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Catching up with Renewable Energy Cooperatives in Europe

Includes reports on: Surprisingly traditional – South Tyrol's energy community + Cretan solar solidarity + Renewable energy on a Danish island + The sun whisperers of Zagreb + London's Energy Gardens + Solar community spirit in Lisbon + Berlin's fight for citizen-owned energy

EDITORIAL

Dear readers,

Our energy system is at a critical turning point. The effects of climate change are being felt everywhere and we need to act now, yet some people are still trying to sabotage the energy transition with half-truths, distorted facts and false information.

Our magazine, first published in 2016, has two main tasks: to provide objective, well-founded information about climate change and its impact and to showcase global efforts to drive the energy transition forward. The articles are commissioned by an independent editorial team and produced by world-class journalists and photographers, who visit the projects on-site to conduct research, capture images and engage in conversation.

Since 2018, we have been increasingly focusing our attention on European energy cooperatives and that which motivates us all: the desire to foster decentralised and solidarity-based community energy – in the belief that together we can achieve what we can't achieve alone. These articles take us on a journey through Europe. We start in Crete, where a former mayor has led a well-connected solar cooperative to success. In London, we visit activists who are greening vacant land and combining solar expansion with projects for marginalised young people. We meet Spain's largest eco-cooperative, committed to fighting for green energy, and take a trip to the Danish island of Samsø, where a husband-and-wife team and their peers generate more power than they consume. In Croatia, citizens are overcoming obstacles to harness the country's vast solar potential. A cooperative in Lisbon is fostering solidarity through sunlight, while a committed community in Berlin demonstrates how citizens can shape the future of energy as grid co-owners. Our journey ends in the Dolomites, where cooperative efforts have ensured an entire valley can meet all its energy needs with renewables.

Over the past few weeks, we've been catching up with the people behind the projects. In this special edition, they share the advice they would give other cooperatives, explain how the energy crisis has impacted their activities, and express what gives them faith in the future. After all, the energy transition is far from over! It is my hope that these articles encourage international networking and action – because by collaborating across borders, successful local cooperatives can help achieve real breakthroughs in the citizen-led energy transition throughout Europe.

I wish you inspiration and motivation for all your endeavours!

Sebastian Sladek
Publisher

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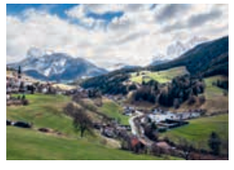

THE GREEK MIRACLE OF THE SUN

A REPORT BY RODOTHEA SERALIDOU / PHOTOS BY STELIOS MISINAS

A COOPERATIVE ON THE ISLAND OF CRETE IS COMBINING COMMUNITY ENERGY WITH ACTIVE SOLIDARITY.

FIRST PUBLISHED IN EWS ENERGIEWENDE-MAGAZIN NO.16 / 2023/24

Charalambos Giannopoulos leads me through the narrow streets of Arkalochori – a community of 3,000 people in the interior of the island of Crete, around 30 kilometres south of the port city of Heraklion. It is a typical, sunny November day. “The square here would normally be full,” says Giannopoulos. “The cafés would have their tables and chairs set up outside, and people would be drinking coffee and talking about everything under the sun. But that’s all gone.” My guide is 74 years old and sports a neat grey moustache. He is wearing black trousers and a light-brown shirt with the sleeves rolled up. His lively demeanour makes him appear younger than he is. As we walk, he gestures to the ruined or badly damaged homes, closed cafés and shops, and deserted streets. Giannopoulos tells me that the earthquake that hit Crete in September 2021 was particularly devastating for the old stone houses, and that many other buildings that were not immediately destroyed had to be demolished or are still in need of repair. The fact that only one person died despite the magnitude of the earthquake is nothing short of a miracle. “We were lucky that it happened at nine o’clock in the morning when most of us were out of the house, and not in the middle of the night.”

From municipal mayor to new energy pioneer

Giannopoulos knows this place, considered a small town in the Greek context, like the back of his hand: he was mayor here for 20 years, from 1990 to 2010. His mission was always to turn Arkalochori from a sleepy little rural town into a role model for other communities. “Our large open-air theatre, our 50-metre swimming pool, our new sports facilities, the exhibition hall – these were all projects I oversaw as mayor.” And it is indeed remarkable infrastructure for an otherwise rather unassuming location. Tourism has never played a role here, and Arkalochori’s inhabitants live mainly from agriculture.

Members of the “Minoan Energy” cooperative

Charalambos Giannopoulos is proud of what the young cooperative has already achieved.

Efi Akoumianaki with her two sons Nikitas and Giannis. The Greek teacher is glad she doesn't have to worry about her electricity bill.

And yet the community is also pioneering in another area: the energy transition. "Welcome to our office," says the former mayor, smiling proudly as he invites me into a building bearing a sign that states "Minoan Energy" in orange letters. This is the headquarters of Arkalochori's energy cooperative. The name is a reference to the rich history of the island, where the earliest advanced civilisation in Europe developed during the Minoan period (2800 to 900 BCE). The story of King Minos and the Labyrinth of the Minotaur is one of the most famous Greek myths. Minos' magnificent palace at Knossos, which serves as a reminder of that heyday, is only a roughly 20-minute drive from Arkalochori.

Built on foundations of expertise and friendship

The "Minoa Energiaki Kinotita" (which translates as "Minoan Energy Community") is Crete's first energy cooperative. Founded in October 2019, it now has over 750 members, which include private individuals, SMEs, and entire municipalities – even a diocese and Crete's regional authority are involved. The cooperative's office is unassuming and simply furnished, with black plastic chairs arranged around a conference table and three desks with laptops. On a blue-painted section of the wall hangs the only eye-catching element: an EUSEW Local Energy Action Award certificate, which the cooperative received from the European Union for its sustainable energy production in 2022.

"Even as a child, I was fascinated by the power of renewable energies."

