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Community Power

Women in Community Energy

Through Openness to Diversity

WWEA
World Wind Energy Association

LEE NRW
Landesverband
Erneuerbare Energien
Nordrhein-Westfalen

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Shane Mulligan reviewed and corrected the English translation of this report, which was originally published in German. In addition to his editing and writing work, Shane also manages a community energy co-operative in Ontario, Canada (lifecoop.ca).

Project Partners

The World Wind Energy Association (WWEA) is an international non-profit association headquartered in Bonn, Germany. WWEA works with governments and international organizations to expand wind energy worldwide. Through a network of associations and members in over 100 industrialized and developing countries, the association has supported many governments in developing effective programs to promote renewable energies. One of the goals of WWEA is to promote community energy and a more decentralized energy supply among existing government, educational and research facilities, as well as at international institutions.

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 53 community energy entities in Japan.

Supporting Organizations

Bündnis Bürgerenergie
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)
LaNEG (Landesnetzwerk der BürgerEnergieGenossenschaften)
Netzwerk Energiewende Jetzt e.V.
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Molly Walsh (Friends of the Earth Europe)

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Pictures: BBWind Projektberatungsgesellschaft mbH, Münster and WWEA

Summary

Women are significantly underrepresented in community energy in the German state of North Rhine-Westphalia. Among the many community energy entities active in the state, only 29% of shareholders are women, and they hold only 27% of the shares. While the numbers have increased compared with previous surveys, there is still no balanced gender ratio. Closer analysis shows that the participation level varies between the legal forms of the community energy entities. The female participation rate is significantly higher in cooperatives, at 33%, than in the limited liability companies (LLCs), where only 14% of shareholders are women.

A simultaneous survey in Japan showed that women are even more underrepresented in that country, holding only 20.5% of the shares of community energy entities. On the governing bodies of Japanese community energy entities, 24.4% of the management posts are held by women.

In general, community energy actors remain a fairly homogeneous group, with a clear dominance of retired males in key positions of responsibility. Many shareholders have good incomes and a high level of education, and also rate education and income as factors that facilitate access to community energy. In small community energy enterprises with fewer than forty shareholders, the participation rate for women is particularly low, at an average of only 7%.

Various factors reinforce each other here. In part, these are companies from the community wind sector, which often emerge from already existing male-dominated networks. Access to such enterprises often requires a considerably large share of capital. Some of these small projects include community energy companies from the agricultural sector, and thus from a sector that is itself strongly male-dominated.

On the other hand, the study shows examples of projects that engage with the community in a very open and participatory way, and that have consciously placed women in management positions. These companies also tend to have an above-average proportion of women among the shareholders.

Women in Community Energy – Through Openness to Diversity

Content

List of Abbreviations

CDU	Christian Democratic Union of Germany
CEE	Community Energy Enterprise
EU	European Union
GbR	Gesellschaft bürgerlichen Rechts/ Company constituted under civil law
GmbH & Co. KG	Gesellschaft mit beschränkter Haftung & Compagnie Kommanditgesellschaft/ Limited Liability Company
GWNET	Global Women's Network for the Energy Transition
kW	Kilowatt
LEE NRW	Association for Renewable Energy North Rhine-Westphalia
NGO	Non-Governmental Organization
NRW	North Rhine-Westphalia
PV	Photovoltaics
SPD	Social Democratic Party of Germany
STEM	Science, Technology, Engineering, and Mathematics
WWEA	World Wind Energy Association

1. Introduction

The energy transformation represents the largest industrial restructuring of the global economy since industrialization. It changes society human power constellations, and reshapes relationships between people in society. The world's future energy supply will be based on a pluralistic energy system with numerous generation points, in which citizens have an active role in shaping the energy transformation through decentralized community energy projects. Not only can community energy make an important contribution to regional value creation and managing structural change – it can also strengthen local acceptance of and support for the energy transformation as a whole. Due to their inherent localization, decentralized structures create opportunities to bring underrepresented groups of people into decision-making roles and can enable a more equitable distribution of economic participation.

From the perspective of gender equality it is therefore crucial to actively help shape these processes and to use them to enable more equality and emancipation. This is justified in part under democratic principles suggesting that participation should be open to all citizens as far as possible; but it has also been shown that mixed-gender organized teams that have a positive awareness of their diversity achieve higher performance and have a stronger team identity (Buengeler / Homann 2020). Mixed-gender teams also show higher job satisfaction among both men and women, which in turn has a positive effect on productivity (Deutsche Post 2019). These impacts make it important to leverage this potential for the energy transformation as well. However, studies have found that community energy actors are generally recruited from a socially homogeneous group in which women are underrepresented (Fraune 2015; Radtke 2016; Yildiz et al. 2015).

These facts helped spur a decision to conduct an evaluation for North Rhine-Westphalia (NRW), as the largest German state, around access to community energy and the interaction of community energy with society. Thus the World Wind Energy Association (WWEA) is investigating, in a two-year study conducted in cooperation with the Association for Renewable Energy North Rhine-Westphalia (LEE NRW) the role of women in community energy in NRW. In parallel, the Japan Community Power Association is collecting data on the participation of women in community energy in Japan.

The overarching goal of the project is to understand how an imbalance between the sexes can be counteracted to make an increasing participation of the society as a whole in community energy possible.". In a second step, subsequent analysis will show how the energy transformation can be made more robust through the increased participation of women in the sector.

These results have continuously been fed back to a project advisory board, made up of national and international community energy experts and pioneers of the energy transformation. The study is thus integrated into a larger global framework of thought leadership.

The project aims to gain knowledge from several perspectives. Two quantitative surveys were conducted with participation from both community energy entities (CEE) in North Rhine-Westphalia, and their shareholders. Additional qualitative interviews were conducted with practitioners from the community energy sector. The following aspects seem particularly important:

- The problems and challenges women face when it comes to participation in CEEs are specified and supported by current figures from CEEs in North Rhine-Westphalia[1].
- An international perspective is gained from comparing the German and the Japanese community energy sectors. This reveals how these very different social structures impact the community energy sector and the participation of women in it.
- The motivation of shareholders to participate in community energy is examined, and the gender-specific implications are taken into account.
- The participation rate of women as both shareholders and management is examined and differentiated to allow comparison between cases.
- The present study provides the first comprehensive explanations regarding which CEEs, have a higher proportion of women and for what reasons.
- With this basis, proposals to increase the proportion of women in renewable energy are examined for their applicability to the community energy sector.

It is clear at the outset that, despite the increased number of participants in community energy projects in North Rhine-Westphalia, women are underrepresented. In Japan, women's participation is even lower. Since these are energy-related projects, in which work is usually done in a voluntary context, any analysis must take into account the typical level of participation of women in civil voluntary work, in the (renewable) energy industry, and in related professions. It becomes clear here that there are still a large number of social restrictions that prevent women from more extensive participation in CEEs.

On the other hand, there is still potential for the CEEs to increase the participation rate of women through targeted public relations work and deliberately engagement with the broader society. The present study aims to

[1] Further details on the method can be found in the chapter on research design.

make a contribution to building awareness amongst actors of the importance of working toward an energy transformation that is gender-equitable.

2. Research design

The present report represents the lessons learned and conclusions reached after the first research year. At the core of the work of the first year was two quantitative surveys. In the first, a questionnaire was sent digitally directly to CEEs in North Rhine-Westphalia between October 2020 and January 2021. Another questionnaire was sent digitally to the shareholders of various CEEs between October 2020 and March 2021. Responses were received from a total of 29 CEEs and 347, and these were subsequently evaluated[2].

The findings of these quantitative questionnaires were supplemented and deepened in a second stage using qualitative interviews; the results were updated and classified according to their underlying mechanisms[3]. No obvious indications of bias in the sample were found; however, we cannot completely rule out, for example, that participation and responses were influenced by CEEs with an awareness of the problem, or with women on the executive board. In such a case, the female participation figures would probably tend to be more positive than average, which would further legitimize the statements of this study, since actual gender inequality could then be assumed to be even higher. Throughout the entire first year, the study results were derived from an ongoing document analysis, and were validated and compared with previous findings from gender and participation research.

The aim of the CEE questionnaire was to obtain current data that could help determine the extent to which women are participating in the community energy transformation, and what roles they play in it. The CEEs were asked, additionally, whether the women are only “silent” shareholders, to what extent they are active in management, and which areas of responsibility they take on. Furthermore, the CEEs were asked about their awareness of the importance of equal participation in one's own CEE and in the acquisition of shareholders; the background assumption is that certain forms of (personal) address and public relations work are much more likely to be aimed at men than at women.

The shareholder questionnaire asked about personal motivation and the ways to participate in a CEE[4]. The questionnaire also asked for the socio-economic background of the participants, as previous studies have

[2] Based on the Bürgerenergie.Atlas of the Energieagentur.NRW, the most extensive existing community energy project database in NRW, 326 CEEs were contacted. The CEEs were asked to forward a second questionnaire to their shareholders; this provided a degree of data protection, and also ensured that researchers could not trace shareholders to the CEE in which they were invested.
[3] This method is called "explanatory sequential mixed-method design" in social science.
[4] Parity, or a balanced gender ratio, is an important means of realizing gender equality (Manlosa/Matias 2018).

shown that this has a high impact on the likelihood of participation (Fraune 2015; Radtke 2016). Finally, it asked about the barriers to participation in community energy projects for all shareholders, and especially for women.

The quantitative surveys were followed with qualitative interviews, carried out as semi-structured interviews with decision-makers from the community energy sector. In many cases, the survey found that the respondents have already been working in various ways to improve women's participation in community energy. Interviews were conducted with:

- Krisztina André (Bündnis Bürgerenergie)
- Christoph Austermann (BBWind)
- Katja Blumenberg (BürgerEnergie Solingen eG)
- Ingeborg Friege (BürgerEnergie Solingen eG)
- Catharina Hoff (BürgerWIND Westfalen)
- Beate Petersen (Bergische BürgerEnergieGenossenschaft und BEG-58)
- Barbara Rodi (Friedensfördernde Energie-Genossenschaft)
- Heinz Thier (BBWind)
- Theresa Ungru (Bürgerwind Altenrheine)

The interview questions were aimed at classifying the gender-specific differences seen in the surveys in terms of motivation to participate and access to community energy. The results were finally checked and assessed by the project advisory board.

Preparation for the second year of the project should include additional analysis of how the CEEs themselves can improve the prospects for greater participation of women in the energy transformation, how women can be better motivated to participate, and what issues still have to be addressed by changing conditions in the social and political framework.

