feed-in tariff enabled installing and operating of solar power systems on private roofs. Local banks also recognised this as an opportunity to offer private customers investment models and developed climate savings bonds and loans for participation in larger solar power and wind energy initiatives. In addition, citizen energy companies were organised, which implemented larger projects themselves or took part in projects initiated by small and medium-sized and municipal companies and provided the necessary bank financing. The government's energy concept of 2010 considers citizen participation essential for large-scale energy transition projects, as transparent planning increases acceptance. Also, the final report of the "Ethics Commission for a Secure Energy Supply" from 2011 identifies citizens as "co-producers" who should participate in "operator models" and should receive "revenues".

Therefore, energy citizenship stands for a local and decentralised energy supply intended to drive Germany's energy transition through “bottom-up” mechanisms. The concept is well researched in Germany. Because citizens largely fostered the energy transition and roll-out of renewable energies in 2000, the role of citizens is considered important. However, there is no clear or overarching concept of what energy citizenship is. Often, energy citizenship is associated with energy initiatives focusing on the local expansion of wind power, solar plants, or hydropower. These are intended to supply private households and communities with clean energy. At the same time, many energy companies, municipalities, and utilities have picked up on citizen participation. They have designed and employed a participation process in planning and installing new energy projects, offering more top-down participation. In addition, prosumerism is highly associated with the German understanding of energy citizenship.

Trendresearch and the University of Leuphana analysed the concept of energy citizenship for the German context in 2013. The German term energy citizenship is used for different roles and organisational forms associated with citizens' participation in the energy transition. On the one hand, it includes different forms of participation such as becoming a member of an energy cooperative. Still, other organisations offer participatory means including investment funds or limited partnerships (‘Kommanditgesellschaften’). Also, local energy utilities often offer means for participation, for example, saving bonds, profit-sharing rights, and loans (VKU, 2016). A study by Kress et al. (2014) examines the different roles citizens can take in the energy transition. It encompasses the roles citizens can take, considering energy consumption and energy production as well as their active participation in all sectors (mobility, electricity, heating), and political engagement.

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The majority of the population in Germany is in favour of the energy transition. This situation is confirmed by a representative online survey conducted as part of the project "A Democratic Conflict Culture for the Energy Transition" (DEMOKON) (Teune et al., 2021). According to the survey, 70% of the respondents favoured the energy transition in principle, while only 8% were against it, and the rest were ambivalent. However, even those in favour of the energy transition and those ambivalent express clear criticism of the implementation. In this respect, only 10% of the respondents still support the energy transition as it is currently being implemented in Germany, while 6% of respondents reject the energy transition and criticise measures to implement it. The two largest groups of critics are interesting: 40% are in favour of the energy turnaround in principle but criticise its implementation ("dissatisfied"), and 43% are undecided either in their fundamental stance or concerning implementation ("ambivalent"). The reasons for a critical attitude toward implementation are manifold. Those who are dissatisfied, for example, call for a faster and decentralised energy transition, more opportunities for participation, and a fairer distribution of the burdens. Opponents of the energy transition also criticise a lack of citizen participation and a lack of social justice, in addition to what they see as too high a speed and too high costs (Reusswig et al., 2017).

There is no overview of how many local energy communities exist in Germany. However, many rural districts, cities, and regions can exhibit local activities regarding the energy transition. The German government supports regional activity through financial development schemes. For example, Germany has a long tradition in the bioenergy field, as more than 160 bioenergy villages were funded in the past (Energiewendedörfer, 2022). Moreover, the government supports local energy programs via the national climate initiative so that municipalities can develop plans to become climate neutral. Currently, the Federal Ministry for Infrastructure and Transport is funding regions to develop regional hydrogen plans.

According to a recent analysis by the German Energy Agency, in Germany, the conditions for energy communities are still inadequate as compared to other countries such as the Netherlands (Dena, 2022). The deadlines for implementation of the RED II Renewable Energy Directive have long since expired, however, energy communities in the EU member states often lack the technical, regulatory, and economic prerequisites. One of the issues in Germany is the slow rollout of smart meters, hindering the possibility of producing and sharing renewable energy locally.

In Germany, there is no official definition of energy poverty and no comprehensive statistics although energy poverty is known to affect millions. In 2017, there were about 400,000 electricity and gas disconnections annually (Federal Ministry for Economy and Energy 2019). A study by the Oeko-institut (2018) on energy poverty shows impressively that households with a lower income spend significantly more on energy in percentage terms than households with a high monthly income, even though the latter consume significantly more energy. For example, households with a monthly income of less than €900 in Berlin spend an average of 10% of their income on energy, households with an income of €2000 to €2600 spend an average of 6.5%, and those with a monthly income

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of between €5000 and €18,000 spend just 2.5%. Low-income households feel the rising energy prices more, even if they already consume less energy.

The better a societal group is financially, the more intensively it can exploit a wide range of consumption options. For instance, households with high incomes often live in significantly larger apartments, have more abundant electronic equipment, drive larger cars and thus also have a larger carbon footprint. However, it should also be noted that high-income households are often less receptive to price signals. Those groups that generally bear an increased risk of energy poverty are single parents, the unemployed, and people with a low level of education (Drescher and Janzen 2021). Moreover, energy-inefficient households where electric and oil heating are used have higher risks of being affected by energy poverty. People previously considered energy poor are also at higher risk of becoming energy-poor again. Of the 6 million households in Germany considered energy poor, 14% have chronic issues in terms of paying for their energy spending.

The term "vulnerable groups" refers to economically vulnerable people (low-income, unemployed) as well as other groups that are more susceptible to energy poverty, such as women, persons with disabilities, single parents, low-level education family, older persons, children, migrants, and persons with a minority racial or ethnic background. However, there is little to no systematic research on these groups in Germany.

Concerning energy justice, the Social Sustainability Barometer of the Energy and Transport Transition examines the state and developments in the social dimensions of sustainability from the perspective of the population in Germany (Wolf et al., 2021). This survey shows that almost half of the respondents (49%) believe that the costs and benefits of energy policy measures in Germany are, on the whole, rather or very unfairly distributed. Over a third (35 %) think things are at least partly fair. Only a minority considers the distribution fairly or very fair (7%). Individuals who do not consider the distribution of costs and benefits to be not fair or only partially fair were asked which groups they perceive the most issues of fairness. Most often (60%), inequities are perceived between private individuals and businesses or industries. In second place (49%), different income groups in the population are cited. Far less frequently (27%), inequalities between current and future generations are mentioned. The energy transition has resulted in additional costs for households in Germany. For around half of the respondents, the current expenditure on electricity and heating is not a burden for their household. For almost 30%, on the other hand, the expenditure on these two items is already a burden. There is disagreement among citizens about whether the energy transition will improve or worsen the labour market situation. Many people are concerned about how energy-related costs will continue to rise and whether this will lead to sacrifices in other areas of life. These concerns are even more pronounced at the lower end of the income distribution.

7.2.4 Greece

Greece has one mainland electrical system and 28 autonomous systems in non-interconnected islands. Until November 2021, Crete was also an autonomous system as

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a non-interconnected island. T Crete is cleared as a Small Connected System. The energy demands of the islands are provided through power plants that use oil as fuel.

Greece's energy profile is summarised in Table 3. 2019 was chosen as a visualisation year, as the pandemic Covid-19 of the next two years affected the results.

