



Gender-Just Energy Communities: A Catalyst for Sustainable and Just Development

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INTRODUCTION

More than 60% of the global greenhouse gas emissions come from energy use, making energy the natural starting point for increasing our efforts to mitigate climate change (IRENA, 2019). An effective energy transition requires active citizen engagement. Renewable energy communities can play a key role in putting citizens at the centre. The participation of citizens and communities as partners in energy projects are transforming the energy system. Community energy initiatives are offering new opportunities for citizens to get actively involved in energy matters. Community energy refers to collective energy actions that foster citizens' participation across the energy system. It has received increased attention in recent

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years, developing a wide range of practices to manage community energy projects.

In many countries, local energy communities have already been established to increase renewable energy production and/or to purchase power grids in order to decentralize them and integrate renewables into the grids. The feed-in tariff (FIT) policy mechanism was introduced in many European countries, offering long-term contracts to renewable energy producers. As a consequence, the number of energy communities increased sharply in the beginning and remained stable in recent years. ECs are realized in different legal forms—cooperatives, stock or limited companies—and differ from large corporations to smaller entities with only a few members. One of the main goals of energy communities is to provide their members with renewable energy and energy services to use local resources and to push the decentralized, democratic and just energy transition. Additionally, this people-centred approach to future governance does not prioritize corporate profits but community well-being (Stephens, 2020).

The European Renewable Energy Directive (RED II)—part of the Clean Energy for all Europeans package—confirms the prominent role of so-called prosumers and their collective forms will play in the future energy system. RED II is aiming to stimulate the formation of ‘renewable energy communities’ in all the Member States. The implementation at policy level remains with member states where national energy policies and markets are still overwhelmingly centralized. This creates barriers to the decentralization and democratization of energy and, ultimately, to achieve a just transition.

The energy transition and energy communities are a fertile ground to implement climate, gender and social justice, as (changes in) energy systems are often confronted with power inequalities. Energy communities may become a ‘popular and viable alternative to capitalist individualism and isolation, and the incorporation of a gender perspective in community actions and strategies has transformative potential and can open a space for a new debate on an inclusive and economically and socially sustainable development model’ (Łapniewska, 2019). Considering the long operational life of energy infrastructure (e.g., public transport, energy efficiency and power plants), not mainstreaming gender will reinforce inequalities for decades, wasting limited financial, social and human resources and missing ecological chances. This input proposes a way forward to recognize energy communities as successful, gender-just and democratic legal

entities including the needs, rights and talents of all gender to shape a transition towards a just new energy system (Habersbrunner et al., 2021).

The 2019 European Directive for the internal electricity market introduced new rules to engage citizens in energy production, either individually or through energy communities, ‘by generating, consuming, sharing or selling electricity, or by providing flexibility services through demand-response and storage’ (Directive EU, 2019). Furthermore, the revised EU RED II included new provisions to support Renewable Energy Resources (RES) self-consumption—i.e., consumers’ production of their own energy. The RED II established the EU’s target of ensuring that 32% of Europe’s energy supply come from RES by 2030, in line with the European Green Deal’s (EGD) goal of cutting overall greenhouse gas emissions with 55% by 2030. Energy communities form a powerful bottom-up approach involving local actors. This is increasingly regarded as a strong potential for delivering a more democratic and inclusive just energy transition. This energy decentralization approach aims to stimulate the formation of ‘renewable energy communities’ in all EU Member States, in which ‘citizens take ownership of the energy transition’ (RESCOOP, 2019). Indeed, as the governance and the regulatory task of embedding such entities into the national energy systems is left to member states, the challenge for new legal and regulatory tools to embed them in the energy system continues. Thus, the objective of this research is to identify how a gender perspective can contribute to an equitable energy policy and supply.

ENERGY COMMUNITIES: DESCRIPTION AND RELEVANCE

Community energy projects are defined as initiatives in which citizens are either owners or have a meaningful say in the running of renewable energy plants or energy-related services. They have different legal forms and are increasingly opening opportunities for citizens to participate in the energy market and to benefit their local communities and push a decentralized energy transition. Yet, national legal frameworks and public support differ among European countries. The European electricity market and energy security have recently become heatedly discussed topics at the European Union level. In many countries, political and financial support for the transition towards renewable energy systems during the last two decades has encouraged the establishment of a substantial number of new electricity communities. Many of them can be described as ‘social enterprises, demonstrate attachment to values such as equity and equality in their

actions, thus they might be perceived as women¹-friendly entities' (Łapniewska, 2019). Definition, organizational forms and financing models of energy communities might vary among countries. Community energy initiatives and energy communities come in different shapes and sizes and their role/motivation for existence is highly institutionally and policy context-dependent. The terms 'energy community' or 'local energy community' do not have common definitions and can refer to a wide range of collective energy actions. The Clean Energy Package contains two definitions of energy community: Citizen Energy Community (CEC) which is contained in the provisionally agreed recast Electricity Directive, and Renewable Energy Community (REC), which is contained in the recast Renewables Directive (European Commission, 2020a).

The definition of Renewable Energy Community (REC), regarding article 2(16) Renewable Directive (Directive EU, 2018): A legal entity:

- which, in accordance with the applicable national law, is based on open and voluntary participation, is autonomous, and is effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects that are owned and developed by that legal entity;
- the shareholders or members of which are natural persons, SMEs or local authorities, including municipalities;
- the primary purpose of which is to provide environmental, economic or social community benefits for its shareholders or members or for the local areas where it operates, rather than financial profits.

RECs are also entitled to produce, consume, store and sell renewable energy, including through renewables power purchase agreements, to share renewable energy within the community and to access all suitable markets

¹BINARY CONCEPT refers to the social classification of people into two categories, namely, male and female, and thereby hides the diversity of social and biological genders (Kuschan et al., 2020). Although we use the binary term 'women and men' in this publication, this does not refer exclusively to people who assign themselves to these genders, but to all of them. Nevertheless, the asterisk (*) stands for all genders. For a better flow of reading, we write women instead of women* and mean all people who feel themselves to be women, regardless of their biological sex with which they were born. Of course, this also applies to men or men*.

The definition of Citizen Energy Community, regarding article 2(11) Electricity Directive (Directive EU, 2019): A legal entity that:

- is based on voluntary and open participation and is effectively controlled by members or shareholders that are natural persons, local authorities, including municipalities, or small enterprises;
- has for its primary purpose to provide environmental, economic or social community benefits to its members or shareholders or to the local areas where it operates rather than to generate financial profits; and
- may engage in generation, including from renewable sources, distribution, supply, consumption, aggregation, energy storage, energy efficiency services or charging services for electric vehicles or provide other energy services to its members or shareholders.