3. Social participation and the role of gender

The energy transformation began in Germany as a bottom-up movement that was started by committed citizens and was later developed primarily by community energy entities, as well as small and medium-sized companies. This history should be seen in a positive light for many reasons. Foremost, it underpins the sector's democratization, activation of civil society, and contribution to climate protection. But it also contributes to the development of a wider understanding of energy issues, along with de-monopolizing and pluralizing economic structures, and especially how community energy plays an important role here.

However, older studies show that the political and economic participation opportunities are not taken equally by all citizens

(Coffé/Bolzendahl 2010; Fraune 2018; Radtke 2016). "Rather, social inequality is reinforced by a political component that gives more weight and voice in the decision-making process to those who already have better opportunities and resources to exert influence" (Pickel 2012). With regard to general civic engagement, the evidence shows that gender differences in participation are primarily age-related and are concentrated in the age ranges of 20 to 40 years and 55 to 75 years (Radtke 2016). Jörg Radtke points out that “the engagement rate fluctuates greatly in different studies”. However, referring to Rainer Geißler, he continues: “In 2010, 5% of men in West Germany, but only 2% of women, were members of a political party… West German women are also significantly less often (8%) members of a trade union than men (20%), and they also work less often in citizens’ initiatives and groups (men 2% – women 1%)" (Geißler 2014, in Radtke 2016).

The reasons why men volunteer more often in certain age groups are perceived as varied: “Especially in the older cohorts, women often had poorer educational opportunities. However, education and the associated trust in one's own abilities is an important prerequisite for volunteering. Another cause is the continuing unequal distribution of tasks in the family: women spend more time looking after children and caring for family members" – time that is no longer available for voluntary work ("time poverty”). In order to attract more women to volunteer throughout their lives, it is necessary, among other things, to break with stereotypical gender roles and the traditional division of labor in the private sector (German Center for Age Issues 2019).

These facts are confirmed by scientific studies. Hilde Coffé and Catherine Bolzendahl (Coffeé/Bolzendahl 2010) put together some interesting findings in this regard, examining gender-specific political participation under different premises. From their data follows the hypothesis for their study, which was carried out in 18 western democracies: women in developed countries spend more time doing housework than their male partners, even when both are working full-time. This imbalance also affects free time, which is reported by women at lower amounts than that of men. Taken together, marriage and parenting have significantly more negative impact on the participation rate of women than on that of men. Conversely, working full-time has a positive effect on men's political commitment, but a negative effect for women, which reinforces the other findings. These effects of full-time work and marriage are also confirmed in case studies (Coffé/Bolzendahl 2010).

One expert confirmed in an interview that the problem of coordinating private life and its commitments was a crucial matter: “I wanted to get more involved. To do this, however, we had to reorganize the private household. My husband and I then discussed that” (expert interview 8 April 2021). In many cases, however, the desire for more participation fails at this point, as there is a continuing gender gap in care work in

Germany. On average, women spend 87 minutes more time per day on care work than men – corresponding to 52.4% more time – and also perform two thirds of informal care services (WECF/BBEn 2020).

Regardless of gender, however, forms of political participation are changing. The number of members in political parties shows a sharp decline across the board, with the “people's parties” – the Christian Democratic Union (CDU) and the Social Democratic Party (SPD) – being particularly affected. The turnout in the federal elections in Germany has also decreased significantly compared to the 1970s. Moritz Boddenberg and Herbert Klemisch even identify what Colin Crouch termed “post-democratic developments” (Boddenberg/Klemisch 2018; Crouch 2008). They point to the declining number of members in parties, the loss of importance of national parliaments, and the fact that modern voting and demonstration formats are also dominated by a limited section of society, the “educated middle class” (Boddenberg/Klemisch 2018).

Community energy itself is another form of citizen participation that has arisen in the course of the energy transformation and which now has a central role in the energy transformation, as it represents over 40% of the installed capacity of German renewable energies (AEE, 15 January 2021). With an emancipatory perspective in mind, it seems therefore extremely important to examine exactly who participates in community energy. New and alternative forms of participation, such as community energy, are requested and used by citizens, at least in theory (Fraune 2017). However, previous studies already indicate that German community energy tends to be dominated by a homogeneous group (Fraune 2015, Radtke 2016, Yildiz et al. 2015). According to a survey, most of the people involved in community energy were male (80%), often had a high level of education and comparatively high financial resources, were of an advanced age, and were involved in civil society in more than one association (Radtke 2016). These people play an important role in the implementation of the energy transformation. Nonetheless, these findings make it clear that government and society need to work together to bring the decentralized energy transformation more into the public sphere, and to involve more groups of people.

The low female participation in community energy is all the more alarming when we consider that women are very strongly represented in the climate movement, and are generally more aware of environmental problems than men (Haunss/Sommer 2020). They are also more strongly in favor of phasing out both nuclear energy and fossil fuels, and of establishing an energy supply based on renewable energies (WECF/BBEn 2020). Women in Germany are more willing to recycle; they place more value on energy-efficient means of transport; they use public transport more frequently; and they are more likely to buy organic products than men (BBEn 2020). Women clearly cannot be said to lack inter-

est in the energy transformation and the climate crisis. On the contrary, there is an ongoing need for research into why women have been underrepresented in community energy projects in Germany, and that examines how their participation rate is changing over time.

4. Participation of women in the energy industry and energy policy

The goal of equal participation of women in community energy is closely linked to the participation of women in the political sphere, in the economy in general, and in the (renewable) energy industry and related professional fields. However, parity – or at least a gender balance – is generally not the reality in the economy. Indeed, according to the World Economic Forum's Gender Gap Report of 2019, gender parity is still 257 years away at current rates of change (World Economic Forum 2019).

In the renewable energies sector, of some 11 million employees, only about 32% are women, and this proportion falls again, significantly, when it comes to professions in the STEM fields (science, technology, engineering, and mathematics). Even here, though, the numerical values are significantly better than in the traditional energy industry, where only 22% of employees are female. Looking at the international wind sector, one finds an even lower female participation than the average in the renewables sector: women represent only 21% of employees, and less than 8% of senior management positions are held by women (IRENA 2019).

This underrepresentation is found not only in Germany. In Austria, for example the Federal Ministry for Agriculture, Forestry, Environment and Water Management commissioned a study in 2016 on gender equality in the energy sector. It found that the proportion of women in the renewable energies sector was 29.6%, while in the energy sector as a whole it was only 19.3%. The study also found there were twice as many female executives in the renewable energies sector as in the rest of the energy sector. While it is clear that parity is still a long way off, the study also showed there are significantly more employees under 30 years of age in the renewable energies sector than in the traditional energy sector (31.7% compared to 16.4%) (ÖGUT 2016). This circumstance underlines the future potential of the renewables industry, and points to the importance of – and opportunity for – a more gender-sensitive structuring of this sector.

There have been positive developments in the STEM courses in German schools in recent years. The number of female students in these streams doubled to 26.4% between 2008 and 2019 (Merkur, 2021). However, there can be no question of a bal-

anced gender ratio here either, even if we project that the number of female students in these subjects will be reflected in the future participation of women in renewable energies and community energy. The number of jobs in these sectors is expected to increase to around 29 million by 2050, and the transformation of the global economy offers a unique opportunity to make many professional fields more inclusive and innovation-friendly. Thus it is of enormous importance that women's chances of participating in this transformation are critically examined and ultimately taken advantage of (GWNET 2019).

With regard to the political sphere, it is evident across all study programs and national borders in the EU that the environment is the political field with the highest proportion of women in decision-making positions within ministries, while the energy sector has the lowest (Umweltbundesamt 2018). In 2012, the European Institute for Gender Equality compared the proportion of women in ministerial decision-making positions related to climate policy. Germany was ranked in the penultimate place, with less than 15% participation in the ministries – well below the EU average of 25.6%. Only Italy fared slightly worse (EIGE 2012). More recent figures for the "top positions" in the ministries – federal ministers, ministers of state, state secretaries and department heads – show that only 29% were women in 2018 (Zeit Online, 2018).

In the European Commission's Directorate-General for Environment, 29% of positions are held by women. In 2016, the Committee on the Environment, Public Health and Food Safety of the European Parliament, in which 46% of the members were women, had almost equal representation (EIGE 2016). In the 19th legislative period of the German Bundestag, however, only 30.9% of the members are women (German Bundestag 2021). The proportion varies considerably between the individual parties. The proportion of women in the Greens is highest at 56.7%; in the Alternative für Deutschland, however, only 10.2% of MPs are women (Statista 2021).

In the journalistic sector, which is of crucial importance for setting the agenda in energy policy, we find again male-dominated structures. The fourteen editors-in-chief of major national daily and weekly newspapers (with a circulation of 50,000 or more) were all men. In the print sector, only the "Die Tageszeitung" (taz) achieved a roughly equal female share of 50.8%. At the Bild-Zeitung, the best-selling newspaper in Germany, the proportion of women is just over a quarter (Pro Quote 2019). With very few exceptions, men are also responsible for the many specialist publications from the renewable energy sector.

When it is predominantly men in governments and parliaments who decide on the framework conditions for the energy transformation in general, and community energy in particular, and where they are just as predominantly advised by men from the media, business and civil society, androcentric structures are sure to be reproduced.

On the other hand, with higher female participation rates in the energy management professions and fields of study, the implementation of community energy projects by women will become much more likely: “In volunteering, you pick up on topics that you already relate to, and you rarely want to enter a whole new field" (Blumenberg 5 April 2021).

To improve equality in the energy transformation, the Global Women's Network for the Energy Transition (GWNET) has combined a number of strategic approaches (GWNET 2019):

- Implementing quotas
- Making STEM courses more attractive for women and girls
- Making recruitment practices more inclusive
- Developing strategies for inclusive jobs
- Increasing the proportion of women in management positions
- Increasing transparency and accountability
- Using in-house resources to promote women, and
- Supporting coalitions that are working to increase inclusion in the relevant sector.

These starting points appear to be applicable to community energy to different degrees. On the basis of our own survey and analysis, these strategic starting points will be revisited again in the conclusion.

5. Participation of women in community energy in NRW

That women are underrepresented in community energy is confirmed by the survey we carried out in North Rhine-Westphalia, where we found slightly higher female proportions than previous surveys done in Germany (Fraune 2015; Radtke 2016; Yildiz et al. 2015). Of the shareholders in the CEEs surveyed in North Rhine-Westphalia, 29% are women and they hold 27% of the shares. Even while these figures were only collected in the federal state of North Rhine-Westphalia, due to the size and diversity of this state, the authors assume that the tendency of slightly increasing proportions of women can be assumed for German community energy in general.

