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Energy Cooperatives as Energy Transition Actors

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ABSTRACT

Germany is pursuing the ambitious goal of climate neutrality by 2045. In fact, the expansion of renewable energies is taking place far too slowly. There are several reasons for that. Project approval and planning processes are too lengthy and time-consuming; they are also often complicated by citizen protests against wind farms and ground-mounted photovoltaic parks. Various studies show that many protests are the result of perceived conflicts. The nature and extent of the conflicts vary, e.g., depending on the type of conflict, the stakeholders, technology, and local context. Overall, studies show that communication is a crucial factor in the success of infrastructure projects, e.g., as a means of conflict management. Many studies about energy infrastructure projects look at projects that are implemented by companies. This study changes the perspective on the ongoing transformation process to renewable energies. The focus is not on companies that need to interest and attract citizens to renewable energy projects but on citizens who join citizen energy cooperatives (CECs) and become local entrepreneurs themselves. The study aims to provide statements on how CECs function, what communication tasks they must master, and what challenges are in communicating internally with members and externally with stakeholders. This includes a deeper understanding of the perspectives for CECs regarding current legislation and planned business models, as well as conflicts that have arisen and are emerging. For the study, CECs were researched online, and executives (n = 12) were asked for an interview. Before the in-depth interview, they were asked to complete a questionnaire where they provided information about their cooperative. The literature-based interview guideline addresses three topic areas: (1) CECs' expertise and scope of tasks; (2) communication tasks of the CEC; and (3) perceived risks and conflicts. The interviews were conducted in 2022. The data were anonymized, transcribed, and analyzed qualitatively (interview) and quantitatively (preliminary questionnaire). Results: The respondents understand communication as an essential and success-relevant part of the implementation of CEC energy projects. In recent years, the communication effort for CECs has steadily increased. The most important communication areas are project planning and acquisition, public relations, and member communication. Most respondents are convinced that local acceptance of energy projects is higher when CECs implement projects compared to companies since those responsible are themselves members of the community and therefore share local needs, desires, and problems of the community actors. To remain competitive, the CECs surveyed are expanding their portfolio structure, e.g., by communication-intensive models such as tenant electricity. CECs are developing many formats or pursuing novel approaches. Companies would be well advised to learn from this wealth of ideas from CECs, e.g., in public relations work and addressing new target groups.

Keywords: Energy cooperatives, Energy communication, Infrastructure projects, Internal communication, External communication, Energy transformation, Communication tasks

INTRODUCTION

Germany is pursuing the ambitious goal of climate neutrality by 2045. In fact, the expansion of renewable energies is taking place far too slowly. There are several reasons for that. Project approval and planning procedures are too lengthy and time-consuming; they are also often complicated by citizen protests against wind farms and ground-mounted photovoltaic parks. Various studies show that many protests are the result of perceived conflicts. The conflicts can relate to perceived imbalances (distribution conflict), divergent scientific expertise (knowledge conflict), different values (value conflict), or social conflicts, among others (e.g., Hellmuth/Jakobs 2022). The nature and extent of the conflicts vary, e.g., depending on the stakeholders (e.g., residents, community, or farmers), the technology, and the local context. Communication about renewable energy installations is challenging because it is complex and risky, but studies also show that communication is a critical factor in the success of infrastructure projects. Companies must anticipate impending conflicts in the run-up and during infrastructure projects and respond to them with communication.

This article shifts the perspective on the ongoing transformation process to renewable energies. The focus is on citizen energy cooperatives (CECs) rather than companies that need to interest and attract citizens to renewable energy projects. It examines the situation when citizens join to form a cooperative and become local entrepreneurs themselves.

For the energy transition in Germany and its path to climate neutrality, the corporate and legal form of a CEC is a vital actor (Klemisch, 2014). The Federal Office for CECs states that there are currently (as of December 31, 2021) a total of 914 energy cooperatives in Germany with approximately 220,000 members that have already invested approximately 3.3 billion euros in renewable energy projects (DGRV, 2022). One goal of CECs is a more demand-driven energy production that prioritizes members' interests over profit maximization and profit orientation and promotes the energy transition through the predominantly decentralized expansion of renewable energy projects (Brummer, 2018). Communication and participation processes are elementary planning components of energy infrastructure projects. In this context, a coordinated, interrelated interaction of the actors communicating with each other plays an essential and success-critical role (VDI, 2014).

