ENERGISING COMMUNITIES

Transforming Poland's Power Sector With Locally-owned Renewables

Polish Green Network

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Introduction

Energy communities are powerful platforms for addressing the cross-cutting challenges posed by escalating energy costs, energy poverty, energy security and climate change. During the global energy energy crisis of 2022-23, many of them came to the fore, demonstrating their ability to curb electricity prices while concurrently reducing greenhouse gas emissions and air pollution.

Managed collectively by elected bodies, energy communities regularly play a crucial role in bolstering democratic structures at the local level. Oftentimes, members will actively contribute to the community regardless of the incentive of monetary compensation, finding reward in the shared benefits of affordable energy, local development, and enhanced energy security for the entire community.

There are over 9,000 energy communities of different shapes and sizes operating in the European Union today. However, there are only several dozen registered in Poland and only some of them are able to produce energy, for a variety of reasons. It is vital that this situation is addressed, particularly in Poland where the power sector is responsible for producing vast amounts of carbon dioxide due to the prevalence of centralised coal-based power generation.

Indeed, the centralised energy system presents the greatest obstacle to the development of new energy communities, with large, predominantly state-owned energy companies and distributors leaving little room for renewable sources. Energy communities wanting to connect to the grid must obtain consent for connection by the relevant local company managing the distribution.

Energy community members highlight various obstacles to the success of their ventures. These include ambiguity, variability and unpredictability of regulation, challenges securing external funding, a shortage of skilled professionals and administrative support, and unfavourable opinions of cooperatives held by much of Polish society.

Despite these challenges, pioneering energy communities are emerging, achieving their goals, and looking with hope to a future in which renewable energy sources will form the basis of Europe's power system and help deliver a greener, more secure Poland.

Energy cooperatives in Poland

Energy communities play a pivotal role in the energy sector, facilitating the diversification of energy sources, constructing distributed networks, and decentralising the energy system, helping to bolster the state's energy security. Participation is voluntary, with management and supervisory boards elected by members through ballots. Each member, regardless of the number of shares they hold, has an equal vote, ensuring a democratic decision-making process. These collective and elective features serve to strengthen democracy and civil society.

Energy communities in Europe exist in various legal forms, including associations, cooperatives, partnerships, non-profit organisations, and limited liability companies. The diversity of legal entities underscores the flexibility of the model, accommodating different shapes and sizes. Presently, there are over 9,000 energy communities operating across the European Union. The REScoop association reports the existence of 2,250 cooperatives, showcasing the widespread adoption of this flexible organisational structure[1].

In Poland, energy communities operate based on the energy cooperative model. Cooperatives

1 https://www.rescoop.eu/network

have been operating in Poland for over 100 years. The renewable energy cooperative itself is a relatively new phenomenon gaining legal recognition in 2016 under the Renewable Energy Sources Act (hereinafter referred to as the RES Act). It is a legal entity as defined in the Cooperative Law Act of September 1982 and the Act on agricultural cooperatives of October 2019.

According to Polish law, energy cooperatives can be established in a rural or urban-rural municipality, and can extend to span up to three neighbouring municipalities of this type. They must produce electricity, heat or gas (from a biogas plant) using renewable energy sources, and balance energy demand among their members. At the same time, they must cover at least 40% of the annual energy or heat demand of their members from renewable energy sources. The size of their installation is limited to 10 MW in the case of electricity production, 30 MW in the case of heat generation and 40 million m3 in the case of biogas[2] [3].

A recent boom saw solar capacity in Poland surge to over 14 GW in 2023, taking overall renewable energy systems (RES) capacity beyond 25 GW and total electricity generation from RES to 63 GW[4]. But despite this encouraging rise, there are far too few energy communities (including energy cooperatives) being founded in Poland at too slow a rate. According to the list of the National Agricultural Support Center (KOWR), in March 2024, there were 30 energy cooperatives registered in Poland[5], based predominantly on solar technology. They have a total of 124 solar installations with a total capacity of 4.82 MWe.

Poland is currently the fourth largest solar market in the European Union[6], down by one position compared to 2022. Under current legal conditions, solar panels are de facto the only source of electricity generation deployed by energy communities. The rollout of onshore wind energy is hamstrung by distance rules that prohibit the construction of wind turbines at a distance of less than 700m from the nearest buildings[7]; however a softening of these regulations is expected in the coming months.

2 Energy cooperatives in Poland: Social determinants of their creation, 2023
3 https://wiecejnizenergia.pl/wspolnoty-energetyczne-poradnik-wdrazania/
4 https://www.are.waw.pl/wydawnictwa#2020-rok
5 https://www.gov.pl/web/kowr/wykaz-spoldzielni-energetycznych
6 https://www.solarpowereurope.org/insights/outlooks/eu-market-outlook-for-solar-power-2023-2027/detail
7 https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20230000553

Renewables on the rise

Poland is the second largest CO2 emitter in the European Union and the bloc's biggest emitter per capita due to the large share (61 percent) of coal in electricity generation[8]. Installing sources of renewable energy and heat helps to reduce this damage to the climate and contributes to improving the quality of life of citizens – reducing energy bills and the number of smog episodes.