Primary production	6,367
Net imports	19,321
Gross available energy (+/- Change in stock)	26,070
Transformation (Electricity and heat generation, Refinery)	3,927
Energy sector	1,741
Distribution losses	336
Available for final consumption	16,417
Final consumption (non-energy)	921
Final consumption (energy)	15,402

Table 3. Greek Energy Balance in 2019 (in ktoe) (Eurostat, 2019)

From Table 3, it can be concluded that energy importing activities are critical, as the primary production is insufficient to meet the final energy consumption. In conclusion, Greece is among the energy-dependent countries.

As for the energy consumption of different sectors, transportation activities and household usage constitute nearly 66% of total final consumption (39.2% and 26.7% accordingly), followed by the industry sector (16.8%), then services (13.9%), and finally by the agriculture, forestry and fishing sectors (3.37%).

Reduction in electricity production by lignite from 2014 until 2019 was achieved as a result of the growth of renewable sources (solar PV and wind, as seen in Table 4 mainly) and natural gas in electricity production. Specifically, the electricity production from lignite dropped by 53%, while natural gas increased by 67%, wind increased by 97%, and solar increased by 17%. Table 4 shows the share of electricity production by fuel in 2019.

Solid fossil fuels	Lignite	26.7%	26.7%
Natural gas and manufactured gases	Natural gas	25.0%	26.4%
	Refinery gas	1.4%	
	Liquefied petroleum gases	0.0%	
Oil and petroleum products	Gas oil and diesel oil	2.4%	10.8%
	Fuel oil	8.3%	
Renewables and Biofuels	Hydro	8.9%	35.5%
	Wind	16.0%	
	Solar	9.8%	
	Biogases	0.8%	
Non-renewable wastes	Industrial waste renewable	0.6%	0.6%

Table 4. Share of electricity production by fuel in 2019 (Eurostat, 2019)

Table 5 summarises the RES installed power in Greece for May from 2019 to 2021, while for 2022, the latest data were obtained (for March). It is worthwhile noting that the installed power of RES is increasing. However, the installed power of rooftop solar

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systems has remained stable, as the program designed for deploying rooftop PVs was in effect until 2019.

	May 2019	May 2020	May 2021	Mar. 2022
Wind	3,059.3	3,875.6	4,350.0	4,487.6
Photovoltaic	2,275.7	2,511.8	3,096.1	4,042.1
Rooftop solar systems	375.1	375.1	375.3	376.1
Biomass & Biogas	84.2	89.9	104.5	112.1
Small hydroelectric	240.8	233.5	245.5	256.2
Hydroelectric	0.4	2.9	2.9	2.9
Cogeneration of high efficiency heat and power	100.8	109.5	108.6	118.2

Table 5. Power installed per technology (DAPEEP, 2022; HEDNO, 2022)

The main policies that foster effective energy transition and empower citizens' and communities' roles in the energy system are summarised below.

Greece has adopted its National Energy and Climate Plan (NECP) (Government Gazette B' 4893, 2019) to set targets on total renewable energy share (35%) and per sector, energy savings, reduction in greenhouse gas emissions, and energy poverty by 2030. NECP also refers to the positive impact of the planned interconnections between islands and the mainland on electricity bills and foresees the promotion of electromobility for cleaner transport. NECP has set a quantitative target to reduce the relevant energy poverty indicators by at least 50% by 2025 and at least 75% by 2030 compared to the baseline year 2016. In 2021, the Greek government approved an action plan to mitigate energy poverty (Ministry of Environment and Energy, 2021).

Law 4513/2018 for Energy Communities (Government Gazette 4513, 2018) adopted in 2018 envisages the sustainable promotion and creation of energy communities (ECs). The ECs are urban partnerships to strengthen the sharing economy and innovation in the energy sector. The Law includes special arrangements and privileges for small islands to address issues related to insularities, such as high energy production costs and environmental and social concerns raised by using conventional fuels. Other financial incentives and support measures concern the development of power plants to exploit local sources with the involvement of local communities as defined in national energy targets.

7.2.5 Italy

The Italian energy system is mainly based on natural gas. That is, about 38.6% of the energy mix is supplied from natural gas, which is mainly imported see Figure 14). Natural gas is mainly used for energy production and heating (Eurostat, 2021).

Another important component of the Italian energy mix is renewable energy. Around 41% of renewable energy is represented by hydroelectricity (Eurostat, 2021) (see Figure 15). According to a recent official declaration by high-level Italian governmental authorities, due to the ongoing war in Ukraine, there is a further effort to rethink the energy system, especially concerning natural gas imports, (Galluzzo, 2022).

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In 2021, a consistent increase in energy consumption and CO_2 emissions was observed regarding energy consumption and pollution (ENEA, 1/2022). Also, since the end of 2021, energy costs have dramatically risen, with a further dramatic rise starting in February 2022 due to the ongoing war in Ukraine.

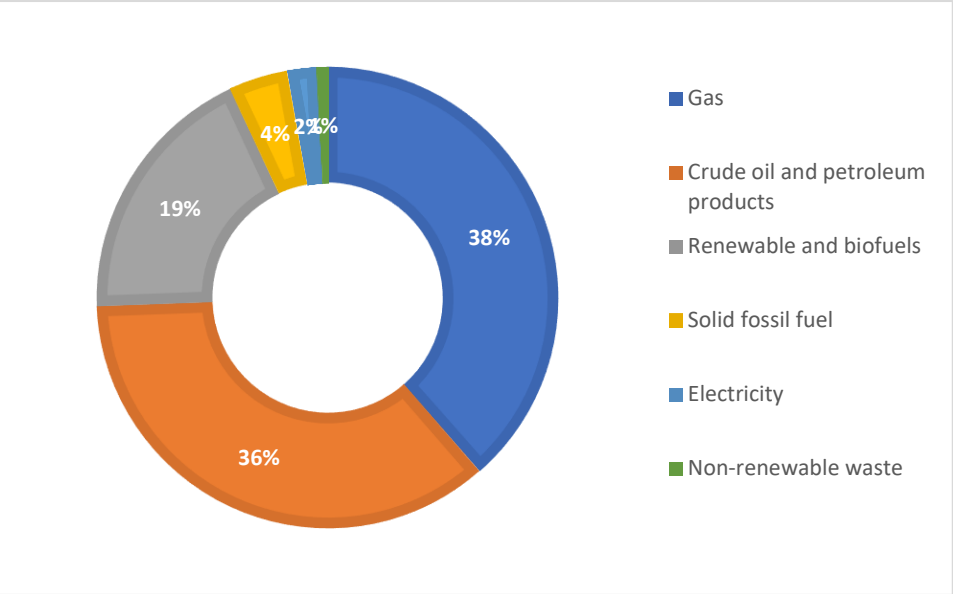

Figure 14. Gross available energy in 2019, ITA, (Source: Eurostat 2021)