The expansion of renewable energies is in the public interest and serves public safety. They will have priority over other interests when it comes to balancing decisions in the future, which could increase the speed of planning and approval procedures. The article aims at a deeper understanding of the role of CECs for the German energy transition. Our research on this topic addresses how CECs function and how internal and external communication works in CECs. The question is approached from the perspective of technology communication (e.g., communication tasks such as planning and acquisition of new projects, member communication, external communication, public relations). This includes a deeper understanding of their perspectives regarding current legislation and planned business models, as

well as conflicts that have arisen and are emerging and how to address them through communication. The paper presents the results of a study conducted as part of the ENSURE project.

ENERGY COOPERATIVES

A CEC is democratically organized and pursues the goal of involving as many citizens as possible in shaping the energy transition. It comprises interested citizens who have joined in the legal form of a registered cooperative and whose primary purpose is to carry out activities in the energy sector. Since the term "citizen energy cooperative" has not yet been generally defined scientifically, other terms are often used synonymously, e.g., renewable energy community, citizen energy community (both used in EU law), or citizen energy society (used in the EEG 2023, §3 No. 15), which include other corporate and legal forms that have similarities to cooperatives in an economic sense (Kahla et al., 2017). In addition, some countries abroad have not incorporated the legal form of a cooperative in their legal system. Cooperatives are governed by the Cooperatives Act, which came into force in Germany in 1889. Three people are required to form a cooperative. Small cooperatives with up to 20 members only need to elect one board member, all others two board members and three supervisory board members. According to Section 1 of the Cooperatives Act, participation in cooperatives is permissible if "their purpose is to promote the acquisition or the economy of their members or their social or cultural interests through joint business operations" (member orientation). Key positions within cooperatives involve a great deal of work and time, are usually held on a voluntary basis, and consequently depend on them to a considerable extent (Meister, 2020). Another notable feature of cooperatives is the principle of democracy, which ensures that each member has only one vote, regardless of their share size in the cooperative. Cooperatives are jointly owned by all members, and there are no significant hurdles to joining or leaving.

In Germany, CECs are represented by the "Bundesgeschäftsstelle Energiegenossenschaften" of the Deutscher Genossenschafts- und Raiffeisenverband (DGRV) and internationally by the International Cooperative Alliance (ICA). The solid and steady increase in newly founded citizen energy companies and CECs started in 2006 and continued until 2014 (Kahla et al., 2017). This was primarily due to the state feed-in tariffs guaranteed by the EEG in 2000, which favored the expansion of renewable energies. The typical business model for CECs was to collect funds for renewable energy plants (primarily PV or wind), feed the generated electricity into the grid, collect the feed-in tariff, and pay it out as dividends to members (Miller, 2022). The 2012 amendment and the gradual reduction of benefits made a direct supply to members more attractive. However, it also led to a slower increase in new energy cooperative formations. The membership structure comprises 95 percent of private individuals (others: companies or banks, farmers, municipalities, public institutions, and churches). The average investment amount per member is 5,854 euros, but only three percent invest a sum of more than

10,000 euros. Most cooperatives are active in the field of energy production. 79 percent produce electricity through photovoltaics and 36 percent through wind. Likewise, 36 percent are active in the business field of electricity supply, 26 percent in heat network operation, and 22 percent in the field of electromobility. Cooperatives have a 3.5 percent share of renewable electricity generation in Germany. In 2021, they generated more than eight terawatt hours (TWh) of electricity, avoiding three million metric tons of CO2 equivalents.

Some studies address challenges (opportunities/barriers) and success factors of CECs (e.g., Auferoth, 2021; Ahlemeyer et al., 2022), but they do not explicitly address how CECs communicate internally and externally and deal with conflicts.

METHODOLOGICAL APPROACH

The study methodologically combines in-depth interview and a preliminary questionnaire. An internet search was conducted to find executives of CECs to learn more about the internal and external communication tasks that arise. Approximately 120 persons were contacted and invited by e-mail (response rate 10%). Before the in-depth interview, they were asked to complete and return a questionnaire. In the preliminary questionnaire, the respondents were asked to provide information about their CEC (number of members, founding date, investment volume to date, form of cooperative and forms of energy used, business models, and cooperation). The literature-based interview guideline covers three topic areas: (1) CECs' expertise and scope of tasks; (2) communication tasks of the CEC, e.g., at interfaces to other stakeholders; (3) perceived risks and conflicts.