Russia's invasion of Ukraine has underscored the importance of renewable energy sources, highlighting the fragility of centralised power grids. This was demonstrated by the attack and subsequent occupation of the Zaporizhzhya nuclear power plant by Russian forces. In contrast, decentralised renewable networks and autonomous energy systems offer greater resilience against disruptions and outages triggered by both deliberate attacks and natural disasters. By minimising the impact to localised areas, these systems are not only more robust but also easier to restore and replace in the event of damage[9].

These resilient characteristics of localised RES will only become more valuable as we face escalating extreme weather events driven by the climate crisis. The growing frequency of extreme weather phenomena, including prolonged droughts, flash floods, and heatwaves poses challenges to conventional and nuclear energy sources, elevating the risk of network failures and transformer station breakdowns. In such scenarios, solar stands out as a resilient alternative.

RES improves a country's energy security by reducing dependence on imports of fossil fuels. In 2023, Poland imported 14.1 billion cubic metres of natural gas[10] and 16.9 million tonnes of coal[11]. According to the SolarPower Europe association, as of August 2023, total installed capacity of RES in Poland exceeded 26.4 GW, with solar accounting for more than half (14.7 GW).

SolarPower Europe attributes the success of solar energy in Poland to the popularity of domestic prosumer installations. According to data from the Energy Market Agency, as of September 2023, there were already over 1.3 million solar PV micro-installations with a capacity of less than 50 KW connected to Poland's energy grid comprising a total 10.4 GW of capacity.

The results of a survey conducted in Poland in May 2022 by the Polish Photovoltaic Association reveal

8 https://ember-climate.org/insights/in-brief/changing-course-polands-energy-in-2023/

9 https://www.nrel.gov/news/features/2023/ukraine-fights-to-build-a-more-resilient-renewable

10 https://www.orlen.pl/pl/o-firmie/media/komunikaty-prasowe/2024/Marzec-2024/ORLEN-w-pelni-zabezpiecza-dostawy-gazu-dla-polskich-odbiorcow§

11 https://www.wnp.pl/gornictwo/spadajace-wydobycie-i-wysoki-import-wegla-oto-liczby,813163.html

widespread enthusiasm for solar energy. According to its findings, RES outperforms all other energy sources, with 51% of respondents expressing a willingness to have solar technologies deployed in their neighbourhood. Given this surge in support for renewable energy in Poland – particularly solar – there is a substantial opportunity to foster the development of new energy cooperatives.

According to the think tank, EMBER, renewable energy sources accounted for 27% of Poland's energy mix in 2023, surpassing the production of electricity from lignite for the first time in history. Wind turbines and solar panels collectively generated 21% of the country's power across the same period[12] [13].

The boom was largely driven by a prosumer-friendly net-metering billing system, which was in effect from 2016 to April 2022. During this period, prosumers could sell surplus energy to the grid, with the operator only charging a storage fee. However, regulatory changes in 2022 shifted prosumer installations to a net-billing system. Under this scheme, the prosumer sells their electricity to the grid based on the average monthly energy price (transitioning to hourly pricing from 1 July, 2024), and the value of energy, not the quantity, is taken into account. At the year's end, the prosumer is only allowed to withdraw 20% of their surplus.

12 https://ember-climate.org/insights/in-brief/changing-course-polands-energy-in-2023
13 https://ember-climate.org/insights/research/european-electricity-review-2024/

Renewable energy sources accounted for 27% of Poland's energy mix in 2023.

Photo: Elenathewise - stock.adobe.com

In contrast, energy cooperatives focus on consuming most of the electricity they produce. They benefit from economies of scale as well as proximity to energy generation sources and consumers. The key to their profitability lies in their high rates of self-consumption: members share surpluses among themselves when needed, and each of them pays the same price for energy purchased from the grid.

Energy produced by energy cooperatives is much cheaper because it is not subject to capacity fees, renewable energy fees, cogeneration fees or other variable distribution fees. Moreover, energy cooperatives remain the only entities that still can settle their bills based on net-metering, providing a significant advantage to participants when compared to prosumer installations.

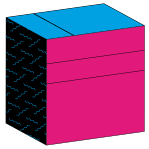
In February 2024, Poland's Ministry of Climate and Environment announced that, as part of the country's National Energy and Climate Plan (NECP), the government would consider increasing the share of renewables in Poland's energy mix to 60% by 2030 – a target that would see 25% of Poland's energy consumption covered by renewable energy sources[14]. To achieve this, the ministry said it would primarily focus on streamlining procedures and legislative changes for onshore wind energy, as well as improving prosumer settlements.

On 30 June, 2024, regulation freezing energy prices for households expires[15]. With members of energy cooperatives reporting lower electricity bills amidst the 2022/23 energy crisis, this may spawn new energy communities and trigger the expansion of existing entities.