Charalambos Giannopoulos, co-founder and president of Minoan Energy

"As a little boy, I loved watching the water mills in my village," recalls agronomist Giannopoulos. "I was transfixed by the sheer power of the water, and realised that there are forces in nature that people can harness for their own benefit." This idea stayed with Giannopoulos during his time as mayor. But although he could see the enormous potential of renewable energies, he did not know how his municipality could utilise it. So in 2018, when Greek lawmakers passed Europe's first legislation enabling the establishment of citizen-led energy communities, the former mayor seized the opportunity: he familiarised himself with the new law, visited energy cooperatives in other European countries, and rallied friends and acquaintances to convince them of the benefits and the necessity of joining forces to tackle Crete's energy issues. The idea for Minoan Energy was born.

Membership for as little as 100 euros

Along with other members of the cooperative, Giannopoulos and I visit the Minoan Energy photovoltaic park on the outskirts of Arkalochori. With spirits high and plenty of laughter, it feels like a reunion of good old friends. Among them is Giorgos Viskadouros, a 38-year-old electrical engineer and solar energy expert. "This is our second park, which we installed last July," he says. It consists of 1,800 solar modules and produces a total of one megawatt of electricity. "Over there is our first, which has a capacity of 405 kilowatt hour and has been in operation for a year and a half."

Interested parties can become members of Minoan Energy with a share worth just 100 euros. But the higher the initial payment, the less the members have to pay for their electricity. The cooperative works according to the "virtual net metering" model, whereby the electricity produced is fed into the grid and offset against the member's electricity bill. Members only have to pay for power if their consumption is greater than the amount fed in by their share. "If someone wants to become a member, we look at their electricity bills and calculate their household's approximate consumption," explains Viskadouros. "A family of four needs around 5,000 kWh per year, which would be supplied by six of these solar panels here." For that, the family would have to make a one-off investment of around 3,300 euros.

"We allocate any leftover energy from one member to another – that way, the energy is shared and doesn't go to waste."

Giorgos Viskadouros, electrical engineer and member of Minoan Energy

Everyone present agrees that this is definitely a worthwhile investment. After all, in normal circumstances 3,300 euros would cover two years of electricity at most, whereas the cooperative share guarantees free electricity for at least 25 years. To ensure that members can keep track of their consumption, the cooperative regularly checks whether they are getting the share of electricity they need. Viskadouros explains: "A hotel, for example, needs more power in the summer months, while an olive press has higher requirements in the winter. We can allocate what is left over from one member to another so that the energy generated is shared and doesn't go to waste." So far, the focus has been solely on energy consumption; members do not receive any money from the electricity production. That's why it's important to everyone that the electricity generated is allocated in the best possible way.

Raising local support for the energy transition

One very satisfied member of the cooperative is 43-year-old Efi Akoumianaki – Giannopoulos' niece. While her two young sons tear around the dining room of her spacious home in Arkalochori, she is busy in the open-plan kitchen whipping up a quick pasta dish for the children before heading out to work. Akoumianaki is a Greek teacher and runs a small tutoring centre for schoolchildren. Her house was also damaged in the 2021 earthquake, and the restoration and repairs cost a lot of money: "The fact that we didn't have to worry about the electricity bill on top of everything else was a real relief," she says, with a smile.

It didn't take much for the cooperative to convince Akoumianaki to become a member. "Charalambos Giannopoulos is my uncle, which was reason enough for me to join. I know exactly how much he has done for our town and the people here over the years. He is very passionate about environmental protection and the wellbeing of the community." Akoumianaki also wants her tutoring centre to participate in one of the upcoming projects. "I'm currently working hard to promote the idea, because my business partner also has to agree to it."

The social connection

The energy cooperative has already gained many private individuals and institutions as members. Now the goal is to reach an even wider audience with the help of the regional authority. As a member of the cooperative, the Region of Crete is funding an education programme run by Minoan Energy to inform the island's population about the energy transition and the role of the cooperative. "We visit cities, small towns and even the most remote villages across the island, teaching ordinary citizens and schoolchildren about what the energy transition is, how they can contribute to it, and the role of energy cooperatives," says 52-year-old geologist Ermioni Gialyti.

Geologist Ermioni Gialyti works for Crete's regional authority and is a member of the Minoan Energy cooperative.

Dimitris Katsaprakakis, a professor of engineering, is deeply enthusiastic about the island's ideal conditions for green electricity generation.

A prototype of the small wind turbines that Minoan Energy is planning to install across Crete. They resemble the traditional windmills of Crete's regional unit Lasithi.

The severe earthquake that hit Arkalochori in 2021 has left its mark. Many houses are still damaged, while others collapsed or had to be demolished.

Gialyti advises the regional authority on topics surrounding renewable energy and is a committed member of the Arkalochori energy cooperative. She travelled straight from Heraklion after work to join us on the tour. She tells us that the Region of Crete also supports households at risk of energy poverty by purchasing shares in the cooperative on their behalf. Around 50 families are currently receiving free electricity as part of the programme. If Giannopoulos had his way, the programme would include even more people. He wants to encourage the regional authority to focus more on families with multiple children, who are already struggling financially and who play an important role in the fight against demographic decline in Crete's rapidly ageing society. Gialyti likes this idea, too. "Mr Giannopoulos is always one step ahead of the rest of us and is a big advocate for inclusion and social justice," she says. "He may be the oldest of us all, but he works tirelessly."

Big plans – and big obstacles

However, in order for as many people as possible to benefit from Minoan Energy membership, the cooperative needs new solar parks. "Three approval processes are currently underway for further projects," says energy expert Viskadouros. While there are more than enough suitable areas for such parks on Crete, the challenge lies in the island's inadequate grid infrastructure. The existing power grids quickly become overloaded, which is why projects from small electricity producers are often not approved, explains Giannopoulos: "The big players are given preference when it comes to awarding contracts – often in a process that lacks transparency. If you then apply for another park as a small producer, you are told there is no more capacity."

"We have to fight back to ensure it's not only the big players who profit from the energy transition."