The participants (n = 12; eleven male, one female) are board members (n = 10), supervisory board members (n = 1), or regional group leaders (n = 1) of a CEC. They have experience with infrastructure projects in the energy sector and are well-informed about their region. The CECs surveyed have an average of 586 members (ranging from 42 to 2,600 members) and were founded during a boom phase between 2009 and 2012 (five of them in 2012). Compared to the average German-wide investment volume of 3.9 million euros per CEC (DGRV, 2022), the surveyed CECs have invested an average of 5.45 million euros to date, with the largest investment amount being 15 million euros. The minimum investment amounts vary between 100 and 2,500 euros (highest total amount: 25,000 euros), and the maximum number of shares is between three and 25. Five CECs are based in the German state of North Rhine-Westphalia, two in Bavaria and Baden-Württemberg and one in Thuringia, Saarland, and Hesse. 83% of respondents use solar energy as a form of energy (most frequently rooftop systems, then ground-mounted systems/parks or participation in them, and lastly solar trackers), 67% invest in wind power projects (wind power plants or stakes in plants and farms) and individual CECs also use biomass or wood.

The interviews were conducted digitally in 2022 and recorded with the consent of the participants (Ø-interview length: 73 minutes). The data were anonymized, transcribed, and analyzed qualitatively with the MAXQDA

software (interview) and quantitatively (preliminary questionnaire). Results are illustrated by quoting respondents (abbreviation PX: P = participant, X = number of the participant). The quotes were translated from German into English by the authors.

RESULTS

The results are presented in three parts. First, the communication tasks of CECs are introduced. Next, the perspectives of CECs are displayed, focusing on professionalization, speed of implementation, and business models. Finally, conflict management with internal and external conflicts will be discussed.

COMMUNICATION TASKS OF CECS

The respondents were asked to name typical communication tasks CECs must deal with internally and externally, as well as identify involved stakeholders, joint issues, and project phases in which communication must occur.

The results show that the respondents understand communication as an essential and success-relevant factor. The need for communication was always high but has increased since the energy crisis. It is not easy to fulfill all requests as many CECs work mainly voluntarily. However, they try to create positions in marginal employment (based on a salary of 520 euros) or to pay expense allowances. Overall, there is currently great interest in CECs, particularly in the PV sector. It is therefore not necessary to advertise CECs through events or other measures. Due to the high demand, much more patience is required during implementation.

There is often a division of tasks between project planning, acquisition, and support (whereby another person usually handles the concrete technical and plant implementation), public relations, member communication, and the sales sector (such as accounting, bookkeeping, financing of assets (own funds/loans) and personnel management). These four areas are presented next.

Project Planning, Acquisition, and Support

One of a CEC's most essential communications tasks is planning and acquiring new projects. During this process, the executive and supervisory board levels discuss much, but the entire membership is usually repeatedly informed and involved. Respondents are clear that new projects must be of a certain volume to make the work effort worthwhile; at the same time, massive projects are not feasible for CECs working primarily voluntarily. CECs must carefully consider whether a project fits or is too large or too small. In the PV sector, companies more often become active themselves and implement projects without the help of CECs, which is nevertheless viewed positively by the respondents due to their idealistic goal of climate protection because it advances the energy transition ("The main thing is to fill up the roofs. [...] As long as it is implemented, it is positive for us", P04). Especially given

the increased energy prices in Germany in 2022, the CECs surveyed pursue the goal of affordable energy prices for all. As those responsible for a CEC and in the interest of their members, they try to generate a reasonable return on investment but have no further financial ambitions beyond that. This distinguishes CECs' communications from companies that often focus their communications on financial and operational performance, while CECs also report social and environmental news. The idealistic idea usually plays a subordinate role among the members. However, there are some exceptions and CECs that are united behind the idea of climate protection: "The energy transition is the most important thing! Whether I get a return is not the main thing" (P02). However, the majority also invests to generate returns, often only secondarily for climate protection reasons.

