

ENERGY COOPERATIVES ON THE UPSWING AND DOWNSWING

COMMUNITY ENERGY: ONCE THE FOUNDATION OF GERMANY'S ENERGY TRANSITION,
BUT NOW ON THE MARGIN?

For a long time, citizens were the main actors in the energy system transformation in Germany. Not only do they install solar modules on their own roofs or operate a pellet stove in the basement, they also join forces in energy cooperatives to take charge of extensive projects themselves on site. This form of cooperation allows citizens to jointly build and operate larger renewable energy facilities such as solar arrays, biogas plants, and district heat networks, often in cooperation with municipalities and local companies. However, times have become difficult for energy cooperatives. The decline of wind energy in Germany in particular is giving them a hard time. New business fields have yet to be developed.



Photo: Stadtwerke Pfaffenhofen a. d. Ilm



1 ORIGIN AND FURTHER DEVELOPMENT OF THE COOPERATIVE IDEA

Cooperatives were born out of the financial difficulties of their members. Some 170 years ago, Friedrich Wilhelm Raiffeisen founded the first purchasing and credit cooperatives in Germany to help financially weak, smaller agricultural enterprises. Through the merger, they were able to buy seeds and fertilizer more cheaply and obtain loans more easily. Today, other motives play a primary role, such as the self-organization of local services of general interest, independence from large corporations, and participation. The cooperative model is now no longer only applied in the banking and agricultural sectors, but in many other areas - such as retail and wholesale, housing, media and culture, and finally in the field of renewables.

Cooperatives are locally based, democratically organized and independent. Only three people are needed to found them in Germany. Basic decisions are made in the general assembly. Each member has one vote and therefore has the same right to a say - regardless of the amount that person has invested. Control by a majority shareholder is thus excluded. The aim of the cooperative is to pursue the interests of its members. Since 2016, the cooperative idea has been part of the intangible UNESCO world cultural heritage.

Energy cooperatives - an indispensable part of community energy

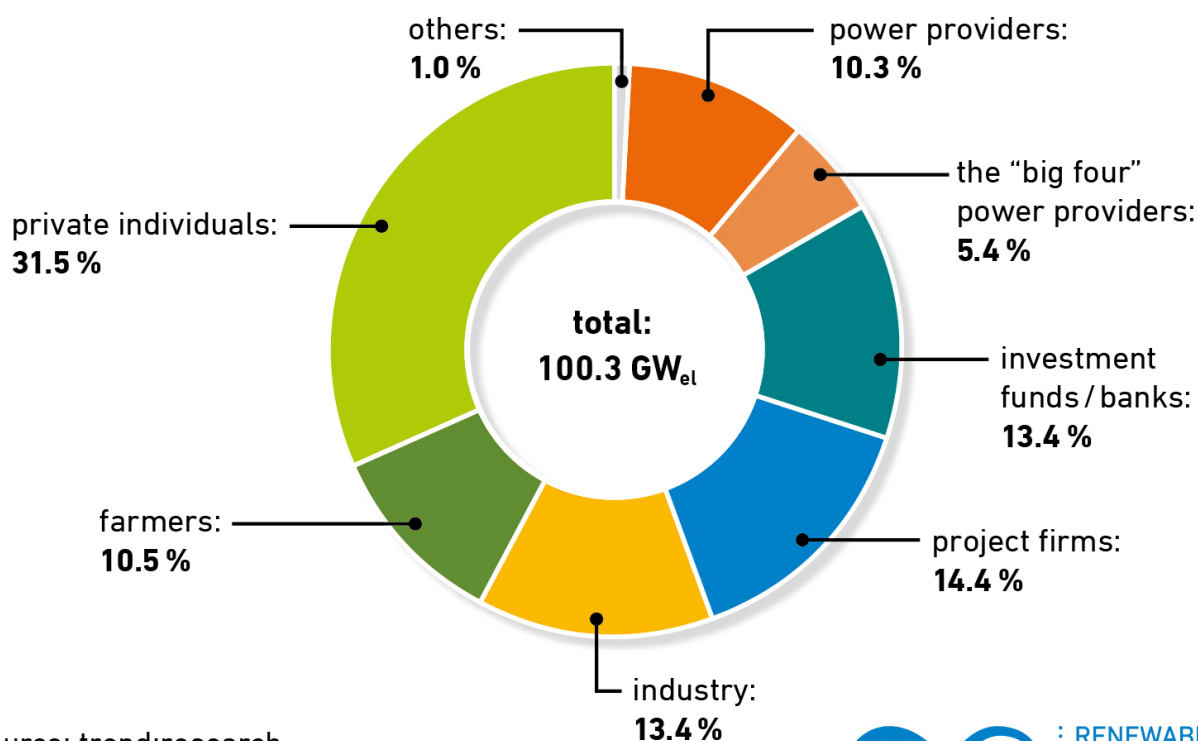
The energy transition is linked to a decentralization of energy production: facilities for the provision of electricity and heat will be smaller and spread across the country. Nevertheless, even larger renewable energy plants such as wind turbines, biogas plants, solar power plants, and infrastructure such as heating networks have high investment costs. Only a few individuals can afford such an investment on their own. Therefore, many renewable energy plants and heating networks are jointly owned by citizens.