Charalambos Giannopoulos, co-founder and president of Minoan Energy

Giannopoulos says that despite the fact that renewables are particularly well-suited to decentralised energy generation, the Greek government is trying to maintain the old centralised energy model from the days of large fossil-fuelled power plants and is granting large corporations permits for huge solar and wind farms. The favouring of large plants over smaller community projects is not least due to the Greek government's ambitious climate target: the country, currently still heavily dependent on gas and oil imports, wants to source 80 percent of its electricity from renewable energies by 2030. That also involves taking the last Greek lignite-fired power plants in the north of the country off the grid by 2028.

Greece is rushing its energy transition – and the people at Minoan Energy fear it could therefore miss out on a huge opportunity for fairer participation for all. "If the energy cooperatives do not push back against the current government policy, ultimately only the big players will benefit from the energy transition – while regular citizens will, as usual, be left out," warns Giannopoulos, his passion for the topic clear from the rising volume of his voice.

An island of sun, wind, and olives

During our tour of the photovoltaic plant we meet Dimitris Katsaprakakis, a 50-year-old professor of engineering at the Hellenic Mediterranean University in Heraklion. He tells us that Crete's renewable energy potential is higher than any other region in Europe, citing 300 days of sunshine per year as just one of many advantages. "On Crete, solar energy provides 2,000 kWh of electricity per square metre each year, and there's also a lot of potential in wind power," says Katsaprakakis. He looks at the mountains in the distance. "The wind here on Crete reaches speeds of ten metres per second, compared to an average of just five or six for many wind farms in Central Europe." And then there is the abundant biomass, he says, from sources such as olive trees and olive stones – a rich but so far barely utilised energy resource.

These conditions give Crete an energy potential comparable to that of the Middle East, says Katsaprakakis: "With the difference that our energy sources are practically inexhaustible." He explains that although 22 percent of Crete's electricity is already generated from the wind and the sun, those numbers don't tell the full story: "Ensuring a successful energy transition is one thing, the other is making sure that this wealth benefits us – the people, the small businesses, the communities on our island. That's what we're fighting for." Katsaprakakis lists corruption, a lack of transparency, and lobbying as major obstacles for energy cooperatives. "You see those mountain peaks? We just found out today that a large corporation has already started building wind turbines there even though official approval has not yet been granted."

This lack of transparency is leading to a deep mistrust of renewables among the population, say the members of Minoan Energy. "People see huge wind turbines being

built all around them, but they don't see any benefits for themselves," says 34-year-old production mechanic Aris Tsekouras, another member of the cooperative's science team. "For most people, electricity remains expensive and they are not able to participate in the projects." That needs to change, explains Tsekouras, as environmental concerns alone are not going to be enough to persuade most of the island's inhabitants to take an interest in green electricity.

That also accounts for why the energy cooperative became very popular after the outbreak of war in Ukraine, which drove up electricity prices in Greece, too. The economic aspect is decisive, says Tsekouras, especially in a region that has been hit by several crises that have threatened its survival – the Greek government-debt crisis, COVID-19, the earthquake, and the energy crisis.

The Crete Valley pilot project

Driven by the desire to remain innovative into the future, Minoan Energy is also involved in the ambitious Crete Valley pilot project, due to be completed in five years. The goal is that by that time, four villages around Arkalochori will have formed smart, energy-independent "renewable energy valleys" (REVs) that are not connected to the central Cretan power grid, but instead generate and store their own decentralised energy. The REVs will use a mix of renewables including solar power and wind energy from small wind turbines built to resemble the traditional windmills of the region, and district heating and cooling systems will be created, powered by biogas and biomass. This pioneering project is receiving EU funding of 20 million euros. "Some 20 to 50 households will take part in the pilot project in each of the four locations," explains Viskadouros. The aim, he says, is to then further expand the initiative: "We want to design a digital twin of the project so that it can be implemented in other regions as well." Ultimately, as many people and communities as possible should be able to actively participate in the ideas of the cooperative and the energy transition. Everyone agrees that hoarding knowledge is not in keeping with the principles of a true energy community.

Reviving a long history of resistance

Vasilis Kegeroglou, the newly elected mayor of Arkalochori, has also called for cooperatives such as Minoan Energy to be prioritised when it comes to the approval of new renewable energy facilities and the amount of energy they are allowed to produce. After all, he says, such cooperatives represent a large part of local society and the municipalities in the region. However, Greek legislation does not yet recognise this. Can Minoan Energy's fight against domestic and foreign energy giants be seen as a modern form of resistance in a region that has always stood up to external forces? The mayor nods in agreement. Over the course of its history, the island of Crete has resisted many foreign rulers – from the Ottomans to the Venetians and even German occupation during the Second World War.

"Democratically organised energy production has a huge impact."

Charalambos Giannopoulos, co-founder and president of Minoan Energy

"Parallels can certainly be drawn with the past, as today's resistance is also about fairness – in this case the fair distribution of green energy," says the mayor. "Resistance cannot be taken for granted in this day and age," adds Giannopoulos. "Our grandparents had their own water mills that produced the energy they needed to grind their grain, but nowadays that sort of self-sufficiency is alien to people. They see themselves purely as consumers of energy – and we are trying to change that. Energy production is something everyone can participate in, and democratically organised energy production has great potency." This is something that Giannopoulos believes more and more people are realising, resulting in increased membership in energy cooperatives – including on Crete.

Before we say our goodbyes, I wonder aloud what will become of the cooperative when the omnipresent Giannopoulos eventually retires as the community's president. And I'm not the only one with this concern: "I've already started thinking about who will take over from me in the future," says Giannopoulos. "But I have many capable and dedicated colleagues who are just as convinced of the spirit and purpose of our energy cooperative as I am. We share the same ideas – and that's a very good thing!"

This article can also be found online with more photos: www.ews-schoenau.de/magazin/kreta-en

Tourism barely plays a role in the inland Cretan town of Arkalochori – but the community is leading the way in the energy transition.

WE ARE ENERGY

A REPORT BY SEBASTIAN DRESCHER / PHOTOS BY SAMUEL ARANDA

SOM ENERGIA IS THE LARGEST GREEN ENERGY COOPERATIVE IN SPAIN. AND ITS SUCCESS IS LINKED TO THE CATALAN INDEPENDENCE MOVEMENT.