The recitals of the Electricity Directive and the Renewables Directive provide an explanation of what CECs and RECs are:

- CECs constitute a new type of entity due to their membership structure, governance requirements and purpose (purpose being framed around provision of services/benefits for members or the local community—as opposed to profits) (Directive EU, 2019).
- Similarly, RECs constitute a new type of entity that can be distinguished from other market players based on, inter alia, size and ownership structures (Directive EU, 2018).

At their core, both definitions describe a way to organize collective cooperation of an energy-related activity around citizen ownership, governance and non-profit targets. The main purpose of CECs and RECs is to provide environmental, social and economic community benefits for its members or the regions where they operate rather than only financial benefits. Both definitions emphasize participation and control by citizens, local authorities and smaller businesses (European Commission, 2020a).

Energy cooperatives with some common elements are as a legal framework defined by the International Cooperative Alliance (ICA) and meet some of the criterion of RECs and CECs. In general, the ICA defines a cooperative as ‘an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations

through a jointly-owned and democratically-controlled enterprise' (ICA, 2018). Therefore, cooperatives operate under seven principles:

- Voluntary and open membership
- Democratic control of members
- Economic participation of members
- Autonomy and independence
- Education, training and information
- Cooperation between cooperatives
- Concern for the community

The earliest forms of cooperatives were established in the United Kingdom around 1840. A famine motivated a group of waivers to organize themselves to make food available to the people in the community through joint purchases (REScoop, 2020). Nowadays, cooperatives are involved in various topics such as food, housing, transportation, finance and energy and can provide sustainable business models. In the energy sector, cooperatives are increasingly becoming a suitable option as they enable communities to address proactively their specific energy needs under given conditions while contributing to their local economies. In Europe, the work of energy cooperatives and communities work is mostly based on renewable energy sources (ibid.). Nevertheless, their activities can exist in different forms. While some energy communities are more tightly linked to one exclusive economic function, such as consumption or production, others combine different activities (production, consumption and distribution) for their communities (ibid.). Country-specific regulatory frameworks determine the organizational structure. Yet, in general terms, they differ from commercial actors in energy markets in certain respects (Wierling et al., 2018). First, cooperatives enable direct participation and ownership and, therefore, involve a wider public. Second, they also seek non-commercial benefits such as fostering a sense of community and local value chains. Lastly, members are motivated to accelerate the transition to sustainable energy systems (e.g., phasing out nuclear power, regaining local ownership and control over energy supply) (ibid.). With energy communities, 'the traditionally passive consumer is becoming an energy prosumer, co-owner of renewable energy facilities and community energy participant' (Caramizaru & Uihlein, 2020). Recent statistics show that there are about 3500 so-called renewable energy cooperatives and communities, which are found mostly in North-Western Europe

(RESCoop MECISE, 2019). Estimates show that European energy communities could own about 17% of installed wind capacity and 21% of solar energy by 2030 and by 2050, nearly half of EU households are expected to produce renewable energy. Even though the first energy cooperatives can be traced back to the beginning of the twentieth century, cooperative development started mainly in the second half of the 1970s. The oil crisis of 1974 obliged energy-dependent countries to search for new and alternative energy sources. Communities living in remote and relatively low-populated areas started to produce and consume energy locally, using solar, wind and biomass (Troya Çevre, 2017). Further developments were seen especially in the 1990s in Europe and the model spread worldwide in the 2000s due to technological improvements and decreasing prices of renewables. Today, more than 20% of the renewable energy power plants all over the world are operated by communities and individual users (ibid.). Some Western European countries have valuable experiences in the implementation and successful management of energy communities and set an example for others. In countries such as Germany and Denmark, electricity development included many cooperatives and communities, where farmers and other rural communities organized electricity production and distribution in their area.

EU Energy Regulation Could Change the Energy Market

New energy legislation, agreed at EU level in 2019 (Directive EU, 2019), should boost community energy and help community projects across Europe. Energy communities across the EU have won new rights that should guarantee they can participate in the energy transition. Acknowledgement of their role and new rights to produce, consume, sell and store renewable energy are now enshrined in EU law for the first time. This is an important opportunity to encourage many more people-powered renewables projects, which are supported by their governments. The rights for community energy are indeed included since 2019 in the EU clean energy package. The EGD is as well a flagship framework of the Commission for a decarbonized development strengthening the opportunities of decentralized energy markets. ‘Energy communities can take any form of legal entity, for instance, that of an association, a cooperative, a partnership, a non-profit organization or a small/medium-sized enterprise’ (European Commission, 2020b).

Potential of Community-Owned Infrastructure

The decreasing price of renewable energy assets and new digital solutions allow for producing and consuming energy where it is most efficient, making energy communities feasible. Citizens increasingly will play a part in sustainability efforts; thus, they are motivated to volunteer in setting up such energy communities. Unfortunately, enthusiasm is not enough to build a successful energy community for the twenty-first century. Today, local energy communities are comprised of hundreds of individual energy producers, sharing energy with each other in real-time. Digitalized local energy communities can provide community members with new types of services and can build—if regulation allows—new forms of energy sharing at the local level. Thus, local energy communities could transform into significant actors in the European energy landscape, making our economies less dependent on fossil fuels by integrating more accessible and affordable renewables. Whilst focus has typically been put on renewable energy infrastructure, citizens' participation in the energy transition has still marginalized roles. Community-owned infrastructure remains an underappreciated approach in many countries, despite the many benefits compared to the current energy system, which primarily benefits large corporations at the expense of communities and citizens.

Intersectionality

Studies (Fraune, 2015; Radtke, 2016) show the exclusiveness of energy communities in many European countries. Members and actors are mainly older than 50 years, male and having access to financial and educational resources (Fraune, 2015). Aiming to get the (citizens') energy transition even more broadly accepted in society, it is also necessary to increase the participation of other social groups that are perceived as underrepresented. The social group that is most strongly perceived as underrepresented are people with a migration background (87%); people of younger age (65% agreement), people with physical and mental impairments (61% agreement) and people with low incomes are also perceived as underrepresented by the majority (WWEA, 2021). Sixty-seven per cent see educational attainment as the most important socio-economic factor in the decision to participate in an energy community, followed by income, gender, age and membership in local associations (WWEA, 2021).

GENDER IN ENERGY SECTOR AND ENERGY COMMUNITIES

Decisions within the fossil fuel energy model of the last two centuries were, and still are, mainly male-dominated, and power relations are clearly distributed at the expense of women (EIGE, 2019). The extractive energy model has been constantly genderblind (e.g., failing to include women and all gender in consultation processes regarding energy community decisions like use of lands and resources for fossil fuel extraction projects) and neglecting women's energy needs and skills. As a result, systematic gender inequalities in access to and control of energy have been created. When considering for gender equity in the energy sector, it is advisable to use an analytical framework known as gender dimensions (Habersbrunner et al., 2021). Gender dimensions are linked to different societal domains which are connected with peoples' everyday live realities that are closely interrelated (Spitzner et al., 2020). The framework, which is set up by these gender dimensions, is a relevant approach to address and to achieve gender-equitable energy policy and supply (Kuschan et al., 2020). The gender dimensions can be categorized as productive work, reproductive work, power and decision-making power, public resources and infrastructure, body and health as well as institutionalized androcentrism, respectively.