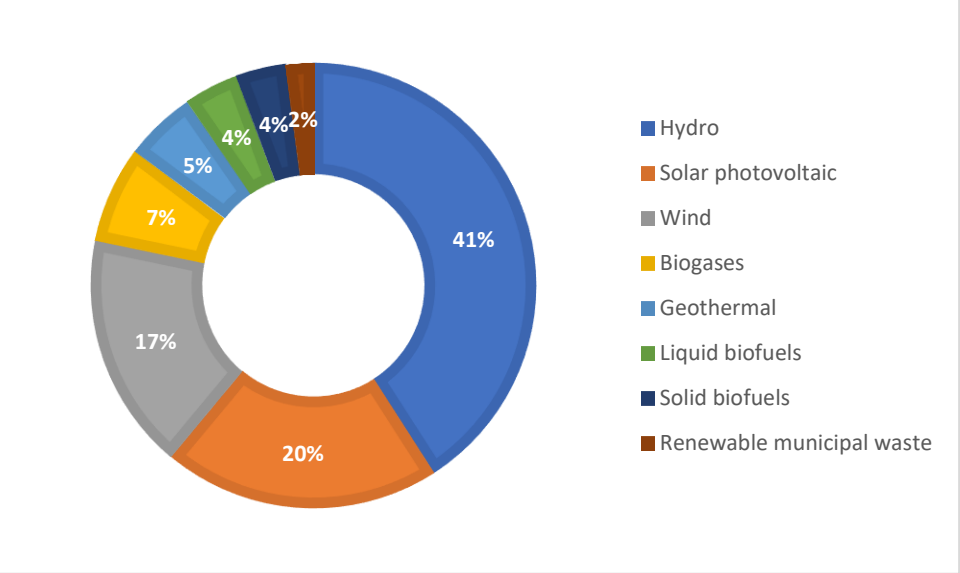

Figure 15. Gross electricity production, Renewables and biofuels, ITA, (Source: Eurostat 2021)

In Italy, there are a number of policies fostering energy transition, including the PNRR, which is the major policy in this respect and includes several specific initiatives. PNRR was approved in 2021 to raise the Italian economy after the COVID-19 pandemic while fostering digital and green development. More specifically, it includes several investments and reforms in digitalisation, ecological transition and green, sustainable

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mobility, education and research, health, and inclusion (Ministero Italiano Sviluppo Economico, MISE).

Another measure concerning energy transition, Superbonus 110%, is aimed at the energy and seismic retrofit of the Italian real estate stock. The incentive, introduced by the legislative decree "Rilancio" of 2020, aims to make homes more efficient and safe, representing about 86% of buildings in Italy and consuming about 44% of the country's energy resources (see Figure 16).

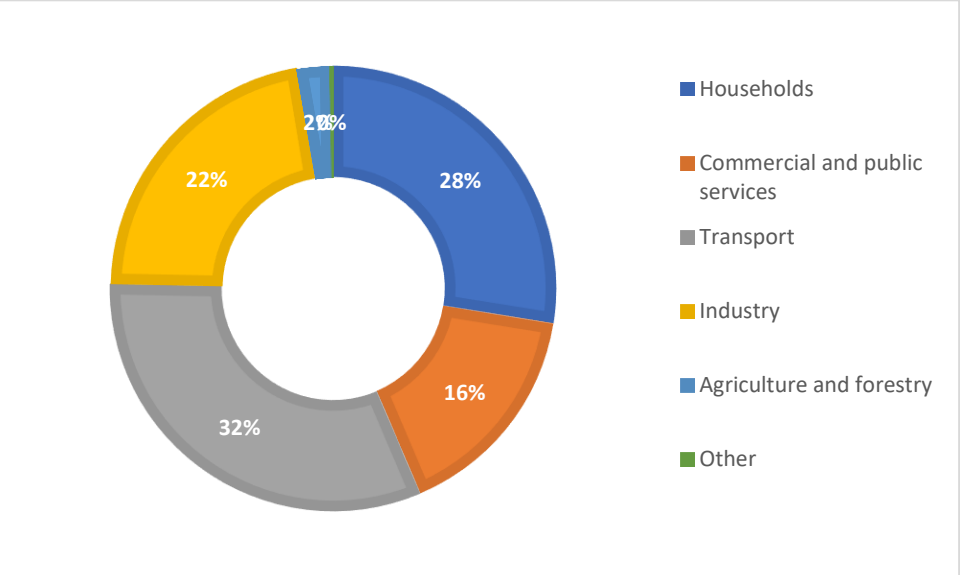

Figure 16. Final energy consumption in 2019, ITA, (Source: Eurostat 2021)

In Italy, the roles of citizens and communities in the energy system are heterogeneous and may vary based on their geographical location. Concerning energy poverty in Italy, the 2020 report of the Italian Observatory on Energy Poverty (Osservatorio Italiano sulla Povertà Energetica, OIPE) highlights that 8% of Italian families were in an energy poverty condition (OIPE, 2020). More specifically, from a geographical perspective, this document reports that energy poverty was higher in the islands and the southern part of the country as compared to central and northern regions. Furthermore, considering the metropolitan context, the report reveals that energy poverty in Italy was higher, with a growing trend, in small municipalities, sub- and peri-urban areas, as compared to central metropolitan areas and peripheries or municipalities with more than 50 thousand citizens. In Italy, one of the main political initiatives for contrasting energy poverty is an economic incentive, namely the electrical bonus. Around 1.6 million families have received the electrical bonus, and 16% of these were in an energy poverty condition (information reported by families in 2020 referring to the previous 12 months; OIPE, 2020). The ongoing effects of the war in Ukraine presumably increases energy poverty in Italy and several other European countries. The OIPE (OIPE, 2nd report of 2020) reports that energy poverty is higher in i) families with five or more people, ii) families in which the householder is younger, iii) families in which the householder is a woman in the 51-70 years old age range.

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An energy community is an association of citizens, businesses, local public administrations, or small and medium-sized enterprises that join forces to equip themselves with one or more shared facilities for producing and self-consumption of energy from renewable sources. Regarding energy communities in Italy, the conversion into law of the “Decreto Milleproroghe 162/2019” has introduced the "renewable energy communities" provided for by the European RED II Directive (2018/2001/EU). This is an important step in the direction of an energy scenario based on distributed generation to encourage the development of zero-mile energy and smart grids. In Italy, it was already possible for individual citizens or groups of companies to join together to finance the installation of a shared plant powered by renewable sources. However, there was no provision for such a plant to supply energy to multiple users.

Currently, the Italian legislation on renewable energy communities consists of Article 42-bis of the Decreto Milleproroghe (converted by Law No. 8/2020 of February 28, 2020), related implementing measures (ARERA's Resolution 318/2020/R/eel and MiSE's DM September 16, 2020) and Legislative Decree 199/2021, which implement the European RED II Directive on the promotion of the use of energy from renewable sources. In summary, renewable energy communities are legal entities that:

- are based on open and voluntary participation,
- are made up of individuals, SMEs, territorial entities, or local authorities, including municipal governments,
- are autonomous and effectively controlled by shareholders or members who are located in the vicinity of the production facilities held by the renewable energy community,
- have, as their main objective, to provide community-based environmental, economic, or social benefits to their shareholders or members of the local areas in which they operate, rather than financial profits.

Energy communities have numerous positive impacts on the people, entities, and communities involved:

- environmental benefits by avoiding fossil fuel energy production on the one hand, and energy dissipation in grid losses on the other,
- economic benefits, due to the incentive mechanisms provided by law to promote energy transition, which can be combined with other subsidies such as the “Bonus casa” and the “Superbonus 110%” (Agenzia Entrate, 2022)
- social benefits, given by the sharing of financial incentives and economic profits with the energy community as well as environmental benefits (reduction of pollutants and climate-changing agents) for the entire area in which the community is located.