Public Relations

A quarter of the CECs surveyed say they need to pay more attention to public relations. For the other CECs, it is an essential factor. They organize and host events to inform the public and members about the work of the cooperative, cooperate with external partners, e.g., with climate protection agencies, and interact with politicians (e.g., mayors, committees, municipal or city councils). Networking is also essential for project implementation, e.g., the exchange with project developers and banks, but also with craftsmen, system manufacturers or solar engineers, with technical planners (architect, stress analyst, head of the building authority) and above all with the landowners (often farmers), with whom the leasing of their land for renewable energy systems must be discussed. Suppose there are areas in a municipality where a project will be realized. In that case, local CECs have it easier compared to external project developers to inform citizens about benefits because they allow them to invest in the projects themselves and generate energy independently of large corporations ("No Norwegian dental consortium will build here, but you have the opportunity yourself", P11). This is where those responsible for the CECs see a decisive advantage for themselves:

> Large corporations can build large offshore plants, but here on site at the wind farms, the small stuff, e.g., communicating with the farmers, they cannot do that, and that is why cooperatives are the right contacts there" (P01) (for the communication with farmers see also Hellmuth/Jakobs, 2019).

Communication with external partners is highest in the initiation phase of a project. All respondents are satisfied with the communication at the interfaces with external partners, and only a few complain about the communication with particularly large project developers.

CECs have many outreach strategies and approaches and are developing many formats (that energy companies could learn from) or taking novel approaches that seem socially oriented and practical. They present the technology by going directly into communities and demonstrating at an information booth how a photovoltaic module can power a model railroad. There are also celebrations, such as at the inauguration of a wind farm or

an annual summer festival that has become "a kind of performance show". Moreover, there are formats such as an "energy cooperatives market" where various local and regional CECs present themselves. CECs create synergies by combining tourism and marketing and bundling resources. They offer accommodation, gastronomy, hiking, and mountain bike tours, e.g., combined with a visit to a woodchip plant for a local heating network. By installing vending machines and benches, they want to improve the quality of stay. They also try to increase their reputation and visibility through marketing and image measures by investing surplus funds in the community (by supporting charities, fire departments, kindergartens, or schools) or by supporting an initiative that builds solar panels in Africa so that seamstresses have light to sew in the evening. The CECs communicate more frequently and directly with the local community and see themselves as "cultural and social partners" who are committed to the further development of the neighborhood: "We have bought up areas where we leave the tree population to nature" (P11). Other CECs support constructing an on-site Tiny House development to increase the attractiveness of the place: "That always has something to do with having our finger on the pulse of the population. That is where a good foundation of trust has been built" (P11). In addition, other target and interest groups are to be addressed by creating an environmental nature trail to which school classes are brought by a hydrogen-powered bus. The architecture of wind turbines is also perceived as a space for communication by holding events such as poetry slams:

> When you enter downstairs [...], it is a huge space that also has some acoustics. [...] Add a curry sausage stand outside and something to drink, and then you have shown wind energy from a completely different angle (P11).

Member Communication

Member communication varies strongly depending from CEC to CEC. Some CECs communicate only as much as necessary. They invite the cooperatives to the annual (mandatory) general meeting and actively approach them only when there are opportunities for participation. For other CECs, all member correspondence is essential. They send regular information letters to all members (quarterly to annually), are responsive, and welcome new members. At the General Assembly, they provide information mainly about activities and developments of the CEC (ongoing, planned, and new projects), as well as about finances (capital, turnover, expenses, management of dividends and loan agreements) because they are accountable to their members. They involve the members in decision-making by allowing them to vote on important issues. The board of directors tries to be persuasive in its communication, explaining complex issues as simply as possible but also expects mutual trust when making decisions without all members. Member communications and public relations form an important building block for effective communication with all stakeholders.

Sales Sector

The sales sector includes accounting, bookkeeping, financing of assets (equity capital/borrowing), and personnel management. These tasks become more elaborate as the number of members increases. For this reason, there are cases where associations provide support, e.g., the Bavarian Cooperative Association takes over the bookkeeping for a cooperative that only sends the receipts to the association and sees this as a significant reduction in workload.