An earlier survey from 2012, for example, showed a 20% share of women in German cooperatives (Yildiz et al. 2015). The above-mentioned study by Jörg Radtke confirms the percentage of women at this level (Radtke 2016). Another pilot study from the same year confirms this gender ratio for other forms of community energy such as limited liability companies (GmbH & Co. KGs) and companies constituted under civil law (GbRs) (Fraune 2015). However, as our survey shows, for the CEEs in NRW, there are now considerable differences in the participation of women in the different legal forms in NRW.

Cooperatives have the highest proportion of women: 33% of the shareholders are women. In comparison, the portion is only 14% in

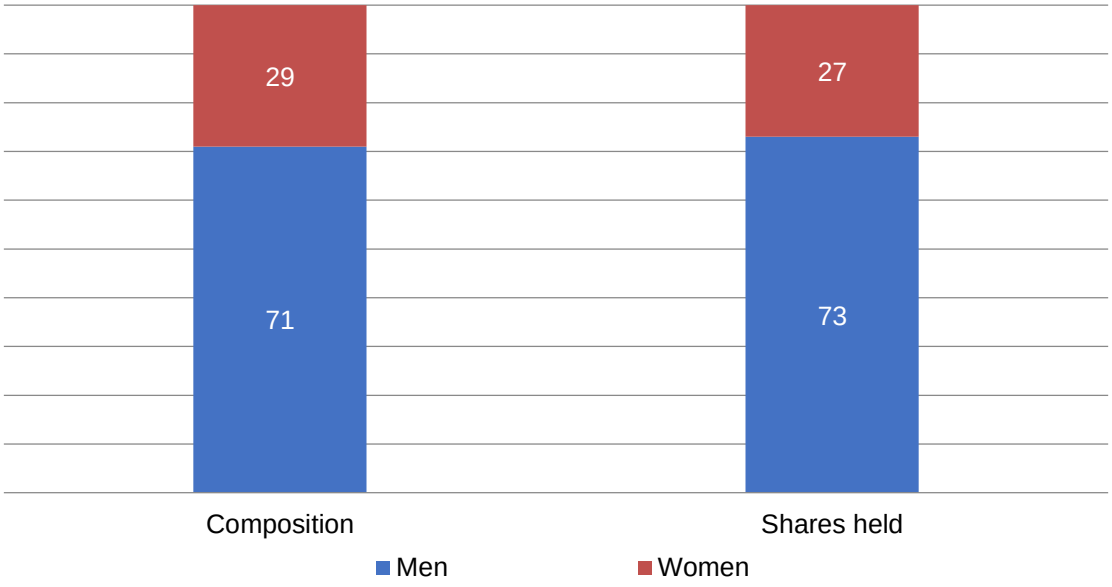

Figure 1: General participation of women and the shares actually held by women (in%); n = 29

Survey question: How high is the proportion of women among the shareholders of your CEE in absolute numbers? (As of 30 September 2020) / What percentage of the shares in your CEE are held by women?

the GmbH & Co. KGs (Figure 2). There are also differences among the forms of energy generation. In wind energy, for example, we find only 21% of shareholders are women, while the share is 37% in the photovoltaic sector (Figure 3). The differences that can be ascertained in women's participation in the various corporate forms of energy production are mutually correlated in a statistical way. All participation is based on a certain financial contribution. The assumption that money represents a hurdle for participation in community energy was supported in the survey by the female shareholders in particular, who weighted this factor more heavily than the men; 44% of women saw this as an important factor, while only 25% of men did.

As a rule, this hurdle is significantly lower when participating in a PV project rather than wind energy projects. Likewise, the capital contribution for cooperatives is generally significantly lower than for an investment in a Windenergie GmbH & Co. KG. In the case of an investment, the money is tied up in the medium term and is otherwise not available; this will have a negative effect on the participation of women, who on average have less capital than men. This factor will gain significance where required investment and associated risks are higher (Fraune 2018; Gawel et al. 2016).

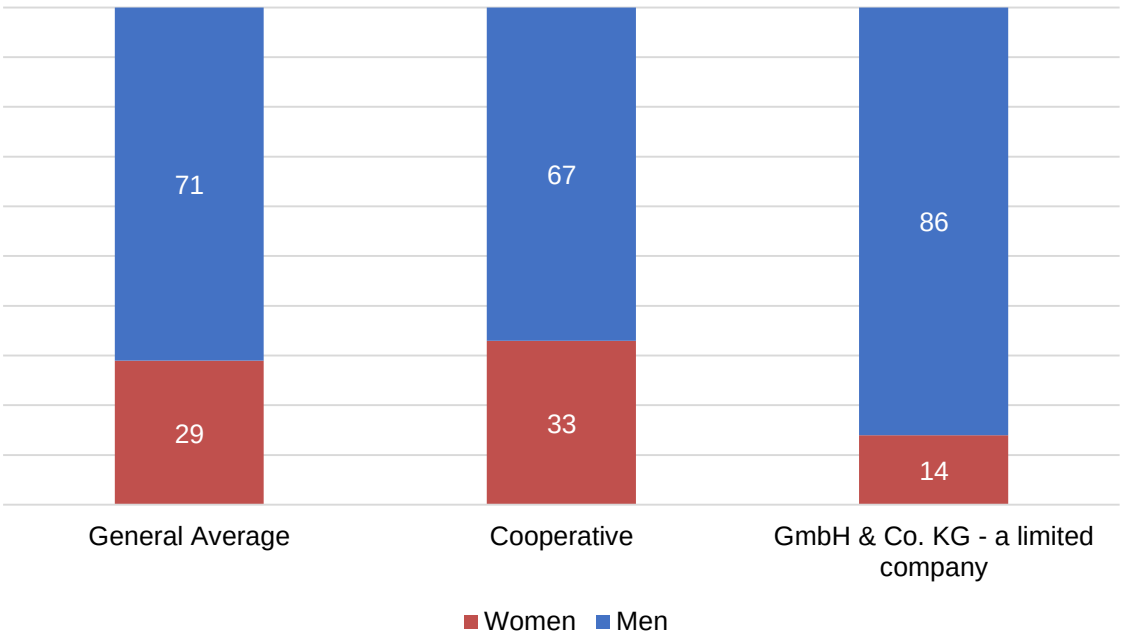

Figure 2: Share of women among shareholders by type of company (in %); n = 29

Survey question: What is the legal form of your community energy company? How high is the proportion of women among the shareholders of your CEE in absolute numbers? (As of 30 September 2020)

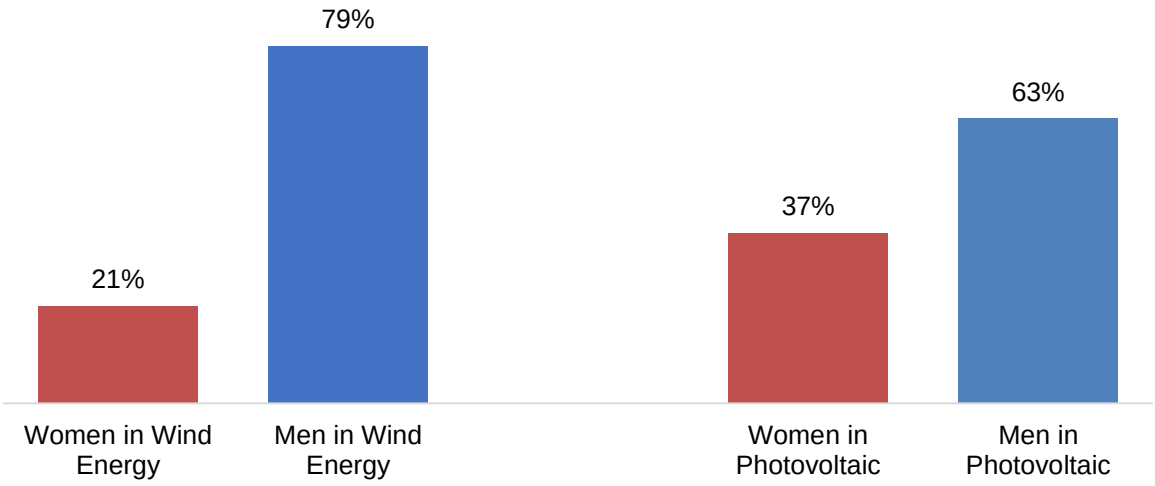

Figure 3: Share of women among shareholders by type of technology (in %); n = 26

Survey question: In which sectors and technologies is your CEE active? What is the percentage of Women among the shareholders of your CEE in absolute numbers? (As of 30 September 2020)

Women are also underrepresented in all management bodies in the surveyed community energy companies, although clear differences can be seen between the types of bodies. The comparatively highest proportion of women is found in the executive board model with 35%. In the case of a community energy company with management, women are found on average in only 19% of the cases. Women only make up 21% in the supervisory board model. It should be noted that women, if they hold shares in a CEE in North Rhine-Westphalia, are not simply silent shareholders; they often take on management tasks, though this is more common as part of a working board than as a managing director. Beate Petersen explained in an interview that this was probably related to the flexibility required. Voluntary work can often be done in the evenings and on weekends; participation is more difficult when there is a need for fixed deadlines, and a lack of acknowledgement of the many family and private duties women have to handle in addition to volunteering (Petersen, April 8, 2021). Theresa Ungru, farmer and managing director at Bürgerwind Altenrheine, explained that socialization and experience are also crucial; women who take less responsibility at home in managing large sums of money are unlikely to want to be responsible for doing so with others' capital (Ungru 05/06/2021).