FIRST PUBLISHED IN EWS ENERGIEWENDE-MAGAZIN NO. 2 / 2018

The cooperative only recently moved into its new office in the University of Girona's Science and Technology Park, and a number of boxes are yet to be unpacked. The former premises had become too small – not for the first time. The new open-plan office finally provides enough space for the company's employees, which now number 70. Much of the predominantly young team is wearing shorts and sandals in the late summer weather, and a pram is parked next to one of the desks. But although the workplace exudes start-up charm, Som Energia (Catalan for "We are energy") is in fact a well-established company.

Much of the cooperative's success is down to 44-year-old Marc Roselló, one of the four managing directors. He does not have his own office; instead, he receives visitors on the terrace of the cafeteria. Over a cappuccino and hand-rolled cigarettes, Roselló tells the story of how he set up Som Energia eight years ago with a few fellow climate activists.

Their own energy

Back then, Roselló says, it was impossible for him, as a private consumer, to purchase clean energy. Spain's big electricity companies Endesa and Iberdrola, which still dominate the market today, simply didn't offer such a thing. He therefore heeded the call of Gijsbert Huijink, a Dutchman who was teaching at the University of Girona, and decided to take matters into his own hands. Huijink wanted to bring the green energy cooperative model that he knew from his home country to Catalonia. "It was Gijsbert Huijink who first introduced us to the idea that we citizens could change the energy supply system ourselves," Roselló recalls. "I found that vision very inspiring."

> **"We knew from the start that we would have to do things differently."**
>
> Marc Roselló, Managing Director of Som Energia

In late 2010, some 150 people came together in Girona to launch Som Energia. Roselló, who was unemployed at the time, was one of three cooperative members who ran the office – on a voluntary basis in the first year. The renewable energy engineer had to get to grips with the complex Spanish electricity market, and sought advice from cooperatives in other European countries. Eight months later, Som Energia's first electricity contract was signed.

Som Energia still sources most of its green electricity from small-scale producers, but it also started building its own production facilities early on. The cooperative's first photovoltaic system, with a capacity of 100 kilowatts (kw), was installed on the roof of the training centre of the local football club, FC Girona. More were quickly set up in southern Spain. These were all financed with the cooperative's own capital, raised by the one-off payment of 100 Euros that each member contributes upon signing up. Roselló explains that the financial crisis made it difficult to obtain money from banks: "We knew from the start that we would have to do things differently."

Today, Som Energia has almost 53,000 members from all over Spain, with more than 20,000 new sign-ups since the beginning of 2017 – and this despite the fact it has no marketing department or advertising budget. Roselló believes the cooperative's widespread popularity is a result of the economic crisis and many people's desire for genuine alternatives. "We have an idea for an alternative approach, and we give people the opportunity to be a part of that idea," he says.

A transregional network

Those people include Anna Comatrena, a woman in her mid-sixties who is currently sitting in the back room of a food cooperative in Barcelona. The store at the front is filled with the smell of basil and mint, and boxes of nuts and vegetables are displayed alongside organic juices and natural cosmetics. Every third Wednesday of the month, Comatrena provides information about Som Energia, answers questions from interested customers, and explains the process of switching to the cooperative from a major electricity supplier.

Comatrena is an active member of a local Som Energia group, dozens of which now exist in cities all across Spain. She tells us there are around 30 volunteers in Barcelona alone. These groups provide local points of contact and give members the opportunity to discuss issues concerning the cooperative. Once a year, when Som Energia's general assembly is held in Girona, the regional groups participate online and get to vote on fundamental decisions – such as whether the cooperative should also invest in wind power, or how high the electricity price margin should be.

Som Energia's office in Girona.

Anna Comatrena holds Som Energia "consultation sessions."

Local councillor Robert Sabater Costa next to his spray-painted message: "Have no fear! Independence through civil disobedience."

Space at last: Marc Roselló in the cooperative's new office.

She may not be an energy expert, Comatrena says, but it is important to her that she can have her say. The pensioner is passionate about cooperatives: in addition to Som Energia, she is involved in six others, including an initiative striving to create affordable housing. She also tells us about the new ideas that emerge at Som Energia's local group meetings. For example, some members clubbed together to purchase five electric cars, while others have jointly invested in solar panels.

Community spirit and quiet rebellion

Cooperative businesses have a long tradition here in Sants, an old working-class neighbourhood on the edge of Barcelona's city centre. A few metres away from the grocery store is a bicycle co-op that offers low-cost repairs, and political debates are regularly held just around the corner at a self-managed social centre. Catalonian and FC Barcelona flags fly from the balconies in the streets. Here in Catalonia, community spirit often goes hand in hand with Catalan nationalism – something that also has an impact on many local cooperatives.

In October 2017, the Catalans voted in favour of independence from Spain in a controversial referendum, following which the Parliament of Catalonia unilaterally declared independence. The central government in Madrid did not recognise the vote. It placed the region under forced administration and had several politicians arrested. The national authorities also made it easier for companies to relocate their headquarters. Large banks such as CaixaBank and the energy company Gas Natural took immediate advantage of this, formally registering their headquarters in other cities within a few days. In protest, many consumers abandoned those businesses in favour of local suppliers.

Fighting corporate power and economic dictatorship

One of those customers was 59-year-old Ramon Vallès, who ending up moving his account to Caja de Ingenieros – a cooperative bank from Barcelona. He is also considering taking out a mobile phone contract with a Catalan provider. Vallès is a Barcelona-based journalist who works for TV3, a public television channel that broadcasts solely in Catalan. Spanish is his second language, and when he speaks, certain expressions only come to him in his mother tongue. Vallès wants Catalonia to leave Spain but remain in the European Union as an independent state. He will be taking to the streets again in the autumn to fight for that.