Existing energy communities involve municipal entities, households, private businesses, public institutions, cooperatives, and farms. The Energy & Strategy Group's Electricity Market Report 2021 focuses on energy communities, where it analyses a sample of real cases of community and collective self-consumption groups that have sprung up in Italy over the past few months (QualEnergia.it, 2021). A total of 33 initiatives were evaluated

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(21 renewable energy communities and 12 collective self-consumption groups), characterised by an average capacity of the production plants of about 32 kW for collective self-consumption and about 48 kW for renewable energy communities.

PNRR provides specific funding to encourage the spread of self-generation and collective self-consumption modes established by Italian law. In this respect, more than 2 billion Euros are allocated to renewable energy communities and collective self-consumption systems (PNRR, 2021). The investment aims to install about 2,000 MW of new electricity generation capacity in distributed configuration by renewable energy communities and self-consumers. This is expected to decrease emissions equivalent to 1.5 million tons of CO_2 annually.

7.2.6 Norway

Hydropower accounts for most of the Norwegian power supplies, and the resource base for production, therefore, depends heavily on precipitation. Norway's hydropower plants account for 96% of total installed capacity, and reservoir capacity corresponds to 70% of annual Norwegian electricity consumption. In 2018, the installed capacity of the Norwegian power supply system was 33 755 MW, and normal annual production was 141 TWh.

The Norwegian power system is closely integrated with the other Nordic systems in physical terms and through market integration. In this sense, cross-border interconnectors link the Nordic market with the rest of Europe. Integration with other countries' power systems, a well-developed power grid and the characteristics of hydropower production make Norway's power supply system flexible, reducing vulnerability to fluctuations in production between seasons and years (Energifakta Norge, 2021).

The Norwegian Water Resources and Energy Directorate (NVE) has as its mandate to ensure integrated and environmentally sound management of Norway's water resources, as well as to promote efficient energy markets and cost-effective energy systems and contribute to efficient energy use. NVE is responsible for maintaining national power supplies (The Norwegian Water Resources and Energy Directorate, 2022).

Regarding energy consumption, everyone has access to reasonably priced electricity in Norway, which has led to electricity being used for energy-intensive production and heating buildings and water. Because such a large proportion of electricity is produced from renewable sources, greenhouse gas emissions associated with stationary energy use are low in Norway. However, Norway also uses large amounts of fossil fuels, particularly for transport, construction and agricultural machinery.

While production varies with water inflow and wind conditions, consumption is affected by prices and fluctuates with temperature. The underlying situation in the Norwegian power supply system can be illustrated by comparing Norwegian production capacity in a normal year with electricity consumption corrected for temperature. Energy use is

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highest in the manufacturing and transport sectors, followed by services and households. Accordingly, the average electricity consumption in Norwegian dwellings is very high (17.6 MWh in 2000, and 16.2 MWh in 2019) compared to the rest of Europe (an average of 3.7 MWh in 2000 and 3.7 Mwh in 2019), with a small decrease from 2000 to 2017 (Odyssee-Mure, 2020).

Norway's population has risen by 1 million since 1990, to 5.3 in 2020, and strong economic growth has resulted in a doubling GDP since 1990. Production and demand for goods and services that use energy are growing steadily. However, final energy consumption has risen by only 16 %, implying that the Norwegian economy is becoming gradually less energy-intensive.

Regarding Norway's energy policies, creating a sustainable energy system that is environmentally and climate-friendly, efficient, secure and facilitates value creation on the way to a low-emission society depends on facilitating policies. Laws and licensing regulations, research and development, market-based solutions, and grid regulations all rely on conditions in the market. The power market in Norway was deregulated in 1991 and subsequently integrated with the Swedish, Finnish and Danish markets as one of the first common and transnational power markets. The market is now a fundamental element in the Norwegian power supply (Bye and Hope, 2005). Norway also participates in the EU Emission Trading System (ETS), which influences electricity prices in Norway through its efforts to raise the cost of fossil electricity production.

ENOVA is a state-owned enterprise with a budget of between two and three billion NOK annually, with a mandate to create lasting changes in the supply and demand for efficient and renewable energy and climate solutions for companies as well as households. ENOVA is supposed to support the development and spread of energy- and climate-friendly solutions that the market alone does not produce (ENOVA, 2022).

In addition, energy requirements for buildings, energy labelling of buildings for sale or rent, guarantees of origin, electricity certificates, and similar initiatives are political instruments targeting energy consumption. These measures are developed to consider good resource management, security of supply, environment, value creation, efficient production, transfer and use of energy, and public ownership of water resources.

7.2.7 Switzerland

Switzerland has very limited natural energy sources, except water and wood. Consequently, 80% of the consumed energy is imported (Federal Council, 2022). Switzerland is well integrated into the European energy system. Over the last decades, no major disruptions in the country's energy supply have been noted (Blumer et al., 2015). However, Federal officials have already announced that blackouts might be expected in the following years, particularly for the larger industrial consumers. The country's energy mix is dominated by non-renewable energy sources, mainly fossil fuel (50.6%), followed by electricity (25%), gas (13.5%), and wood (4.4%). One specificity of the country is that hydropower generates 59.9% of the total electric energy, while 33.5%

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comes from nuclear power and 2.3% from thermal power plants. Another specificity is that Switzerland has a rather decentralised energy system compared to other European countries. Regional companies, often primarily owned by the state, are the main electricity and gas providers.

The first Energy Act in Switzerland was passed in 1998. In 2001 “SwissEnergy" programme aimed to reduce 20% of CO_2 emissions by 2020. After the Fukushima accident in 2011, Switzerland initiated an energy transition process, relying on the “2050 Energy Strategy". The current energy strategy relies on three main goals: energy efficiency for buildings, machinery, and transport, increased use of renewables, and the phase-out of nuclear power. To improve building efficiency, federal and cantonal authorities encourage housing refurbishment through monetary incentives. These initiatives can be very beneficial for homeowners. However, in a country where 61% of the population is tenants (Federal Statistical Office, 2020), most inhabitants do not have control over their heating system and the energy efficiency of their buildings. Renovation works promoted by public authorities can dramatically increase the cost of the rent and cause financial difficulties for poor households, with a higher risk of eviction (ZHAW travail social 2019). Fuel poverty has not been much debated in Switzerland compared to neighbouring countries, and reports argue that data is missing to offer a Swiss understanding of fuel poverty. Instead, public authorities mention the accumulation of different difficulties related to the financial situation, such as health issues, indebtedness, and residential discrimination.

A feed-in tariff scheme also promotes household and neighbourhood renewable energy systems. The legal procedures required to produce renewable energy remain very complex (Aeesuisse, 2022), and can hinder the development of energy cooperatives (Serlavós, 2020).

Another important characteristic of the Swiss energy system is that citizens can play an important role through direct democracy. For instance, the 2050 Energy Strategy was adopted through a citizen referendum. This participative democracy and the decentralised energy supply lead to high levels of trust in the local utilities and energy transition policies (Dobigny and Sahakian, 2019).