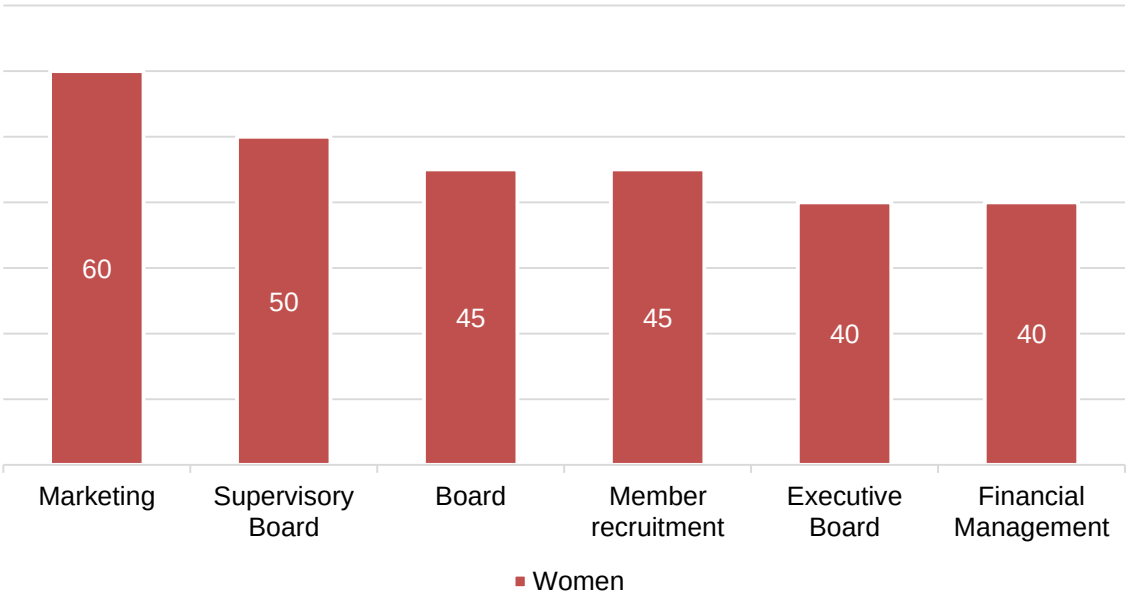

Figure 4: Areas of responsibility of women in the executive bodies of the CEEs (in %); n = 20

Survey question: In which areas of responsibility are women represented in your CEE?

Taking a closer look at the areas of responsibility that are supported by women on the boards of the CEEs surveyed allows the key facts to stand out. Women are most often found in marketing roles, as stated by 60% of CEEs. Furthermore, in half or almost half of the CEEs surveyed, where women are active in a responsible position, it is on the supervisory board, the management board, or in recruiting. However, 40% of the CEEs also reported business management or financial management being carried out by women, on the basis that women are active in the management bodies (Figure 4).

The CEE representatives are well aware of the problem of the low level of participation of women, and most of those interviewed rate the participation of women as inadequate. Some 61% consider women to be underrepresented among the shareholders, and only 21% consider them to be very adequately represented (Figure 5). This assessment is even clearer when it comes to the representation of women in executive bodies: 68% of respondents consider women to be underrepresented, while only 11% see them as adequately represented (Figure 6).

When it comes to assumptions about the structural barriers to women's participation in community energy, the assessments of women and men diverge. For example, 26% of men suspect that technical projects are a deterrent to women, while only 17.5% of women share this assumption. On the other hand, the women surveyed weighted the lack of financial resources much stronger than the men (43.7% of women and 24.5% of men agreed on this point).

Women also see a lack of available time as a problem more than men do (25.2% of women, but only 15.2% of men gave this assessment) (Figure 7). According to Catharina Hoff, a board member at BürgerWIND Westfalen, the amount of time available to deal with a topic makes a big difference. As a result, in many cases women become

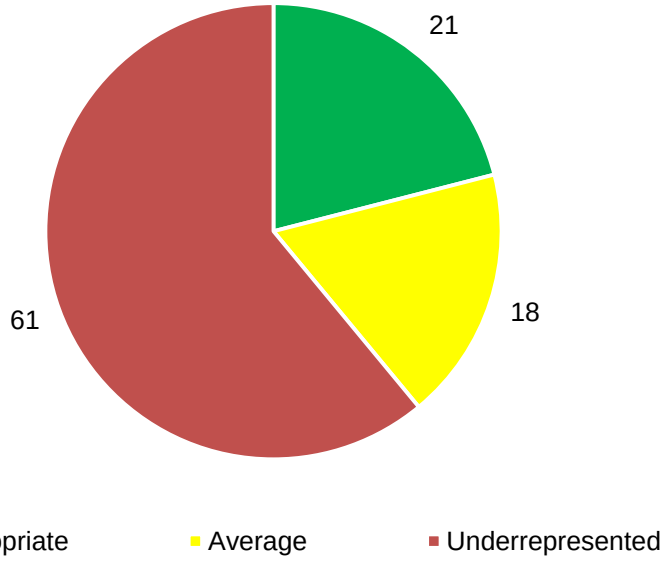

Figure 5: Shareholders' perception of the participation of women (in %); n = 28

Survey question: How do you rate the participation of women among the shareholders?

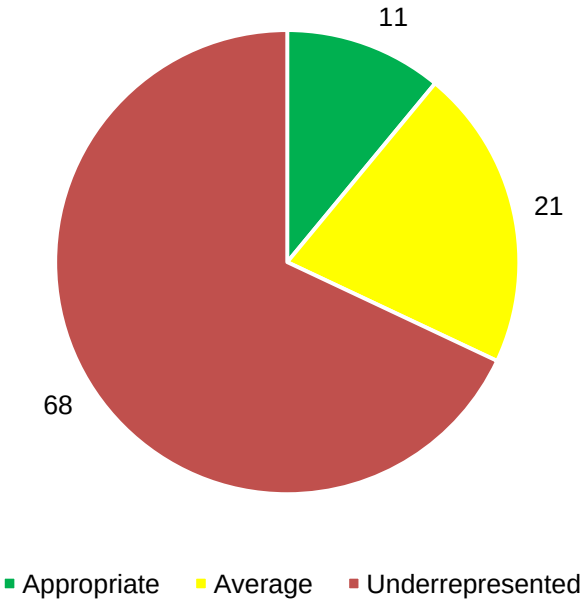

Figure 6: Perception of the participation of women in the governing bodies (in %); n = 28

Survey question: How do you rate the participation of women in your governing bodies?

involved in different capacities. The shareholders' meetings in the limited partnerships she is familiar with are always dominated by male contributions. As a result, the decision-making bodies are mainly made up of men. Women who are less concerned with "matters regarding annual financial statements" are, she says, much more cautious in their contributions (Hoff, 29 April 2021).

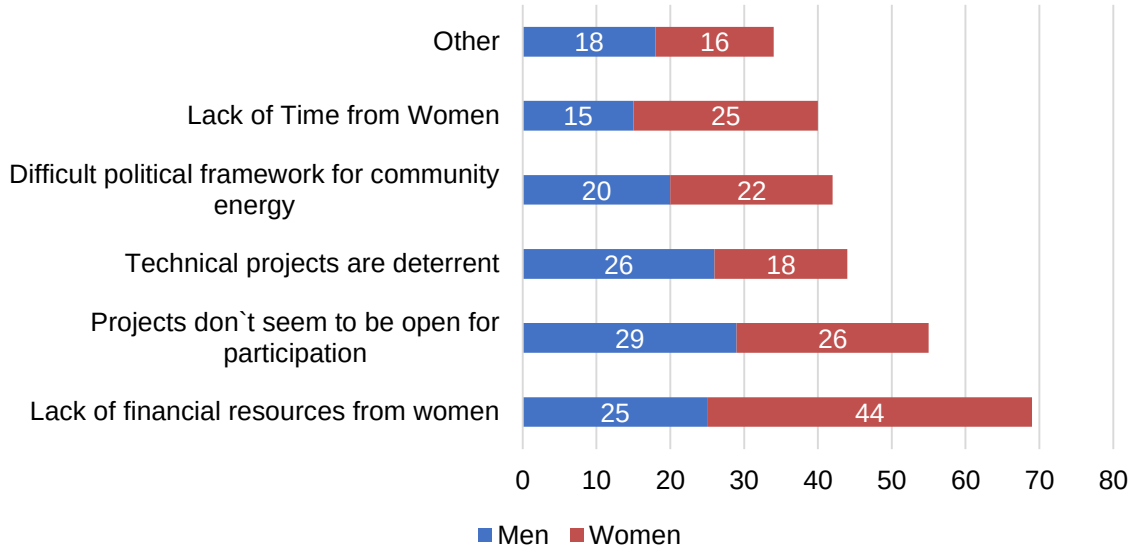

Figure 7: Assumed barriers to more participation of women by gender (in %); n = 319

Survey question: In your opinion, what are the biggest hurdles for participation in a CEE?

5.1. Participation of women in small community energy companies

The participation of women in small CEEs is very low; they represent just 7% of shareholders. It is important to note that the subcategory “small CEE” denotes those with fewer than forty shareholders in total (Figure 8)[5]. Accordingly, the number of shareholders is not necessarily related with the investment volume of the CEE.

Samples have shown that many of these small CEEs are connected to agricultural operations and are often GmbH & Co. KGs that invest in wind energy. All of these factors make female participation less likely; as shown above, women are significantly underrepresented in GmbH & Co. KGs (14% of shareholders in these entities are women). The agricultural sector is also male-dominated; just over 1/3 (36%) of people employed in the German agricultural sector are women. If you look at the decision-making structures, though, this proportion is reduced even further. Only 11% of the farm managers are female, although women are often “initiators for new farming methods, branches of operations or marketing concepts on the farms”; company succession is also patriarchal, and in the context of a farm ownership usually passes to a son over a

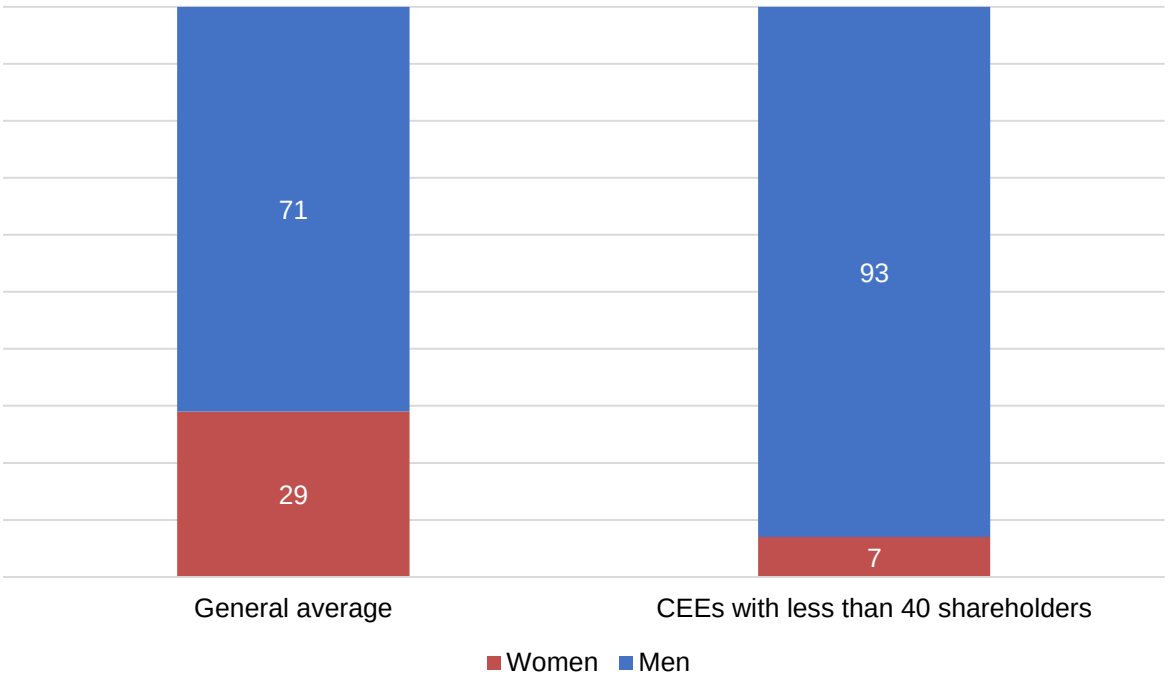

Figure 8: The low proportion of women in small BEGs (in %); n = 29

Survey question: How many shareholders does your CEE have in absolute numbers? (As of September 30, 2020) / How high is the proportion of women among the shareholders of your CEE in absolute numbers? (As of 30 September 2020)

[5] The data of our own sample showed significant jumps in the participation rate of women when the total number of shareholders was more than 40.

daughter (Deter 28 January 2021).