Vallès has been a member of the Som Energia cooperative for several months. Of course he wants to support clean energy and protect the climate, he says, but his primary motivation is political: Vallès is not willing to accept blackmail from the central government. He is concerned about the close ties that exist between politics and big business, citing construction tycoon and long-running president of Real Madrid Florentino Pérez as an example: Pérez used his political connections to acquire stakes in two of Spain's largest electricity providers. For Vallès, the switch to Som Energia is mainly a way to fight the large corporations.

A similar rebellious spirit is in the air in Viladamat, a village around 130 kilometres north of Barcelona on the Costa Brava. This is not least due to Robert Sabater Costa, a local councillor and member of the separatist, anti-capitalist party Candidatura d'Unitat Popular (CUP). The 37-year-old has spray-painted a call to the people on the wall under a bridge at the edge of town. It reads: "Show no fear! Independence through civil disobedience."

"We want to change the system."
Robert Sabater Costa, local councillor and CUP member

Three evenings a week, Sabater Costa finishes work at his apple orchard and drives straight to the local council offices – still in his work overalls. He and two other CUP members are responsible for dealing with the concerns of the village's approximately 500 residents; the position of mayor was abolished a few years ago. Once a year, Viladamat's electorate is given the opportunity to vote on pertinent issues.

For Sabater, changing the system means moving away from growth at any price and towards sustainability and a stronger local economy. Steps to achieve this have included installing a small photovoltaic system on the roof of the community centre, which covers the building's electricity needs in May and October, when neither the heating nor the air conditioning are running. And a few years ago, Som Energia was awarded the contract for the administration's power supply in a public tender. This fits in well with Sabater's philosophy of "the nearer, the better." After all, he says, it is a Catalan cooperative.

A cooperative has no nationality

Is it though? Managing director Marc Roselló laughs. He has heard this question many times, yet he doesn't have a straightforward answer: "Yes, Som Energia originated in Catalonia and two-thirds of its members live here," he says. "But a cooperative has no nationality. It belongs to its members." A statement from the cooperative's supervisory board in September 2017 said that it was not Som Energia's place to take a stance on the question of independence, but that it was in keeping with the philosophy of a democratic organisation that the people of Catalonia should be allowed to vote freely on the matter.

Roselló does not seem particularly concerned about the issue. He says that in the event of Catalan independence, he could imagine members setting up their own cooperatives in other parts of the country.

"We see ourselves as a model for others."

Marc Roselló, Managing Director of Som Energia

Roselló is more concerned with the rapid growth of Som Energia, which now supplies power to around 86,000 households and businesses. This has been the result not only of the political autumn of 2017, which gained the cooperative several thousand new customers, but also the rule that each member can hold up to five electricity contracts – or transfer them to friends and family. Because demand is so high, the cooperative continues to pursue one of its biggest goals: to produce all its electricity itself.

This year, Som Energia's own facilities will generate around 12 gigawatt hours of electricity – that's less than five percent of the total amount of electricity it sells. Roselló would like to buy electricity from cooperative members who have solar panels on their roofs, but he complains that there is practically no regulated feed-in tariff for private households. Shared consumption by multiple households is apparently also not permitted. "The electricity market is still very centralised," says Roselló. "It's high time people were granted more freedom to produce their own energy." He is optimistic about Spain's new socialist government under Prime Minister Pedro Sánchez. After all, it has already created a new "super-ministry" for environmental protection, energy, and climate change.

Citizen-owned energy on the rise

Som Energia is unwavering in its commitment to citizen-owned electricity. Its Generación kWh project, for example, enables private individuals to invest in the production of renewable energy, and a total of 3.5 millions euros has been raised so far. One solar farm is in operation, another is under construction, and plans are in the pipeline for a small hydropower plant.

The cooperative also continues to work on its own energy generation projects. Its largest to date is a wind farm in northern Spain that will have a capacity of 24 megawatts – enough electricity for around 35,000 families. But this project is important to Roselló for another reason, too: "We want to show that wind power has a place in the mix and that we as a cooperative can also utilise its potential." Som Energia has purchased the land, but some permits have yet to be obtained. "We haven't had any clashes with local residents – partly thanks to the cooperative's on-site members," says Roselló. "They helped us get in touch with the right people and gave us tips on what to look out for." One of the cooperative's great strengths is that it has successfully established itself as a local partner in many regions.

Eight years after the founding of Som Energia, large corporations still dominate the Spanish electricity market – but they too now offer their customers green energy tariffs. "We are small fish," says Marc Roselló. "But the big fish know about us, and we are an irritant because we offer a real alternative." It is clear, therefore, that Som Energia has already achieved one of its most important goals: to show that things can be done differently.

+ Update + Som Energia was founded in 2010 in the Catalan city of Girona. Since our report in 2018, the number of cooperative members has increased from 50,000 to more than 84,000. The number of electricity customers has also risen – from 80,000 to more than 117,000. In addition, Som Energia is a good step closer to achieving its goal of producing all the electricity it supplies: in 2023, almost half of the energy sold came from its own facilities. That figure is set to rise further, as six additional solar parks are currently under construction. Once completed, they will supply 14,000 more families with power.

This article can also be found online with more photos:
www.ews-schoenau.de/magazin/somenergia-en

Self-generated electricity: Som Energia's first solar panel installation on the roof of the local football club in a suburb of Girona

GARDENS BURSTING WITH ENERGY

A REPORT BY PETER STÄUBER / PHOTOS BY KRISTIAN BUUS

A COOPERATIVE AIMS TO USE COMMUNITY GARDENS TO MAKE LONDON MORE SUSTAINABLE AND TO ENCOURAGE DEBATE ON THE TOPIC.

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At first glance, Brondesbury Park railway station in North East London looks like any ordinary station. It is moderately busy in the evening rush hour, with overground trains picking up passengers every ten minutes. While they wait, many of the commuters scroll around on their phones or leaf through copies of the Evening Standard. Others, however, look around with curiosity: behind a low wall at the edge of the platform, where a few weary passengers have plonked themselves down, salad beds and small fig trees are growing, and hops climb up a wooden trellis at the back. When you take a few steps towards the wall, you can hear the buzzing of bees. Then you spot the large tanks filled with rainwater and the solar panels installed above them. Brondesbury Park is not just a railway station, it's also an Energy Garden – a little pocket of nature in the middle of the British capital.