Community energy based on RES is a great opportunity for the Polish economy and local job markets. The renewables sector already employs over 100,000 qualified managers and technicians and is growing rapidly, Data for 2020 and 2021 shows the sector added 23,000 positions over the period – an increase of more than 25% in one year[16].

The community energy model also stimulates entrepreneurship and fosters innovation. Most small and medium enterprises in Poland say investing in local renewable energy projects such as solar and wind is the best way to support them through the energy crisis, while more than a third say programmes to help them produce their own energy from renewables are useful. Half of SMEs in Poland say they have, or are considering installing solar panels or saving energy through smart measures[17].

14 https://energetyka24.com/elektroenergetyka/wiadomosci/ministerstwo-klimatu-trzeba-zwiekszyc-ambicje-w-strategicznych-dokumentach-z-obszaru-energii
15 https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20220002127
16 https://www.irena.org/Publications/2023/Sep/Renewable-energy-and-jobs-Annual-review-2023
17 https://beyondfossilfuels.org/2023/07/10/renewable-energy-as-a-path-to-resilience/



Five obstacles to community energy

Unfortunately, efforts to establish energy communities in Poland often encounter significant challenges that present formidable barriers to progress. These challenges collectively impede the growth and development of the sector, stifling the rollout of clean, affordable renewable energy. The following barriers are consistently identified by members of energy communities in Poland:

1. **Grid connection:** The blossoming of renewable energy and the emergence of energy cooperatives are hampered by the reluctance of electricity network operators to integrate new installations into the grid. This reluctance not only discourages potential founders of energy cooperatives but also reinforces reliance of existing entities on the conventional energy sector.

2. **Finance:** Insufficient financial resources impede the growth of established energy communities and deter prospective founders from initiating new ventures.

3. **Regulation:** The ambiguity and inconsistency surrounding regulations governing renewable energy cooperatives imposes a substantial burden in terms of time and resources on what are essentially grassroots community endeavours.

4. **Skills shortages:** A dearth of skilled professionals in energy-related fields, coupled with a lack of training opportunities for aspiring founders and managers obstructs the dissemination of knowledge and expertise essential for the advancement of energy communities.

5. **Negative image:** Despite lacking factual basis, energy cooperatives are burdened with a negative stigma in Polish society – often perceived as relics of the communist era with little relevance to the contemporary landscape. This unfounded perception undermines the potential of cooperatives to contribute to modern Polish society.

Six ways to promote community energy

The following six strategies provide a roadmap for empowering communities to take an active role in Poland's energy transition, and foster the development and growth of energy cooperatives.

1. **Prioritise energy transition in action plans:** Develop comprehensive action plans that foster the establishment of energy communities, integrating renewable energy and efficiency measures. These plans should also leverage local resources and EU funding opportunities, while prioritising support for disadvantaged groups by addressing energy poverty and advancing equality.

2. **Position municipalities as energy solution points:** Establish energy solution desks to provide expert advice on energy efficiency and renewable energy transitions, drawing upon the experiences of local energy cooperatives to offer practical guidance and support.

3. **Increase the use of renewable energy in municipal buildings:** Invest in renewable energy installations for public buildings, inspired by the initiatives of local cooperatives, to serve as models of sustainable energy use within the community. Offer municipal land and buildings for community energy projects.

4. **Reduce bureaucracy and improve capacity:** Streamline permitting processes for renewable energy projects, building on the challenges faced by cooperatives like Nasza Energia, to encourage more local investments in green energy. Advocate for legislative consistency and easing of requirements for wind projects.

5. **Construct all buildings solar-ready:** Enact policies requiring new and renovated buildings to be built solar-ready, promoting widespread adoption of solar energy in line with Poland's energy goals.

6. **Provide vocational training and employment:** Expand training programs and vocational opportunities in renewable energy sectors, building on the job creation success of projects like SE Wspólna Energia, to help develop a skilled workforce that is capable of delivering Poland's energy transition.

Six benefits of community energy

The following six points highlight how society can benefit from the widespread adoption and support of energy communities, showcasing their potential to create a more sustainable, equitable, and resilient future.

1. **Save money:** Implementing energy efficiency and renewable energy sources, as demonstrated by the Nasza Energia Energy Cooperative, can lead to significant cost savings. Municipalities, as planned by "Sąsiedzi" Energy Cooperative, can use these savings to enhance public services and develop local communities, insulating them from volatile fossil fuel prices.

2. **Increase local employment:** Following the example of SE Wspólna Energia, local renewable communities can boost job creation in areas like installation, maintenance, and project management, contributing to economic growth and reducing unemployment.

3. **Create resilience to energy crises:** Cooperatives like SE Dobra Energia emphasise the importance of local energy production and self-sufficiency, providing a buffer against energy supply disruptions and crises.