A study by the company AgriExperts, in which women were asked about their role in agriculture, shows that women are nevertheless very often involved in farms through their partner or family. Slightly more than half of these women make operational decisions with their partners, while almost a third say that the partner has the last word on these decisions. One woman in ten indicates that she has no say at all (AgriExperts 2019). These data are highly relevant for participation in rural community wind energy, because whoever owns the land and makes operational decisions will likely also be the one to decide whether a wind turbine will be built on the land. According to Theresa Ungru, women are very often informally involved in the decisions that affect the farm in the families, and that also includes a potential wind energy project (Ungru 6 May 2021).

However, when property owners then join with neighbors to consider forming a joint community wind energy project, most often it is the men who act formally with and among each other. Catharina Hoff has been implementing regional projects with citizen participation for years. She reports that the wind energy industry has long been a fairly male-dominated industry. There are often fixed networks within which new joint wind projects are implemented. Hoff says the introduction of new potential shareholders from outside the network is already made difficult by the fact that there are already sufficient potential shareholders, and so capital no longer has to be “sought outside”. This severely limits prospects of change in the gender-specific ratio of the shareholders (Hoff, 29 April 2021).

Another very practical reason, according to Heinz Thier Managing Director at BBWind Projektberatungsgesellschaft mbH, is that the registration of a woman as a limited partner in a wind turbine would result in disadvantages related to social insurance contributions; thus typically the men would be registered as owners in order to prevent this disadvantage. The thesis can be put forward that, where a man provides the main income and a woman has health insurance through the husband, it is logical to have this man also registered as a limited partner for the wind turbine. Thier expressed a belief that this was a significant difference with cooperatives, since the dividend paid there is not subject to the contribution assessment basis for social insurance (Thier, 31 March 2021).

Potential overarching solutions, then, will have to start in the agricultural sector in order to be conducive to both community energy and the participation of women in it. Those agricultural areas most suitable for wind energy are very popular, and as soon as lands are leased to third parties (such as external project developers), they are no longer available for any local community wind enterprise to use. Simple quotas for the participation of women, if they are not otherwise supported, are unlikely to succeed, since it is the land owners who will decide on the construction of a facility in a

particular area (Thier/Austermann 31 March 2021).

Instead, models for the promotion of CEEs and women's participation in them must be interlinked. Theresa Ungru explained that the offers to lease the agricultural land that were made to her were not attractive enough for her, and so instead “they wanted to build and do it themselves” (Ungru 6 May 2021). Incentives for self-driven wind development should be strengthened in order to establish more community energy projects. According to Heinz Thier, municipalities should be more closely integrated into the decision-making process and projects should be assessed with regard to opportunities for participation of local citizens and the local added value. In such a model, projects that create opportunities for women to participate could be given preference (Thier, 31 March 2021). As of now, participation as a woman in a renewable energy project is still something quite out of the ordinary. As Theresa Ungru said, “One is inevitably confronted with the fact that there are few women in this area. I don't want to be anything special, but the fact I’m a a woman is always remarked on” (Ungru, 6 May 2021).

5.2. Encouraging and limiting factors for participation in community energy

The majority of people participating in CEEs in North Rhine-Westphalia are older people who are already retired; 51% are older than 67 years, while young people up to the age of forty comprise only 4% of participants. Among women participants, it can also be shown that they are usually older than forty years. A significant proportion (41.6%) is over 67 years old, and only 6.2% of the female shareholders surveyed are under forty.

The fact that young women in particular seldom have access to community energy must be critically questioned from the point of view of equality. Previously, reference was made to the extensive participation of young women in the Fridays for Future demonstrations. When asked about the founding goals of their own CEE, 90% of those responsible said that making a contribution to environmental and climate protection was a central reason for founding them. In comparison, only 21% stated that their core concern was to implement a technical project. It is clear, though, that this correlation on environmental concerns is not sufficient to attract young women to participate in community energy projects. So there seem to be other factors preventing wider participation. Taking into account the monetary and time restrictions of women adds an important element, but on its own is still too simplistic an explanation. Krisztina André from Bündnis Bürgerenergie suggests that "rounds of ‘backroom’ discussions, which consist almost exclusively of older men, have a deterrent effect on women" (André, 3

March 2021). Beate Petersen pointed out that that she had been asked at events, in a deliberately provocative manner, "for what reasons women should decide to spend their free time with older men." This limitation is difficult to break with, as these concerns can only be countered by having a greater female presence promoting community energy (Petersen, 8 April 2021). Experts agree that in-person participation and well-timed suggestions can readily contribute to achieving parity if those involved really want it. Positive examples can be found, for instance, in the committees of the federal association of Bündnis Bürgerenergie (supervisory board 5/5, management board 2/2 and office 1-2 / 1-2) and the BEG-58 (supervisory board 2/2) (ibid.).

If the (community) energy transformation is to be even more broadly embraced across society, it is also necessary to increase the participation of other social groups that the CEE actors surveyed perceive as underrepresented. The most relevant groups in this category include people with a migration background (87%), people of younger age groups (65% agreement), people with physical and mental disabilities (61% agreement), and people with low incomes (Figure 9). These statements suggest a caution in that simply seeking to increase the participation rate of women in CEEs, without considering further socio-economic backgrounds, could limit the benefits of greater equity just to women from the “educated middle class”.

There are also socio-economic factors that make participation more likely from the point of view of the shareholders. Among shareholders, 67% see educational qualifications

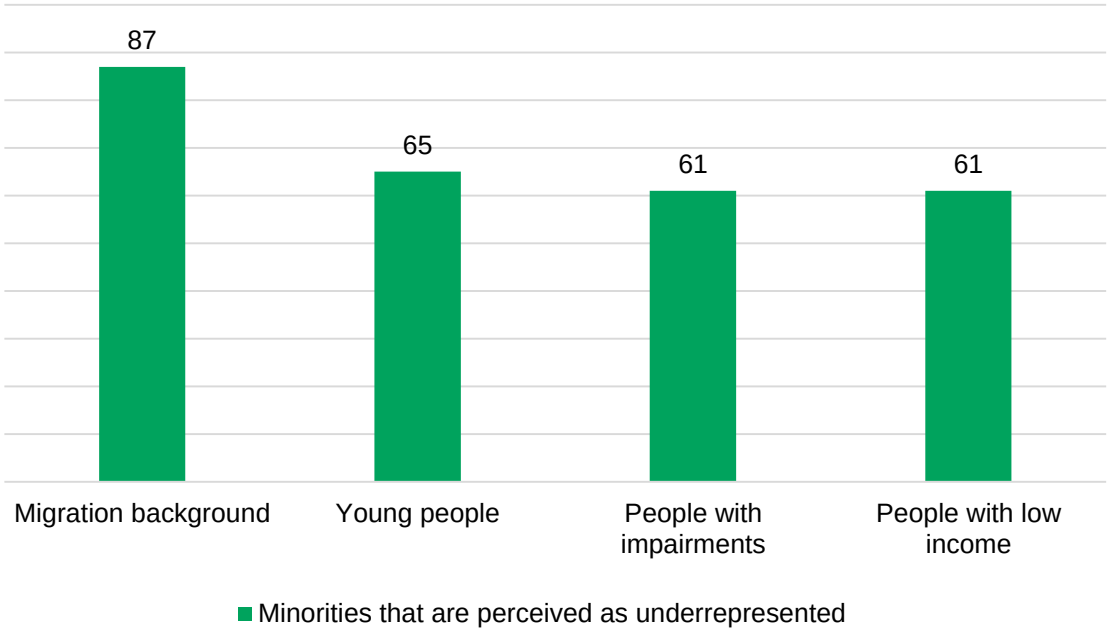

Figure 9: Perceived underrepresentation of other social groups (in %); n = 23

Survey question: Do you see other social groups that are underrepresented in your CEE?

as the most important socio-economic factor deciding participation in a CEE. This was followed by income, which 50% of respondents stated as a factor. Gender (19%), age (19%), and membership in local associations (16%) followed at a greater distance (Figure 10). Overall, the survey confirms the trend towards a comparatively homogeneous group that has been shaping and leading the community energy transformation so far, as earlier studies have shown (Fraune 2018, Radtke 2016).

Silvia Kleene specifies the educational qualification factor in her survey for cooperatives in Germany. Although she does not find any significant difference between the participation of people with a secondary school certificate and those with a high school diploma, she calculated that 55.5% of the CEE members in her survey have a university or technical college degree (Kleene 2018). Considering that only 22% of German adults between the ages of 25 and 65 have a university degree (DIPF et al. 2020), the disproportionate participation of academics in cooperatives becomes clear.

Theresa Ungru believes the ability to implement a complex project in the field of community wind energy requires a certain level of “entrepreneurial thinking” (Ungru, 6 May 2021). Ingeborg Friege, founder of BürgerEnergie Solingen eG, reports that in GmbHs shareholders are confronted with balance sheets and bureaucratic processes, which can be very discouraging for those with little experience with such processes (Friege, 28 April 2021).

