

Community  
✓ Power



# EMPOWERING WOMEN IN THE ENERGY TRANSFORMATION WOMEN IN COMMUNITY ENERGY

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**The Association for Renewable Energy** in North Rhine-Westphalia (LEE NRW) is the advocacy group for renewable energies in North Rhine-Westphalia, Germany's most populous federal state. The association is committed to the nationwide expansion of all forms of renewable energies and a strong business sector in North Rhine-Westphalia. To this end, it represents the renewable energy sector to the government and to the public. Its goal is to promote an energy supply based entirely on renewable energies by 2045 at the latest.

**The Japan Community Power Association** is a network of 78 community energy entities in Japan.



## Supporting Organizations

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BWE (Bundesverband WindEnergie e.V.)

Global Women's Network for the Energy Transition

ISEP (Institute for Sustainable Energy Policy)

IZES (Institut für ZukunftsEnergie- und Stoffstromsysteme)

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## Abkürzungsverzeichnis

CDU	Christian Democratic Union
CEE	Community Energy Entity
DF	German Women's Council
DGRV	German Cooperative and Raiffeisen Association
EEB	European Environmental Bureau
EEG	German Renewable Energy Sources Act (Erneuerbare Energien-Gesetz)
EEG2023	German Renewable Energy Sources Act in force as of 2023
EIGE	European Institute for Gender Equality
EU	European Union
FES	Friedrich Ebert Foundation
GWNET	Global Women's Network for the Energy Transition
IRENA	International Renewable Energy Agency
IÖW	Institute for Ecological Economy Research
iwd	Institute of German Business
LEE NRW	State Association for Renewable Energy of North Rhine-Westphalia
MINT	Mathematics, Computer Science, Natural Sciences and Technology
NRW	North Rhine-Westphalia
SPD	Social Democratic Party of Germany
WECF	Women Engage for a Common Future
WWEA	World Wind Energy Association

## Executive Summary

In view of the many global crises, an accelerated energy transition is more important than ever. This requires a growing community energy sector and, in turn, the participation of society as a whole for this growth. The proportion of women in community power in North Rhine-Westphalia (NRW) has risen slightly in recent years, but is still only 29%; in Japan – another country with a vivid community energy sector – the proportion is even lower. In order to further increase the participation of women, numerous hurdles must be removed and new thought patterns and action strategies introduced. This is evident in empirical surveys, as well as in conversations within the community power sector and in interviews with people who have not previously been active in community power. The World Wind Energy Association (WWEA) and the NRW Renewable Energy Association have therefore drawn up ten recommendations for action on how to increase the participation of women in community power:

1. Make women visibly responsible
2. Create transparency and understanding about the work of community power companies
3. Ensure innovative forms of communication - strengthening direct personal contact
4. Enable innovative forms of communication - strengthening the social media approach
5. Create networking and action alliances with other local stakeholders
6. Construct financially lower-threshold entry points
7. Create dynamic action groups and forms of participation, maintain flexibility of people involved
8. Form open and gender-specific events
9. Empower concrete communication close to the citizens local experience, focus on the contribution to local climate protection
10. Put qualitative growth in the center of attention

It is fundamentally important that policymakers provide a framework that allows exponential growth of community power as a driver for the energy transition. In addition to reducing bureaucracy and giving general priority to renewable energies, this requires in particular non-discriminatory market access and consistent implementation of corresponding legislation, for example European law related to energy sharing. The regulations revised German renewable energy law, such as the exemption from the tendering obligation for community power companies, are a step in the right direction, but are still insufficient as they even create new hurdles.

## 1. Introduction

Women in community power - the title of this study combines several topics that are shaping the social debate these days, not only in Germany. Gender relations in our society have been in a state of flux for several decades, moving toward genuine equality and equal participation in social and also economic life. This change can also be seen elsewhere beyond the gender dimension, although many challenges still remain.

In addition to this equality question, the ecological question is also becoming increasingly urgent and is driving policy debate, and thus also the conversion of the energy supply: The worsening climate crisis, the Russian war of aggression in Ukraine and the manifold resulting geopolitical distortions, in which fossil import dependencies and the associated limited ability of states to act become apparent, requiring an acceleration of the energy transition. An affordable, reliable and climate-friendly energy supply stands and falls with the expansion of renewable energies. The German government has also recognized this by establishing the principle of an overriding public interest and the importance of renewable energies for public security with the amendment of the Renewable Energy Sources Act (EEG). To this end, all obstacles must now be removed and decisions must be implemented consistently in order to take advantage of the opportunities that a sustainable energy supply offers for new jobs, value creation and innovation in Germany. Many years ago, Hermann Scheer already formulated this concept: "The immediate switch to renewable energies is not a burden, but the greatest tangible social and economic opportunity for the future" (Alt/Spiegel 2017).

This is where community power plays a particularly important role. It opens up the possibility of active

shaping, democratic co-determination and economic profit sharing for all citizens. This is made clear by the WWEA definition of community power, which was developed together with practitioners of the energy transition and community power from around the world and subsequently evaluated several times. According to this definition, at least two of the following three criteria must be ensured for an energy project to be called community power (IRENA 2018; WWEA/LEE NRW 2019b):

1. *The participation of local individuals and/or groups in the equity of the company is at least 50%.*
2. *Local citizens have the majority of the voting rights.*
3. *The majority of the added value of a project remains in the region.*

However, this also reveals an obligation that community power, if defined by its participatory character, should be very open and inviting to as many parts of society as possible. Also, in order to resolve societal conflicts along with the expansion of the new energy infrastructure, requires community power that is as inclusive as possible, in the sense of including as many parts of society as possible, seems essential. Therefore, the aim of this project of World Wind Energy Association (WWEA) and Landesverband Erneuerbare Energien NRW (LEE NRW) is to recognize gender-specific inequalities in the field of community power and to identify possible measures to combat those.

Strengthening the position of women in business and voluntary work also plays a crucial role in the further development of the German economy, including combating the shortage of skilled workers.

For this reason, in the first year of the project of the WWEA and the LEE NRW, data on the participation of women in the community energy sector in North Rhine-Westphalia (NRW) was collected and analyzed in greater depth. In parallel, the Japan Community Power Association analyzed the participation of women in community power and the perception of their participation in Japan. The result, in both Germany and Japan, is that women are significantly underrepresented in community power. By comparing the German and Japanese community energy sectors, an international perspective emerges on how much the different social structures of two countries affect the community energy sector and women's participation. The results are presented in detail in Chapter 2.

(The study is based on the assumption that the gender-related participation figures in community power in NRW are transferable to the whole of Germany.)

Against the background of the now necessary accelerated energy transition and the increase in citizen-owned renewable energy plants that are required, this study gains even more importance, as does the comparison with the status of women in community power in Japan. The community power sector can only grow to the extent needed if women and, in general, all segments of society can participate broadly and equally. This is the guiding question of the second year of the project, which is documented along with the final study presented here. At the same time, this is also the overarching guiding question of the project:

**How can the participation of women in community power be increased in NRW or in Germany as a whole, as well as in Japan, and thus ultimately strengthen social diversity in community power?**

In order to answer this key question, a questionnaire was made available online to various groups of people and social groups who were assumed not to be involved in community power. Based on the answers, the working hypotheses already elaborated in the first year of the project were further developed and discussed and evaluated in subsequent interviews with responsible persons from community power in NRW. The methodological procedure is presented in detail in chapter 3. The working methods of the community energy entities (CEEs) as well as their public relations work were compared with the motivation, and wishes, as well as the personal restrictions of the social groups that have not been involved in community power to date. On this basis, recommendations for action were formulated in Chapter 4 on how to shape the path to community power that is even more broadly anchored in society. This also requires a clear and reliable framework for action. Therefore, recommendations for action to policymakers on how to strengthen community power and women's voluntary participation are added in chapter 5. The results are summarized in chapter 6.



## 2. Summary of the first project year results

### 2.1. Proportion of women in community power

In the first year of the study, important insights were gained into the status of community power in Germany and Japan in enabling social participation. On a positive note, the participation of women in community power in NRW, while still low, is increasing; it now stands at 29%. They hold 27% of the shares in the CEEs in NRW. In individual forms of community power, participation is somewhat higher. For example, in case of energy cooperatives, 33% of their shareholders are women.

(Previous surveys found that women accounted for only about 20% of German community power shareholders or participants. (Fraune 2015; Radtke 2016; Yildiz et al. 2015).)

The participation of women in community power thus levels off at just under one third, which also corresponds to their participation in the global occupational field of renewable energies. Here, women account for 32% of the workforce (IRENA 2019). The participation figures are thus also higher than those of the traditional fossil energy industry, in which the participation of women is only 22%.

Parallel to the survey in North Rhine-Westphalia, a similar survey was also conducted in Japan. The percentage shares held by Japanese women in community power there vary greatly. In general, however, they are quite low, averaging around 20%. (To determine female participation in Japan, one must look at the shares held and compare these for the individual persons and divide these between men and women as the phenomenon of companies being shareholders in community power projects is even more pronounced in Japan than in Germany. Thus, a pure comparison of shareholders by gender would therefore lead to distortions.)

Across countries, it is clear that there is still no equal participation of men and women in the community power sector, as in the renewable energy sector in general. In order to move closer to gender equity in the community power sector, there first needs to be a better understanding of the barriers to participation for women. The problem of marginal participation (Japan) or not yet equal participation (North Rhine-Westphalia/Germany) is certainly perceived in the CEEs in the respective countries, to which this project could also make a contribution. Our own survey in the first year of the project showed that CEEs with active measures to reduce the imbalance are still in the minority. In only 23% of the Japanese CEEs was this low participation discussed at all and in only one CEE were measures initiated to tackle this. In NRW, too, women's participation was only addressed in 18% of the projects, according to the CEEs' own information.

With regard to the participation barriers for women, a distinction must be made between external challenges and challenges that must be solved in the community power sector:

### 2.2. External challenges

In Germany, there continues to be a large social inequality between men and women. For example, the broader document analysis of the first-year study by WWEA and LEE NRW on the position of women in society already pointed out, among other things, that the gender pay gap and the fact that women do 87 minutes more care work in their families every day than men still exist (WWEA/ LEE NRW 2021). This impacts women's participation opportunities in the community power sector. In terms of limiting factors to potential participation, women in a survey during the first year of the study particularly named the average less available

time and the average less available money. However, the study also showed that the external challenges that affect women to a greater extent than men are not limited to these. Women are less likely than men to be educated in the mathematics, computer science, natural sciences and technology (STEM) sector, even though the number of female students in these subjects is increasing. However, if we look at the training contracts concluded in the STEM sector, only 11.2% of them are filled by women (Bundesagentur für Arbeit 2019). This results in a perceived lack of proximity of women to technical and energy projects, which also include community power projects.