COMMUNICATION TOPICS: PERSPECTIVE

The founding members of the CECs were concerned about the energy transition and felt that the transformation was happening too slowly with companies implementing the projects. They wanted to support the expansion of renewable energies actively, participate themselves, and therefore founded the CECs. The CECs have emerged, for example, from the anti-nuclear power movement or from a climate regulars' table where interested citizens meet and get involved in various sustainability, environmental, and climate issues. A vital communication topic on the minds of the founding members these days is their future direction and perspective. Due to new legal regulations as well as crises such as the Ukraine war (leading to increasing interest in the topic of energy autonomy and in turn led to good market conditions), 83% of respondents answered the question about the assessment of the prospects for their CEC as *good* or *very good* – the remaining 17% as *rather bad*. The perspective is seen positively mainly because of the excellent order situation ("All installers of PV can hardly save themselves from orders now", P04). The energy crisis and the Ukraine war are seen as strong drivers for the excellent order situation ("We are swimming in money", P12) and a faster infrastructure expansion:

> The coalition wants to go the way of renewables, but external influences like the war are accelerating the conversion insanely, already too much, so we now have to build LNG terminals. That would not have been necessary if we had done more in the direction of wind and solar ten years ago. [...] Many who were passive-neutral to the issues of wind and solar are now ardent advocates of the issues because energy autonomy is recognized as an insanely important issue. The big lever has been the war of aggression by Putin and the shortage of energy supplies and energy resources (P10).

In this regard, the interviewees register a change in thinking on the part of decision-makers in local politics:

> Rooftop photovoltaic systems have always been accepted, but now municipalities say that large ground-mounted PV systems of five or ten megawatts could be built along highway or rail lines (P03).

The respondents see the **professionalization** of their CEC as an essential prospect for being equipped for future tasks and competitive in the long term:

> We need to make another significant increase. If projects have been about one million so far, we will need projects of 10, 20, or 30 million euros in the future (P03).

Professionalization primarily means establishing, stabilizing, expanding organizational structures and processes, and bundling competencies through cooperation. Cooperations were most frequently established with other CECs, umbrella cooperatives or the cooperative association (67%), but also with municipalities/communities (59%), with banks (50%), and with housing associations (33%). To be able to implement this, permanent positions must be created. Three CECs have already professionalized to such an extent that some employees have midi jobs or are permanently employed, e.g., in project development. Bundling competencies has advantages for CECs. For example, it is common practice to consult with other CECs as well as external service providers:

> An exchange is incredibly important. You can give each other suggestions, especially when planning such facilities. It is good to know that others are active in this area, which constantly motivates us anew (P02).

Two CECs use a cloud to manage calendars and to feed in the data from all the plants, giving them a better organizational structure for managing their tasks.

Individual CECs assess the situation differently and rate the outlook as poor. Some CECs have stopped accepting new members for a long time because they are waiting for a larger project. In contrast, others can hardly save themselves from new projects and members ("We were recently on regional TV. That report brought in 40 to 50 new members," P06). These CECs also have no problem raising project funds ("We just need to send an e-mail to our 600 members, and we get the funds we need. [...] The trust bonus is gigantic", P03). On the other hand, there is a CEC that sees little chance of continuing to operate successfully, they fear the competition, and it would have already given up if the sharp increase in energy prices had not led to higher revenues ("Our size - 150,000 to 200,000 euros in revenue, 300 members - will no longer exist in five years", P10).

Speed of implementation is reported as a major problem, with frequently cited reasons being the lengthy regulatory requirements (e.g., for plant certificates), the registration process between customers and utilities ("There are many who have had their plant for three months and have taken care of it early, but nothing happens", P11), and, most importantly, the lack of craftsmen:

> Craftsmen are completely overworked, and they have not managed to build up crafts as a job profile so that you can quickly achieve a major transformation. [...] Vocational schools must be expanded, built, or revitalized. You must promote the subject of crafts, but also wind and solar energy. These are maintenance-intensive energies with a high employment rate compared to central energies such as coal or nuclear, which need few employees (P10).

The new EEG, which came into force in January 2023, can lead to faster, less bureaucratic, and less communication-intensive acquisition of projects because CECs are exempt from a tendering process for solar (between 1 and 6 MW) and wind projects (between 1 and 18 MW installed capacity). Through these facilitations, CECs hope to reduce time-consuming communication and diversify their portfolio structure by processing and implementing projects in the areas of ground-mounted PV and wind energy more quickly and with less bureaucracy, without having to participate in tenders:

> The lengthy start-up time for such projects will be significantly reduced. For a current project, we have participated twice unsuccessfully in a tender. Without a tender, it could already be up and running (P06).