However, most CEEs have not yet actively addressed the promotion of the participation of women. The level of participation of women has been discussed in only 18% of

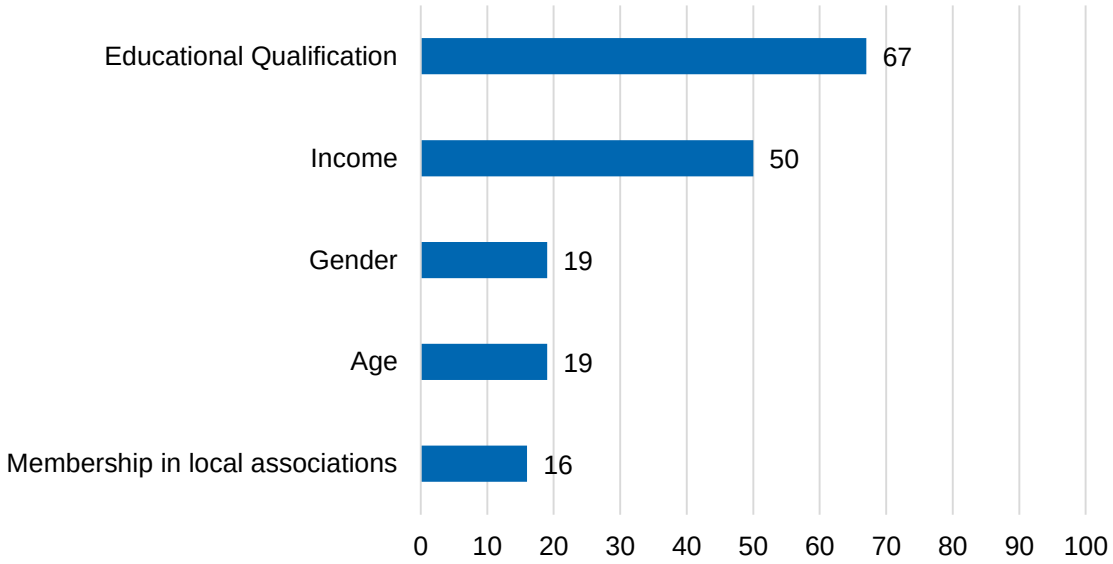

Figure 10: Socio-economic factors that promote participation in community energy (in %); n = 316 (multiple choice)

Survey question: In your opinion, are there socio-economic factors that make participation in a CEE more likely?

the CEEs; in 7% of the CEEs it is being planned, but in 71% of the CEEs it has not been seen as an issue so far. Similarly, only 7% have initiated campaigns aimed at actively trying to increase the participation of women; in 11% of CEEs this is in the planning stage, but in another 82% such a plan is not yet even on the agenda.

The difficult political framework conditions for community energy (Gsänger/Karl 2019) are named as a direct obstacle to female participation in the CEEs by only 20% of men and 22% of women. However, when asked about the general hurdles for participation in community energy, 61% of existing shareholders stated that it was the difficult political framework that stood in the way of greater participation by all citizens. It can therefore at least be viewed as an indirect factor, especially since women are less willing to take financial risks than men (ZEW 2018). In the interviews, several practitioners confirmed that the volunteers in the CEEs are fully occupied with new projects, due especially to the more difficult conditions in place since 2012 (with a cap on PV expansion) and 2017 (with conversion from fixed feed-in tariffs to tenders, involving lengthy approval processes). Less time is thus available for public relations and creative member recruitment, activities that can especially engage women (Blumenberg, 4 May 2021; Friege, 28 April 2021; Petersen, 8 April 2021).

5.3. Access to community energy and external presentation

Analysis of the ways in which community energy companies typically attract shareholders shows that the personal approach continues to dominate. Of the CEEs surveyed, 81% stated that personal contact was their primary way of recruiting members, and 67% rely on word-of-mouth advertising. Engaging in dialogue at local events is also seen as important by around half of the CEEs. Classic public relations work and member recruitment via social media are used significantly less (Figure 11). However, it must also be noted that many CEEs hardly have to do any advertising or public relations work, since the shares are literally "torn out of their hands" (Thier, 31 March 2021).

In the meantime, political parties too are dealing with questions of gender-specific membership recruitment. As an example, we can look at a guideline of the SPD ("Recruiting Members and Welcoming New Members"); this shows that women and men rely to varying degrees on external or self-recruiting; in many cases women won't put themselves forward, but would have to be asked, often several times. The SPD justifies these and other statements with its own internal party survey and emphasizes that the "research on gender-specific political engagement" still provides few clues. Furthermore, it states that women members prefer to contribute creatively and selectively and to avoid being situated in rigid, male-

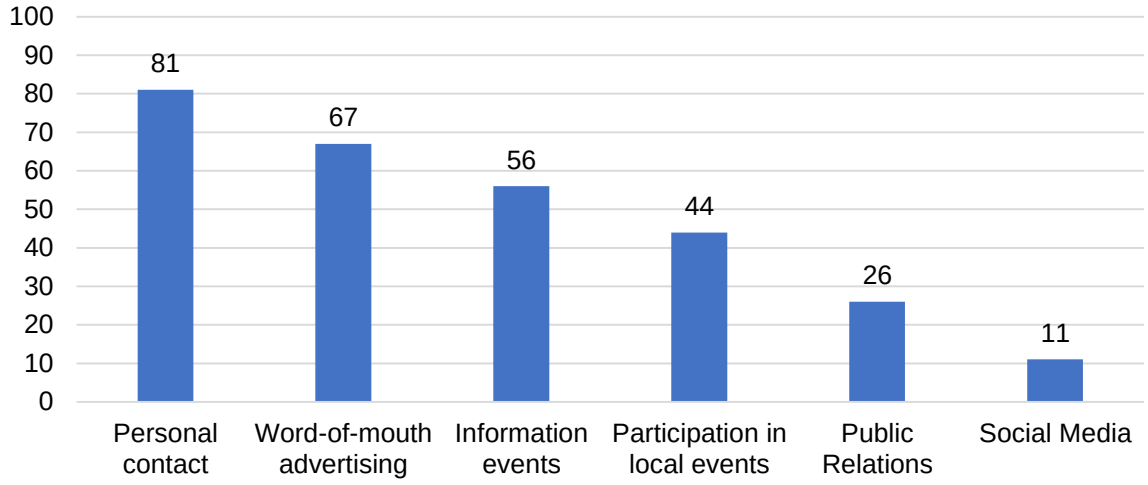

Figure 11: How citizens are won over as shareholders (in %); n = 27

Survey question: How do you win citizens as shareholders?

dominated structures. Successful recruiting, it suggests, can be achieved through "thematic and original addressing in social networks" (SPD 2020).

The fact that women are overarching not as pro-active as men can also be illustrated by taking a look at the ways of access to community energy. Almost half of the men surveyed (48.9%) stated that they had come to their CEE through self-research, while this was only the case for 30.1% of the women. In return, women stated significantly more often than men that they had come to community energy either through contacts with initiators of a CEE project or through recommendations from friends and family. Fully 21.4% of the female shareholders reported contacts with the initiators, as compared to 12.3% of the men. The recommendation of friends and family was given as a cause by 25.2% of the women surveyed, while only 11.8% of the men indicated the same.

In the interviews, some decision-makers support these assessments. Men have a significantly higher affinity for technological and energy-related topics, which is reflected in their greater presence in the STEM programs. In addition, many of the men active in community energy are from a generation that is little involved in private tasks and in the household, and thus they have a lot of time for external activities (Friege, 28 April 2021). Women, on the other hand, would have to be addressed in their personal realities and it plays a major role again whether there are women as role models who show that it works and how it works (Blumenberg, 4 May 2021; Friege, 28 April 2021; Hoff, 29 April 2021). Ingeborg Friege pointed out that there were formative women who did exactly this in their lives. Later she managed development projects herself, becoming a headmistress and using the expertise she gained, along with the confidence in her own abilities, to help found BürgerEnergie Solingen. Another interviewee stated that today Friege is the "face of the community energy enterprise" (Blumenberg, 4 May 2021) and, through her work in urban society, she is attracting new shareholders – and especially women, like Katja Blumenberg, who has herself been working on the board of the CEE since the beginning of the year.

This may be one reason why CEEs such as the Herford Peacebuilding Energy Cooperative (36% women) and BürgerEnergie Solingen (40.3% women) have a comparatively higher share of women among the shareholders than many of the other examined CEEs. In both cases women are visibly involved on the board. They have, according to their description, good local contacts in the climate and environmental movement, but also in the general political urban society. The evaluation of the CEE questionnaire also showed a particularly high proportion of women shareholders can be found in those companies whose questionnaire was answered by a woman – that is, where a woman represents the CEE to the outside world. In these CEEs, an average of 41% of shareholders were women (Figure 12).

The presumption that, as highly visible role models, women can generate follow-on ef-

fects is shared by Barbara Rodi, director of the Peace-promoting Energy Cooperative Herford eG. This CEE records a comparatively high proportion of female shareholders, at 36%, who together hold 54% of the shares in the cooperative. Barbara Rodi suspects that, as a locally engaged and committed person, especially in the area of climate protection, she succeeds in addressing women and in winning them over to participate in their own community energy project (Rodi, 3 March 2021). If these assessments are representative of the membership recruitment of CEEs in general, then the personal approach is clearly central. These data, in a preliminary assessment, suggest the personal approach, from woman to woman, appears to be particularly relevant. It appears all the more important as a way to break out of the unfortunate cycle in which a few, more passively involved women hold positions but then do not make efforts to actively recruit more women.