Women also do not have access to the same network structures as men. The work of networks such as the international Global Women's Network for the Energy Transition (GWNET) is therefore of high importance. The reflection of a strategic catalog of measures by GWNET in the first project year (GWNET 2019) showed that some measures can also lead to higher participation in community power. Particularly worth mentioning are the measures aimed at inclusion strategies, at transparency, and at increasing the share of women in leadership positions. Conversely, implementation of these measures leads to the formation of networks in which additional women can subsequently be supported in entering the field of community power.

The formation of such networks then also ensures that not only male project and problem perspectives flow into the work of community power societies. The different nature of perception among men and women otherwise leads to public relations work organized by men, which again primarily addresses men.

### **2.3. Internal challenges in the community power sector**

CEEs are predominantly led by men and subse-

quently perceived accordingly from the outside. In the first year of the project, it also became apparent that increasing participation of women in the CEEs is in many cases closely linked to the fact that one or more women are involved in the board work ("front-runners") and use their contact opportunities to promote female participation in community power. The percentage of women in CEEs with women on governing boards is 41%, well above average. It became clear that bringing female perspectives and expertise to board work and the associated discussion culture and project implementation have a positive impact on the overall female participation rate in the respective CEE. Female participation in board work is also higher in the next step if the board is one in which responsibility is spread across multiple shoulders. This team-oriented approach better accommodates the flexibility often needed by women than sole responsibility in a management board.

(In the executive boards of CEEs in NRW, on average 65 % of the responsible persons are men. If a management board leads the CEE, 81% of the responsible persons there are men.)

For community power, it was possible to work out in the first year of the project that sufficient available time for private engagement, a sufficient capital base and a high level of education are estimated to be favorable factors for participation. These requirements thus interact with external challenges, less available time, and the fact that women are underrepresented in the STEM sector. As a consequence, in many cases there seems to be a certain organizational and substantive distance to private sector energy projects. CEEs that would like to grow even further and place their social anchoring on an even broader footing should therefore consider how these personal access criteria can be designed flexibly and inclusively so that as many people from society as possible feel addressed and can participate in further projects.

The participation of women in the CEEs with few shareholders (less than 40) turned out to be strikingly low. The average female participation here is only 7%. A plausible explanation for this is that many of these CEEs belong to the agricultural sector. In the agricultural sector, patriarchal structures are still widespread - the farm is often handed down from father to son rather than daughter, even though women are then certainly involved in managing the farm. In the land registers, however, it is usually the men who stand. If a merger of several farms takes place in a rural wind energy or open space project, then it is often formally a merger between men. In order to solve the problem in the rural sector, limiting internal and external barriers to participation must be removed in equal measure.

#### **2.4. Community power needs growth momentum and greater participation by women**

Equal participation of women in all sectors of the economy is first and foremost an equity issue. But the reasons why it is a worthy goal go far beyond that. New studies on the added value of a gender-equal society are continuously being published, whether by economists or social scientists and many other disciplines. Since many opportunities have already been reflected in the first study, only new findings will be listed here, which result in particular from the social repositioning in the course of the simultaneous management of multiple crises (climate crisis, Corona pandemic, Ukraine war).

For its part, the European Commission has published a Gender Equality Strategy in addition to the European Green Deal, which is to be implemented between 2020 and 2025. Along with this strategy, the Commission shows awareness of the abstract gain of equal participation access in individual economic sectors. Nevertheless, several organizations express that the two instruments are not yet sufficiently interlinked (EEB 2021), or that the European Green Deal is blind with regard to gender issues, as elaborated in a study by the Friedrich Ebert

Foundation, in cooperation with WECF (Women Engage for a Common Future) and the EEB (European Environmental Bureau) (FES et al. 2021). Empowering the female segment of society has been shown to lead to higher economic growth and a more resilient economy. Improvements in women's participation could create 10.5 million new jobs by 2050 and bring tremendous economic growth to the EU, increasing EU per capita gross domestic product from 6.1% to 9.6%, equivalent to generating \$1.95 billion to \$3.15 billion (EIGE 2020). The Federal Environment Agency points out that "after gross national product, gender equality is the factor with the greatest impact on reducing CO2 emissions" (Umweltbundesamt 2020). In practice, however, the proportion of women on the boards of German companies has increased by only 4% since 2017. According to EnergyAgentur.NRW, if this growth rate continues, it will take more than 30 years before parity is achieved in the top management bodies (EnergyAgentur.NRW 2021).

The establishment of gender expertise and a targeted strengthening of the role of women in economic sectors that can contribute to the energy transformation is also required in order to meet the personnel challenges arising from the energy turnaround. According to the German Federal Employment Agency, up to 21,400 skilled workers were needed in the fields of energy technology, electrical engineering and air conditioning technology alone in 2020. The overall skilled trades sector, which is essential for the continued implementation of the energy transition, had 120,000 vacancies in the same year despite the pandemic and the resulting economic challenges (Tagesschau 08.11.2021). Closing these gaps can only succeed with the help of the comprehensive participation of women and society as a whole. As an important subsector of the energy transition, community power should play a profitable role in this process. It represents a link between society and the renewable energy sector and, through its local presence.

is an acceptance-generating factor and an important source of ideas as to how the future economy and the needs of local societies may henceforth be harmonized.

All in all, it can be said: Community power as a driving force of the energy transition must grow and therefore needs even broader social participation than the early, often male pioneers were able to achieve. Female perspectives and also the inclusion of the concrete female potentials must not be missing here, but are essential for the economic, social and ecological success of the energy transition. Or formulated in an overarching way: "Community power companies as a participatory form of energy supply should in principle be open to as many people as possible" (Kahla 2018) - or should quite specifically include as many people as possible.

### 3. Methodology and research design of the second project year

Based on the results of the first year of the project, it is clear that community power continues to play a central role in the energy transition in several respects. It is generally clear that the community power sector can and must still grow significantly. However, it is also apparent that there is still potential to anchor community power more broadly in society. Along with growth, community power must become even more female; the recorded increase in participation in recent years points in the right direction in this regard. Therefore, the guiding question already presented in the introduction arises for the second project year:

**How can the participation of women in community power in NRW or in Germany as well as in Japan be increased and thus the social diversity in community power ultimately be strengthened?**

To answer this key question, a research approach with three subordinate sets of questions seems to be profitable:

*1. Under which circumstances can the parts of society that have not participated in community power projects so far be won over to community power? Can gender-specific differences be identified here? How can more women be won over? To answer these sub-questions, a questionnaire was made available online to various groups of people, most of whom have not been part of community power in NRW to date (87%). Finally, 216 questionnaires were evaluated. The aim of the empirical survey was to work out significant correlations within groups of people, i.e., for example, to link factors such as gender, age, approval of the energy transition and knowledge of community power to one another, in order to obtain information about the circumstances under which these people can be won over to community power.*

*(The study primarily examines the social dimension of "gender", i.e. gender-related behaviors and gender power relations.)*

*2. Which recommendations for action can be developed for CEEs in order to increase the participation of women in community power? How can the very different internal functional logics of CEEs, the participation needs of existing members and potential new members be reconciled? For this purpose, qualitative interviews were conducted with selected CEE representatives. A conscious effort was made to obtain perspectives from cooperatives as well as from the community wind sector. In the latter sector, wind energy projects are often implemented on the basis of a limited liability company (Gesellschaft mit beschränkter Haftung & Compagnie Kommanditgesellschaft, GmbH & Co. KG). The interviews were mainly conducted with participants who had already been spoken to in the first year*

*about the internal challenges of community power, in order to achieve an overall picture of the participation opportunities and their limitations for women together with the now expanded external perspective.*

*3. What are the recommendations for action for politicians? This question arises with regard to not only the politically generally recognized goals of desired gender equality, but also with regard to the mobilization potential of community power for the energy transition.*

The research design offers great added value through the inside-outside perspective. By comparing active CEE representatives and people who have not yet been won over to participate in community power, this study contributes to the question of how community power can grow and then also how women can be won over to active participation to a greater extent than before. It also formulates recommendations for action on how policymakers must further develop community power-specific and general societal frameworks at the state and federal levels to support this development. This relevance is strengthened in particular by the fact that, for example, the amended EEG2023 has set the course that the key function of community power and also the coalition agreement between CDU and Bündnis 90/Die Grünen in NRW provides for regulations on the stronger participation of local residents. This will be done in the form of an explicit community power law (CDU NRW/Bündnis 90/Die Grünen NRW 2022) following the example of the Citizens' and Municipalities' Participation Act (26 June 2021) already adopted in 2016 by the SPD-CDU coalition in Mecklenburg-Western Pomerania. It has also just been confirmed as constitutional by the German Federal Constitutional Court (Bundesverfassungsgericht 5 May 2022), thereby providing legal certainty for the political design of corresponding specifications.

The study is therefore aimed in particular at decision-makers in politics, community power, renewable energy associations, the climate movement and the wider civil society. Furthermore, the study is also addressed to the scientific community, especially to scientists working on participation and equity issues along the energy transition. The available results should be used to take stock of what needs to be done to advance the decentralized, citizen-driven energy transition following the state elections in North Rhine-Westphalia in 2022 and just under a year after the federal elections. Where it became clear in the first year of the study that the framework conditions for community power are too complicated, the project provides starting points in the second year on how the hurdles in the dialogue between CEEs and society can be reduced.

A survey from 2019 shows how high the growth potential for community power is in Germany: "43 % of the private households surveyed that were not members of an energy cooperative expressed a high level of interest in wanting to participate financially in an energy cooperative. 36 % could even imagine voluntary participation. Extrapolated, that would be several million new members in energy cooperatives" (Fischer 13.06.2022).

As described in the introduction, the comparative perspective on Japanese community power promises to provide additional insight, as it allows us to identify similarities and differences in two very different countries and markets. To this end, the partner organization Japan Community Power Association completed expert interviews with the CEEs there. The participation rate of women in the individual CEEs and also the problem awareness of the underrepresentation of women in the Japanese community power sector varies enormously, so that it seems logical to ask the representatives of the CEEs about the background to this finding.



## 4. Problem outline and possible solutions for improving (female) access to community power in NRW

The following analysis chapter is based on the survey of 216 people who were asked about their level of knowledge and their attitude towards community power with the help of a questionnaire. On the basis of the questionnaire and the interviews conducted with the CEE managers, WWEA and the LEE NRW have developed recommendations for action that can contribute to an increase in the proportion of women in community power. In order to clarify this derivation, the recommendations are connected to the respective analysis sections.