"What one person can't do alone, many can" - this is the idea of the cooperative. The formation of a cooperative therefore enables investments that would exceed the capacity of an individual. Citizens are not dependent on the support of a large energy company. The Renewable Energy Sources Act (EEG) created the necessary framework conditions in 2000. The guaranteed feed-in tariff and the feed-in priority anchored in it provided investment security. However, the business areas have continued to expand. Energy efficiency measures, energy consulting, electric car-sharing, and green electricity offers can also be business models for cooperatives. With the reform of the EEG in 2017 and the switch from fixed remuneration to tendering, however, community energy projects will virtually disappear as a business segment (see Chapter 3).

The entry barriers to cooperatives are low. The founders determine the level of the minimum deposit. In some places the minimum investment starts at 50 euros. Every cooperative must be a member of an auditing association and must be approved by that association. The association also provides legal, tax, and business management advice. Cooperative shares are a very safe investment. Of all legal forms, they have the lowest insolvency rate at 0.1 percent – compared to almost 40 percent for a limited liability firm (GmbH). Cooperatives are disproportionately often located in rural areas and contribute to rural economic development. They connect private individuals, local authorities, and regional companies. They can strengthen regional value creation and create employment in rural areas. Collective cooperation and democratic structures strengthen social cohesion in local communities. Finally, through the opportunities for participation, they increase the acceptance of the energy transition among citizens. If the cooperative makes a profit at the end of the year, every member is entitled to a dividend. In the event of losses, each member is liable up to a maximum of the capital contributed.

Renewable energy in the hands of the people

Ownership distribution of installed RE capacity for power production in Germany in 2016



Source: trend:research
as of 12/2017

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2 THE MOST IMPORTANT FIGURES AND FACTS

Every year, the German Cooperative and Raiffeisen Association (DGRV) publishes a [survey](#) on the current status of renewable cooperatives in Germany. The most recent one dates from 2019 with data from 2018. The most important figures at a glance:

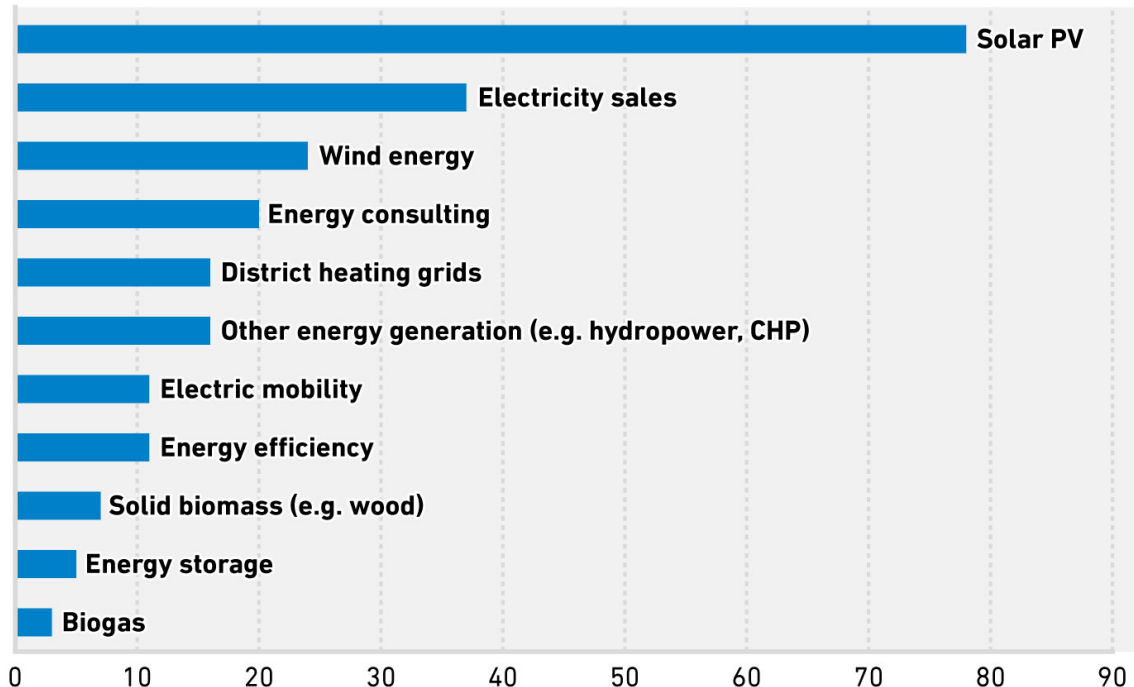
- Altogether **869 energy cooperatives** are active in the field of renewable energy.
- In 2018, the DGRV registered only **14 newly founded** energy cooperatives.
- The registered cooperatives have **more than 183,000 members**.
- A total of **2.7 billion euros** was invested in citizen power plants.
- Technically, German cooperatives can cover the annual electricity demand of **160,000 average households**.

Most energy cooperatives generate electricity. But there are also other fields of activity:

Fields of activity of energy cooperatives in Germany

In 2018, most of the energy cooperatives were engaged in solar photovoltaics. Electricity sales and the operation of wind turbines was also popular.

in percent



Source: DGRV; as of 04/2020

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The majority (70 percent) of energy cooperatives were originally founded with 50 or fewer members. As the size of the projects and professionalization increased, so did the size of the cooperatives. At the time of the survey they had an average of 296 members. Renewable cooperatives today are thus almost six times larger than they were at the beginning of their existence. The largest German renewable cooperative has 2,882 cooperatives. However, smaller renewable cooperatives still make up the majority. Almost 60 percent have 200 or fewer members. Fewer than 20 percent have more than 500 members.

The level of the minimum participation shows that even smaller contributions are desired. More than one third of the cooperatives accept shares of less than 100 euros. The smallest minimum share is only 50 euros. On average, the minimum share is 545 euros. Only in seven percent of cases do members have to raise more than 1,000 euros. However, average participation is significantly higher than these amounts. On average, members invested 3,899 euros in their shares in the cooperative; members have thus invested 714 million euros in their energy cooperatives nationwide.

Total revenue is on average almost half a million euros. Most energy cooperatives (32 percent) only have a revenue of 10,000 to 50,000 euros. The average investment volume is almost four million euros. The highest recorded investment volume of a single cooperative is 56 million euros. In total, German renewable cooperatives have invested 2.7 billion euros in the energy transition. They thus accounted for almost 20 percent of all investments in renewables in Germany in 2018 (a total of 13.7 billion euros). 69 percent of cooperatives paid a dividend. The average was 3.98 percent.

A glance at the shareholding structure shows that energy cooperatives can truly be described as citizen energy. They consist of 95 percent private individuals. Municipalities, public institutions, and farmers each make up two percent. Companies and banks account for only one percent.

The electricity generated by cooperative renewable energy plants is sufficient to cover the electricity needs of about 160,000 households. There are more than 40 million households in Germany. Overall, the energy-economic importance of energy cooperatives is therefore still relatively low.

3 BEGINNING AND END OF THE BOOM

Between 2008 and 2013, energy cooperatives experienced a real boom. The number jumped from 24 to 718. The highlight was 2011, with 167 newly founded cooperatives. 2012 and 2013 were still strong years with 150 and 129 new foundations, respectively. Since then, however, things have gone downhill. In 2014, there were only 54 and only 14 in 2018. This outcome reflects, among other things, a change in energy policy. The switch from fixed feed-in tariffs to tenders made life difficult for community projects. While the fixed feed-in tariff ensured secure conditions for everyone, tenders entail considerable risks. Applicants have to pay fees in advance, which they may forfeit if they don't place a winning bid; the structure favors large companies that can spread risks. During the approval and tendering process, fees, time, and personnel costs are high. These expenses are not reimbursed to the citizens' projects if they do not win a contract. But even if they are, they often find it hard to cope with the project. Several years often pass between project planning, application, auction decision, approval and project realization. In all this time, the cooperative has not yet collected a single cent to refinance its investment.