Productive Work

A productive occupation refers to the opportunities to access and perform paid work. To achieve this, the choice of occupation, the possibilities of career opportunities, fair working hours and fair and continuous payment in the European energy sector are necessary (Spitzner et al., 2020). Currently, about 1.3 million people are employed in the renewable energy sector across Europe (IRENA, 2020). However, the share of women is only 35%. Women are particularly underrepresented (28%) (Clancy & Feenstra, 2019) in STEM-related professions than, for example, in administrative professions (45%). Among other reasons, this is due to many barriers to women entering the energy sector. Chief among these are prevailing hiring practices, lack of relevant qualifications or lack of awareness of gender differences in early childhood education. However, the lack of an inclusive work environment such as flexible work hours, affordable child-care options, networking, training opportunities and gender equality goals also stand in the way of women.

Reproductive Work

Activities without financial remuneration include, above all, care work for other people. The gender care gap in Germany shows that women in particular (52.4%) spend more time on reproductive work than men (BMFSEJ, 2021). This also leads to gender differences in energy consumption behaviour, as most reproductive work takes place at home and thus increases energy consumption. However, gender-specific energy consumption is not only shaped by socially influenced behaviour, but also by biological factors such as people's comfort temperature. Other European studies show the difference in energy consumption between men and women. According to studies, women on average consume less energy than men, except in the home, which is mostly due to their care role in the household or family. A major problem here is the disregard for gendered consumption and reproductive work in existing energy policies and EU directives in the energy efficiency field. But there is also a lack of support for men in the economy to take on care work (EIGE, 2021).

Power and Decision Making

To ensure a socially and gender-equitable energy transition, a special focus must be placed on the gender perspective in decision making. Women are still underrepresented in many decision-making positions across Europe. In 2020, the proportion of women in EU-28 ministries was 29.5% and in parliaments 30.3%. In national ministries in the fields of environment, transport and energy, the proportion of female ministers was 26.8%. A look at business shows that women are underrepresented here as well. In the largest listed companies, the proportion of female supervisory board members and board members was 26.6% (EIGE, 2021). To change this, with the help of energy transition policies and programmes, more women need to be involved, experienced and empowered. Gender budgeting² is a good way to generate good results in this regard. But gender audits, which are seen as an important tool for gender mainstreaming, and which examine laws, regulations, taxes and specific projects for their impact on the status of women in society, also help to show the gender perspective in public policies and in the private sector (Clancy & Feenstra, 2019).

²Gender budgeting: Gender budgeting is a tool for determining and controlling how funds are distributed and what effects they have on women and men and on gender relations (Landeshauptstadt München).

Incentives and policies for gender diversity need to be put in place. But not only by companies, but also by governments. By means of numerical targets, such as target numbers for hiring new employees, gender balance, etc., this could be achieved (International Labour Organization, 2017).

Public Resources and Infrastructure

Transport still represents one of the largest greenhouse gas emission generators in the EU. Although emissions from the energy sector are declining, emissions from transport continue to rise and are now significantly higher than in 1990 (European Commission, 2021). According to studies, women make their journeys on foot or by public transport more often than men. Men, on the other hand, are more likely to use cars, planes, bicycles or new mobility services such as car and bike sharing. This is partly because men are more likely to have a driver's license and access to a vehicle than women. 'If everyone travelled the way women do today, energy consumption and emissions from passenger transport in Sweden would fall by almost 20 percent. In addition, the use of cars as a means of transport would already be at the level considered sustainable for 2050', says Lena Smidfelt Rosqvist, research director at Trivector. Through well-planned and inclusive infrastructure, all gender roles and needs can be addressed. Currently, gender blindness prevails, especially in the mobility and energy infrastructure sectors (Spitzner et al., 2020). Many mobility patterns are highly gendered, due to the distribution of roles in the labour market (CIVITAS, 2014).

But the real conditions of women are not included in this. Thus, a gender perspective cannot be achieved in energy and mobility policies. Therefore, most of the support programmes in the field of renewable energies and mobility do not include this aspect. In Germany, most support programmes are designed for men, as they can afford the more expensive electric vehicles due to their higher incomes on average. Also, support programmes at the local, national and EU level that aim to increase energy efficiency and reduce energy poverty do not consider gender at all (Habersbrunner & Martschew, 2020). The importance of gender inequalities in energy poverty, while recognized, is neglected in the financial aspects of support programmes. Furthermore, the energy transition requires land and buildings that are mostly owned by men. For example, only between 6.1% (Netherlands) and 34.5% (Austria) of agricultural

land is owned by women (FAO, 2021). Since many project operators mostly approach property owners and community leaders, women are often excluded.

Body and Health (Sex)

One's own health is one of the basic rights of a human being. However, the term health includes not only physical health, but also well-being, social and mental health (WHO, 2006). These aspects are all closely related to energy consumption. Even today, not all European citizens have access to electricity or the amount they need, with 7% of European households unable to pay their electricity bills on time in 2018 (especially in Greece and Bulgaria) (Eurostat, 2021). Energy poverty has a direct negative impact on the health and well-being of the people affected. Those affected include mainly low-income earners (mostly women) and older people who spend a lot of time in the house (Reibling & Jutz, 2017). However, women also usually prefer a higher indoor temperature than men, as they are more efficient when the indoor environment is adequately heated (Chang & Kajackaite, 2019). Everyday tasks such as cooking and washing, which is mostly done by women, are also favoured by access to clean energy. Energy poverty is often associated with mobility poverty, which often negatively impacts the social participation and well-being of those affected. However, the impact of energy on health is not limited to household consumption. From fuel extraction to transportation to waste disposal, energy systems are associated with health risks and impacts. Energy poverty affects four different dimensions such as the physiological, economic, health and socio-cultural dimension. Above all, the dimension of health is an important factor that must be considered in energy poverty. Women are more affected by winter mortality due to low temperatures (Birgi et al., 2021). Poor and incorrect heating can have serious effects on many physical problems such as respiratory infections or cardiovascular disease. Another problem is the use of solid fuels for heating or cooking, still in European Countries. Due to the release of nitrogen, serious illnesses can be caused, even death. But mental health is also negatively affected by energy poverty (Birgi et al., 2021). Stress, low well-being due to cold and depression are often the accompanying symptoms, especially for women.