Most measures promoted by the Swiss government to reduce the demand for energy at the level of households focus on encouraging behavioural change with the support of technical devices (Ibid). The policies are implemented together with NGOs and associations active in the field and with researchers who are increasingly involved in participative state-funded research projects (through funding mechanisms such as the Swiss National Science Foundation’s National Research Project 71). Some of the projects try to move away from initiatives governing individual behaviours and “work towards transforming social practices, taking into consideration the competencies and beliefs of people concerning socio-cultural contexts and material aspects” (Sahakian and Dobigny, 2019).

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In this context, Geneva Canton appears quite different from the other Swiss regions. While there are over 600 energy suppliers in Switzerland, the Industrial Services of Geneva is the single utility company responsible for electricity generation and distribution. Geneva Canton (followed closely by the City of Geneva) was also the first canton to adopt a climate plan and has more ambitious goals than the federal state in terms of reducing carbon emissions by 2050. The notion of sufficiency is put forward in Geneva Canton's climate action plan.

7.2.8 Türkiye

Türkiye's fast population and economic growth have been accompanied by increasing energy demand and dependence on energy imports. In this sense, Türkiye is an essential natural gas and electricity market in its region, which possesses almost 60% of the world's proven oil and natural gas resources (Ministry of Foreign Affairs, 2022). Moreover, Türkiye imports 74% of its energy demand to fulfil its domestic energy needs. As a result, Türkiye has adopted an ambitious energy strategy to ensure its energy security by diversifying its energy suppliers and sources (Ministry of Foreign Affairs, 2022). Türkiye's energy strategy aims to transform Türkiye into a regional trade hub and raise the domestic and renewable energy share in electricity production (Ministry of Foreign Affairs, 2022).

By the end of 2021, Türkiye generated 31.4% of its electricity from coal, 32.7% from natural gas, 16.8% from hydropower, 9.4% from wind, 4% from solar energy, 3.2% from geothermal, and 2.5% from other sources, as indicated in Figure 17 (Ministry of Energy and Natural Resources, 2022). Türkiye seeks to strengthen the role of renewable energy production in domestic energy resources and include nuclear power in its energy portfolio (Ministry of Foreign Affairs, 2022). Regarding the main actors in the Turkish energy market, both public institutions and private companies are active in electricity generation. In terms of public institutions, the state-owned electricity generation company, EÜAŞ accounts for more than 20% of Türkiye's electricity supply, while the Turkish Electricity Transmission Company (TEİAŞ) transmits electricity throughout the country, and Energy Market Regulatory Authority (EMRA) monitors and regulates the Turkish energy market. Besides, significant private energy companies such as ENKA, Enerjisa, and Celikler Holding are producing electricity. The distribution of electricity is carried out by private regional distribution companies. Furthermore, municipalities and non-governmental organisations (NGOs) such as the Turkish Women's Network in Renewable Energy (TWRE), Turkish Wind Energy Association (TÜREB), and Turkish Solar Energy Industry Association (GENSED) also work towards strengthening the role of citizens in the energy sector and increasing the share of renewable energy in Türkiye.

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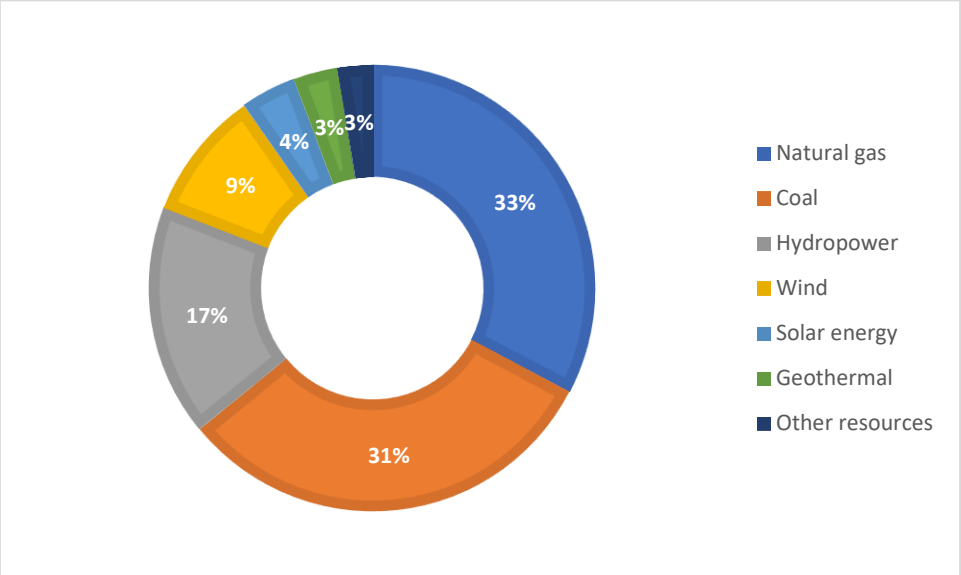

Figure 17. Turkish Electricity Mix 2021 (Source: Turkish Ministry of Energy and Natural Resources, 2022)

Following the EU's initiatives on energy transition, the European Green Deal, and the EU's Carbon Border Adjustment Mechanism (CBAM), both the central government and municipalities in Türkiye have sought to restructure the energy system. Since the EU is Türkiye's biggest trade partner, the Turkish Ministry of Trade adopted the Green Deal Action Plan of Türkiye to fulfil the trade requirements of CBAM and ensure Türkiye's transition to a sustainable, resource-efficient and green economy in line with the EU's changing trade policies (Ministry of Energy and Natural Resources, 2022). In addition, several metropolitan municipalities in Türkiye have aimed to reduce greenhouse gas emissions and strengthen sustainable energy perspectives in their cities. Accordingly, the Metropolitan Municipalities have recently undertaken Sustainable Energy and Climate Action Plans. Furthermore, there are initiatives at the municipality level to engage citizens in the energy transition. Moreover, municipalities' collaboration with universities and several EU projects are expected to increase the citizens' participation in new energy systems.

Despite promising developments toward a more sustainable energy system, Türkiye still experiences energy poverty at the household level. Due to its dependence on oil and gas imports, Türkiye has been susceptible to fluctuations in oil and gas prices (International Energy Agency, 2021). In the last two decades, there have been fluctuations in the rate of access to electricity, although nearly 100% of the population has access to electricity (World Bank, 2022). Moreover, electricity production from renewable sources is very limited in Türkiye compared to other countries in the region (World Bank, 2022).

Türkiye extended the infrastructure for gas access between 2002 and 2018, and by the end of 2019, 80% of Turkish households had access to gas (International Energy Agency, 2021). Concerning vulnerable groups, families in rural areas and families with large household sizes in Türkiye are more vulnerable to energy poverty (Dogan et al.,

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2021). Moreover, financial situation and education level are significant factors in consumers' access to energy in Türkiye (Dogan et al., 2021).