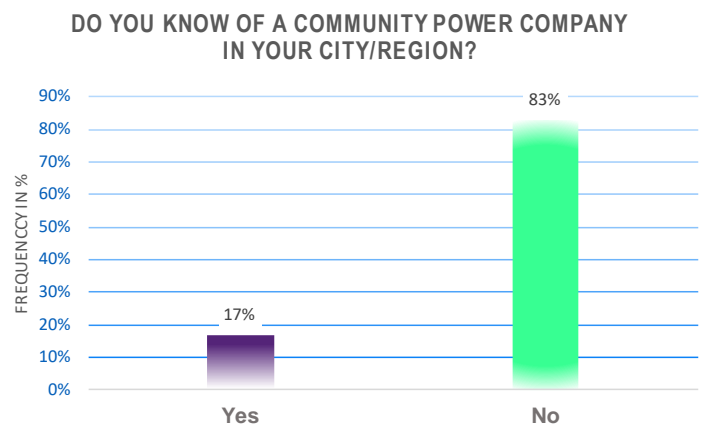
### 4.1. Communication: Research on participation opportunities and public relations of the CEEs often run on different channels

#### A: Challenge

Of the men who have not participated in community power to date, only 36% said they were aware of a CEE in their city/region, compared to only 17% of the women who have not participated (**Figure 1**). As a result, women who have not participated so far were rarely actively offered an investment in CEE (at 11%), which is similar to the situation of men who do not participate in community power (also 11%). The latter fact reinforces the finding already made in the first year of the project that access to community power in NRW must be predominantly proactively developed, since CEEs for their part engage in relatively little member recruitment. Accordingly, knowledge of a CEE in one's own city/region emerges as an even more important criterion for potential participation in community power. Even women who are already involved in the energy transition in various ways, 75% do not know of any CEE in their region or city. 42 % of these people are also not familiar with the concept of community power, so that only a higher degree of public relations work on the part of the CEEs can place

the community power turnaround on a broader social footing.

(In fact, only 9% of young women between the ages of 18 and 19 are aware of a CEE in their region.)



**Figure 1: Knowledge of women who are not yet active in community power about a CEE in their city/region (n=100).**

The fact that women in particular need to be addressed directly is not new. An earlier study on the behavior of women and men when switching to green electricity providers already indicates that direct addressing is a decisive factor in motivating women to switch electricity providers. Information events at locations and on channels used or frequented by women are suitable for this purpose. Personal conversations, which can take place on the fringes of such information events, are accordingly particularly preferred by women. According to the authors, the importance of such personal conversations is reinforced by the "abstract character of electricity", which would not be seen as a consumer good but as a contractual object (Röhr et al. 2012). According to this study, women choose the internet as an alternative information medium (Röhr et al. 2012).

This coincides with the findings that were likewise obtained for community power in the first project year of WWEA/LEE NRW. In order to increase the proportion of women in community power,

it would be necessary to consider how the direct regional and digital approach to women can be improved and how community power can be communicated as a contribution to regional value creation, energy security and climate protection instead of as an abstract economic project.

Both women and men would use the Internet in almost all cases for research on possible participation (women 94%, men 95%). The second most frequently mentioned option is asking friends and acquaintances, although there are differences in the frequency of mention between women and men. Women indicate the use of this source of information significantly more often (62%) than men, who consider it 49% of the time. Women are also more likely to seek information from a consumer advice center or similar institution (34% vs. 27% for men). This access to information is confirmed among women in all age groups and also regardless of whether they are already involved in voluntary work. Across gender, the least frequently mentioned option is to obtain information through print media, which is considered by 14% of women and 11% of men.

In the interviews with the CEEs, however, it became clear that their actual public relations work contradicts these answers in many cases. BBWind, which as a consulting company specializes in the project planning of rural community wind farms, stated that they did not know of a single project they had supported themselves in which social media were actively used. According to Christoph Austermann, member recruitment is instead carried out via the daily newspaper, and contact with members is made via e-mail (Austermann 04.03.2022). In other interviews, the responsible persons of the CEEs stated that the effort for public relations via the social media has so far been disproportionate to the yield of the newly acquired members (Schmitz 26.01.2022; Friege 22.03.2022). A process of consideration would therefore have to take

place as to whether the volunteer resources of those responsible could not be better utilized elsewhere, be it in the implementation of new projects (Schmitz 26.01.2022) or in direct advertising on site in the marketplace or in dialog with other stakeholders (Friege 22.03.2022). Two of the CEE representatives\* interviewed emphasized that they would like to make more use of the potential of advertising in social media. Barbara Rodi from the Peace-Promoting Energy Cooperative Herford explained that the young supervisory board of the CEE is able to use Facebook for this purpose and that they hope to gain new members this way because they want to grow even more and implement new projects (Rodi 04.03.2022). Beate Petersen, who is the chairperson of the supervisory board in the Bergische Bürgerenergiegenossenschaft and the responsible contact person for the topic of the common good economy in the BEG-58, explained that in the latter CEE they are considering hiring a paid part-time position to support this public relations work (Petersen 28.01.2022). This approach seems promising in connection with the above-mentioned favored research methods of the citizens and can, if implemented in other CEEs in NRW and Germany, also contribute to the opening of community power for younger generations.

Already in the first year of the study, it could be ascertained that it is precisely the direct personal approach which dominates the public relations work of the CEEs in NRW (81% rely on this form of recruitment). 56% also stated that they advertise their CEE at information events. Indeed, this seems to be an effective means of recruiting members and especially of activating women, as evidenced by CEEs with active public relations work and a comparatively high proportion of women. Examples of CEEs in NRW in which women are represented comparatively extensively are the Friedensfördernde Energie-Genossenschaft Herford eG (female shareholders hold 54 % of the shares),

the BEG-58 eG (supervisory board with equal representation) and the BürgerEnergie Solingen eG (40.3% of the shareholders are women). In all of these CEEs, women are visibly in charge and actively recruit in their respective urban communities. The generally positive impact of already engaged women on potential new female members is also presented in research, for example in an analysis on the role of women in solar energy communities in Sweden (Lazoroska et al. 2021).

BürgerEnergie Rhein-Sieg eG also uses innovative direct approaches to present the work of its own CEE. In their case advertising for members is not a priority as they have found that member growth at any price does not secure the simultaneous conversion of new projects. From a commercial point of view, the money for project financing could (so far) be borrowed more cheaply from the bank, "but we support our members when we involve them in the financing of our projects" (Schmitz 26.01.2022). Thomas Schmitz, the chairman of the board of BürgerEnergie Rhein Sieg eG, explained that one of his stylistic devices is to leave CEE's booth at a marketplace and observe it from a safe distance. The "bouncer effect" would be eliminated. People would approach the booth and get information. Only then does Schmitz often seek out the conversation and ask about the interests of the citizens. In recent years, BürgerEnergie Rhein-Sieg eG has seen an increase in the number of women among its shareholders. Schmitz attributes this to the expansion of the business model, to the reduction of the business share from 1,000 to 250 euros and to the innovative local approach (Schmitz 26.01.2022). The results of this study show that this direct approach is worthwhile for CEEs and that there is still considerable potential in advertising via the Internet and especially via social media. (The CEE has entered electricity and energy trading as well as car sharing.)

(As shown in the next analysis point, available capital is often a barrier to entry into community power. Low investment costs and the breakdown of low investment risk are helpful in attracting risk-averse people to participate, a group that often includes women.)

## **B: Recommendation for action**

- 1. Make women visibly responsible:** This first recommendation is a kind of overarching recommendation, as the other recommendations are linked to this first recommendation to varying degrees. In general, women have different and better possibilities of contact and identification in relation to other women, and other common topics can be found that contribute to the formation of trust and interests. Closed men's groups must often be broken up for this purpose. CEEs should specifically address women to take on responsibility in the board of directors, supervisory board, etc. and also to have an external effect. This assumption of responsibility is more preconditional for women because they have less time and money on average. Therefore, the further recommendations for addressing and making the CEEs more flexible should be considered in order to attract and activate more women and generally members for community power.
- 2. Create transparency and understanding about what community power does:** Many people, including a disproportionate number of women, are unfamiliar or only very superficially familiar with the concept of community power or do not know, for example, what a cooperative is and how it works. Non clarity with objectives for a non-profit association to which one donates is not uncommon. Many citizens are also not sufficiently aware of the contribution of community power to local climate protection,

to increasing energy sovereignty and to lowering the price of electricity. CEEs that want to grow should also start here. Misunderstandings of this kind can be addressed through public relations work. These can be resolved especially in direct conversation, but social media campaigns are also useful. If fundamental trust has been created, it seems worthwhile to further strengthen trust in the CEE by acting transparently. One possibility for cooperatives is the test seal of the cooperative association. Cooperatives are regularly audited by this seal of approval with regard to their asset situation and management. Together with the obligation to make additional contributions, which is wisely excluded in practically all cooperatives' articles of association, this can be used to demonstrate to interested members of the public the low risk of investing in cooperative community energy companies. CEEs that are not cooperatives can achieve this transparency by publishing the relevant annual reports. Regardless of the form of the company, CEEs should make it clear that they inform their members about the use of funds on a regular basis and not just once a year at the annual general meeting. This can be done via newsletters, for example, and is an important criterion especially in the planning and construction phase.

(While publication of the report itself is not possible for legal reasons, at least the seal obtained should be incorporated into public relations in a much more representative way than has been the case with most cooperatives to date. This could be published, for example, on the website and on letter templates. After all, the seal is an expression of legitimate business management.)

### **3. Innovative forms of communication – strengthening direct personal contact:** Many community power associations still com-

municate their projects and action events in the traditional way via regional newspapers and advertising journals. Indeed, certain sections of society are reached through these channels. However, in order to expand the target groups, the companies must also consider opening up other communication channels. Direct contact at events and marketplaces is a key element in building trust and interest. In the context of the expert interviews, it became clear that mixed teams are particularly successful in direct communications because women and men focus on different types of topics in their conversations. Women tend to focus less on the technical aspects of a community power system in conversation and more on community implementation and the importance to the region as well as people's everyday lives. Of course, men can also get women excited about community power to a greater degree if they communicate holistically and actively incorporate the reality of the other person's life into the conversation. One intersecting theme can be combating climate change. The local contribution to reducing fossil fuel dependencies and the associated contribution to the fight against climate change were repeatedly emphasized across conversations and across genders as an important motive for potential engagement.

### **4. Innovative forms of communication – strengthen approach via social media:** Young women in particular also use social media to obtain information regarding participation opportunities. For their part, however, despite individual efforts, the CEEs have in many cases not been able to record any significant increase in membership via social media and must consider where volunteer or financial resources are best deployed. Here, a difficult dichotomy opens up between the requirements of (young) people who are not yet involved

and the opportunities available to volunteers in community power. Further considerations must be made as to how the communication proposal via social media can be further developed in such a way that actual participation then also emerges from it.