4. **Provide energy security in times of disaster:** By investing in and supporting energy communities based on renewable energy and storage systems, municipalities can ensure a stable energy supply during natural disasters and conflicts, enhancing community safety and recovery capabilities.

5. **Protect climate and environment:** The transition towards renewable energy, as seen across Poland's energy cooperatives, contributes to reducing carbon emissions and improving air quality, aligning with Poland's commitments to climate change mitigation.

6. **Engage communities in the energy transition:** Engaging communities in the energy transition process, as exemplified by the proactive approaches of renewables cooperatives, fosters a sense of ownership and participation in sustainable practices.

Case study 1

Nasza Energia Energy Cooperative

Mszana province, Silesia

Janusz Buda

The era of clean energy is here

Janusz Buda is a living, breathing example of what energy transition means on a human level. He worked in the mining sector for 30 years, first in subsurface coal mining, before climbing all the way up to the board room: "I went from a soldier to a general ," he jokes. Today Mr Buda is Chairman of the supervisory board of an energy cooperative that produces electricity from the sun.

"The world is changing. We also have to change," he says. "I have great respect for my colleagues who work in the mining industry, but I am also aware that nothing lasts forever, and it's easier to make a change when there are funds for it," he explains.

Mszana is a small town in Upper Silesia, close to the Czech border. Mr Buda, together with several other individuals, founded the Nasza Energia Energy Cooperative – the first of its kind in the region and the second in the country – shortly before the nearby mine closed in 2022.

The cooperative operates across three neighbouring communes: Mszana, Świerklany and Godów and generates enough electricity to power 15 buildings.

"I'd read about the cooperative model before and thought it was a great idea because I have prior experience of dealing with renewable energy regulations," says Mr Buda. "We gathered an initial group of 12 people who saw the potential and founded a cooperative," he adds.

> **"The age of steam and coal has passed – now the era of clean energy has come.**

"We mainly wanted to better utilise the energy we produce. But we also saw an opportunity for the development of the local community. After all, the cooperative is a democratic enterprise in which we all participate in and for which we are all responsible," he explains.

Photo: Energy Cooperative Nasza Energia, 2024

"We are also testing whether the profits we generate over time will be invested locally, because we, the cooperative members, decide what to do with them. In the long run, we hope that we will have access to relatively cheaper energy. The energy sold to households and companies today has regulated prices, but eventually the prices will be unbundled and our energy will be even less costly," he adds.

Mr Buda mentions that he has a solar installation at home, which he says has reduced his electricity bills by as much as 80%. Members of the cooperative with solar panels and heat pumps didn't experience any negative effects of the energy crisis, such as extremely high energy bills, he explains.

He emphasises that energy communities and self-sufficient independent energy systems are a modern trend for the digital economy. In his opinion, the issue of safety is also important.

"We see what is happening in Ukraine, which has large energy resources, but is unable to use them because Russia is destroying them. Distributed renewable energy systems are easier to defend," he says.

For now, the cooperative supports households and small businesses, but it plans to attract new members, increase production, introduce intelligent energy management systems and build energy storage facilities.

"For now, we are relying on solar because it is the easiest way to get things off the ground. Over time, we plan to pursue other things, but we need to strengthen ourselves financially so that we have requisite revenues and turnover," he says.

Mr Buda recounts the many challenges the group faced when founding the cooperative, including actions or ignorance of the distribution network operator, unclear regulation, and frequent amendments to relevant laws. Meeting statutory requirements for power generation also proved challenging due to weather variations, with oversupply in summer and shortages in winter. However, Mr Buda sees power storage facilities playing an increasingly active role in smoothing out these undulations and strengthening the viability of the energy community model.

"We live in Silesia and we see that coal will be disappearing. Conversely, we see the huge opportunities that come with green development – not least, cleaner air and a source of cheap, inexhaustible energy," he adds.

Case study 2

SE Wspólna Energia

Błonie, Greater Warsaw

Przemysław Kubicki

More problems than energy, at least to begin with

Błonie, a town of just over 12,000 inhabitants located approximately 30 KM west of Warsaw is home to a burgeoning energy cooperative. The entity has three members: an administration office, a health centre and a community centre. The group aims to install approximately 2 MW of renewable energy capacity paired with storage, which they intend to use to power public buildings and street lighting.

Przemysław Kubicki, a local councillor and member of the cooperative outlines the group's vision:

"It is supposed to be a cooperative owned by the local community. We don't want to involve anyone in something we have no experience in ourselves. We also want the municipality to be the owner of the cooperative, so if we expand it, we only want to include municipal institutions, preferably local or neighbouring ones," he says.

Photo: frolphy - stock.adobe.com

"The first step is to hold a consultation process. Following that, we plan to integrate any observations or concerns raised into the project plan. Once that is done, we will be ready to apply to PGE for grid connection conditions. Renewable technologies are advancing quickly, and we don't want to invest in something that will soon be outdated. As such, we are waiting with our detailed installation plan until the grid connection is approved. But as things stand, we're planning for a solar installation with energy storage," he says.