The main part of the garden is located at the back of the opposite platform, with a small gate in a low wooden fence providing access for everyone. Beyond the gate, a narrow winding path leads through the grass. On the right are a chair and a makeshift table, cobbled together from wooden pallets, on top of which are a hoe, a gardening fork, and pruning shears. A few steps further, we see Agamemnon Otero working in the waist-high grass. The 44-year-old is dressed in a long-sleeved T-shirt and an orange high-vis jacket as he cuts back blackberry bushes.

Getting people talking about sustainability

Otero is bursting with energy and has a permanent smile on his face. He barely pauses for breath as he talks passionately about the health benefits of certain plants that grow here, about the neighbourhood residents who help out in the garden and grow vegetables, about the busy life of the worker bees – and about how he founded Energy Garden. "Essentially, it was born out of the desire to get people and civil society talking about sustainability," he summarises.

Otero believes that a metropolis like London, with almost nine million inhabitants, is the perfect place for the initiative. "Every year, more than two billion journeys are made on public transport in this city," he says. "An average of 6,000 people board, alight, and change trains at each overground station every day, waiting around 14 minutes for their connection." Most passengers, he adds, spend that time looking at their phones. The platform garden is intended to draw attention away from electronic devices and to the environment, bringing Londoners into direct contact with nature and giving them a quarter of an hour each day to reflect on sustainability and climate change – as well as on where our food comes from. "We have solar panels on the platform, rainwater collection systems, and green areas," says Otero. "All that encourages reflection and debate." And that's not all: passengers are also invited to grab some gardening gloves and get involved themselves.

Turning grey sites green

On this particular evening, about a dozen people drop by Brondesbury Park station garden to help with the work. It is London Climate Action Week, and the Energy Garden team are introducing local residents to their project. "Ten years ago, this entire area was covered with a black plastic tarpaulin," says 31-year-old botanist Naomi Paine. "The first step was to remove the tarp and let the plants underneath grow." Today, large parts of the former wasteland have been transformed into a small patch of natural wilderness, covered in shrubs and tall grasses. A bee hive stands at one end of the garden, and during the day bats sleep in the trees. There is even a hedgehog house that has the occasional inhabitant. The next step, Paine says, is to attract a greater variety of wildlife by planting new types of flora: "The more native plant species that grow here, the more pollinators will move into the garden and help increase the biodiversity."

"It's a collaboration between people, a dialogue with the city."

Agamemnon Otero, CEO of Energy Garden, London

Paine explains that one of Energy Garden's main objectives is to get commuters and residents interested in the garden and involved in the work. It was this aspect that attracted Paine herself to the project: "I wanted to work for an organisation that reaches out to and engages with people – people who are otherwise rarely involved in gardening and not all that familiar with topics like biodiversity." She believes it is important that as many people as possible interact with nature and learn more about their environment. "When you buy your vegetables from the supermarket, you become disconnected from the origins of your food," adds her colleague Otero. "But when I sow the seeds with my own hands, when I grow the tomatoes

— Agamemnon Otero, CEO of Energy Garden

Green-fingered community spirit: Citizens across London regularly get involved in the gardens.

myself and then pick them, I have a very close relationship with what I'm eating."

Everyone is free to choose what they want to do in the garden – and they can plant whatever they like as long as they coordinate with the others. "Everything is freely accessible – the plants, the harvest, the water," says Otero. "It's a collaboration between people, a dialogue with the city." Brondesbury Park is one of the largest Energy Gardens, but there are now almost three dozen of these small oases across London, and more than 100 of the city's residents regularly participate in the gardening work. "Energy Garden provides initial support for the projects, helping them plan and construct the green spaces and install the solar panels," says Kyle Baldock, a tall 29-year-old whose role at Energy Garden is to liaise and exchange information with local groups. He started out as a volunteer in 2018 and is now Community Engagement Officer. "It's important for us to build long-term relationships with local communities so that they can continue to grow," says Baldock. To foster this spirit of togetherness, it is also very important to Energy Garden that the project has a cooperative structure.

Creating something together

Cooperatives rely on a sense of community. "It's the opposite of philanthropy, where a rich person says: 'You're poor, I'm going to give you something.' This is a collaboration," explains Otero. Energy Garden was formed in 2016 as a Community Benefit Society – a type of cooperative that enables interested parties to participate directly in a local project. The first bond offer was launched in 2018. "That year, 200 people joined the cooperative, enabling us to raise 600,000 pounds," says Baldock proudly. In addition, Energy Garden receives donations from companies, universities, and local authorities.

Otero points out that numerous studies have shown the benefits of jointly managed "commons" – green spaces that are under collective ownership and do not belong to a private individual or organisation. He refers in particular to the work of Nobel Prize-winning economist Elinor Ostrom: "She has shown that collectively managed ecosystems, be they forests or fishing grounds, are the ones that are best cared for." On the other hand, Otero asserts, if external forces regarded those areas not as commons for the benefit of all but solely as a source of profit, they would exploit the systems and create negative feedback processes – ultimately destroying them.

Growing up in an ethos of commonality

Otero gained early experience of kindred spirits sharing common land. Born to a Uruguayan father and Russian-American mother, he grew up in New York and spent his youth living in various sustainable communes in rural areas around the metropolis. "We had our own printing presses, cooperatives, bakeries – so I was raised with this ethos of the community," Otero explains. "But I have always believed that we shouldn't have to escape to the country to set up those sorts of systems. They should exist in urban areas, too."

Twenty years ago Otero came to London and settled here. After completing a master's degree in architecture with a focus on sustainability and energy, he set out to make his dream a reality. He started out designing energy and waste systems for a south London hospital, which included installing solar panels on the roof. He was then approached by the council for the borough of Lambeth, which asked him to do the same for the nearby Loughborough Estate in Brixton. Working in close cooperation with local residents, Otero took on the role of project manager for the design and installation of photovoltaic systems on the roofs of the estate's buildings – and founded the Repowering energy cooperative.