Androcentrism

Androcentrism placed masculinity at the centre and declared it to be the social norm at all political, social, economic and scientific levels. This norm claims for itself gender neutrality as well as universality, objectivity and rationality, but at the same time defines ‘femininities’ as deviation or addition (Smith et al., 2013). To stop a gender hierarchy, the institutionalization of androcentrism would have to be abandoned. Looking back at the fossil fuel energy model of the last 200 years, it is striking that gender blindness has prevailed here as well (Global Initiative for Economic, 2020). The barriers that exist here are mostly unnoticed by the men who dominate this sector. Only 40% of men perceive the existence of gender-specific obstacles, in contrast to 75% of women (IRENA, 2019). This leads to gender inequalities in access to and control of energy, gender inequalities in decision making and financial and political gains, and spatial inequalities in the allocation of energy and exposure to the externalities of energy production, with the female population being more disadvantaged. Gender neutrality does not prevail, e.g., technology is commonly understood as a gender-neutral tool, although in most cases it is a male activity. For this reason, ‘gender-neutral energy policies’ usually refer to and benefit men. Women are much more likely to face greater obstacles and limitations (Groot de et al., 2017). Thus, the use of technology cannot reinforce gender asymmetries and inequalities rather than reduce them. The same is true for other social differentiators such as education, immigrant background, ethnicity, and age. If these are neglected, further disadvantages arise for women. The advantages of an ‘intersectional approach’ arise all the more. It brings awareness that knowledge is situated and partial, which is a direct challenge to the universality claimed by (e.g.) tech-savvy, white, male perspectives in the field of energy research (Bell et al., 2020) (Fig. 8.1).

THE STATUS QUO OF GENDER IN ENERGY COMMUNITIES: ‘RELEVANCE AND OPPORTUNITIES’

Energy Communities (ECs) are one possibility to encourage citizens in the energy transformation process and to push the highly needed energy transition. Citizen energy concepts can be one form of energy communities. Germany, for example, has become well-known for its bottom-up-movement of the so called ‘*Bürger*innenenergie*’ citizen energy, which

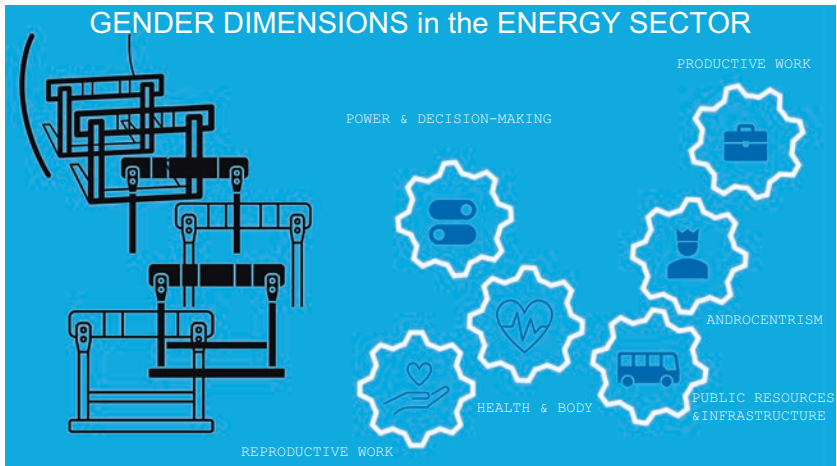


Fig. 8.1 Gender dimensions in the energy sector, WECF 2021

might be grounded in its historical connectedness to the founding of cooperatives.³ However, ECs in all their existing diverse forms might foster or restrict the possibilities and the intention of the people to take part in the local and therefore national energy transformation. The mobilization of civil society, in its whole (the importance of the deletion of social barriers or norms not reflected for this very moment), has the potential to contribute to a democratization of this process by the development of a fundamental understanding of energy issues, de-monopolizing and pluralizing economic structures (WWEA, 2021). Even more when social groups and their specific needs are evenly reflected and addressed in the transformative process.

In principle, ECs ‘cover both groups and individuals’ (Renews No. 89). Furthermore, these ‘(EC) projects do need not to be cooperatives’ (ibid.). To stick to the German example, their national energy transition was primarily started by committed citizens and later further developed by mainly community energy projects and medium-sized companies. This development is mainly based on the voluntary and very professional engagement of citizens. Up to today almost a third of the installed capacity of German

³Around 170 years ago, Friedrich Wilhelm Raiffeisen implemented the first cooperative model to help smaller farms out of financial needs.

renewable energies are in the hand of private property, including farmers. This exceeded 40% in 2019 (Press Release AEE, 2021), even though the share of citizen energy is dropping (*ibid.*).

Herein, it is recognizable that energy transformation is often understood as a process in the area of (renewable) electricity production, marketing and sale. Commonly left out in research literature, as well as media coverage, is the transformation process of mobility and heat, although the necessity of sector coupling is well known in politics, economics and research. In these sectors, the successes and development have been mainly carried out by fostering through community projects in the sense of municipal development. EC projects can therefore also involve the actions of the local public sector.

The European Commission stresses the importance and role of citizens on the continent's path to 'clean energy for all Europeans'. On a cross-border basis, two levels of participation models in the energy transition can be identified as ECs following Devine-Wright (2014): the micro and the meso level. Households, individuals and small local actors like neighbourhood initiatives work at the micro level. Regional and urban actors act at the meso level. Most community energy initiatives can be found within this level, particularly depending on their size and governance structure (Devine-Wright, 2014). The form of collective action in which ECs are viewed as such, their size, their organizational and financial models may differ between the European member states but are nonetheless 'strongly associated to the idea of energy democracy and energy justice, and thus inclusivity' (Dudka, 2021).

Since the energy transformation is not only about new technologies but about transforming societies, Fraune emphasized the need for higher attention to the dynamics and interdependencies within socio-energy systems (Fraune, 2015). In the sense of such a transformation process, the inclusive perception and consideration of marginalized citizens must also be considered. In particular, the focus is on the inclusion of all people, regardless of gender, ethnicity, religion, age or income. In many countries, energy cooperatives have been established, which build the local EC. Since cooperatives differ from private corporations, not only in the organizational form and therefore the participation scheme but also in certain values, which matter to them (Fraune, 2015), cooperatives seem to be the excellent choice and have the institutional potential to foster inclusivity. Cooperative values are per se embedded in the cooperative guiding principle such as equity and equality (all members are equal in terms of voting

power, regardless of their shares in the cooperative), trust, cooperation and solidarity. These values should therefore apply to all members of a society in the same way—regardless of gender and other distinctions. Since investment and participation schemes of citizens are indispensable for the growth of acceptance and the further expansion of renewable energies, ECs, and therein cooperatives, can only benefit by attracting and engaging all social groups (Press Release AEE, 2021).