PGE, the largest energy company in Poland, on which the connection depends, is an electricity distributor in the region. It owns the largest conventional power plant and the largest CO2 emitter in Europe, the Bełchatów coal power plant. Mr Kubicki is very open about the fact that the primary motivation for the energy cooperative was the possibility of obtaining funding for the project – the environmental dividend is an added bonus he explains.

As Poland's coal power generation plants are located far away from Błonie, local residents don't consider the town polluted, and as such, there isn't the motivation to spend several million Zlotys on improving air quality and fighting climate change that there might be in other regions in Poland.

"Nonetheless, our community solar project will make a positive contribution on these levels," Mr Kubicki explains. "At the global scale, we need green energy to replace the coal-based, fossil fuel system we're phasing out, but that doesn't mean this is always the primary driver at the local level."

Mr Kubicki says that his greatest concern relates to the project's connection to the grid. "Our grids are poorly adapted to the type of investment we are planning. I am afraid that the grid lacks the physical infrastructure to not accept our surpluses, that's why we have decided to invest in energy storage as well. Ideally we would have an independent grid, but for now that idea belongs to science fiction, because the state is responsible for energy security and it would be a bit strange if we competed with the state in this matter," he explains.

"We are waiting with our detailed installation plan until the grid connection is approved.

Case study 3

SE Dobra Energia

Lądek Zdrój, Lower Silesia

Sylwia Mielczarek

The energy transformation will be just if it is community-led

Lądek Zdrój is a Polish spa town located in Lower Silesia. Once visited by US president John Quincy Adams and German writer Johann Wolfgang Goethe, today the town lies far from large investments and tourist traffic. The motivation for establishing an energy cooperative was the 2022-23 fossil fuel crisis and the resulting deepening energy poverty experienced by the region's residents.

The town is located in a former coal mining region, and as such, will receive support from the EU's Just Transition Fund (JTF), which was established to support the green transformation of former coal mining provinces and other high-carbon regions. While no coal mining has ever taken place in Lądek Zdrój itself, the municipality has been plagued by air quality problems as a consequence of coal-based heating.

In order to build the new RES-based power installation, Dobra Energia applied for funds from the JTF, as well as other forms of EU funding.

"We crunched the numbers, and the most advantageous combination is for us to produce electricity from two green energy sources: solar and wind. Now we want to move ahead and build such a hybrid installation," explains Ms Mielczarek.

The cooperative has 12 members so far: 11 households and a hotel. Electricity generated by the system will be used to meet present demand, with the cooperative aiming to drive down energy bills. But the group is also motivated by the positive impact that the project can have for environmental protection and the independence it will provide the community from large energy companies. The ultimate goal is to achieve energy self-sufficiency.

"We had many meetings with residents to explain what the project is all about and the benefits it can bring to the community," says Ms Mielczarek. "We expect that the investment will pay off within three or four years if we obtain funding. If we don't get the funding, it will extend to nine years. But we already know that the cooperative members will not be able to afford to finance the installation on their own, so the issue of obtaining external funds is crucial," she adds.

Ms Mielczarek cites bureaucracy as being one of the primary hurdles that Polish energy communities

must overcome if they wish to be successful. She goes on to outline a series of complicated and intricate procedures for establishing energy communities, such as working with distribution network operators (DSOs), complexity of billing schemes, delays in the implementation of EU regulations in the field of energy communities, and most challenging of all – the unfavourable attitude of DSOs that refuse grid connections.

In her opinion, a stable and coherent state energy policy is necessary. "This is a key enabler for energy communities to plan, take risks and obtain funding," she says. She also believes there is a need for special support programs to be provided by local governments or energy companies, which can help burgeoning energy communities navigate the startup process. This would include providing subsidies that are tailored to the needs of decentralised communities deploying renewable energy sources, and modernising transmission and distribution networks so that the connection is easily secured.

"The ongoing energy transition must be fair, and it will only be so if the people are at the heart of the process and there is an emphasis on cooperation," she says. "Community energy is a great opportunity for the Polish economy. Its development will contribute to the creation of hundreds of thousands of permanent jobs and will stimulate entrepreneurship and innovation. It also strengthens the country's energy security by reducing dependence on imported fossil fuels," she adds.

According to Ms Mielczarek, citizen energy means focusing attention on the resources of a given region and local community, using clean, cheap green energy, and as a result, directly participating in saving the planet for future generations.

"Imagine every village in the country having a civic energy cooperative producing green electricity for its own needs, with the ability to store it for times when the sun is not shining or the wind is not blowing. We will achieve this goal," she concludes.

"The energy transition must be fair, and it will only be so if the people are at the heart of the process.

Photo: anatoliy_gleb - stock.adobe.com

Case study 4

Spółdzielnia Socjalna Sąsiedzi

Pieniężno, Warmia-Masuria Province

Mateusz Sobieszczuk

100% energy self-sufficiency to help people

Pieniężno is a small Polish town of roughly 3,000 inhabitants, located just over 100 kilometres east of Gdansk. Mateusz Sobieszczuk is chairman of the local social cooperative, Sąsiedzi, which bridges two local communities.