Repowering – a British energy cooperative

Planning for the Brixton project began in 2011. The PV system installed on the housing estate was financed through cooperative shares. The electricity generated is used to light corridors and power lifts, which also reduces building management costs. The cooperative receives additional money for every kilowatt hour generated, as part of a national feed-in tariff programme. Through the umbrella organisation Repowering, with Agamemnon Otero as its CEO, further energy cooperatives have been set up throughout London, most of them with the goal of bringing solar energy to social housing.

Around the time that cooperative members were installing the first solar panels, Otero was thinking about how he could raise public awareness about sustainability and biodiversity in the big city while also promoting social interaction. And that was when his idea was born to transform vacant plots of land at London Overground stations into collectively managed gardens.

Good for the community and the environment

In its first decade, the Energy Garden project has grown rapidly, and several thousand square metres of land have now been transformed into green spaces. Multiple London authorities support the project financially, and the gardens have welcomed a total of one million visitors – many of whom have been persuaded to get involved, and to join the cooperative. The hope is that every garden will make a small contribution towards combating the climate and environmental crisis. As is the case at Brondesbury Park, many of the gardens are equipped with solar panels. They provide electricity for use on-site – for example, to power water pumps and to charge batteries. This infrastructure is to be continuously expanded, one garden at a time.

In September 2020, the cooperative launched a new, large-scale community share offer in an effort to raise millions of pounds for the installation of solar panels on the roofs of transport depots. In the first phase, Energy Garden hopes to achieve a maximum output of 400 kilowatts peak (kWp), which should generate enough income to make the cooperative financially independent. This would allow it to create fully paid positions for the volunteers who look after the gardens, for example. The cooperative also wants to use the proceeds to bring individuals, communities, and companies together and ensure that the expertise gained is passed on to the next generation.

Lush greenery in the city: This is Londoner Ode's first time working in an Energy Garden. It is thanks to the commitment of many volunteers that stations like Brondesbury Park receive the highest ratings from rail passengers.

Training for a sustainable energy future

It is a rainy Saturday two days after our visit to Brondesbury Park, and we are now in the South London district of Brixton. In an artist's studio located under the brick arches of the railway line, ten young people stand around a wooden table, each holding a soldering iron. They have been given the task of connecting two solar cells so that electricity can flow from one to the other. To do this, a thin aluminium strip must be soldered to both plates – a job that requires a lot of concentration and dexterity. This is the first time the participants have ever held solar cells, let alone worked with them, and they are having lots of fun.

"We equip young people with the skills they need to make their own progress."

Sian Palmer, Training Programme Coordinator at Energy Garden

The workshop forms part of a training programme that Energy Garden offers young Londoners aged 18 to 24, explains the programme's coordinator, Sian Palmer. In a course lasting several months, participants are introduced to the world of energy cooperatives and the green economy. They learn, for example, how the global electricity market works, why conventional energy generation pollutes the air, what environmental legislation currently exists, and which cooperative financing models are available. There are also modules on biodiversity and gardening. . In short, it's a kind of crash course in sustainability that aims to inspire young people to become active in the sector themselves.

Today, the Energy Garden team are showing participants how solar cells generate electricity and how to connect them to build their own solar panels. Alongside Sian Palmer and Agamemnon Otero, technical advisor Ben Phillips is also here. After lunch, he will show the participants how to connect the solar panels to a water pump. "The training programme equips young people with skills that can help them in their jobs and studies, or in projects of their own," says Palmer. The course is sponsored by an investment firm that supports sustainable companies. At the end of the course, the young adults have the opportunity to gain several months of work experience at wind, solar, biogas, or cleantech energy companies.

Jalil, a charismatic 22-year-old with cornrows who usually works as a musician in East London, has just broken his solar cell. Jalil grew up on the Banister House estate in the borough of Hackney, where he still lives today. When Otero's Repowering project began installing solar panels on the roofs of the estate around five years ago, Jalil was one of the residents who helped with the installation and became a member of the energy cooperative. Otero told him about this course a few weeks ago – and Jalil was immediately enthusiastic. "Renewable energy is the industry of the future," he says, explaining that he wants to pursue a second career in the sector alongside his music. "I want to learn everything I can about new ways of generating energy. I'm particularly interested in the financial side; my goal is to make the industry more sustainable and to channel the profits into meaningful projects."

A diverse group: Many of the young people in Agamemnon Otero's solar cell workshop in Brixton come from socially disadvantaged backgrounds.

Workshop participant Marnie proudly presents the solar cells she has soldered together.

Fair opportunities for underprivileged people

The course comprises a total of 40 hours, spread over three months. It particularly encourages the participation of young Londoners from minority ethnic backgrounds, some of whom face societal disadvantages in regard to housing, education, and income. The course also helps participants prepare for the job market, teaching them how to write a CV and what to consider in a job interview, for example. "It's particularly important to us that the participants are paid for the time they invest," says Sian Palmer. And not just the national minimum wage, she explains, but the London Living Wage of 10.85 pounds per hour. This is intended to guarantee a decent income for all in the expensive English capital.

"We give people the tools and information they need to ask the right questions."

Agamemnon Otero, CEO of Energy Garden

The Energy Garden training programme requires the participants to think for themselves and show initiative: "We don't tell them what's right or wrong," explains Otero. "We simply explain what's happening – for example, how electricity generation works in our society, or why people pay so much for their electricity. They can draw their own conclusions from that." Otero believes that this is what drives social change: "Giving people the tools and information they need to ask the right questions." At the end of each course, says Otero, he is always asked: "Why don't we learn this in school?"

Back at the Brondesbury Park station Energy Garden, the gardeners are still hard at work: some are watering the lilac bushes, others are planting wildflowers. "We are currently planting yellow rattle as it weakens the roots of the grasses and gives the flowers more room to grow," explains Naomi Paine. "This helps us create more diversity." The atmosphere is relaxed, with people chatting and laughing as they dig in the ground. Meanwhile, Agamemnon Otero is already making valuable new contacts: a local councillor is visiting, hoping to persuade the cooperative to transform an unused area of land next to the railway tracks at nearby Kensal Rise station into an Energy Garden. "Absolutely," says Otero, flashing his broad grin. "That'll be fun!"