5. **Networking and action alliances with other local stakeholders:** A high level of exchange with other local organizations and local politics promotes the visibility of community power and gives outsiders the impression that one can actively shape the energy transition. Holding joint events can strengthen civil alliances and bring new members and projects to community power. Women who are already heavily involved in other networks can thus find direct and personal access. Cross-cutting issues that highlight the social contribution of community power, such as the solar system on the school roof and the resulting added value for the community, appear to be particularly suitable for recruiting members.

## 4.2. Available capital as the key to participation in community power

### A: Challenge

Available capital was already identified in the final report of the first project year by WWEA and LEE NRW as an important key to participation in community power. The extensive participation of people older than 60 in community power was also attributed by the CEEs interviewed in the first year of the project to the factor of financial resources, among others. Among the 216 randomly selected respondents, 38% of the participating men older than 60 were also already shareholders in a CEE, while the overall average of people already active in community power was only 13%. At this point, it is worth taking a look at the general distribution of wealth in Germany. People aged 71-75 had an average net

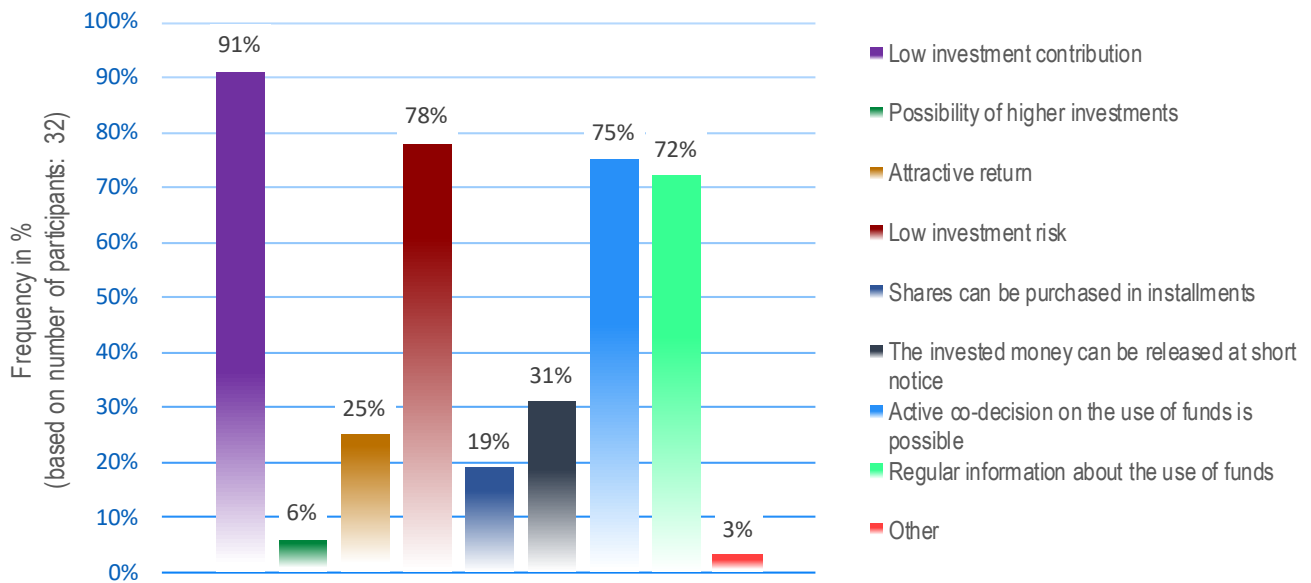
wealth of around 206,000 euros in 2017, at least in the western part of the Federal Republic. They thus represented the group with the highest wealth. For example, citizens from the west between the ages of 36 and 40 had an average net wealth of only about 85,000 euros (bpb 14.10.2020). Differences in wealth distribution exist not only between east and west, but also between men and women. In 2021, 4.4% of all men are among the absolute top earners with more than 5,000 euros net income per month. This is true for only 0.6% of women. On the other hand, 10.6% of women have no income of their own at all, which applies to only 5.1% of men (statista 2022).

(In Germany's eastern states, people in this age group have an average of only 74,000 euros at their disposal, which is significantly less money.)

When asked about their subjective assessment of whether their own money is a barrier to participation in community power, the importance of capital to accessing community power was underscored. Across ages, 46% of women indicated that a lack of money prevents them from participating. Also on the part of men, the limitation by money was mentioned by 36 % of the respondents across all ages. The required capital plays a very large role in the stronger activation of young women in community power in NRW. On the part of women between the ages of 18 and 29, 71% said that a lack of financial resources kept them from participating. 91% said they wanted a low investment contribution to get started in community power and 78% said that a low investment risk was important to them (**Figure 2**). Among men in this age group, only 46% cited lack of financial resources as a barrier to participation. A low investment contribution and low investment risk were cited as important factors by 67% of men aged 18-29.



## WHAT FINANCIAL FACTORS ARE/WOULD BE IMPORTANT TO YOUR INVESTMENT DECISION? (MULTIPLE ANSWERS PERMITTED)



**Figure 2: Financial factors that women aged 18-29 believe are important to their own investment decision (n=32).**

In the evaluating interviews it became clear that individual energy cooperatives have already lowered the money needed to purchase a share (Schmitz 26.01.2022), offer financial sponsorships from members for interested non-members in relation to the required entry sum (Rodi 04.03.2022), allow instalment payments (Friege 22.03.2022) or at least discuss the possibility of instalment payments (Petersen 28.01.2022). In the case of GmbH & Co. KGs investing in wind energy, this is more difficult. For example, the average share in a farmer-owned wind energy GmbH is 5,000 euros and here, according to Christoph Austermann, no change is discernible (Austermann 04.03.2022). As a consequence, not only are women less frequently found in CEEs, but even fewer young people are found than in cooperatives (Radtke/Ohlhorst 2021).

The actual need for capital to enter a CEE varies quite widely in practice, which can be illustrated by the example of German cooperatives. In its 2020 annual survey of German energy cooperatives, the German Cooperative and Raiffeisen Confederation (DGRV) found that entry is possible with less than 100 euros in 25% of cases, but in 18% only from

the range of 500 to 1,000 euros and in 7% even from 1,001 euros. The average minimum contribution to start is 545 euros. However, the actual average contribution per member is 5,056 euros (DGRV 2020), so there is a big difference between theory and practice.

The desire for low investment risk to participate in community power is high across gender and age, though there are also interesting variations. Across ages, 70% of women and 66% of men say a low investment risk would make them more likely to join community power. Women ages 18 to 29 are as high as 78% desiring low investment risk. The survey then showed a different picture for people aged 60 and older, with 71% of men still expressing a desire for low investment risk, but only 33% of women. In the case of cooperatives, the low investment risk is in the vast majority of cases due to the absence of liability with one's own private assets, i.e., as described above, there is no obligation to make additional contributions. The low investment risk can also be illustrated by the very low insolvency rate, which is lower than in any other legal form (Agency for Renewable Energies 24.07.2020).

However, the question arises as to how well known the limited nature of this investment risk is, since many people do not seem to have detailed knowledge of the principle and operation of cooperatives.

(However, it must be added restrictively that only 9 persons were interviewed in the group of women aged 60 and over.)

#### **A: Recommendation for action**

##### **6. Financially low-threshold entry options:**

In many CEEs, at least 500 euros are required to subscribe to a share, and even 1,000 euros are not uncommon. This is too high a financial hurdle for many people - the survey shows this to be a critical factor for women in particular. In individual CEEs in NRW, this entry amount was lowered in the meantime. Subsequently, the number of members in these CEEs increased. In other CEEs, payment in instalments for the shares was made possible or this possibility was at least discussed. The CEEs which informed about the existence of this possibility within the framework of this project have an above-average female participation.

### **4.3. Lack of time**

#### **A: Challenge**

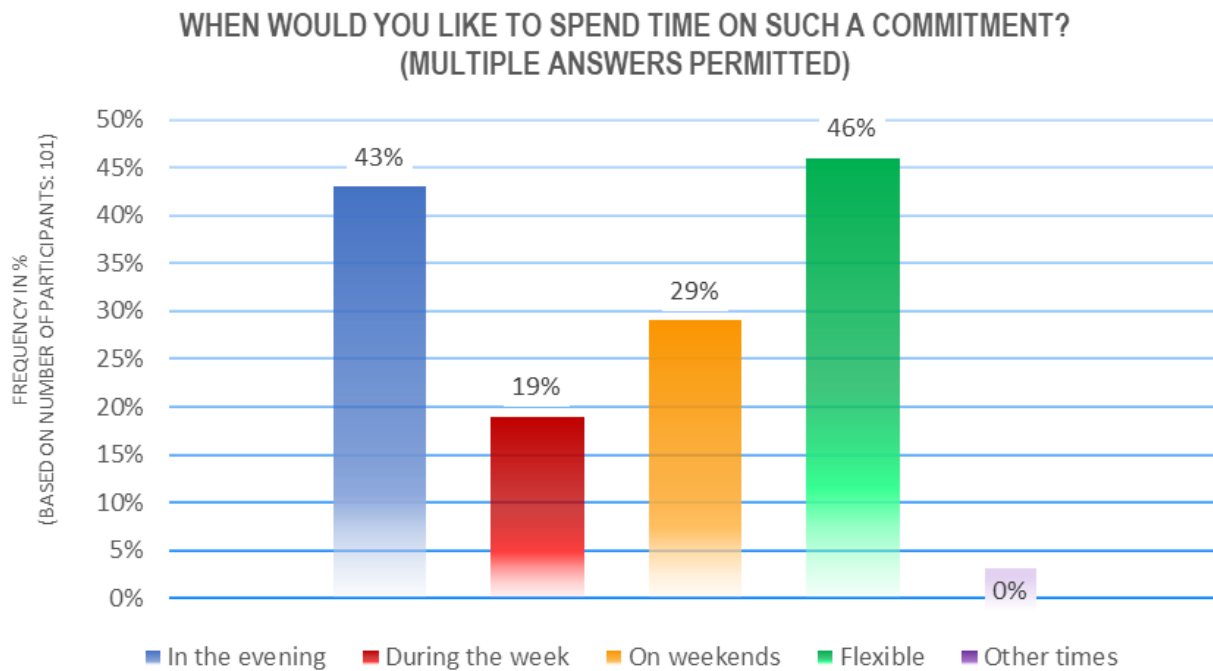
Another important point that discourages participation in community power is the amount of involvement time assumed by non members. Lack of time was named by 64 % of the women surveyed as an obstacle to participation. Of all the factors mentioned, lack of time was cited with a frequency of 41%. For men, it is the limiting factor for 35% of all factors, mentioned by 49% of the men surveyed. Time thus also plays a role for many men, but is named significantly less frequently than by women. Of the men who are older than 60, only 10% mention the lack of time as a limiting factor.