"Pieniężno and Lelkowo have very high unemployment rates," Mr Sobieszczuk says. "We're using elements of the social economy to foster growth and vitality in the region and activate its full potential," he adds.

Sąsiedzi has an approved application to finance the installation of 1 MW of solar which will be used to power residential buildings managed by the municipality. "Now we're applying for EU funds to deliver the project. If successful, we'll generate enough power to provide electricity to all local public buildings. The local government can put the money it saves towards more important things for the community," says Mr Sobieszczuk.

"We are at the beginning of the journey when it comes to energy. We intend to stick to our principles and are confident that these additions will deliver even cheaper energy bills for local residents. We're heading in the right direction.

"Solar installations will be built on all municipal buildings as part of the energy cooperative. This means there will be free electricity and energy independence for all residential and municipal buildings or buildings managed by a cooperative," he emphasises.

"In the municipal buildings there are apartments that our energy cooperative manages on behalf of the local government. It means that the electricity metres also belong to the cooperative, so people have electricity for free," he adds. "This will make a huge difference in reducing energy poverty in the area."

According to Mr Sobieszczuk, without funding, the payback period for the investment will be seven years. "With external support, this could be shortened to two years," he exclaims. "However, a big part of our ethos is to strive to ensure that residents of municipal buildings have the lowest energy bills possible, so it will probably take a little longer," he adds.

Mr Sobieszczuk considers the variability of regulations to be the biggest challenge to establishing a cooperative. "We were founded in the transitional period before the amendment to the Renewable Energy Sources Act. We were supposed to sign the contract in August of 2023. In the meantime, the Act was amended. On the last day of the deadline for signing the contract with us, we were redirected to the electricity supplier, and we had to start all over again. It's been three months since we initiated this process and we still don't have a contract," he says.

The government should ensure the energy cooperatives have enough time to familiarise themselves with and then implement the regulations. The variability of legislation makes it even harder for communities to start and function. Administration offices need to be faster at informing cooperatives if something is missing or incorrect.

Despite the setbacks, the Sąsiedzi cooperative maintains big plans for the future. Once the solar installation is complete, they intend to focus on modernising heating systems for local buildings and deploying heat pumps, Mr Sobieszczuk says.

"We are at the beginning of the journey when it comes to energy. We intend to stick to our principles and are confident that these additions will deliver even cheaper energy bills for local residents. We're heading in the right direction," he emphasises.

Case study 5

SE BIODAR Energy Cooperative

Ustronie Morskie, West Pomerania

Piotr Byczkowiak

We're headed in the right direction, but we were counting on more

Ustronie Morskie is a village of 1,800 inhabitants perched on Poland's Baltic Sea coast, 115 KM east of the country's border with Germany. Piotr Byczkowiak, a member of the local BIODAR Energy Cooperative explains that the primary motivation for founding the cooperative was to drive down local people's electricity bills.

"We have been producing energy since 2015, mainly electricity generated from solar panels, which we sell to the grid," he says. "Local people were not satisfied with the returns they were making from this, so we decided to also found the cooperative," he adds.

The cooperative includes sites belonging to the municipality and includes an energy company that manages a solar farm built on a former landfill. In total, the cooperative boasts four solar installations with a total capacity of just over 1 MW. Electricity generated by the cooperative is used to power public facilities, including a sports and recreation centre, helping to reduce their power bills.

"We'd originally hoped to use the solar farm to meet the local community's energy needs, but in practice, we've been unable to use the transmission networks, so we have no choice but to send the surplus power back into the grid. This means the benefits are quite subtle for local people, because the profits go to the municipal energy company. However, we do have other installations that cover between 10 to 30 percent of local power demand, depending on the location. So the contribution isn't massive, but it's something," Mr Byczkowiak explains.

"We are making a form of saving, but so far the economic payoff hasn't met our expectations. Ultimately, we want to achieve energy independence, so we plan to expand on what we currently have," he adds.

Mr Byczkowiak explains that the process of getting the cooperative up and running was far from plain sailing. "We encountered difficulties at every stage," he says. "The main sticking points have resulted from ambiguities in the interpretation of regulations, and problems during registration with the National Court

The energy cooperative model is the best and possibly only way to protect the climate and environment and drive down power bills for households, businesses and local governments.

Register (KRS). We expected this process to be quite smooth, but unfortunately it took an unexpectedly long time. Another challenge was the lack of specialist support, particularly when developing the concept for how the cooperative would operate," he points out.

"The relevant regulations need to be clear and stable in order for community groups like ours to plan for the future. Unpredictable changes negatively impact on the functioning of the cooperative," he adds.