It still seems plausible that the CEE's open invitation to participation has a positive effect on the participation of women. Therefore, this may be an important starting point

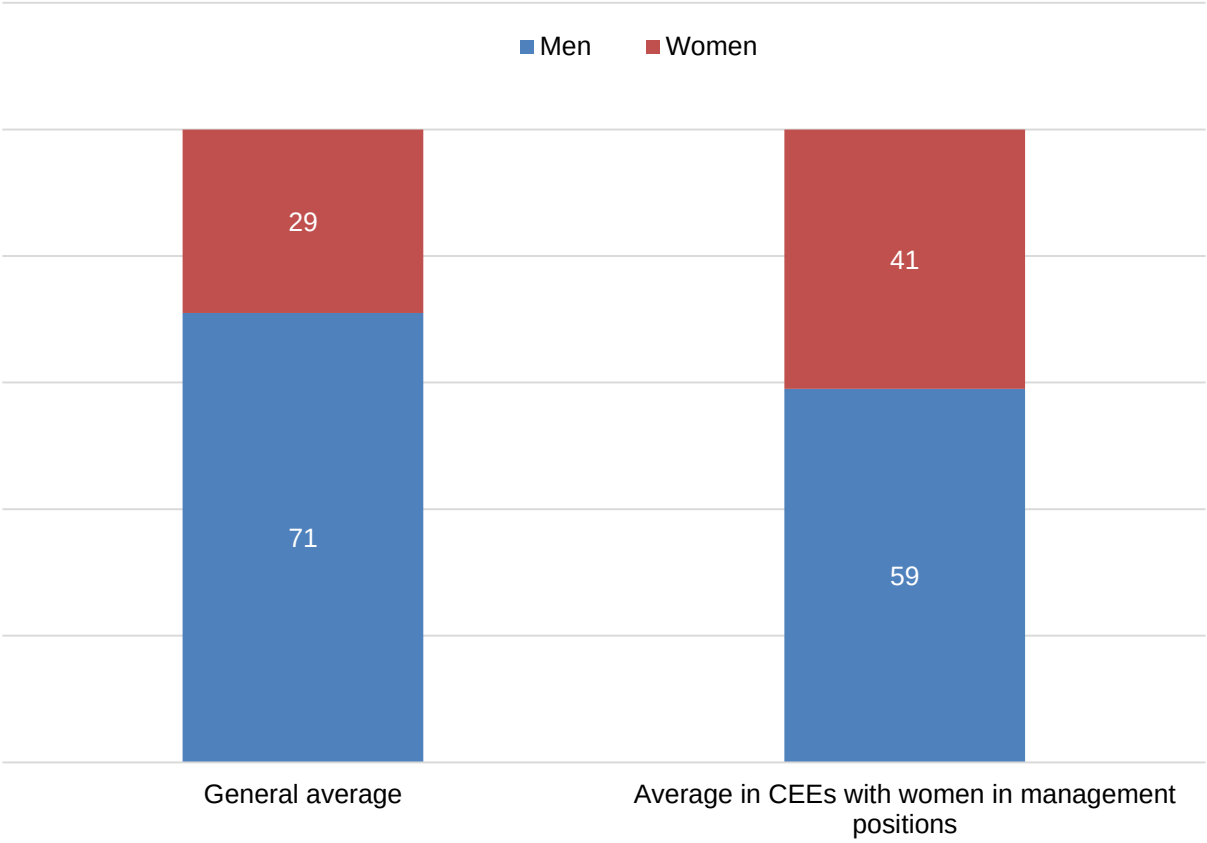

Figure 12: Proportion of women in CEEs with women in leading bodies (in %); n = 29

Evaluation based on personal information and the question: How high is the proportion of women among the shareholders of your CEE in absolute numbers? (As of 30 September 2020)

as possible instruments of study for the second year. In this context, Beate Petersen reports on an experimental hands-on PV project, in which interested citizens were invited by the CEE-58 in Wetter (Ruhr) to install PV systems on a roof themselves. The citizen participants were assisted by a solar technician; the assembly was checked by him and the approval was prepared. The response was gratifying from the start, and a number of young women took part in the project; the CEE-58 was then able to register some new shareholders (Petersen, 8 April 2021).

With regard to the external presentation of the CEE as an open, participatory corporate form, the shareholders see a need for improvement in many cases. Only 39% of shareholders rate the external image as very open and participatory; almost half of those surveyed, 49%, consider the external image to be average or neutral, and 12% describe the external image as rather closed (Figure 13). Theresa Ungru shares the view that targeted public relations work can also increase women's enthusiasm for community energy projects: “Public relations work like this should focus more on the fact that this gives you an investment that you can use in years to come for your children’s education or to finance retirement. Instagram and social media should also be considered more closely” (Ungru, 6 May 2021).

The BürgerEnergie Solingen, for its part, relies on recruiting members by means of stands at festivals and the marketplace; in

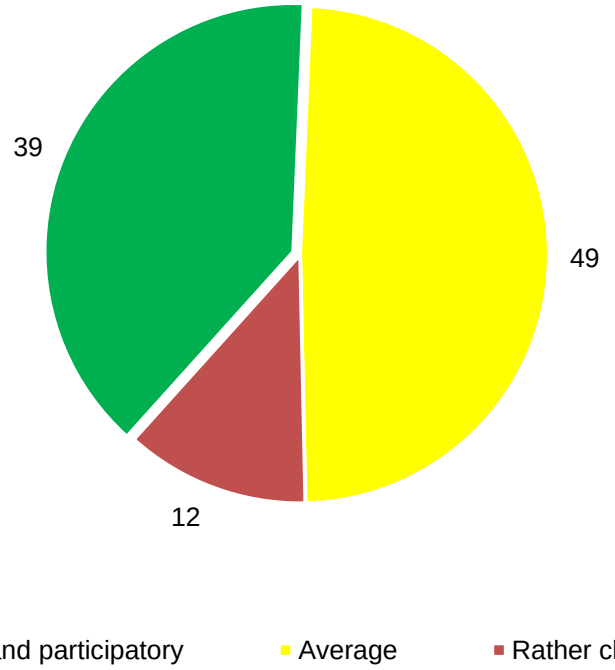

Figure 13: External presentation of the CEE (in %); n = 336

Survey question: In your opinion, how open and participatory does your CEE appear to the outside world?

addition, thematic round tables are offered at which content-related suggestions can be made by the members and voted on in the supervisory board and board of directors (Blumenberg, 4 May 2021; Friege, 28 April 2021). At these round tables, it is not only technical issues being tabled for discussion, but also social issues relating to the energy transformation. These events are regularly advertised via the CEE's newsletter, sent to around 950 interested citizens. External appointments are also often set up to offer prospective members a tangible on site view of the energy transformation. For example, a visit to a bakery that is completely self-sufficient with PV electricity, and a visit to the municipal utility with which a new PV project was being cooperatively implemented. The aim of these visits is to keep people enthusiastic about community energy and to show what is possible. According to the women interviewed on the board, the cooperative is always oriented towards the "living reality". This also means that it is possible for the shareholders to buy their shares in installments, which could be an important tool to enable the participation of people with lower incomes.

Although the majority of CEEs are aware of the underrepresentation of women among shareholders, only 7% of CEEs have undertaken specific activities to increase the proportion of women, while 82% have not yet done so. So there is a need for action, because a community energy transformation that aims at democratization also requires equal participation of women. Otherwise there is a threat of actually increasing inequality in society.

6. Participation of women in Japanese community energy

An important component of the study project is a parallel survey being undertaken in Japan, which will enable an understanding of the role of women in community energy internationally. Japan was deliberately chosen in order to be able to draw a comparison between societies with very different cultural characteristics. In this way, a better understanding can be achieved as to whether access and limiting factors are socially determined, and whether other factors have to be considered in particular. In addition, the state of North Rhine-Westphalia maintains a close partnership with the prefecture of Fukushima, so a comparison of the two countries should be of particular interest to decision-makers from North Rhine-Westphalia and Fukushima. A cooperation agreement was concluded with the Japan Community Power Association for the survey of Japanese CEEs. Under the direction of Shota Furuya, feedback was evaluated from 22 community energy companies within the Japan Community Power Association.

A few remarks on the Japanese community energy sector will help to illustrate the context (for the following: Raupach-Sumiya/Tezuka 2018). As early as the mid-1990s, it was citizens in their private capacity who implemented the first projects in the field of renewable energies, primarily solar energy on private roofs. Although in Japan the notion of energy policy decisions were primarily seen as a national issue, laws such as the 1994 “70,000 Solar Roof Pro-

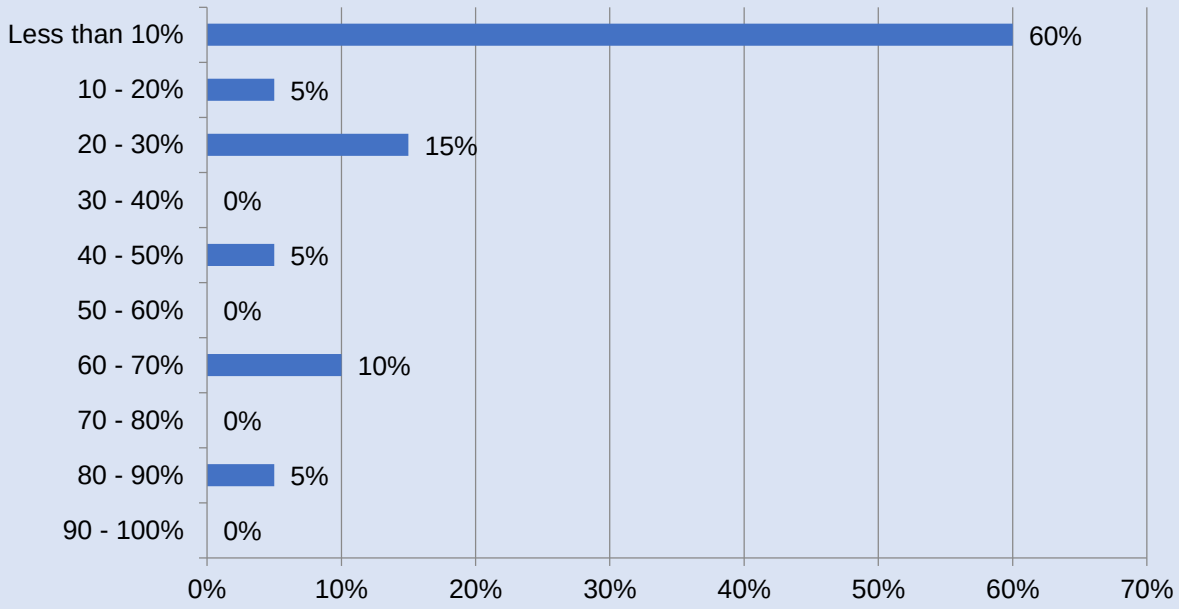

Figure 14: Percentage of shares held by women in Japanese community energy enterprises (as a % of respondents; n = 20).

Survey question: What percentage of shares of your CEE are held by women (as of 30 September, 2020)?

gram" encouraged private participation in renewable energies, and provided the flexibility to enable participation by citizens and city districts.

From the early 2000s, the number of community energy initiatives grew, for example the Hokkaido Green Fund, which was the first community-financed wind energy project, and Ohisama Shinpo Energy, a community-financed solar project realized in 2004. After the Fukushima disaster, local stakeholder engagement significantly increased, and by 2016, 200 CEEs had been created across the country. In March 2015, 99% of all renewable energy systems were small-scale solar energy systems of less than 50 kilowatt (kW) capacity. Of the 2.2 million systems in the country, 1.9 million systems were smaller than 10 kW, installed on private house roofs. Medium-sized systems, between 50 and 1000 kW, play a much larger role in Germany. In Japan they only contribute 10% to the total renewable energy capacity (ibid.). In the survey by the Japan Community Power Association, photovoltaic projects dominated with 21 mentions, while wind energy and energy efficiency projects came far behind, with only 5 mentions. Bioenergy, battery projects and small hydropower projects each received 4 mentions. The percentage held by women in the individual CEEs varies greatly, but is in many cases very low. On average, Japanese women hold 20.5% of the shares in Japanese community energy projects; 60% of the questionnaire responses indicated that women hold less than 10% of the shares (Figure 14).