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8 References

Aeesuisse. (2022). Communiqué de presse aeesuisse: Projet d'accélération des procédures pour les énergies renouvelables. https://aeesuisse.ch/fr/news/communique-de-presse-aeesuisse-projet-dacceleration-des-procedures-pour-les-energies-renouvelables/

Agenzia Entrate. Superbonus 110%. Retrieved May 30, 2022 from https://www.agenziaentrate.gov.it/portale/web/guest/superbonus-110%25

Balinov, B. (2021). Българският допотопен енергиен план [Bulgaria's antiquated energy plan]. https://www.greenpeace.org/bulgaria/publikatsiya/5354/plan-vyzstanoviavane-ustoichivost-energiini-reformi/

Benov, M. (2021). In Енергийна бедност и енергийна ефективност – възможна ли е промяна [Energy poverty and energy efficiency – is change possible?] (Audio podcast). Bulgarian National Radio (BNR) news. https://bnr.bg/post/101551645/mincho-benov

Biresselioglu, M.E., Demir, M.H., Solak, B., Turan, U., Clément, G., Sahakian, M., Kollmann, A., Musina, D. and Schibel, K.L. (2021). DIALOGUES Integrated Research White Paper – Version 1. DIALOGUES D2.1. https://www.dialoguesproject.eu/wp-content/uploads/2022/02/D2.1_DIALOGUES_ResearchWhitePaper_under-review.pdf

Blumer, Yann B., Corinne Moser, Anthony Patt, and Roman Seidl. (2015). "The Precarious Consensus on the Importance of Energy Security: Contrasting Views between Swiss Energy Users and Experts", Renewable and Sustainable Energy Reviews 52: 927-36.

Bogner, A., Littig,B. and Menz, W. et al. (2009). Interviewing experts. Research methods series. Basingstoke [England ; New York: Palgrave Macmillan.

Böhm, A. (2004). Theoretical Coding: Text Analysis in Grounded Theory. in A Companion to Qualitative Research, eds. Flick, U., von Kardoff, E. and Steinke, I., London: Sage Publications.

Bündnis Bürgerenergie. (2020). Das Ökosystem der Bürgerenergie. https://www.buendnis-buergerenergie.de/fileadmin/user_upload/News/2020/Broschu__re_Bu__rgerenergie_2020_WEB_final.pdf

Bye, T. and Hope, E. (2005). "Deregulation of electricity markets: the Norwegian experience". Economic and Political Weekly, 40 (50): 5269-5278.

Clément, G., Guerrieri, M., Sahakian, M., Schibel, K.L. and Zhan, M.X. (2022). Guidebook for designing and implementing Citizen Action Labs and Recruitment to the Citizen Action Labs. DIALOGUES D5.3 in DIALOGUES repository.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022585

Couture, T., Stoyanova, T. and Pavlov, T. (2021). Scaling-up Energy Communities in Bulgaria. E3 Analytics. https://www.e3analytics.eu/project/scaling-up-energy-communities-in-bulgaria/

CSD, Centre for the Study of Democracy. (2022a). Technological and Policy Innovation Scenarios for the Low-carbon Transition of the Bulgarian Energy Sector. Policy Brief No.109. https://csd.bg/fileadmin/user_upload/publications_library/files/2022_04/BRIEF_109_ENG.pdf

CSD, Center for the Study of Democracy. (2022b). EU Energy and Climate Security Strategy to Counter the Russian Aggression in Europe. Policy Brief No.108. https://csd.bg/fileadmin/user_upload/publications_library/files/2022_03/BRIEF_108_EN.pdf

CSD, Center for the Study of Democracy. (2022c). Tackling the Climate and Energy Security Conundrum in Southeastern Europe. Policy Brief No.110. https://csd.bg/fileadmin/user_upload/publications_library/files/2022_05/BRIEF_110_ENG.pdf

CSD, Center for the Study of Democracy. (2021). Towards an Inclusive Green Recovery in Bulgaria. Policy Brief No. 106. https://csd.bg/fileadmin/user_upload/publications_library/files/2021_12/BRIEF_106_ENG_WEB.pdf

CSD, Center for the Study of Democracy. (2020a). Now or Never: Will Bulgaria Catch the Last Train to Green Economic Recovery? Policy Brief. No. 95. https://csd.bg/publications/publication/now-or-never-will-bulgaria-catch-the-last-train-to-green-economic-recovery/

CSD, Center for the Study of Democracy. (2020b). Accelerating the Energy Transition in Bulgaria: A Roadmap to 2050. Policy Brief No. 96. https://csd.bg/fileadmin/user_upload/publications_library/files/2020_12/BRIEF_96_ENG_WEB.pdf

CSD. Center for the Study of Democracy. (2020c). Lost in Transition: Bulgaria and the European Green Deal. Policy Brief No. 92. https://csd.bg/fileadmin/user_upload/publications_library/files/2020_05/BRIEF_92_ENG.pdf

CSD. Center for the Study of Democracy. (2018). Decentralization and Democratization of the Bulgarian Electricity Energy Sector: Bringing the Country Closer to the EU Climate and Energy Core. Policy Brief No. 79. https://csd.bg/fileadmin/user_upload/publications_library/files/2018_07/BRIEF_79_ENG.pdf

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022585

Стратегия за устойчиво енергийно развитие на Република България до 2030 година с хоризонт до 2050 година [Strategy for Sustainable Energy Development of the Republic of Bulgaria until 2030 with horizon to 2050]. (2020). https://www.moew.government.bg/bg/strategiya-za-ustojchivo-energijno-razvitie-na-republika-bulgariya-do-2030-g-s-horizont-do-2050-g-i-proekt-na-integriran-nacionalen-plan-v-oblastta-na-energetikata-i-klimata-inpek-na-republika-bulgariya-do-2030-g/

DAPEEP. (2019). https://www.dapeep.gr/dimosieuseis/eguiseis-proeleusis-energeiako/#1573049380195-6d8310f9-de1f

Deutsche Energie-Agentur (Hrsg.) (dena). (2022). Energy Communities: Beschleuniger der dezentralen Energiewende.

Delibera, ARERA. (2020). https://www.arera.it/it/docs/20/318-20.htm

Denzin, NK. (1970). The research act: A theoretical introduction to sociological methods. New Jersey: Transaction Publishers.

DGRV. (2022). Bundesgeschäftsstelle Energiegenossenschaften. https://www.dgrv.de/bundesgeschaftsstelle-energiegenossenschaften/

Dobigny, L., and Sahakian. M. (2019). “From Efficiency to Sufficiency: Insights from the Swiss Energy Transition”, in Energy Demand Challenges in Europe: Implications for policy, planning and practice, eds. F. Fahy, G. Goggins, and C. Jensen. Cham: Springer International Publishing, 105-114.

Dogan, E., Madaleno, M., and Taskin, D. (2021). “Which households are more energy vulnerable? Energy poverty and financial inclusion in Türkiye”. Energy Economics, 99: 1-11.

Drescher, K., and Janzen, B. (2021). “Determinants, persistence, and dynamics of energy poverty: An empirical assessment using German household survey data.” Energy Economics, 102: 1-17.

Eco dale Citta (2022). Comunità Energetiche, dal Pnrr un supporto per la transizione ecologica e contro il caro bollette. https://www.ecodallecitta.it/comunita-energetiche-dal-pnrr-un-supporto-per-la-transizione-ecologica-e-contro-il-caro-bollette

Eisenhardt, K., M. (1989). “Building Theories from Case Study Research”. The Academy of Management Review, 14(4): 532-550.