Mr Byczkowiak also bemoans the lack of specialists operating in the area of community energy, and the dearth of training opportunities for those who wish to create and/or manage an energy cooperative. He also highlights the lack of coordinated educational programs that would help expand knowledge on the subject and ultimately deliver the specialist workforce that is required.

"It seems to me that the energy cooperative model is the best, and possibly only, way to protect the climate and environment and drive down power bills for households, businesses and local governments. But economically speaking, we were hoping for more," he says.

Annex 1: All registered energy cooperatives in Poland as of 14 March 2024.

	Name	Address	Region	Members	Production	Number of energy taking points	Energy source	Number of installations	power capacity
1	Spółdzielnia Energetyczna ESSAŁ	al. Krakowska 1905-090 Raszynwoj. mazowieckie	1. gmina Raszynpowiat pruszkowskiwoj. mazowieckie 2. gmina Michałowicepowiat pruszkowskiwoj. mazowieckie 3. gmina Nadarzynpowiat pruszkowskiwoj. mazowieckie	4		5		2	0.020 MWe
2	Spółdzielnia Energetyczna "Nasza Energia"	ul. Wodzisławska 14644 325 Mszanawoj. śląskie	1. gmina Mszanapowiat wodzisławskiwoj. śląskie 2. gmina Godówpowiat wodzisławskiwoj. śląskie 3. gmina Świerklanypowiat rybnickiwoj. śląskie	14		15		15	0.118 MWe
3	Spółdzielnia Energetyczna Gminy Wiejskiej Hrubieszów, Trzaszczany, Werbkowice	ul. A. Mickiewicza 1A/122 500 Hrubieszówwoj. lubelskie	1. gmina Hrubieszówpowiat hrubieszowskiwoj. lubelskie 2. gmina Trzaszczany powiat hrubieszowski Woj. lubelskie 3. gmina Werbkowice powiat hrubieszowski woj. lubelskie	1		12		12	0.06552 MWe
4	Spółdzielnia Energetyczna Stawiski	ul. Plac Wolności 13,19316 820 Stawiskiwoj. podlaskie	1. gmina Stawiski powiat kolneński woj. podlaskie2. gmina Kalinowopowiat kolneński woj. podlaskie	3		7		7	0.15902 MWe
5	Niepołomicka Spółdzielnia Energetyczna	ul. Zamkowa 532-005 Niepołomice woj. małopolskie	gmina Niepołomicepowiat wielickiwoj. małopolskie	3		6		4	0.037942 MWe
6	Spółdzielnia Energetyczna Gminy Wiejskiej Dołhobyczów, Mircze i Gminy Miejsko-wiejskiej Tyszowce	ul. A. Mickiewicza 1A/1 22-500 Hrubieszówwoj. lubelskie	1. gmina Dołhobyczówpowiat hrubieszowskiwoj. lubelskie2. gmina Mirczepowiat hrubieszowskiwoj. lubelskie3. gmina Tyszowcepowiat tomaszowskiwoj. lubelskie	1		9		9	0.0324 MWe
7	Spółdzielnia Energetyczna Gminy Wiejskiej Białopole, Horodło, Uchanie	ul. A. Mickiewicza 1A/122-500 Hrubieszówwoj. lubelskie	1. gmina Białopolepowiat chełmskiwoj. lubelskie2. gmina Horodłopowiat hrubieszowskiwoj. lubelskie3. gmina Uchaniepowiat hrubieszowskiwoj. lubelskie	1		5		5	0.018 MWe
8	Spółdzielnia Energetyczna Skawina SES	Rynek 1232-050 Skawinawoj. małopolskie	gmina Skawinapowiat krakowski, woj.małopolskie	3		5		4	0.059535 MWe
9	Spółdzielnia Energetyczna EKO WIELPLAST	ul. Limanowskiego 1A 32-020 Wielicawoj. małopolskie	1. gmina Wieliczkapowiat wielickiwoj. małopolskie2. gmina Niepołomicepowiat wielickiwoj. małopolskie3. gmina Biskupicepowiat wielickiwoj. małopolskie	4		4		2	0.051 MWe
10	Wierzchosławicka Spółdzielnia Energetyczna	Wierzchosławice 59033 122 Wierzchosławicewoj. małopolskie	gmina Wierzchosławicepowiat tarnowskiwoj. małopolskie	3		3		2	0.02434 MWe
11	Pawłowicka Spółdzielnia Energetyczna	ul. Zjednoczenia 6043-250 Pawłowicewoj. śląskie	gmina Pawłowicepowiat pszczyńskiwoj. śląskie	3		3		2	0.07287 MWe