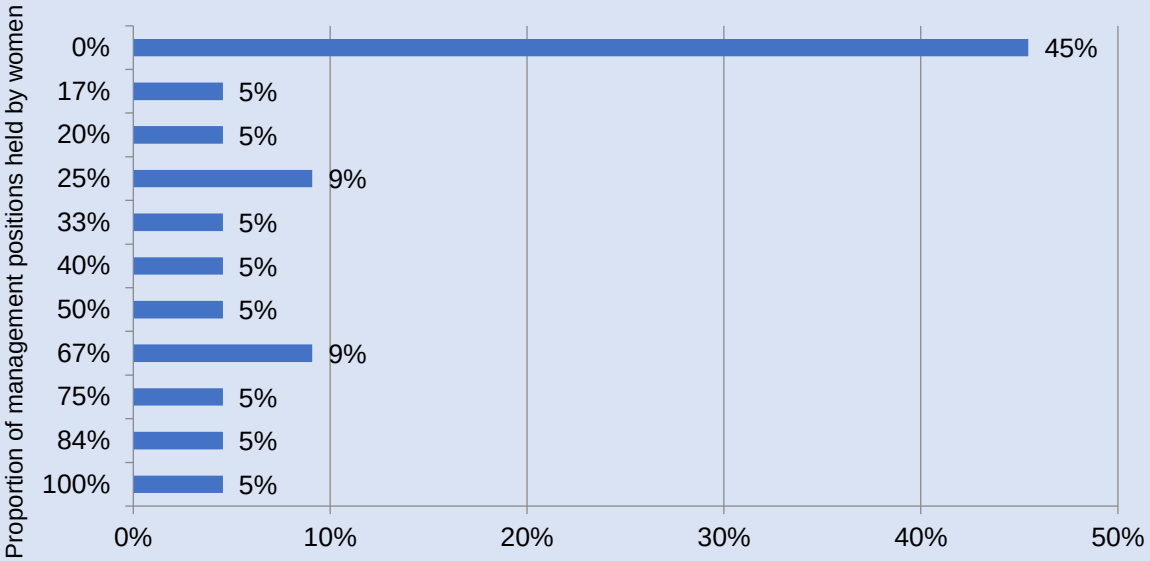

Figure 15: Proportion of women executives in Japanese CEEs (as a % of respondents; n = 20).

Survey question: What proportion of management positions in your CEE are held by women (as of 30 September 2020)?

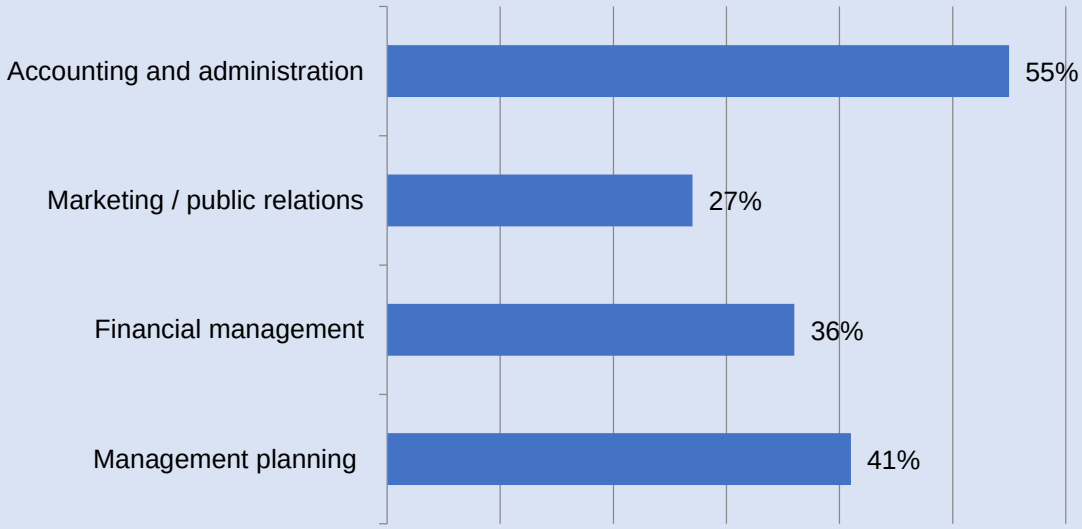

Figure 16: Activities of women in the governing bodies of the Japanese CEEs (% of respondents indicating each category; numbers do not add to 100% as more than one answer was allowed).

Survey question: In which areas of responsibility are women represented in your CEE?

There is also a lot of room for improvement when it comes to the participation of women in management. In almost half of the CEEs examined (45%) there were no woman at all at management level. On the other hand, women make up more than half of the management representatives in almost 23% of the CEEs surveyed (Figure 15). However, this also includes two CEEs that must be viewed as exceptional cases; one of the two consumer cooperatives was founded by housewives and has its origins in the field of food security, and the other has no natural persons as shareholders, but a climate Non-Governmental Organization (NGO) and a local company (Figure 16). Without these two outliers, which shift the average value of female participation upwards, the average participation of women in management is only 24.4%. It is positive that women, when they work in management, take on the full range of activities. Often they are assigned to the accounting and administrative area. In the Japanese CEE sample, however, they are even more frequently involved in planning and financial management than in marketing (Figure 16).

The problem of marginal female participation is understood in many CEEs in Japan, but few countermeasures have been taken in practice so far. Half of the CEEs (50%) rate female participation in the CEE as low or very low; for the participation of women in management, the figure is 63% of respondents. These facts have been actively discussed in only 23% of the CEEs to date, and specific action to increase the participation of women has followed in only one CEE in the survey.

7. Conclusion and outlook

The survey carried out in the first year of the project found that the share of women in community energy in NRW is currently less than a third (29%), and these individuals hold 27% of the shares in the CEEs in North Rhine-Westphalia. This compares favourably to previous surveys in Germany, in which the proportion of women was consistently found to be around 20%; yet the increased female participation remains a long way from the achievement of parity. Cooperatives come off best with a 33% share of women, while in GmbH & Co. KGs. the average proportion of women is only 14%. The analysis carried out, along with the expert interviews, indicate that this is not a coincidence, but that the participation patterns in community energy reflect constraints arising from the flexibility required by women and the lower-threshold entry opportunities when doing voluntary work with an investment. On the other hand, women participate well below average in hierarchically organized CEEs that are male-dominated and act (some say) as closed societies. These circumstances also affect the participation of women in the individual renewable technologies, so that, for example, a higher level of participation is found for photovoltaics than for wind energy.

In Japan women are even more underrepresented than in Germany; they only hold 20.5% of the shares in Japanese community energy. However, the comparison between Germany and Japan was made more difficult by the fact that many non-natural persons (NGOs, companies) are involved in Japanese community energy companies. In Germany, while municipal utilities and other artificial persons can hold shares in CEEs, it is a comparatively minor factor.

The low female participation in the CEEs in North Rhine-Westphalia in general also has an impact on the participation rate in the management bodies. Here, too, women are underrepresented, although the committee structures make a big difference. Especially when there is a board of directors in which responsibility is distributed among several people, and thus a degree of flexibility is possible, the proportion of women is comparatively high, at 35%. On the governing bodies of Japanese community energy companies, 24.4% of posts are held by women.

The participation of women in small CEEs with fewer than forty shareholders is noticeably low in NRW. Many of these CEEs can be classified as belonging within the agricultural sector, and it has become clear that relatively low participation of women in the energy industry and in the agricultural sector go hand in hand. On closer examination, it also became clear that in many cases the promotion of female participation cannot simply be stipulated as with a quota for CEEs; rather, the relationships are quite complex, and must be interpreted in a socie-

tal and sector-specific manner at the same time. In this regard, reference must also be made to the different types of perceptions of men and women, which has led to public relations work that primarily addresses men, which points toward a new area of problem analysis.

The study by WWEA/LEE NRW shows that time, money and a high educational qualification are favorable criteria for participation in community energy in NRW. In the context of the other evaluated studies, these represent important access keys for participation in community energy in Germany and for holding offices in general. New challenges have arisen due to the corona pandemic and its social consequences, as the average working hours of women have fallen more sharply than men's in the wake of the pandemic. This is especially true for women in families with children in need of care; in these families, the average weekly working hours of women even before the pandemic was 31 hours, well below the average for men (41 hours). In October 2020, in the midst of the pandemic, the average was 39 hours for men and 28 hours for women (Hövermann/Kohlrausch 2020). Since the study contains indications at various points that performing voluntary work is often linked to one's own professional knowledge, this "negative trend" must be monitored in subsequent study work.

In addition to determining the participation rates, the WWEA/LEE NRW study can contribute specifically to the debate around why some CEEs are better at attracting women as shareholders, and why some CEEs also have more women in responsible board positions. The two facts are interdependent. CEEs that are well connected to the community and which also have women as leaders and role models are particularly successful in attracting women both as shareholders and for board positions. If, in addition to the implementation of technical projects, a CEE also offers opportunities for participation and jointly organized information and discussion events that are tailored to the needs and interests of all shareholders, these impacts can be even greater.

In the basic chapter "Participation of women in the energy industry and energy policy", reference was made to the program drawn up by GWNET to improve the participation of women in the energy transformation. Of the criteria listed there, of particular importance for community energy are those aimed at inclusion strategies, transparency and an increase in the proportion of women in management positions. These findings will be used as a basis for working out more detailed possibilities for improvement in the second year of study. In the second year of study, these findings will guide analysis to determine how inclusive member recruitment is best achieved and how more women can be won over to community energy.

Reflecting on the self-image of community energy, we can say that improving the participation of women and other social groups (intersectionality) is not a luxury, but an integral part of successful development. "The

redistribution of power and decision-making capacity in the energy supply - from a centralized, corporate energy system towards a decentralized, renewable and democratic one - is a prerequisite for a successful energy system transformation. It is therefore relevant to consider how community energy cooperatives themselves distribute power and decision-making options and how they operate" (BBEn 2020). The majority of CEEs in Germany and many CEEs in Japan are aware of the problem; now is the right time to create opportunities to improve it.

8. Literature

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