Citizen energy has also suffered particularly from the downturn in wind energy. The market for new projects has become much smaller since 2018. Whereas 5.5 gigawatts (GW) of newly installed capacity (net) was added across Germany in 2017, the figure was only 2.5 GW in 2018. In 2019, just over 1 GW was achieved. The reason was not only the switch from simple feed-in tariffs to demanding tenders, but also fewer and fewer areas designated for new projects. Some German states tightened regulations governing the distance between wind turbines and the next residential development. In the end, there was little of the ever smaller cake left for cooperative projects. A [study by the World Wind Energy Association](#) summed up the current picture of cooperative renewables as "lots of shadow, little light". The end of citizen wind is a problem for the acceptance of the energy transition. If wind farms are only built by large corporations from outside the region, more resistance will form.

Cooperatives are inevitably turning their gaze away from wind energy and towards new fields of activity such as green electricity marketing, electromobility and sector coupling. But especially for the latter, the appropriate laws must first be created.



Examples from practice

Rehfelde EigenEnergie eG

The municipality of Rehfelde in Brandenburg has a lot of plans: Solar energy, electromobility and heat recovery - the vision of a renewable energy supply is to be realized jointly. The approximately 5,000 inhabitants are committed to the energy transition in this idyllic community, which is also called the Green Gate to Märkische Schweiz. Participation is also the motto of the *Rehfelde EigenEnergie* coop. In 2013, it installed the first solar power system on a gymnasium and in 2017 another one on the roofs of the kindergarten. Over the years, the cooperative has grown to over 200 members and now works with other initiatives such as *WinWind* and *KlimaGen*. Membership pays off, as 2.5 percent interest is paid on membership shares. Together with the local community, the cooperative is also involved in wind energy: Two wind turbines were commissioned in 2017. Heat supply is also high on the agenda. A wood pellet plant in the train station already provides renewable heat. Soon, a new heating network will supply the school buildings, gymnasiums and residential areas with wood chips.

Venner Energy eG

The municipality of Ostercappeln in Lower Saxony and Europe's largest ice cream cone factory, *Meyer zu Venne*, agreed in 2014 to use the industrial waste heat from cone production. For this purpose, the inhabitants of a nearby residential area joined forces with the initiators and founded *Venner Energie* for the construction of a heating network. Meanwhile more than 170 buildings in the center of Venne are connected to the heating network. Among them are the local primary school, the kindergarten, the village community center with a fire brigade equipment warehouse, a nursing home for the elderly, and a supermarket. With the recycled waste heat from Europe's largest ice cream cone factory, a nationwide showcase project has been created to protect our climate.

Citizen's Energy Bohlsen eG

In 2016, the local heating cooperative *Bürgerenergie Bohlsen eG* was founded on the initiative of the Lower Saxony company *Bohlsener Mühle*. Its aim is to use spelt husks – a by-product of grain processing – for the benefit of citizens. The high calorific value of the spelt husks is now used to supply 80 of the 170 households with heat and hot water.

4 CONCLUSION

Energy cooperatives give citizens an opportunity to participate in the distributed energy system transformation at the municipal level. They can then carry out large projects that would exceed the abilities of an individual. In this way, the energy transition is promoted more effectively and efficiently than if each individual acts on their own. In addition, energy cooperatives build regional value chains, which gives rural areas economic prospects.

Following the reform of the Renewable Energy Sources Act and the switch to competitive tendering, the number of new cooperatives has fallen dramatically. Since wind energy, in particular, has ceased to be a field of activity for energy cooperatives, they have had to develop new fields. Electromobility and sector coupling can be perspectives. But the appropriate framework conditions are still lacking, especially for the



use of surplus electricity in heating and transport. It would be a great loss for the energy transition if the only option left for community energy was to use renewable electricity and if it no longer found a place in climate-friendly energy production.

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