Electricity Market Report (2021). Qual Energia https://www.qualenergia.it/articoli/come-cambia-mercato-elettrico-autoconsumo-comunita-energetiche-analisi-polimi

ENEA. (2022). A cura di Francesco Gracceva. Analisi Trimestrale del Sistema Energetico Italiano - Anno 2021. ISSN 2531-4750.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022585

ENERGIFAKTA NORGE (2021). Electricity Production. https://energifaktanorge.no/en/norsk-energiforsyning/kraftproduksjon/

Energiewendedörfer. (2022). Vom Bioenergiedorf zum Energiewendedorf! https://energiewendedörfer.de/

Energy storage. (2021). 89 Prozent des Solarpotenzials auf deutschen Ein- und Zweifamilienhäusern sind noch ungenutzt. https://www.e3dc.com/89-prozent-des-solarpotenzials-auf-deutschen-ein-und-zweifamilienhaeusern-sind-noch-ungenutzt/

ENOVA. Om Enova. Retrieved July 20, 2022 from https://www.enova.no/om-enova/

Eurostat. (2019). Energy Balances. https://ec.europa.eu/eurostat/web/energy/data/energy-balances

Eurostat. (2021). Data Browser. https://ec.europa.eu/eurostat/databrowser/explore/all/envir?lang=en&subtheme=nrg.nrg_quant.nrg_quanta&display=list&sort=category

FA Wind. (2021). Umfrage zur Akzeptanz der Wind-energie an Land – Herbst 2021, Berlin.

Federal Environment Agency. (2022). Strom- und Wärmeversorgung in Zahlen. https://www.umweltbundesamt.de/themen/klima-energie/erneuerbare-energien/erneuerbare-energien-in-zahlen#strom

Federal Ministry Republic of Austria, Climate Action, Environment, Energy, Mobility, Innovation and Technology. Retrieved June 30, 2022, from https://www.bmk.gv.at/themen/energie/publikationen/zahlen.html

Federal Ministry for Economy and Energy. (2019). Kleine Anfrage der Abgeordneten Sven Lehmann, Dr. Julia Verlinden, Dr. Wolfgang Strengmann-Kuhn, weiterer Abgeordneter und der Fraktion BÜNDNIS 90/DIE GRÜNEN betr.: „Ausmaß und Auswirkungen der Energiearmut" BT-Drucksache: 19/8383

Federal Statistical Office. (2021). Rented Dwellings. https://www.bfs.admin.ch/bfs/en/home/statistics/construction-housing/dwellings/rented-dwellings.html

Fraunhofer ISE. (2021). Deutscher Strommix: Stromerzeugung Deutschland bis 2022. https://strom-report.de/strom/#strommix-2021

Gazzeta Ufficiale. (2020). Decreto Ministeriale. https://www.gazzettaufficiale.it/eli/id/2020/11/16/20A06224/sg

Gazzeta Ufficiale. (2021). Decreto Legislativo. https://www.gazzettaufficiale.it/eli/id/2021/11/30/21G00214/sg

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022585

Gazzeta Ufficiale. (2019). Decreto Milleproroghe. https://www.gazzettaufficiale.it/eli/id/2020/02/29/20A01353/sg

Gazzeta Ufficiale (2020). Leggen.,. https://www.gazzettaufficiale.it/eli/id/2020/02/29/20G00021/sg

Government Gazette 4513. (2018). Energy Communities.

Government Gazette B' 4893. (2019). National Energy and Climate Plan.

Governo (2021). Piano Nazionale Di Ripresa E Resilienza (PNRR). https://www.governo.it/sites/governo.it/files/PNRR.pdf

Groß, Rene (2022). Was das neue EEG zu Solar- und Bürgerenergie sagt. Online available: https://www.profil.bayern/05-2022/rat/was-das-neue-eeg-zu-solar-und-buergerenergie-sagt/

Национален план за действие по изменение на климата за периода 2013-2020 г. [National Climate Change Action Plan (2013-2020)]. (2012). https://www.moew.government.bg/bg/nacionalen-plan-za-dejstvie-po-izmenenie-na-klimata/

Национална стратегия за адаптация към изменението на климата и План за действие до 2030 г. [National Climate Change Adaptation Strategy and Action Plan 2030]. (2019). https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=1294

Национална програма за енергийна ефективност на многофамилни жилищни сгради [National Programme for Energy Efficiency of Multi-Family Residential Buildings]. (2015). https://seea.government.bg/documents/Nation%20Program%20EE%20Multi-Family%20Resid%20Buildings_update.pdf

Национален план за възстановяване и устойчивост на Република България [(NRRP) National Recovery and Resilience Plan]. (2022). https://www.nextgeneration.bg/14

HEDNO (2019). https://deddie.gr/en/.

Hirschl, Bernd; Schwarz, Uwe; Weiß, Julika; Hirschberg, Raoul; Torliene, Lukas. (2021). Kurzfassung der Studie: Berlin Paris-konform machen. Eine Aktualisierung der Machbarkeitsstudie „Klimaneutrales Berlin 2050“mit Blick auf die Anforderungen aus dem UN-Abkommen von Paris. Im Auftrag des Landes Berlin, vertreten durch die Senatsverwaltung für Umwelt, Verkehr und Klimaschutz; Berlin

Holton, J.A. (2010). “The Coding Process and Its Challenges. Grounded Theory Review”, 9(1): 21-40.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022585

Интегриран план в областта на енергетиката и климата на Република България 2021-2030 [Integrated Energy and Climate Plan of the Republic of Bulgaria 2021-2030 (INECP)]. (2020). https://ec.europa.eu/energy/sites/ener/files/documents/bg_final_necp_main_en.pdf

International Energy Agency. (2021). Türkiye 2021: Energy Policy Review. https://iea.blob.core.windows.net/assets/cc499a7b-b72a-466c-88ded792a9daff44/Türkiye_2021_Energy_Policy_Review.pdf

Kalu, M.E. (2019). "Using Emphasis-Purposeful Sampling-Phenomenon of Interest–Context (EPPiC) Framework to Reflect on Two Qualitative Research Designs and Questions: A Reflective Process". The Qualitative Report 24(10): 2524-2535.

Karl, Timo, Bode, Madeline. (2021). "Frauen in Der Bürgerenergie Durch Offenheit Zur Vielfalt." World Wind Energy Association. https://de.readkong.com/page/frauen-in-der-burgerenergie-durch-offenheit-zur-vielfalt-3325112

Kress, Michael; Rubik, Frieder; Müller, Ria. (2014). Bürger als Träger der Energiewende. Ökologisches Wirtschaften (29).

Kuschan, Marika. (2021). Anstrich oder Anschub? Mehr Frauen für die Energiewende. https://www.energietage.de/event/610-mehr-frauen-fuer-die-energiewende.html

Ministry of Energy. (2020). A free electricity market. https://www.me.government.bg/bg/pages/el-market-147.html

Ministero dello Sviluppo Economico (MISE) on the Official Italian Government Website, retrieved May 30, 2022 from https://www.mise.gov.it/index.php/it/68-incentivi/2042324-piano-nazionale-di-ripresa-e-resilienza-i-progetti-del-mise.