The measure can eliminate upfront costs of sometimes 100,000 euros and more (e.g., for environmental, soil, or avifaunal assessments). The limitation of exceptions is criticized partly because more extensive wind or solar parks already exceed this limit today, and they would have to enter the tendering process again.

For the future of their CEC, the respondents see the acquisition of new **business models** as a significant factor for continued success in the market. The CECs invest primarily in power generation through photovoltaics and wind but also increasingly in other communication-intensive business models such as leasing models. For 75% of the respondents, business models have been added over time, and for 25%, there have been no changes. Likewise, 75% are considering introducing new business models. Some of the CECs surveyed initially installed small rooftop systems to build trust but quickly realized that PV systems on private roofs were too small, unprofitable, and time-consuming (e.g., communicating with the client or setting up a lease). Therefore, the majority focuses on larger PV systems on municipal or commercial roofs, ground-mounted citizen solar parks, citizen wind parks, or participation in wind power plants. Depending on the feed-in tariff, the classic full feed-in model sometimes worked very well, but sometimes it was not lucrative. CECs understand that they need to monitor market conditions and decide whether they should offer other models. There is investment or consideration for future investment in various business models. These include, above all, the direct sale of electricity via Power Purchase Agreements (PPA), direct marketing (market premium) on the stock exchange, entry into wind energy, direct consumption, the development and operation of a local heating network, tenant electricity (supply) models, lease models, sale/distribution of PV balcony modules, car sharing, development of electric charging infrastructure, agri-photovoltaics (to avoid competition for land) and energy contracting. The most frequently mentioned consideration for investing in new business models is PPA (25%); they are described as promising. It is a bilateral power purchase agreement, i.e., a long-term power supply contract regulating renewable electricity sales between two parties. PPAs are a form of direct marketing, but in contrast to traditional direct marketing, the state EEG subsidy (e.g., market premium or feed-in tariff) is not part of a PPA:

> It probably makes more sense to sell the electricity directly, keyword PPAs, to make oneself independent from the EEG regime or, even better, from the stock exchange, which is going completely crazy. That is nice in phases when the revenues explode via direct marketing. But we are not interested in gambling; we want to produce cheap, decentralized, and climate-friendly energy and provide the infrastructure for this and precisely with citizens (P06).

More and more CECs offer communication-intensive models such as tenant electricity models or the sale and distribution of PV balcony modules. To be able to handle the tasks, the CECs often cooperate with service companies for tenant electricity models, which take over the administrative tasks such as the billing of the tenant electricity and the metering concept. One example is installing a rooftop PV system on an apartment building. The electricity generated is delivered to the service provider's balancing group, who purchases the electricity not supplied via the roof from a green electricity supplier. Tenants can purchase the electricity generated on their roof via the service provider (and not via the CEC) at comparatively low prices. In addition, some CECs offer contracting, e.g., a CEC takes over a school's entire energy supply, which will be owned and operated by them for 20 years. After a lengthy communication process, the concept convinced the school management. Lastly, two CECs built their local heating network (others are considering this business model). They implemented an energy village aiming to self-sufficiently realize their entire heat and power supply and produce, distribute, and trade renewable energy (energy producer-consumer cooperative).

CONFLICT MANAGEMENT

Respondents were asked whether conflicts had occurred, how they dealt or proceeded with internal and external conflicts, and with which actors and in which phases they occurred. External and internal conflicts have already occurred - especially at the beginning of a project, i.e., in the phase of basic research up to project implementation. **External conflicts** occurred mainly because of resistance to plants and their planning (interviewees reported dead birds placed under wind turbines or black stork nests built near a wind farm to settle them there), as well as changing political framework conditions and regulatory barriers. Conflicts occur primarily with protesters but also during communication with landowners, investors, authorities, and politicians. In the case of wind energy, they try to deal with conflicts by monitoring red kites, cranes, or bats (by so-called bat coders). This shows parallels to the conflict management of companies. Differences emerge in another type of conflict management. Especially CECs, who work largely voluntarily, try to avoid conflicts communicatively by not forcing the dispute but by seeking other solutions or other areas for a project. Overall, the respondents estimate external conflicts to be relatively low, especially compared to projects carried out by investors. They justify this with a different approach. They often carry out the projects exclusively with local partners to keep the value creation local and support the local economy. Decision-makers communicate the added value of their CECs by making it clear to local non-members