Obviously, the aim of equal participation and representation of women and other social groups in ECs is linked to the share of women in the fields of politics, economy, particularly the renewable energy industry and adjacent occupational fields. Although studies on the gender and energy nexus have been present in scientific literature for more than two decades, it has been mostly present in the aspect of traditional gender roles within household tasks (Łapniewska, 2019). However, only little research is done on ECs from a gender perspective. Although the authors represent encourage an intersectional approach on the gender-energy nexus, the eligible literature is concentrated on the binary concept of gender. Gender-Mainstreaming provides a binary glance at energy in terms of accessibility, use of energy services, investments or decision making in policies. Opportunities to actively participate in shaping the energy agendas in politics and economy are still rare for women, despite the influence of women on the energy value chain (in households, local communities and energy markets). This results in a reduced effectiveness of energy strategies, policies, programmes and other energy-related activities (Habersbrunner et al., 2021). The triple burden of women,⁴ which corresponds to the traditional assigned gender roles are production, reproduction and community management, especially community tasks, include the possibility of increasing the influence in the restructuring process of the industrial energy regime by taking women's power to locally anchored ECs (Łapniewska, 2019).

ECs operate on three functional levels: the constitutional, the collective and the operational level, which have distinctive modalities to take into consideration. Furthermore, representation, active influence and power margin (participation) as well as financial shares (distribution) are

⁴The triple burden refers to the division of labour between genders. Typical roles of women are reproductive, productive and community managing tasks. In most societies, low-income women perform all three roles, while men primarily engage in productive and community activities that typically generate earnings, status or power (EIGE, 2021).

important to consider. It is thought to be beneficial and necessary to integrate gender and social justice targets both when formulating the goals and other EC policies, as well as to use inclusive or gender-responsive communication throughout (language, media) to generally attract more women and other social groups. Therefore, it is necessary to reflect on the differences, which might result from the operation of the EC, for different social groups and not as society as a whole. However, to build reliable considerations, it is recommendable to think about the six gender dimensions, which are explained above, though other distinctions exist. Several factors and conditions can be decisive for a different gender-related perception and social benefits of ECs. On the collective level, increased visibility of others of the same social attributes, as well as the own social representation in management levels and advisory boards are of importance. From an organizational point of view, for instance for member assemblies, it must be considered that women generally suffer from time poverty (triple burden) as well as women have in general a smaller financial backup. The Gender Wealth Gap consists of Gender Pay Gap, Gender lifetime-earnings gap and Gender pension Gap (Eurostat, 2022). In regard to the operational level, the authors find it necessary to strive for equal staffing at all EC levels (members, staff, management and supervisory board), to plan for financial means to achieve targets regarding gender and social justice, to integrate aspects of gender and social justice in all phases of the daily operational level on all EC levels (members, staff, management and supervisory board). To name a few measures on the operational level to integrate aspects of gender and social justice in the EC: Gender quota in members, staff, boards, using and monitoring Gender indicators; Gender disaggregated data; Gender training and awareness raising for members, staff, boards; special offers addressing the needs of women or other social target groups; financial mechanisms on accessing RE Energy with special attention, credit lines and conditions for women or other social target groups; sexual harassment policy; follow guidelines on inclusive communication throughout.

Androcentric structures are reproduced and not reflected, where and whenever predominantly men in politics decide on framework conditions for the energy transformation in general or citizen energy in particular, and when at the same time, be advised by mostly men from the media, business or civil society (WWEA, 2021). Through ‘selective perception’, a very common cognitive distortion, androcentric thinking and decision making is reinforced and strengthened since it makes one see, listen or

focus the own attention on a stimulus based on personal expectations, without considering the rest of the information.⁵ The selection of perceived sensory impressions is influenced by various filters in which experiences, expectations, attitudes and interests play a major role. Thus, it is major to raise awareness among all genders and to have gender trainings mandatory.

RESISTANCE OR REPRODUCTION OF GENDER INEQUALITIES IN ENERGY COMMUNITIES?

It is known that the energy sector in general is largely dominated by men. Yet, which kind of social groups are represented in ECs? How are cooperative values reflected in day-to-day business? In the following section, the authors reflect upon three studies particularly three studies conducted in Germany and Europe, respective, to draw a comprehensive picture of the realities of women in European ECs, namely: Fraune, 2015, Łapniewska, 2019, WWEA, 2021. These studies are used to draw conclusions whether gender inequalities are reproduced, or even extended, or whether gender inequalities are reduced. Especially by reflecting the situation in almost a decade, it can be assumed that these results are manifested and characteristic for the majority of European ECs. And that they are valid both for newer and more dignified ECs.

Fraune tested hypotheses ‘on the basis of empirical evidence generated by a pilot study of gender relations within citizen participation schemes in (renewable electricity production) RES-E in Germany’ (Fraune, 2015). Among other findings, Fraune’s exploration of causal mechanisms showed for citizen participation schemes and the gender wealth gap (1) that women on average spend a lower total investment volume per citizen participation scheme in RES-E than men (2) the ownership of women in citizens’ associations operating solar power plants is lower and in general, it can be stated that (3) the female ownership rate in citizen participation schemes in RES-E is lower than the male counterpart. Regarding voting and control rights it was found that (1) in GmbHs the investment sum by

⁵Selective perception optimizes our cognitive resources and focuses them on something that we expect to happen. This is based on the ability to recognize patterns, a fundamental function of the human brain. The brain is constantly on the lookout for patterns in order to better classify new information into existing information. Selective perception is the—mostly unconscious—search for a specific pattern.

women is significantly lower than that of men and subsequently have less voting and control rights at their disposal than men within GmbHs (2) in GBRs as well as in eGs, women's ownership rate is lower than that of men and subsequently inferring that women have less voting and control rights at their disposal, (3) women's ownership rate is significantly higher in eGs than in GBRs. For the representation of women in decision-making bodies, Fraune conducted female board members are significantly underrepresented in managerial positions in citizens' associations operating renewable electricity production plants (*ibid.*)

Łapniewska tested hypotheses on 'the basis of deductive reasoning using a pilot survey that was carried out in the first half of 2015 at electricity cooperatives in Europe' (Łapniewska, 2019). The survey consisting of 31 questions included 51 responses from 45 cooperatives from 11 European countries. The majority of European electricity cooperatives have not included regulations relating to gender equality in their constitutional documents (see previous chapter). Neither do the majority of them incorporate aspects of gender equality into their strategies, plans and actions. It was also found that the size of a cooperative and its adopted governance model correlates only partially with the involvement of women as cooperative members, employees or as members of boards. It was also confirmed that 'traditional roles attributed to women in society and cultural determinants of a region/country are perceived as affecting women's careers in energy cooperatives' (Łapniewska, 2019).