(This percentage is calculated by comparing all the

factors mentioned, which could be entered in the form of multiple choice.)

The assumption that a considerable amount of free time must be available for participation in community power and that this circumstance favors certain people in participation is also found in the secondary scientific literature: "The considerable amount of free time that is usually necessary for an active, creative membership in an energy cooperative or on its board can only be found by people who do not have paid work or who can afford to reduce their working hours and who are not intensively involved in other forms of work. Age obviously also plays a role here: traditional gender roles and identities are particularly prevalent in older generations, which are currently overrepresented in energy cooperatives" (Drewing/Glanz 2020).

When women are asked about time opportunities to contribute to community power on a volunteer basis, flexibility is an important buzzword. Just under half of the women (46%) would like this time flexibility. Contributions in the evening hours are considered possible by 43% of women, placed close behind (Figure 3). Just under half of the women surveyed (45%) could invest up to two hours per month in a project if they were involved, and 33% consider up to 5 hours realistic. 16% of the women surveyed could only devote time once. When it comes to women with children in the household, the amount of time available decreases significantly. Half of the women with children in the household have up to two hours per month available (49%). Just under a third of these women (27%) have time only once when investing.



**Figure 3: Information from all women surveyed on when they would spend time volunteering in community power if they were involved (n=108).**

The CEEs themselves estimate the time required for a commitment very differently and depending on the specific activity in the CEE. According to their estimation, not so much time is needed for a pure investment anyway. This may be overestimated by outsiders. However, for some shareholders, participation in community power is not limited to pure investment. The Bürgerenergiegesellschaft Solingen notes that with a participation in their cooperative, in principle, each shareholder can decide very freely and individually how much time they invest in their own commitment (Friege 22.03.2022). However, Thomas Schmitz points out that the main contact person on the board must always be available, which is time-consuming. It is therefore worth considering whether the strongly involved board could be expanded by a kind of "extended board" and thus by flexible, dynamic action groups, in which tasks are then taken over selectively (Schmitz 26.01.2022). BürgerEnergie Solingen also relies on such dynamic action groups, in which members could participate on a project- or topic-specific basis over a limited period of time, contributing their interests and skills (Friege 22.03.2022). In BEG-58,

considerations are also made as to how responsibility can be "distributed on several shoulders" (Petersen 28.01.2022).

In the CEEs, more thought should be given to such dynamic participation formats. Especially if one wants to motivate young women to participate in community power. In the survey, 71% of them said that the lack of time was an obstacle to participation. On the other hand, 72 % of this group named regular information about the use of funds as an important criterion, and 75 % of these women want to actively participate in decision-making about the use of funds (Figure 2).

## **B: Recommendation for action**

- 7. Create dynamic action groups and forms of participation, maintain flexibility of the people involved:** In many CEEs, there is an active board and comparatively silent shareholders who tend to be involved in the context of the members' meetings and the annual general meeting.

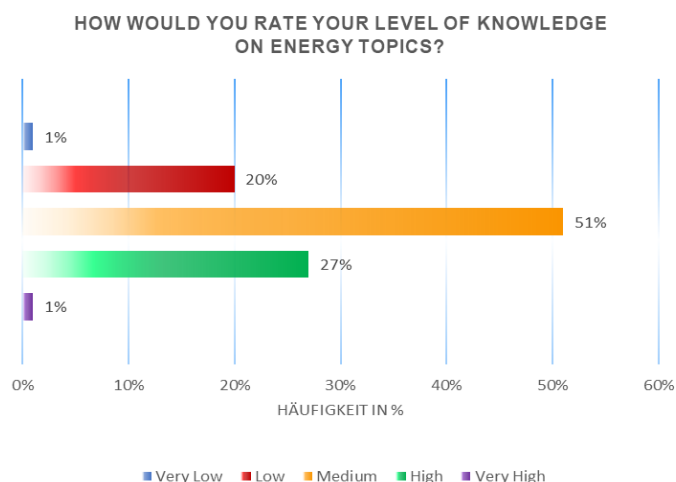
In many CEEs, there is an active board and comparatively silent shareholders who tend to be involved in the context of the members' meetings and the annual general meeting. An additional activation of the members and in this context also of women can succeed through flexible forms of participation. This offers several advantages: Women can get involved despite their often-existing time restrictions, without having to commit immediately to a one-to-two-year period of responsibility on the executive or supervisory board. New perspectives are introduced that may not have previously been seen on the board. However, taking on responsibility for a limited time in collaboration with other members of the CEE can create an impression for responsible work in community power that can later lead to more advanced models of taking on responsibility or serving on the board. Since dynamic action groups correspond to the required flexibility of women in voluntary work, this in turn leads to feedback effects to the outside with the contact possibilities from woman to woman and in the last step to women's networks in community power.

#### 4.4. Competence: Reluctance to participate due to subjectively low assessed level of knowledge about community power and energy industry issues

##### A: Challenge

Many people are reluctant to participate in community power because they consider their own level of knowledge to be low and are either unaware of active local community power companies (see "Overall level of awareness of CEEs) or are not more closely informed about their activities. This is especially true for women. While women who have not yet participated in community power rate their interest in climate policy on a scale of 1 to 5 on the two highest levels in 87% of cases and also rate their interest in energy policy on one of the two

highest levels in 66% of cases, the self-assessment of the actual level of energy policy knowledge among these women is significantly different. The women who have not been involved in community power so far rate their level of knowledge at one of the two highest levels in only 28% of cases (Figure 4), while 70% of the men surveyed rate their level of knowledge at one of the two highest levels. Subjectively low levels of information are thus significantly higher among women.



**Figure 4: Subjective assessment of energy policy knowledge of women not involved in community power (n=100).**

Regardless of gender, studies repeatedly show that a low level of information about the energy transition is a subjectively perceived problem, especially among young people, although they are disproportionately interested in it. As one of the resulting consequences, the participation of young people in public participation processes is significantly lower than that of older citizens (Gossen et al. 2021; Radtke et al. 2021). The background here is also not the lack of interest, but the fact that there is little experience with the participation opportunities in the process structures. For example, Jörg Radtke et al. (2021) state for the federal state of NRW: "The younger "Generation Greta" is digital, hard-fact oriented and strongly interested in the topics and aspects of climate protection, ecology and economic efficiency."

At the same time, the authors of the study state: "Younger people are particularly interested in the energy transition; at the same time, the level of information is particularly low here, and participation in the context of public participation is also lower (Radtko et al. 2021)." As a result, the authors state for the necessary active acceptance policy in NRW and beyond: "Economic and social involvement of citizens and municipalities in projects, transparency in decision-making and approval processes, and a provision of land perceived as fair by the local population are rated as essential for this." Taken together, these findings must be taken into account by practitioners if they want to attract more young women to participate in the energy transition.

However, community power cannot simply fulfil its intended role of activating civil society without further preconditions, because there is also a certain lack of knowledge among many citizens regarding the concept of community power. 46% of the women surveyed are not familiar with the concept of community power. Among women between the ages of 30 and 39, the figure is as high as 61%. Among men in this age group, only 35% claim to be unfamiliar with the concept of community power. Across the board, the figure for men is only 32 %. In this question, clear gender-specific differences can thus be identified, which interact with the largely non-existent awareness of CEEs in their own region/city already described above. Conversely, CEEs must take into account the low level of prior knowledge of many citizens when presenting and advertising their company and adapt their communication accordingly.

## **B: Recommended Action**

**8. Open and gender-specific events:** Open event offerings where there is no direct commitment are particularly suitable for attracting new members. These can be discussion events on the climate and energy transition as well as tours of wind farms or photovoltaic plants and

much more. Especially when the topics reflect local social relevance, for example the importance of a potential photovoltaic project on the local school roof, women are also activated. In the case of guided tours of the plants, it can be useful to offer plant tours only for women in order to reduce the shyness of a "technical guided tour".

## **4.5. The connection between community power and climate protection**

### **A: Challenge**

Reference has already been made to the high level of interest in environmental and climate policy among women (87% at the two highest levels of interest). An American study also elaborates on the difference between women and men in this regard. More specifically, it states that men tend to be less concerned about environmental damage than women and are less likely to participate in environmentally friendly measures in their daily lives (Day 2020).

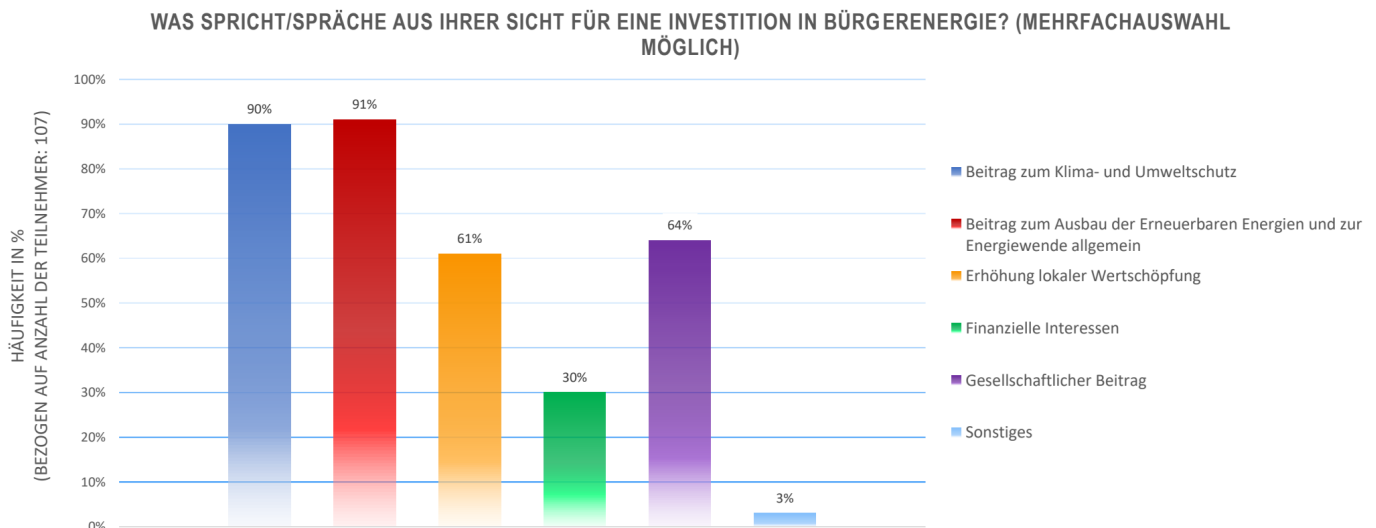
With regard to pure interest in environmental and climate policy, however, the difference between women and men cannot be confirmed on the basis of the values surveyed. The men surveyed even place their interest in these issues on one of the two highest levels on a scale of 1 to 5 in 90% of cases. When considering whether to participate in community power, its contributions to climate and environmental protection as well as to the expansion of renewable energies also play the decisive role across genders. The women surveyed stated this 90% (contribution to climate and environmental protection), and 91% (contribution to the expansion of renewable energies) (Figure 5). For the men, this also plays a major role. The contribution to climate and environmental protection was cited by 84% of the men surveyed, and the contribution to the expansion of renewable energies was cited by 88%. It is striking that the broader motivation



diverges between the genders. Men are motivated 74% by contributing to local value creation. 45% cited financial interests as their motivation. Among women, local value creation receives less support, at 61%, and financial interests are cited by only one-third (30%) of the women surveyed. Women, on the other hand, emphasize the social contribution more strongly (64%). The figure for men is 57%.