that they benefit from the municipality's additional revenue and business tax income (e.g., through investments in municipal projects or tax reductions). The same applies to the acceptance of regional energy transition projects, which is seen as higher when CECs implement a project compared to companies implementing these projects. One reason for this is that the people in charge are community members and know and share local needs, desires, and problems better than companies, which leads to closer relationships with members. Decision-making often takes place in a long communicative process together with the members. This confirms findings from the IASS Sustainability Barometer that citizens (49 percent) would be more willing to invest in a wind farm owned by a cooperative than in a wind farm owned by a company (29 percent) (Wolf et al., 2021).

Internal conflicts are rare, e.g., due to different motivations to invest in a CEC (value conflict). Some stakeholders are primarily interested in achieving the highest possible returns, while others want to help shape the energy transition. Respondents always seek dialogue first to resolve conflicts. The challenge of communication is to reconcile the different interests, whereby some CECs can imagine paying out a lower return to invest the money in personnel and the development of professional structures. At the same time, other respondents see a risk that if the return is too low, only people for whom the climate protection idea is paramount will become new members, but the total number and growth could be too low.

Social conflicts may arise because of the membership and age structure. The founding generations are predominantly male and older than 60. Women and younger people, in general, are underrepresented; people with a migration background are, several times, not represented at all, partly by individuals. The reasons given are language barriers and, above all, different interests resulting from a low affinity for the topic of energy and technical topics in general. The interviewees report exceptions where they have managed to recruit younger people as members or for the executive level, e.g., because they work in professions related to renewable energies or are already active as climate activists. To interest more younger people in the energy transition and to attract them to CECs, respondents report the goal of establishing and expanding digital structures to accommodate changing communication preferences, e.g., through a more substantial presence in social media. In addition, CECs try to address young people by being present in schools and holding energy festivals where bobby car solar competitions are held where young people build solar vehicles based on a bobby car (see also the chap. on public relations).

Another social conflict arises from the minimum investment amounts ranging from 100 to 2,500 euros. A mandatory prerequisite for investment is surplus and freely available capital; while 100 euros is affordable for most of society, 2,500 euros excludes many groups. CECs with relatively high contribution sums want to keep the bureaucratic effort (e.g., correspondence, tax certificates) low. CECs with low contributions pursue the cooperative's approach of including as many people as possible ("With 100 euros, you have full voting rights", P05). One CEC also enables people with low financial means to join:

> We collected among ourselves and enabled them to join. [...] We did an Easter egg hunt, where there were two donated shares to be found (P02).

Even with little financial flexibility, one can support CECs by assisting them and distributing flyers or helping at the information booth.

CONCLUSION

The number and sales of CECs in Germany continue to grow, partly due to the increasing relevance of energy autonomy and good market conditions (driven by multiple global crises). Like energy companies, CECs must cope with various communication tasks; communication with internal and external stakeholders (e.g., at interfaces) is crucial. What differs is how CECs solve communication tasks, e.g., in terms of attitudes, strategies, and formats. CECs are often closely anchored in the local community, work closely with local stakeholders, and there is often a relationship of trust between leadership and members. Companies can learn from this anchorage and build similar ties with the local community and its stakeholders to better align their activities with the needs and desires of the community and by doing so, achieve goals together.

In contrast to the primarily profit-maximizing efforts of companies, CECs – due to their idealistic aspirations – try to avoid conflicts and instead seek alternatives. They try to reach people communicatively, win new members, and develop new target groups, e.g., by addressing increasingly younger people or by implementing concepts, approaches, and events, such as using wind turbines' architecture as a communication space. Companies would be well advised to learn from this wealth of ideas and best practice examples from CECs, e.g., in public relations work and addressing target groups.

In times of multiple global crises and an increasing interest in energy autonomy, CECs professionalize structures and processes to be competitive in the market. The strategy is to operate successfully and profitably while paying attention to common good-oriented goals. This includes expanding their portfolio structure with communication-intensive business models such as PPAs, tenant power models, and contracting models. Companies can learn from this approach, e.g., by relying on or developing business models that are not only focused on profit maximization but also on benefits for society.

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