WWEA conducted a study consisting of two core elements as surveys expanded by in-depth interviews to object or prove hypotheses known as 'explanatory sequential mixed-method design' (WWEA, 2021). There were 29 responses received from energy communities of Nordrhein-Westfalen (NRW) (a county in Germany), as well as 347 responses from shareholders of those or other energy communities. They found that only 29% of the shareholders* of community energy surveyed in NRW are women, who hold 27% of the shares. Considering the corporate form, ECs have higher female shares in NRW (33%) compared with only 14% of women in GmbHs & Co. KGs (WWEA, 2021). If taking the form of energy into consideration, solar EC projects have a share of 37% against 21% in wind energy projects.

Though other similar studies exist (Radtke, 2016; Yildiz et al., 2015), the conclusions which can be drawn from the selected literature build nonetheless an identical scenery. It seems clear, those distinctions in the involvement of citizen's participation schemes like in EC projects or

energy cooperatives do exist (Fraune, 2015; Łapniewska, 2019; WWEA, 2021) from, at least, a gender perspective. The exemplary results give an indication, that there is an additional reasoning besides the suspected technical and economic aspects. Nor can the differences in investment volume, ownership and shareholder rates, or in the female underrepresentation in membership numbers and decision-making bodies be explained alone by individual reasons, for instance male or female preferences and attitudes (Fraune, 2015). It is likely reasons go deep with social, cultural and thus political conditioning.

The technical argumentation ‘indicates a stereotypical perception of gender and internalised (and conscious) gender prejudices, that is, the perception of energy as a technical, and thus “masculine”, issue (...)’ (Łapniewska, 2019). So, the reasoning for a male* domination in the energy sector is viewed as a consequence of the well-known gender imbalance in the enrolment and graduation in STEM fields. However, participation in ECs does not require specific technical skills, neither do all of the ECs employ technical staff (*ibid.*). Women* in the energy sector are mainly occupied in the administrative branch. The observed gender-specific occupational segregation, which is typical for the (renewable) energy sector, is also present in ECs: the well-known glass ceiling, which prevents women from being promoted or being present, e.g., in decision-making bodies, can be expanded to other areas of vertical and horizontal occupational segregation (known as ‘glass walls’ and ‘sticky floor’).

Within the energy sector, as well as in ECs, women are still more often employed in poorly paid professions. In addition to the understanding that women also work more frequently in part-time and mini-jobs and suffer from a gender-specific wealth gap, it seems crucial to shed light on the economic reasons for the existing gender gap in ECs. The studies of Fraune and WWEA concluded diametral arguments, in this case. Fraune is demonstrating that ‘the generally low involvement of women appears to be dependent on factors other than (...) financial factors like capital-intensity of investment’ because the ‘observed gender investment gap (...) is even higher than the gender-specific wealth gap’ (Fraune, 2015). On the other hand, in the WWEA study, the WWEA study, which research about the barriers for a higher participation of women in ECs, concluded that the barrier of different female/male participation was the lack of financial resources (43.7% of women and only 24.5% of men) (WWEA, 2021). Fraune argues that ‘the structural outcomes of this gendered distribution of labour are of special importance in terms of (...) participation schemes’

in ECs and are not independent of an institutional context, which connects to social and cultural conditions, as well as political framing (Fraune, 2015).

Cooke elaborates on the connections of ‘the distribution of paid and unpaid work, and thus relative gender, class and other group inequality’, and roots it to structures ‘by mainly governmental policies: education policies, labour regulations, social insurance programs, public and private transfers, and tax and family law’ (Cooke, 2011 found in Fraune, 2015). Inconsistency in framework and policymaking in the economy and politics emerge in different social outcomes in representation, participation and distribution (of resources) in ECs. It has already been shown that ECs (in most cases) do not meet the egalitarian claim to enable open participation and membership for all parts of society (Radtke, 2016; WWEA, 2021; Yildiz et al., 2015). For instance, the German citizens’ energy tends to be dominated by a homogeneous group: Many of the members and actors were male (80%), often had a high level of education and above comparatively high financial resources, were already at an advanced age and exercised civil society engagement in more than one organization (Radtke, 2016). Within national and European energy transformation processes energy communities are not up to neither overcome gender barriers nor reduce gender inequalities at all, though rare lighthouses exist. Moreover, the influence of both cultural and institutional aspects not only reproduces but also strengthens gender inequalities since they reinforce each other. ‘It is this interdependency of institutional and cultural factors that make gender relations a specific matter within energy transformations’ (Fraune, 2015).

The International Renewable Energy Agency (IRENA) concludes that the (renewable energy) sector is in dire need of women in order to tap a wider and deeper pool of talents and skills and thus promote the future prospects of the sector (IRENA, 2019). As a consequence, energy communities should welcome and foster women’s participation and representation and all gender dimensions need to be considered when planning programmes and actions. Thus, participation schemes must ensure that all citizens of different social groups—such as female and male, rich and poor, high and less educated citizens—are able to participate equally in ECs to foster decentralized, renewable and democratic ECs in Europe.

*Good Practice in Europe and Beyond: Spain, Turkey, Germany
and Uganda*

The case studies from Spain, Turkey, Germany and Uganda show good practice for gender-just and inclusive energy communities. They represent a good variety of existing ECs considering gender and women's empowerment.

*Good Practice Spain: Gender-Responsive Communication as Well
as Setting Up and Implementation of Gender Equality Plan*

Som Energia is a Spanish non-profit energy cooperative, which was founded in December 2010 (Som Energia, 2021). The cooperatives' activities are mainly in the production of renewable energies with the aim to promote a change of the current energy model to achieve 100% renewables. As of today, Som Energia is producing 24.60 GWh/year. Som Energia is aware of gender discrimination and oppression, at all levels, in all areas of society. As a member of the Social and Solidarity Economy, this cooperative has, as one of its principles, the equality of all people, without discrimination based on gender, and is committed to implement measures to minimize gender differences. The cooperative is aware that a gender perspective must be transversal, since it affects all areas, including communication. It is also aware of its own potential and impact with more than 75,000 members and 120,000 electricity contracts.