## B: Recommendation for action

9. **Focus on citizen-oriented and concrete communication, contribution to local climate protection:** For women, the main motivation for a potential investment in community power is the contribution to climate and environmental protection as well as the contribution to the expansion of renewable energies. The social con-



**Figure 5: Reasons for investing in community power from the perspective of women (n=108).**

Here, similarities and differences between the genders become apparent, which the community power entities should take into account in their public relations work. In order to recruit new members, it generally seems valuable to emphasize the contribution that community power makes to climate and environmental protection and to advancing the energy transition ("green investment"). Insofar as one specifically wants to increase the participation of women in one's own CEE, it also seems purposeful to emphasize the collaborative implementation and social contribution of community power systems more than financial profit opportunities. In view of the figures, this also applies if one takes into account that in such surveys there is a tendency towards "socially desired answers" and respondents tend to be reluctant to concede their own economic interests.

tribution and the increase in local added value are also named as motivations in many cases. Financial interests are in the background. Women's own level of knowledge of energy issues is rated significantly lower than that of men. Especially among young people, there are considerable differences in the self-assessment of this level of knowledge. These circumstances must be taken into account and brought to the fore when addressing them. The skills of well-connected and/or very committed women as multipliers must be used to increase female participation in CEEs. Community power is not limited to the implementation of technical and economic projects. It contributes to participation and democratization. Through local renewable energy projects, fossil dependencies are solved and climate protection projects are implemented. These local contributions have to be

communicated in a target group-oriented and less technology-heavy way.

#### 4.6. Final recommendation for action

**10. Put qualitative growth in the foreground:** In the course of the study and in discussions with representatives of community power, it became clear that unlimited growth in the capitalist sense cannot be the goal of community power. Qualitative growth, on the other hand, which is characterized by increasing numbers of active members, a stronger anchoring in local society and resulting project implementation, is very desirable for many CEEs. The decision-makers interviewed expressed two things in this regard. On the one hand, new members are often not needed for financial reasons. From a purely financial perspective, new projects can often be implemented with existing members or through a loan from a bank. Broader participation is therefore not an end in itself. On the other hand, many boards are already operating at the limit organizationally with existing projects and members. Despite a certain membership base, it is not easy in all CEEs to find people for the board work and to distribute the responsibility on several shoulders. Therefore, it seems worthwhile to put the CEEs on a broader footing by being open in recruiting and involving new and old members. Especially if along the new projects also new business fields are developed, this again offers the chance to win further parts of the society for community power, beyond a pure capital participation. For example, the implementation of a specific technological project was named as a criterion by almost every third woman in our survey.

The renewable energy sector, which must grow exponentially across sectors by 2030, needs extensive participation from the community power sector. This will require more active

members from all parts of society. The recommendations noted here can make a valuable contribution to this. The role that policy must play in facilitating project implementation for CEEs and freeing up more time capacities for those responsible, which can then be invested in public relations and membership recruitment, is now highlighted in a separate chapter.

### 5. What policymakers must do to enable community power to grow again and integrate more women

#### 5.1 Societal framework conditions for the development of female creative power

The responsibility for the success of the citizen-led energy turnaround lies not only with the CEEs. The appropriate social framework conditions must be created to enable the qualitative growth of community power. Policymakers must create the framework conditions to increase women's opportunities for participation in society. To do this, policymakers must address women's less available money and time on average. Studies by WWEA and LEE NRW along this project pointed out that women continue to bear the main responsibility in families and that they spend more time taking care of children and caring for family members. The state must continue to expand care structures to relieve the burden on women. According to the information service of the Institute of German Business (iwd), "Work and family are still not always easily compatible in this country - in most cases, one parent has to take a career break in order to master the balancing act between a job and childcare. This affects - not only in Germany - predominantly women" (iwd 16.11.2021). The iwd goes on to say that in Germany, a quarter of mothers with children under the age of 15 are not financially rewarded for their work. In a European comparison, the labor force participation rate of women with children under 15 is only 13th in the EU. "In addition, the Federal Republic has the third highest proportion of employed moth-

ers who work less than 30 hours a week. Only in the Netherlands (where, however, more men also work part-time) and in Austria are even more mothers employed for this low number of hours" (ibid.).

Women are predominantly overrepresented in education, administration, cleaning and sales occupations, but underrepresented in mechatronics, energy and electrical occupations (statista 2022). The latter occupations not only have a greater proximity in terms of content to the technical implementation of a community power project, but also offer the better earning opportunities on average. It therefore seems imperative that the promotion of women to take up training or studies in the fields of mathematics, information technology, natural sciences and technology, as well as further access to these occupational fields, be maintained and promoted by the state. Against the backdrop of the massive increase in demand for skilled workers to implement the energy transition, this is more than a question of social justice; it is an economic obligation.

The differences between women and men can also be traced further when it comes to enabling voluntary activity, as can be seen in a statement by the German Women's Council (DF): "The areas of activity in which men and women are active often reflect traditional gender roles. For example, women are more often involved in the target group of children and young people than men. In the areas of schools and kindergartens, as well as in the church or religious sector, women have a higher rate of involvement than men. Men are proportionately more likely to volunteer in the areas of sports and exercise, politics and political advocacy, as well as in accident and emergency services and volunteer fire departments" (DF 19.11.2021). The DF demands of the German Federal Government to arrange the legal basic conditions in such a way that not only results in equal participation in the working life, but also in volunteer commitments. To this end,

according to the association, employment in the workforce and care work must be reconciled and the current social division of labour broken up. On the basis of the available study results, this demand can also be described as central for the participation of women in community power.

## 5.2 Regulatory framework for the development of community power

Already in 2019, WWEA and LEE NRW made clear recommendations on how community power should be supported politically. In the meantime, improvements have been achieved in individual recommendation points. However, most of the recommendations remain current (WWEA/ LEE NRW 2019a):

1. *A clear commitment to a complete shift to renewable energies with wind energy as a supporting pillar and as a fundamental part of an effective climate protection strategy.*
2. *In accordance with the principle of subsidiarity, a clear commitment to the importance of community power and its many benefits, as well as the creation of framework conditions that favor the further development of community power.*
3. *Inclusion of the priority for renewable energies in a national climate protection law or in constitutional law at the state and federal level.*
4. *Creation of a non-discriminatory remuneration system beyond tenders, in line with ECJ case law.*
5. *Rapid and significant dismantling of bureaucratic barriers and hurdles in planning and approval law, such as blanket minimum distances.*
6. *Strengthening local energy concepts and promoting local and regional approaches to sector coupling.*
7. *Promotion and further expansion of prosumer models, as decided at European level. Energy sharing in particular must be transposed into German law.*
8. *Promoting cooperation between civic energy players - regionally, nationally and across borders.*

Along the acceleration of the energy transformation, these recommendations gain further importance, as the growth of the community power sector must now also be a very decisive issue. Since many board members in CEEs are already

limit, several considerations must be made at the same time. How should policy frameworks be set to allow existing CEEs to grow? In addition, what policy frameworks are conducive to further creation of CEEs? In the event of potential growth in the community power sector, the need to attract women to participate more strongly than in the past will then come into play again. In the case of energy cooperatives also because they have to write a public welfare report in which the accessibility to the cooperative has to be explained (Petersen 28.01.2022).

Thomas Schmitz stated the objective to "grow in a measured and common good oriented way" (Schmitz 26.01.2022). From the point of view of Barbara Rodi, the majority of CEEs would still like to grow further and now is the right opportunity due to the global crises (Rodi 04.03.2022). Ingeborg Friege confirmed this as an objective also for the BürgerEnergie Solingen (22.03.2022). For this growth course the definition of community power in the EEG turns out to date still too narrow-meshed despite improvements. For example, a kind of blocking period for CEEs, by which only one project in a period of three years can be considered with EEG funding, is to be seen as counterproductive. The administrative effort for an association of citizens to be officially recognized as a CEE is also still very high.

Regarding participation in energy transition projects, the Federal Constitutional Court has announced the landmark decision for the state of Mecklenburg-Western Pomerania "that the law on the participation of citizens and municipalities in wind farms in Mecklenburg-Western Pomerania (Bürger- und Gemeindenbeteiligungsgesetz - BüGembeteilG) is for the most part compatible with the Basic Law. This law obliges the operators of wind turbines (project developers) to operate wind farms only through a project company to be established specifically for this purpose and to allow local residents and communities close to the site to

participate in their earnings by acquiring shares in the company or, instead, by purchasing savings products and paying a levy to the community totaling at least 20%. This is intended to improve acceptance for new wind turbines and thus promote the further expansion of onshore wind energy. "The public interest objectives of climate protection, the protection of fundamental rights from impairment by climate change and the safeguarding of the electricity supply pursued in this way are sufficiently weighty to be able to justify the serious encroachment on the freedom of occupation of the project developers under Article 12 (1) of the Basic Law associated with the participation obligation" (Federal Constitutional Court 05.05.2022).

The federal legislature has responded to this in the formulation of the EEG 2023. It is true that the financial participation of municipalities is still voluntary. However, the enabling provision has been significantly expanded and now applies not only to onshore wind energy projects, but also to ground-mounted solar plants. It also applies equally to plants that are subsidized under the EEG and to plants in other direct marketing.

In NRW, too, the coalition agreement of the new state government includes plans for a Community Energy Act, with which local residents can participate more strongly in the value creation of plants in their vicinity. In addition, project developers are to be obliged to establish a limited liability company for new wind farms and to offer at least 20% of the shares to residents in the immediate vicinity, analogous to the Community and Communal Participation Act from Mecklenburg-Western Pomerania.