Odyssee-Mure. (2020). Electricity Consumption per Dwelling. https://www.odyssee-mure.eu/publications/efficiency-by-sector/households/electricity-consumption-dwelling.html

Oeko-Institut (2018). Policies and measures to alleviate energy poverty in Germany - learning from good practices in other European countries. https://www.oeko.de/publikationen/p-details/policies-and-measures-to-alleviate-energy-poverty-in-germany-learning-from-good-practices-in-other/

Osservatorio Italiano sulla Povertà Energetica (2020). https://oipeosservatorio.it/2021/12/23/poverta_energetica2020/#:~:text=Nel%202020%20l'8%20per,%2C1%20milioni%20di%20famiglie

Palinkas, Lawrence A., Sarah M. Horwitz, Carla A. Green, Jennifer P. Wisdom, Naihua Duan, and Kimberly Hoagwood. (2015). "Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research." Administration and Policy in Mental Health and Mental Health Services Research, 42 (5): 533-44.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022585

Peneva, T. (2021). “Green Deal’s Impact on Energy Poverty in Bulgaria. Economic Studies.” 30 (6): 90-105. https://www.iki.bas.bg/Journals/EconomicStudies/2021/2021-6/5_Teodora_f_f.pdf

Raporto OIPE. (2020). La povertà energetica in Italia: Secondo rapporto dell’Osservatorio Italiano sulla Povertà Energetica. https://www.corriere.it/politica/22_maggio_29/strategia-draghi-oltre-all-energia-nuovo-recovery-b721c554-df8a-11ec-b6ed-e788b671e978.shtml

Radtke, Jörg. (2016). Bürgerenergie in Deutschland – Partizipation zwischen Gemeinwohl und Rendite; Wiesbaden.

Rangelova, K., Trifonova, M., Primova, R. and Vladimirov, M. (2020). Switching the Gears of Decarbonisation: Policy Action for a Low-Carbon Transformation of the Bulgarian Economy. Center for the Study of Democracy, report. https://csd.bg/fileadmin/user_upload/publications_library/files/2021_12/Switching_the_Gears_of_Decarbonisation_EN_WEB.pdf

Renewable Energy Agency. (2021). Neue Studie zeigt: Bürgerenergie bleibt zentrale Säule der Energiewende. Online available: https://www.unendlich-viel-energie.de/studie-buergerenergie-bleibt-zentrale-saeule-der-energiewende

Republic of Türkiye, Ministry of Energy and Natural Resources. Electricity. Retrieved May 19, 2022, from https://enerji.gov.tr/infobank-energy-electricity

Republic of Türkiye, Ministry of Foreign Affairs. Türkiye’s International Energy Strategy. Retrieved May 20, 2022, from https://www.mfa.gov.tr/Türkiyes-energy-strategy.en.mfa

Reusswig, F., Frantzke, J., Ott, K., Fahrenkrug, K. Braun, F., Michael Melzer, Teike Scheep-maker et al. (2017). Energiekonflikte. Akzeptanzkriterien und Gerechtigkeitsvorstel-lungen in der Energiewende. Kernergebnisse und Handlungs-empfehlungen eines interdisziplinären Forschungsprojektes. Potsdam.

Roushkova, B. (2022). Environment Minister: Bulgaria Finally Has a Government Paying Attention to Climate Change. https://www.bta.bg/en/news/economy/246688-environment-minister-sandov-bulgaria-finally-has-a-government-paying-attention-

Sahakian, Marlyne, et Laure Dobigny. (2019). “From Governing Behaviour to Transformative Change: A Typology of Household Energy Initiatives in Switzerland”. Energy Policy 129: 1261-1270.

Schweizer-Ries P., Rau I, Zoellner, J. (2008). Akzeptanz Erneuerbarer Energien und sozialwissenschaftliche Fragen. Projektabschlussbericht.

Serlavós, Mònica. (2020). “L’énergie citoyenne : levier pour une société autonome et durable ? “, Université de Lausanne, Faculté des géosciences et de l’environnement.

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 101022585

Statistik Austria. (2019). Retrieved June 30, 2022, from https://www.statistik.at/web_de/presse/125850.html

Suri, H. (2011). “Purposeful Sampling in Qualitative Research Synthesis”. Qualitative Research Journal 11(2): 63-75.

Teune, Simon; Rump, Maike; Küpper, Beate; Schatzschneider, Julia; Reusswig, Fritz; Lass, Wiebke. (2021). Energiewende? - ja! Aber...: Kritik und Konflikte um die Energiewende im Spiegel einer Bevölkerungsbefragung. https://publications.pik-potsdam.de/pubman/faces/ViewItemOverviewPage.jsp?itemId=item_26000

The Federal Council, The Portal of the Swiss Government, retrieved May 30, 2022 from https://www.admin.ch/gov/en/start/federal-council.html

The Norwegian Water Resources and Energy Directorate, retrieved July 20, 2022 from https://www.nve.no/english/

The World Bank. (2020). Access to Electricity-Türkiye. https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?contextual=region&locations=R

Trend: research and Leuphana University. (2013). Definition und Marktanalyse von Bürgerenergie in Deutschland. www.buendnis-buergerenergie.de%2Ffileadmin%2Fuser_upload%2Fdownloads%2FStudien%2FStudie_Definition_und_Marktanalyse_von_Buergerenergie_in_Deutschland_BBEn.pdf&usg=AOvVaw1-V3QOdJ0YpixZeJ-5sIFm

Trend: research. (2020). Eigentümerstruktur: Erneuerbare Energien (4. Auflage). Entwicklung der Akteursvielfalt, Rolle der Energieversorger, Ausblick bis 2025. Trend:research. Berlin. https://www.unendlich-viel-energie.de/studie-buergerenergie-bleibt-zentrale-saeule-derenergiewende

Tzanev, D. (2020). Energy Poverty in Bulgaria – Analysis and Policy Recommendations. Center for Energy Efficiency EnEffect – Bulgaria. https://www.odyssee-mure.eu/events/national-seminars/bulgaria/energy-poverty-in-bulgaria.pdf

Van Audenhove, Leo, and Karen Donders. (2019). Talking to people III: Expert interviews and elite interviews. In The Palgrave handbook of methods for media policy research, 179-97. Springer

VKU. (2016). Stadtwerke und Bürgerbeteiligung - Energieprojekte gemeinsam umsetzen. www.unendlich-viel-energie.de%2Fmedia%2Ffile%2F444.VKU_AEE_Broschuere_Buergerbeteiligung.PDF&usg=AOvVaw0cqGfww0caDHLqbUIemZ6q

Vollstedt, M. and Rezat, S. (2019). An Introduction to Grounded Theory with a Special Focus on Axial Coding and the Coding Paradigm. 13th International Congress on

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022585

Mathematical Education (ICME) / Early Career Researcher Day, Hamburg, Germany, 81-100.

WECF (Women Engage for a Common Future)/ BBEn (Bündnis Bürgerenergie). (2020). Frauen.Energie.Wende!. https://www.buendnis-buergerenergie.de/fileadmin/user_upload/downloads/Broschueren/FrauenEnergieWende_WECF_BBEn_2020.pdf.

Wolf, Ingo; Fischer, Anne-Kathrin; Huttarsch, Jean-Henri. (2021). Soziales Nachhaltigkeitsbarometer der Energie- und Verkehrswende. https://ariadneprojekt.de/nachhaltigkeitsbarometer-2021/

Yildiz, Özgur et al. (2015). “Renewable energy cooperatives as gatekeepers or facilitators? Recent developments in Germany and a multidisciplinary research agenda”. Energy research and Social science, 6: 59-73.

ZHAW Travail social. (2019). Relations entre pauvreté monétaire et précarité énergétique et conséquences des assainissements énergétiques pour les groupes vulnérables: une analyse qualitative. Résumé. Office fédéral du logement, Granges.

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