Thus, Som Energia has published a gender guide for its members. The target group is its own staff aiming for awareness raising and training of gender perspectives in their oral or written, communication when dealing with members, clients and citizens. Although it is an internal document, the cooperative makes it available to anyone who wants to use it. As the guide explains, 'our expressions and communication must be impregnated with a gender perspective, using inclusive and non-sexist language that makes women visible and at the same time serves to create and recognize female references, break stereotypes and neutralize sexist prejudices' (Som Energia, 2021). In order to create the guide, Som Energia made an analysis of the specific cases encountered by people who dealt with requests for information, contract management, incident resolution and other queries by telephone or mail. After grouping the most common cases, professionals, trained in gender and communication, prepared the document. The cooperative is convinced that applying the gender perspective goes beyond the non-sexist use of language, and that personal attention, in oral and

written customer management, requires a deeper awareness. The guide also includes a series of other gender traps and indications to be taken into account dealing with the cooperatives' customers, such as not reproducing sexist stereotypes, not assuming that the contract holder will be a man, or that the technical staff, electricians and engineers are necessarily men; not assuming that a couple (a man and a woman) live in the house, or, in telephone conversations, not assuming the gender of a person by their voice, among others. Moreover, Som Energia anchors its engagement for social inclusion and gender equality in official documents. The cooperative declares its commitment to the establishment and development of policies with equal treatment and opportunities between women and men, without discriminating directly or indirectly on the basis of gender, as well as the promotion and encouragement of measures to achieve real gender equality in the scope of its organization, establishing equal opportunities between all genders as a strategic principle of its Corporate and Human Resources Policy. In each of the work areas in which the activity of this cooperative is developed (from recruitment to promotion, including wage policy, training, working conditions and work-life balance), the principle of equal opportunities between women and men is assumed, paying particular attention to indirect discrimination. With regard to communication, both internally and externally, all decisions taken are reported and verified in accordance with the principle of equal opportunities between all genders. The mentioned principles will be put into practice through the implementation of the 'Equal Opportunity and Equality Plan' leading to improvements with respect to the present situation, setting up corresponding follow-up systems, with the aim of advancing towards real gender equality in the cooperative and, by extension, in society as a whole (Som Energia, 2021). Som Energia addresses gender dimensions like productive work, reproductive work, infrastructure, decision making and androcentrism overall and applies gender tools to raise awareness and share skills and arguments.

Good Practice Turkey: Community-Based Energy Generation with Renewable Energy, Planned and Established Mainly by Women

The renewable energy business is becoming very important in Turkey as they have good climate conditions for solar and wind energy (Yenkoop, 2021). Therefore, energy cooperatives in Turkey form a suitable option to include interested citizens and thus pushing a decentralized energy transition. Three women (Nazan Unverir Wish Cakilcioglu Derya Özsoy, Filiz

Kircin Rock) started their idea of the first energy cooperative in Turkey. They prepared the legal, technological and economic steps which were a big challenge. With expertise, women's power, cooperation with other Turkish and international cooperatives and gender stakeholders they managed to establish the first energy cooperative in Turkey, whose board entirely has female members. They are running photovoltaic power plants and got 2020 the 'energetic woman of the Year' award, initiated and traditionally organized by the association for energy economics. The board members of the cooperative are visible role models, they are aiming to qualify more women for energy cooperatives, to overcome structural and personal barriers and to support for further energy cooperatives in Turkey. They use gender instruments like gender targets (e.g., quotas), gender-just communication and offer gender trainings for energy stakeholders.

Good Practice Germany: Heidelberg Becomes Sun City—Getting More People Involved in the Energy Transition by Heidelberger Energiegenossenschaft

In September 2018, the project 'Heidelberg Becomes Sun City—Getting More People Involved in the Energy Transition' was launched. The aim of the communication campaign is to raise awareness that more and diverse people join in and increase the impact. Citizens invest in the Heidelberg Energy Cooperative, which uses the money to build renewable energy power plants that produce green electricity and sell it to the citizens. A great idea for a democratic and bottom-up energy transition. It is really important to include the broad society. So far, the involved citizens have been a pretty homogeneous group: male, white, older than 50 years, access to funding and education. The project 'Heidelberg Becomes Sun City' was exactly addressing this point Bündnis Bürgerenergie (2020). Campaign activities, information events and flyers were used to draw attention and achieved the following results:

- Membership growth in 2018 and 2019 by 35% each, before that only by 16% per year.
- Younger female members
- More investments of citizen's capital for new projects
- Significant increase in electricity customers, also more female customers
- Increased awareness for a broad citizenship

- More visibility and reputation of the energy cooperative in politics and administration as an energy and social actor and the opportunity for successful, quick and affordable climate protection
- Establishment of an ambassador group, training for women as energy ambassadors

The campaign is still ongoing and has shown the need for inclusive communication concepts to address the broad society (Heidelberger Energiegenossenschaft, 2020).

Good Practice Uganda: Gender-Just Energy Communities

In Uganda, women are generally responsible for the household; men tend to pursue paid employment, primarily in agriculture. However, incomes are low and product quality often mediocre. These factors result in a lack of employment opportunities, particularly for young people. While men increasingly seek work away from rural areas and in towns and cities, rural women more frequently remain at home, farming the land and caring for family members. Farmland and cooperative shares are owned almost exclusively by men, while everyone—men and women—shares the work on the land (women are largely responsible for cultivating food crops, men for cash crops). Women Engage for a Common Future (WECF) is working with local partners in Uganda on the implementation, operation and productive use of renewable energy systems like solar, biogas and briquetting for local agricultural cooperatives. Advice, expertise and the development of gender-responsive funding plans are provided in conjunction with Ugandan credit cooperatives including Savings and Credit Cooperative Societies (SACCOS) and Village Savings and Loans Associations (VSLA) organized primarily by women. The project activities are able to guarantee good levels of quality management and sustainability through expertise and networking. Technical expertise on the technologies used and the management of energy cooperatives was provided principally by solar energy businesses and international energy cooperatives.

The following goals and targets have been achieved via trainings and gender-just communication

- Access to clean, self-produced energy through solar, biogas and briquettes for women (Sustainable Development Goal (SDG) 7).
- Reduction of greenhouse gas emissions and climate change mitigation (SDG 13).

- Training of women and girls specifically as entrepreneurs, energy managers and energy ambassadors (SDG 5).
- Less (energy) poverty amongst women (SDG 1).
- Business models, access to finance and secure jobs for women and young people in rural areas (SDG 4, 8, 9, 10).
- Qualification of young women and men in construction, use and operation of energy technologies, as well as the dissemination of needs-based technologies (SDG 4, 5, 6, 7, 9).

The cooperative approach uses existing structures and invests in people and communities to strengthen resilience, develop and keep the knowledge in the communities and reduce vulnerabilities, injustice and poverty. The goals could be achieved with needs assessment, targeted training, support for business development, considering the gender dimensions (e.g., high workload and unpaid work of women in households and communities, less financial means) and applying gender tools (gender analysis, gender targets, gender training, women's empowerment, gender-just communication). The impact is shown via policy recommendations to local and national policymakers.

RECOMMENDATIONS

Gender plays a decisive role in advancing a successful energy transition. Yet, energy decisions regarding the needs and preferences for production, transmission and consumption lack the foresight to include the key criterion of gender. This is also the case for energy communities' policies and decentralized energy concepts. Gender mainstreaming across energy policies, directives and practices are required to engender the energy transition and untap the potential for a successful and accelerated energy transition.