Of course, for the community power sector to grow, the general barriers to renewable energy must also be removed. To achieve this, bureaucracy must be reduced. Application and approval procedures must be simplified and made predictable and reliable. In the past, mistakes have been made in German politics. Examples include the expansion cap for photovoltaics and the tendering system that

was introduced, in which community power projects could hardly hold their own (WWEA/LEE NRW 2019a). Krisztina André, member of the board of Bündnis Bürgerenergie, explained at the 6th International Community power Symposium of WWEA and LEE NRW that a complicated tendering system inhibits the participation of women in particular, since participation can only be guaranteed on the basis of high financial and temporal advance payments, with simultaneous high uncertainties, and thus hits female barriers to action at the core. Now the Bundestag has decided to exempt community power from the tendering system under certain conditions (wind energy up to 18 MW, photovoltaics up to 6 MW). There are still further barriers to be removed, as the exemption rules are too restrictive. Further hurdles are posed by overly general distance regulations in many federal states (including NRW) and by lengthy planning and approval procedures.

Furthermore, rising plant prices and interest rates as a result of the global crises can be a limiting factor, especially for small CEEs, as the final amount of the project costs is often not clearly calculable. In the worst case, a contract is awarded and the project cannot be implemented later due to escalating price increases for materials and raw materials. In NRW, the new state government is planning to have an energy fund set up by NRW.Bank in this regard, which will provide targeted support for wind turbine projects by citizens in project development through venture capital.

Policymakers can also leverage great potential for the community power sector by simplifying energy sharing. The EU has already enshrined the importance of energy sharing in Article 22 of the Renewable Energies Directive in 2019, but has not yet implemented it. The German government subsequently enshrined the significantly simplified enabling of energy sharing as a goal in the coalition agreement. More than 90% of households in Ger-

many could be supplied with energy-sharing electricity. Community power communities would play a key role in implementing these projects. This would also require growth in the community power sector. According to a study conducted by the Institute for Ecological Economy Research (IÖW) on behalf of the Bündnis Bürgerenergie, up to 5,900 energy communities could be involved in installing up to 66,000 megawatts of onshore wind power and 9,000 megawatts of photovoltaics. For NRW alone, the study authors see a potential of 11.83 GW of installable renewable energy capacity. Each member of a CEE could then participate with an average of 100 to 200 euros (Wiesenthal et al. 2022). The general public would also benefit if system-serving expansion and consumption were stimulated, thereby reducing grid expansion costs and dependence on imported raw materials. At the same time, energy sharing stands at the intersection of private individuals and community power and can only develop its momentum if society as a whole can be convinced of the benefits of this new energy system. In this context, women who are actively involved in community power represent important multipliers for at least half of this society, so their increased participation in CEEs is crucial.



## 6. Opportunities and challenges for women in Japanese community power

### General situation in the community power sector in Japan

Almost ten years have now passed since the emergence of the community power movement in Japan following the Fukushima nuclear disaster. After various trials and errors, community power has developed into an important, independent sector within this period. In addition to the continued expansion of local community power projects, the full liberalization of the electricity market in 2016 has seen the emergence of new community-based electricity providers seeking to provide locally generated renewable electricity for consumption.

Although the business models of community power and community power traders have been well received by the public, they have been put in a difficult position by the rapidly changing market situation. In the power generation business, the feed-in tariff is about to expire and community power is being integrated into market models where they compete with large utilities. The electricity marketing business is also suffering from unusually high electricity market prices, so some CEEs have decided to exit or sell their business.

### Women in Japanese community power

Considering the general situation mentioned above, the Japan Community Power Association has analysed the situation of women in Japanese community power (Furuya 2021). The results of a survey of Japan Community Power Association member organizations showed that the proportion of women in community power projects and their management in Japan is low, and that while there is awareness that the proportion of women is low, little action is taken to actively increase the proportion.

In order to achieve a sustainable and more equita-

ble energy society in the future, consideration was given to the extent to which the introduction of quotas could contribute to improving the gender balance in the community power sector in Japan. In order to evaluate the possibility of quotas, several interviews were conducted with leading representatives of community power in the spring of 2022. The main findings are as follows:

- *The interviewees stated that the best people were always selected during selection interviews, regardless of whether they were men or women. The interviewees were unsure whether fixed quotas could really be helpful in this decision-making process.*
- *The importance and necessity of diversity was nevertheless emphasized. In one conversation, for example, it was pointed out that at a government study conference on energy conservation in buildings, a woman brought important perspectives that would not be expected from a man in this way.*
- *Especially in rural areas, women have less experience with taking responsibility and tend to put obstacles in their own way. One interviewee explained that she had not participated in a community power project because it would have required a large sum of money. Due to a lack of experience, she therefore refrained from investing.*
- *Problem awareness and a gradual, conscious increase in the proportion of women are inextricably linked and can lead to changes that were not conceivable in the past.*
- *Although it was repeatedly emphasized in the individual interviews that the commitment brought in should be valued regardless of gender, in many cases a kind of quota promotion in the sense of "position promotes people" was advocated, which would help to gradually equalize the proportions between genders, even if not in a 50/50 ratio from the outset.*
- *There is a need to consider gender balance in relation to the community power workforce, and there is a perception that more and more women are being appointed to leadership positions.*

As mentioned in the previous paper, the Japan Community Power Association has taken a first step to proactively correct the situation by establishing and implementing a 50:50 gender balance for its two co-chairs and 10 board members. To date, no community power utilities have been identified that have implemented similar quotas. However, it is clear from this survey that executives recognize the importance and necessity of such a quota. In the future, it will be useful to communicate concrete ways to implement quotas and further deepen the discussion.

## 7. Summary and outlook

The accelerated implementation of the energy transition is more urgent than ever in view of the climate crisis, and it will only succeed with the involvement of society as a whole. More women are therefore urgently needed in community power and in the renewable energy sector in general. The community power sector needs to grow, both through new CEEs and through new projects by existing CEEs.

The Russian war of aggression against Ukraine represents a historic turning point. Together with advancing climate change, this conflict is a reminder that fossil energy dependencies must be dissolved. The "greatest tangible social and economic opportunity for the future," as Hermann Scheer called it, the energy transformation, must now finally be implemented consistently, and it must be thought of in a decentralized way from the perspective of the citizens in order to be successful. Co-determination, local value creation and personal economic and ecological benefits must go hand in hand for citizens. Then a sustainable transformation of our energy system can succeed.

The proportion of women in community power in NRW has risen slightly in recent years and now stands at 29%. This is positive, but parity is still a long way off. This is all the more true in Japan, where women so far hold only 20% of the shares in Japanese community power.

However, parity is not only an important aspect of justice. Women have an important role to play as multipliers in the continuation of the community energy transition. If they are activated and involved, they have better opportunities to contact other women. CEEs in NRW represented by women also have a higher overall proportion of female members in our survey than CEEs as a whole. Mixed organized teams also show a higher satisfaction in their cooperation, which then again sends open, positive

signals to society that all citizens can participate in the energy transition. One result of the project is that women are not the only ones who need to be more strongly represented in community power. A survey of the CEEs in the first year of the study already showed that young people, people with a migration background and non-academics are also underrepresented in community power.

Crises are always windows of opportunity. This was demonstrated in the 1970s when, in response to the oil crisis, Danish citizens rejected their government's plan to invest in nuclear energy. Instead, they invested in photovoltaics, wind energy, and community heating networks. Since then, community power has fought for its place in the energy system, proving time and again that it can be made big as well as thought small. One example from Germany is Prokon, which was founded as a GmbH (limited liability company), got into difficult circumstances, then successfully restarted as a cooperative and today has more than 40,000 members. But not all CEEs have to develop this size. Community power can also grow in breadth. There are already over 200 CEEs in NRW, with a focus on photovoltaics and wind energy (Kahla et al. 2017), and the potential is far from exhausted.

However, in order to be able to use the existing crises for an acceleration of the energy transition and a growth of the community power sector, those people who have not yet participated in the energy transition must also be addressed. This final study by WWEA/LEE NRW provides a well-founded contribution to the discussion. Critical points identified include:

- *The existence of many CEEs is still too unknown in their respective region or city or they seem too closed for participation.*
- *The public relations work of the CEEs, if it takes place to any significant extent, tends to be carried out via classic information media or via local communication, while young people and women often inform*

*themselves via social media and via family and acquaintances.*

- Women can certainly be won over to community power through direct personal conversation, but to do so, the contributions of community power to society and climate protection must be made more central to the approach than has been the case in the past.*
- Money is another barrier to participation in community power. Many CEEs have taken initial measures to lower contributions or make instalment payments possible.*

These are important steps that also need to be communicated, because too many people are still generally unclear about the concept of the cooperative and the resulting opportunity for low-risk participation. Flexible participation options also act as a catalyst. This creates flexibility in tense life situations and allows people to approach a new subject area on a trial basis for the first time. This is important not only for the participation of women, but also, for example, for young people who do not yet have much experience in democratic participation structures.

This is where the recommendations for action developed in the study come in and make suggestions as to how new communication channels and new opportunities for participation can be created so that, in the end, new participants can be won over for community power. In total, ten recommendations for action were developed on what community power can do to open up to a broader section of society:

- 1. Make women visibly responsible*
- 2. Create transparency and understanding about the work of community power companies*
- 3. Innovative forms of communication - strengthening direct personal contact*
- 4. Innovative forms of communication - strengthening the social media approach*
- 5. Networking and action alliances with other local stakeholders*
- 6. Financially low-threshold entry points*
- 7. Create dynamic action groups and forms of partici-*

*pation, maintain flexibility of people involved*

- 8. Open and gender-specific events*
- 9. Concrete communication close to the citizens local experience, focus on the contribution to local climate protection*
- 10. Put qualitative growth in the center of attention*

In order for community power to be able to guarantee this, politics must create the necessary framework conditions. Social measures must be taken to relieve and support women, who have multiple roles to play in society and have additional burdens compared to their husbands. However, measures must also be taken to support community power, which is still burdened with too much bureaucracy and uncertainty, in order to be able to contribute projects to the energy turnaround to the extent demanded and, at the same time, to be able to attract extensive new membership from new social milieus. The recommendations for action developed by WWEA and LEE NRW in 2019 continue to apply. They enable a reduction of complexity for community power and are thus at the same time a key to enable more space for the advertising of female shareholders and generally all people.

The federal government and the NRW state government have emphasized their willingness to accelerate the energy turnaround. Now, obstacles must be further removed. Be it energy sharing, the continuing obligation of many medium-sized and large community energy projects to participate in tenders, the restriction to projects per technology and a fixed period of time. Even in the EEG 2023, not all leeway for strengthening the diversity of actors is used. At the state level, for example, blanket distance regulations must be abolished and the needs of renewable energy plants and environmental protection must be brought into a new meaningful balance. Ultimately, local democratization processes follow from a decentralized energy transition with the participation of all citizens. The decision-makers should therefore now create a low-bureaucracy framework for an energy transition

that is citizen focused. The then growing community power has the responsibility to represent society as broadly and inclusively as possible. The participation of women is the crucial first step.