12	Spółdzielnia Energetyczna Czerwonak	ul. Dworcowa 462-005 Owińskiwoj. wielkopolskie	gmina Czerwonakpowiat poznańskiwoj. wielkopolskie	3		5		2	0.0281 MWe
13	Spółdzielnia Energetyczna Michałowo	ul. Białostocka 1116-050 Michałowowoj. podlaskie	gmina Michałowopowiat białostockiwoj. podlaskie	3		4		9	0.20056 MWe
14	Spółdzielnia Socjalna Sasiedzi	ul. Braniewska 12154-520 Pieniężnowoj. warmińsko-mazurskie	1. gmina Pieniężnopowiat braniewskiwoj. warmińsko-mazurskie2. gmina Lelkowopowiat braniewskiwoj. warmińsko-mazurskie	2		12		1	0.021150 MWe
15	Spółdzielnia Energetyczna „Energia Optymalna"	ul. Warszawska 126A32-086 Węgrzcewoj. małopolskie	gmina Zielonkipowiat krakowskiwoj. małopolskie	1		1		1	0.004125 MWe
16	Spółdzielnia Energetyczna Zielona Gmina	ul. Główna 1205-540 Zalesie Górnewoj. mazowieckie	gmina Prażmówpowiat piaseczyńskiwoj. mazowieckie	3		9		5	0.1277 MWe
17	Spółdzielnia Energetyczna Sudecka Energia	Czadrów 2658-400 Kamienna Górawoj. dolnośląskie	1. gmina Kamienna Górapowiat kamiennogórskiwoj. dolnośląskie2. gmina Czarny Bórpowiat wałbrzyskiwoj. dolnośląskie3. gmina Lubawkapowiat kamiennogórskiwoj. dolnośląskie	3		3		2	0.03068 MWe
18	Spółdzielnia Energetyczna BIOGAS w Ustroniu Morskim	ul. Bolnia 278 -111 Ustronie Morskie woj. zachodniopomorskie	gmina Ustronie Morskiepowiat kołobrzeskiwoj. zachodniopomorskie	3		83		4	1.07253 MWe
19	Spółdzielnia Nyska Elektrownia Społeczna z siedzibą w Nysie	ul. Kamila Marcinkowskiego 2 446-300 Nysawoj. opolskie	gmina Nysapowiat nyskiwoj. opolskie	1		1		1	0.0495 MWe
20	Ładecka Spółdzielnia Energetyczna	ul. Rynek 3157-540 Ładek -Zdrójwoj. dolnośląskie	gmina Ładek-Zdrójpowiat kłodzkiwoj. dolnośląskie	3		102		1	0.99914 MWe
21	Spółdzielnia Energetyczna Nowa Słupia	ul. Rynek 1526-006 Nowa Słupiawoj. świętokrzyskie	gmina Nowa Słupiapowiat kieleckiwoj. świętokrzyskie	3		9		9	0.1112 MWe
22	Spółdzielnia Energetyczna „OZE POKÓJ"	ul. Sienkiewicza 846-034 Pokójwoj. opolskie	gmina Pokójpowiat namysłowskiwoj. opolskie	1		1		1	0.0220 MWe
23	Spółdzielnia Energetyczna Piary	Dąbie, ul. Dolna 142-504 Będzinwoj. śląskie	gmina Psarypowiat będzińskiwoj. śląskie	3		7		7	0.07626 MWe
24	Spółdzielnia Energetyczna Jaworze	ul. Cisowa 33243-384 Jaworzewoj. śląskie	1. gmina Jaworzepowiat bielskiwoj. śląskie2. gmina Jasienicepowiat bielskiwoj. śląskie3. gmina Skoczówpowiat cieszyńskiwoj. śląskie	15		17		6	0.06256 MWe
25	Pucka Spółdzielnia Energetyczna z siedzibą w Swarzewie	ul. Władysławowska 3984-100 Swarzewowoj. pomorskie	gmina Puckpowiat puckiwoj. pomorskie	2		2		1	0.01851 MWe
26	Spółdzielnia Energetyczna „Li Energa"	ul. Szosa Kępińska 156-500 Syców woj. dolnośląskie	gmina Sycówpowiat oleśnickiwoj. dolnośląskie	4		4		4	0.249 MWe
27	Spółdzielnia Energetyczna Eko-Słupino	ul. Miszewska 8A09-472 Słupinowoj. mazowieckie	gmina Słupnopowiat płockiwoj. mazowieckie	2		2		2	0.0728 MWe
28	Spółdzielnia Energetyczna „Zielona Energia"	ul. Warszawska 126A32-086 Węgrzcewoj. małopolskie	gmina Kościanpowiat kościańskiwoj. wielkopolskie	1		1		1	0.01 MWe
29	Spółdzielnia Energetyczna Meander	ul. Główna 8247-450 Krzyżanowicewoj. śląskie	gmina Krzyżanowicepowiat raciborskiwoj. śląskie	1		1		1	0.033 MWe
30	Spółdzielnia Energetyczna„ECOVOL"	Łapy 311-056 Łapy woj. warmińsko-mazurskie	1. gmina Sławutypowiat olsztyński wo. warmińsko-mazurskie2. gmina Dietrzwałdpowiat olsztyńskiwoj. warmińsko-mazurskie	3		3		3	1.0398 MWe
				97				124	4.827942 MWe