Following are some key recommendations for energy communities and national energy European policies:

EU and National Level

- Redefining the energy transition so its focus goes beyond technical applications and economic profit and includes social aspects, needs and practices of all citizens who are directly or indirectly affected.

- Including not only environmental aspects but also social aspects in the revision of directives (e.g., Energy Taxation Directive, Energy Efficiency Directive).
- Obligation to have gender action plans and inclusive indicators (for gender-responsive monitoring and evaluation) in each energy-related division in politics and the economy (e.g., gender impact assessment and gender budgeting).
- Applying and reinforcing gender tools and instruments:
 - Gender equality goals like binding quotas at the decision-making level in energy companies and political institutions.
 - Introducing incentives to companies with inclusive and family friendly work environment (flexible work hours, childcare, training, scholarships for women, etc.).
 - Providing and strengthening expertise among all genders.
 - EU institutions apply gender-just communication and become role models in the energy field for empowering not only female but gendered voices in the debate about energy transition, campaigns with the aim to attract more women and girls to STEM.
 - Gender-just funding and grant programmes.
 - Energy consultations tailored to female consumers and all gender.
- Gathering sex-disaggregated data with an intersectional perspective and regular monitoring (analysis and audit of energy production, distribution and consumption).
- The European Union can give more directives to local/national governments and emphasize cooperative values, decentralization, new economy, energy and climate justice with a gender-sensitive approach.
- Improving the approach of making prosumer key actors of the energy transition within the RED II through a gender-responsive prosumer model, encouraging all citizens to participate in and benefit from decentralized concepts.
- Energy communities are often limited to not-for-profit status and are relatively small compared to traditional energy players, communities face issues regarding access to funding and finance. European finance institutions should help to cover this risk and offer guarantees and support for energy community initiators in cooperation with local governments.

- National governments should offer free technical and legal advice to gender-just energy communities.
- Market access rules and grid usage rules should be in favour of energy communities. Communities managing their own grids can integrate more renewables in local areas, allowing them to act as an aggregator and offer flexible services to the regional or national grid and thus more cost-efficient grid services for society as a whole.
- Introduction of a common European definition of energy poverty covering its multifaceted nature and intersectional factors, including gender.

Energy Companies and Communities

- Adoption of Gender tools: Gender training, case studies from other cooperatives, focus of umbrella organizations on Gender equality, active recruitment, technical formation and promoting deeper participation by female members with support from policy and energy agencies, gender-just communication.
- Roles models: Women already involved in cooperative activities might attract new women members by showing the example of their engagement.
- There is a strong interest in ECs to undertake measures to address gender equality and to implement gender-sensitive activities. ECs lack sufficient knowledge about what a gender-responsive approach might accomplish (both in terms of achieving their targets and in normative terms). The establishment of a platform for exchange, case studies, training sessions on gender equality or consulting workshops might be valuable.
- Defining gender targets and involvement indicators in the official constitution documents or all documents.
- Mobilize people to advocate for and support local and democratic renewable energy communities.

We urgently call for inclusive and holistic policies that focus on society and its diverse preferences, needs and practices according to gender, age, ethnicity and cultures rather than mere technical and economic solutions. The shift towards decentralized energy concepts and markets is needed, acknowledging that the main sources are decentralized solar and wind

energy. Investing in people and energy communities strengthens resilience, reduces vulnerabilities and inequalities, and increases expertise and power. After the initial investment in solar and wind, renewable energy is free, abundant and very reliable. The sooner households, companies, schools or communities are able to produce renewable energy jointly, the better off they will be in the future (Stephens, 2020).

Energy communities have a legal framework by the Renewable energy directive and need to be transposed ambitiously. Applying and using the intersectional approach for energy communities is likely to increase the success of future energy policies and projects due to the collective power of higher number of involved stakeholders, higher expertise and interests, and acceptance of the energy transition.

CONCLUSION

It is indisputable: Women are indispensable for implementing a community-driven energy transition. In fact, they as well as other social groups are facing hidden barriers in the energy transition and are hence structurally hindered to take up participation and representation as well as recognition and distribution. Additionally, women are key players in their community and take on a managing role. They are decisive to move the energy transition forwards efficiently and at the required pace. Without equitable participation of women and marginalized groups, the implementation of renewable energy communities will be slowed down, and successful energy transition will be achieved too late. The renewable energy system of the future is naturally decentralized. Decentralization, in energy production for primarily local energy consumption, underscores the paradigm shift in the energy system. The constantly excessive demand for fossil fuels of international origin from major energy suppliers is drying up for on-time produced energy from local energy communities. The change from the inherited, one-sided condition requires a break from the still technocratic framing and expands the energy transition process by adding social and personal factors.

Against the background of both needs to (i) accelerate the energy transition by decentralization, democratization and higher acceptance within all European societies and (ii) strengthen the share and importance of ECs in the just transition process, this paper summarizes that most of the ECs do not live up to their claim of ‘democratic and inclusive institutions’.

Moreover, we argue that marginalization of social groups, gender stereotypes and social inequalities are not only reproduced and reinforced by political institutions and energy corporations but also by most ECs. The success of social transformation processes depends to a considerable extent on the existence, skills, interests and networking of key actors. This is also true of the transition to a decentralized, renewable and democratic energy system. Women are the greater advocates of the energy transition and in this role are active on the ground as initiators, process designers, multipliers and conflict resolvers (Schlüsselakteure, 2020). Seeing women as key actors is one of the basic prerequisites for the formation of wills throughout society and the development of a high and positive group dynamic among social actors (Hohmeyer et al., 2017), e.g., the founding of energy communities. Informal, women are therefore already successfully active at the local level as drivers of a system change. Formally, they and other marginalized groups still miss their respective share of participation and representation, recognition and distribution within energy communities. Socially and gender-just energy communities push energy democracy and social transformation: They are institutional instruments to connect renewable transformation with redistributing political and economic power, wealth and ownership to create a more just and equitable world (Stephens, 2020).

Thus, recommended measures for political institutions on the national and EU level for energy communities should be initiated immediately, implemented on a permanent basis and be subject to consistent monitoring and evaluation. Not (only) out of ethical-moral principles, but especially out of obvious and logical consequences as shown in this research. The only possibility for a successful energy transition, towards a renewable, decentralized and democratic energy system, is a gender-responsive and social-inclusive implementation. Only an energy transition supported by the entire society makes it possible to implement the energy transition in a forced manner and to achieve the set ambitious goals within the Paris Agreement in a timely manner. Energy communities have the legal, social and economic potential to address and reduce underlying exclusion and injustice (Robinson, 2018), catalysing a successful, broadly accepted and supported energy transition and sustainable development that will make our future liveable, socially and ecologically acceptable.

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