## 8. Literature

Agentur für Erneuerbare Energien (24.07.2020): Energiegenossenschaften im Auf- und Abschwung; Renew's Kompakt Ausgabe 52; online abrufbar unter: [https://www.waermewende.de/media/energiegenossenschaften-im-auf-und-abschwung/aee\\_rk\\_energiegenossenschaften\\_jul20/](https://www.waermewende.de/media/energiegenossenschaften-im-auf-und-abschwung/aee_rk_energiegenossenschaften_jul20/).

Alt, Franz/ Spiegel, Peter (2017): Gerechtigkeit – Zukunft für Alle. Die Grundsatzerklärung; München.

bpb (Bundeszentrale für politische Bildung) (14.10.2020): Vermögen in West- und Ostdeutschland nach Alter; online abrufbar unter: <https://www.bpb.de/kurz-knapp/zahlen-und-fakten/soziale-situation-in-deutschland/61778/vermoegen-in-west-und-ostdeutschland-nach-alter/>.

Bürger- und Gemeindenbeteiligungsgesetz (18.05.2016): online abrufbar unter: <https://www.landesrecht-mv.de/bsmv/document/jlr-WindPB%C3%BCGemBGMVV1P1>.

Bundesagentur für Arbeit (2019): MINT-Berufe; Berichte: Blickpunkt Arbeitsmarkt; August 2019; online abrufbar unter: [https://statistik.arbeitsagentur.de/DE/Statischer-Content/Statistiken/Themen-im-Fokus/Berufe/Generische-Publikationen/Broschuere-MINT.pdf?\\_\\_blob=publicationFile](https://statistik.arbeitsagentur.de/DE/Statischer-Content/Statistiken/Themen-im-Fokus/Berufe/Generische-Publikationen/Broschuere-MINT.pdf?__blob=publicationFile).

Bundesverfassungsgericht (05.05.2022): Pflicht zur Beteiligung von Anwohnern und standortnahen Gemeinden an Windparks im Grundsatz zulässig; Pressemitteilung Nr. 37/2022; 1 BvR 1187/17; online abrufbar unter: <https://www.bundesverfassungsgericht.de/SharedDocs/Pressemitteilungen/DE/2022/bvg22-037.html>.

CDU NRW (Christlich Demokratische Union Nordrhein-Westfalen)/ Bündnis 90/ Die Grünen NRW (2022): Zukunftsvertrag für Nordrhein-Westfalen – Koalitionsvereinbarung von CDU und Grünen 2022-2027; online abrufbar unter: [https://gruene-nrw.de/dateien/Zukunftsvertrag\\_CDU-GRUeNE\\_Vorder-und-Rueckseite.pdf](https://gruene-nrw.de/dateien/Zukunftsvertrag_CDU-GRUeNE_Vorder-und-Rueckseite.pdf).

Day, Rosie (2020): Energy Justice, in: Coolsaet Brendan (Hrsg.): Environmental justice: key issues; Abingdon; S. 161–166.

DF (Deutscher Frauenrat) (19.11.2021): Positionspapier Ehrenamtliches Engagement von Frauen in Verbänden, Vereinen und Parteien für Demokratie und Gesellschaft; online abrufbar unter: <https://www.frauenrat.de/wp-content/uploads/2021/11/Deutscher-Frauenrat-Positionspapier-Ehrenamt.pdf>.

DGRV (Deutscher Genossenschafts- und Raiffeisenverband) (2020): Energiegenossenschaften 2020 – Jahresumfrage des DGRV; online abrufbar unter: [https://www.dgrv.de/wp-content/uploads/2020/07/20200701\\_DGRV\\_Umfrage\\_Energiegenossenschaften\\_2020-1.pdf](https://www.dgrv.de/wp-content/uploads/2020/07/20200701_DGRV_Umfrage_Energiegenossenschaften_2020-1.pdf).

Drewing, Emily/ Glanz, Sabrina (2020): Die Energiewende als Werk ausgewählter Gemeinschaften? Zur sozialen Exklusivität von Energiegenossenschaften, in: Engler, Steven et al. (Hrsg.): Energiewende und Megatrends - Wechselwirkungen von globaler Gesellschaftsentwicklung und Nachhaltigkeit; Bielefeld.

EIGE (European Institute for Gender Equality) (2020): Economic case for gender equality in the EU, online abrufbar unter: <https://eige.europa.eu/gender-mainstreaming/policy-areas/economic-and-financial-affairs/economic-benefits-gender-equality>.

EnergieAgentur.NRW (2021): Innovation & Energie; Ausgabe 3 des Jahres 2021; Düsseldorf.

energiezukunft (02.05.2022): Knackpunkte für die Bürgerenergie; online abrufbar unter: <https://www.energiezukunft.eu/buergerenergie/knackpunkte-fuer-die-buergerenergie/>.

FES (Friedrich-Ebert-Stiftung) et al. (2021): A Feminist European Green Deal - Towards an Ecological and Gender Just Transition; online abrufbar unter: <https://library.fes.de/pdf-files/iez/18990.pdf>.

Fraune, Cornelia (2015): Gender matters: Women, renewable energy, and citizen participation in Germany; Energy research & social science; Jg. 7; S. 55 – 65.

Furuya, Shota (2021): Women in community energy in Japan – Research Report; Institute for Sustainable Energy Policies; Japan Community Power Association; Tokio.

Gossen, Maike et al. (2021). „Zukunft? Jugend fragen! 2019“; Umweltbundesamt; Berlin.

IRENA (International Renewable Energy Agency) (2018): Community Energy: Broadening the Ownership of Renewables; IRENA Coalition for Action; online abrufbar unter:

[https://coalition.irena.org/-/media/Files/IRENA/Coalition-for-Action/Publication/Coalition-for-Action\\_Community-Energy\\_2018.pdf](https://coalition.irena.org/-/media/Files/IRENA/Coalition-for-Action/Publication/Coalition-for-Action_Community-Energy_2018.pdf).

iwd (Informationsdienst des Instituts der deutschen Wirtschaft) (16.11.2021): In der Familienpolitik haben andere Länder die Nase vorn; online abrufbar unter: <https://www.iwd.de/artikel/bei-der-familienpolitik-haben-andere-laender-die-nase-vorn-526779/>.

Fischer, Beate (13.06.2022): Es braucht mehr als nur die passive Toleranz der Energiewende; Makronom; online abrufbar unter: <https://makronom.de/es-braucht-mehr-als-nur-die-passive-toleranz-der-energiewende-42050>.

Fraune, Cornelia (2015): Gender matters: Women, renewable energy, and citizen participation in Germany; Energy research & social science; Jg. 7; S. 55 – 65.

Kahla, Franziska et al. (2017): Entwicklung und Stand von Bürgerenergiegesellschaften und Energiegenossenschaften in Deutschland; Arbeitspapierreihe Wirtschaft & Recht; Nr. 27; Leuphana Universität; Lüneburg.

Kahla, Franziska (2018): Das Phänomen Bürgerenergie in Deutschland - Eine betriebswirtschaftliche Analyse von Bürgergesellschaften im Bereich der Erneuerbaren Energien-Produktion; Dissertation an der Leuphana Universität Lüneburg.

Lazoroska, Daniela et al. (2021): Perceptions of participation and the role of gender for the engagement in solar energy communities in Sweden; Energy, Sustainability and Society; Jg. 11; H. 1; S. 35-46.

statista (2022): Frauen und Männer in Deutschland nach Nettoeinkommen im Vergleich mit der Bevölkerung im Jahr 2021; online abrufbar unter: <https://de.statista.com/statistik/daten/studie/290399/umfrage/umfrage-in-deutschland-zum-einkommen-von-frauen-und-maennern/>.

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

Radtke, Jörg et al. (2021): Windkraft in Nordrhein-Westfalen - Einstellungen zu Akzeptanz, Beteiligung und Konfliktlösung; Universität Siegen; Siegen.

Radtke, Jörg/ Ohlhorst, Dörte (2021): Community Energy in Germany – Bowling Alone in Elite Clubs?; Utilities policy; Vol. 72; S. 101269 – 101282. statista (2022): Anteil von Frauen und Männern in verschiedenen Berufsgruppen in Deutschland am 30. Juni 2021; online abrufbar unter: <https://de.statista.com/statistik/daten/studie/167555/umfrage/frauenanteil-in-verschiedenen-berufsgruppen-in-deutschland/>.

Umweltbundesamt (2020): Interdependente Genderaspekte der Klimapolitik; online abrufbar unter: [https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/2020-02-06\\_texte\\_30-2020\\_genderaspekte-klimapolitik.pdf](https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/2020-02-06_texte_30-2020_genderaspekte-klimapolitik.pdf).

WECF (Women Engage for a Common Future)/ BBE (Bündnis Bürgerenergie) (2020):

Frauen.Energie.Wende!; online abrufbar unter:

[https://www.buendnis-buergerenergie.de/fileadmin/user\\_upload/downloads/Broschueren/FrauenEnergieWende\\_WECF\\_BBE\\_2020.pdf](https://www.buendnis-buergerenergie.de/fileadmin/user_upload/downloads/Broschueren/FrauenEnergieWende_WECF_BBE_2020.pdf).

Wiesenthal et al. (2022): Energy Sharing: Eine Potenzialanalyse; Institute for Ecological, Economy Research; Berlin.

WWEA (World Wind Energy Association)/ LEE NRW (Landesverband Erneuerbare Energien NRW) (2019a): Bürgerwind im Ausschreibungsmodell – Eine Bilanz; WWEA Policy Paper Series (PP-02-19); Bonn.

WWEA (World Wind Energy Association)/ LEE NRW (Landesverband Erneuerbare Energien NRW) (2019b): Bürgerwind im zweiten Jahr der Ausschreibungen: Viel Schatten, wenig Licht; WWEA Policy Paper Series (PP-01-19); Bonn.

WWEA (World Wind Energy Association)/ LEE NRW (Landesverband Erneuerbare Energien NRW) (2021): Frauen in der Bürgerenergie – Durch Offenheit zur Vielfalt; WWEA Policy Paper Series (PP-01-21-DE); Bonn.

Yildiz, Özgür et al. (2015): Renewable energy cooperatives as gatekeepers or facilitators? Recent developments in Germany and a multidisciplinary research agenda; Energy research & social science; Jg. 6; S. 59 – 73.

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