+ Update + Since 2020, the cooperative has grown by 500 members, enabling it to invest over 1.1 million pounds in community energy development. The cooperative currently employs four full-time Energy Garden employees, as well as one biodiversity officer and one education officer. In 2024, the aforementioned London Living Wage rose to 13.15 pounds per hour.

This article can also be found online with more photos: www.ews-schoenau.de/magazin/energy-garden-en

WINDS OF CHANGE ON SAMSØ ISLAND

A REPORT BY ANNE BACKHAUS / PHOTOS BY MARIA FECK

THE DANISH ISLAND OF SAMSØ PRODUCES MORE ENERGY THAN IT CONSUMES. A DYNAMIC COUPLE AND A DEDICATED COMMUNITY ARE THE SECRET OF ITS SUCCESS.

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A green-painted chipboard cut-out of Samsø lies on the floor, its outlines roughly sawn. The island has a big round "belly" and a long concave bay on one side that makes it look like a chunk has been bitten out. A nature reserve sticks out at the top of the island like a fin.

"It's always good to know exactly where you are," says Søren Hermansen. "And we are right here." He points to the lower eastern part of the island. "So, where would you put the wind turbines?" Hermansen is the director of Energiakademiet (Energy Academy), an organisation in the small port town of Ballen that carries out a range of work including spreading awareness about renewable energy and how to make the switch. And that is exactly what Hermansen is doing today. The tanned 63-year-old with short grey hair, dressed in black trousers and a denim shirt, is standing next to the chipboard island in the centre of a large circle of chairs. Sitting on the chairs are visitors from Poland. Some eyes are directed at him while others look furtively around the group, uncertain as to whether they are really expected to stand up and place the white cardboard windmills on the wooden island. Hermansen reassures them: "Come on, don't be shy! This is how we started out back in the day!"

A whole catalogue of ideas

"Back in the day" was 1997, when the Danish energy ministry launched a compelling competition. The challenge was for a manageable, clearly defined region (preferably an island) to become climate-neutral within ten years – without any assistance from the government and using proven technology so that the findings could easily be transferred to other regions. Samsø entered the competition with a whole catalogue of ideas – a now slightly tattered copy of which lies on Hermansen's desk – and went on to become an official "renewable energy island." Not all of the ideas in the catalogue were realised, but many were.

Samsø island seen from the sea.

Søren Hermansen in front of the Energy Academy on Samsø. He is a global ambassador for the island community and its energy achievements.

Every year, more than 4,000 guests from all over the world participate in Hermansen's workshops, where he shares tips such as how to choose the best locations for wind turbines.

So successfully, in fact, that the goal of climate neutrality was reached after just eight years. The island, which has since received several awards, is one of the first regions in the world to successfully achieve electricity production 100 percent free of greenhouse gases. By now, the "Samsingers", as the Baltic Sea islanders call themselves, actually produce more energy than they consume.

One of the ways they achieved this impressive feat was by installing photovoltaic systems on their roofs, eventually becoming the Danish municipality with the most PV modules per inhabitant. Driving through the island's villages, you will spot these installations on many old farmhouses. There is also a solar thermal power plant in the north with a total collector surface area of 2,500 square meters. The energy generated there is supplemented by burning wood chips – only ever leftovers from agriculture and forestry. The municipal council, meanwhile, powers its premises and the charging stations for its electric cars with a large PV system installed over the car park.

"We rely on various projects to meet our energy requirements."

Søren Hermansen, Director of Samsø Energy Academy

Many private homes and public buildings are connected to district heating networks set up as part of the energy project. Three straw-burning heating plants provide the local area with heating and hot water. Straw has several advantages: it is cheap, it grows quickly, and it requires little maintenance. Moreover, burning straw releases only as much carbon dioxide as the crops took out of the air while growing. However, the heating stations – large, plain barns densely packed with huge straw bales, with narrow chimneys on the outside – can only supply heat to their immediate surroundings. Residents living further away have therefore installed their own sources of sustainable heat, such as geothermal heat pumps.

And, of course, the Samsingers erected wind turbines – 21 of them, to be precise, and not made of cardboard. Eleven were installed at three locations in the south of the island, while ten more form an offshore wind farm off the south coast. But the cardboard ones have their uses, too: today, Hermansen is using them to explain to a government delegation from 16 districts in Poland how they could accelerate the energy transition in their own country.

A lighthouse project for the energy transition

By now, Samsø has gained worldwide recognition as a shining example of what can be achieved. Every year, around 4,000 interested people from around the world visit the Energy Academy. Here, they receive valuable information, have in-depth discussions, and then travel around the island to visit installations like biomass heating plants. Hermansen – who was named one of TIME magazine's "Heroes of the Environment" a few years ago – has told the story of his energy island many times. And not only at the Academy: he has appeared before politicians in Copenhagen and Brussels, spoken at conferences, and worked with communities across the globe.

It is immediately obvious that Hermansen is a practised and capable host. His welcome address alone makes the visitors laugh several times. During the introduction round the participants are asked to give their name and – instead of their profession – say which breed of dog they most identify with. A woman with blond curls feels like a dachshund, her slim neighbour opts for bulldog. Hermansen himself stands there like a border collie, keeping a watchful eye on his "herd." By the time the cardboard pinwheels are being placed on the model island, everyone is visibly at ease. But no one guesses the correct locations. Hermansen explains in detail why the turbines are, of course, not situated in the nature reserve in the north, nor by the beautiful holiday homes on the coast. Instead, they are where the wind blows the strongest while also being as far away as possible from residential buildings. Another consideration when choosing the turbines' locations was causing the least possible obstruction to views across the expansive fields and beautiful natural landscape.

The keys to success: tenacity and diplomacy

What Hermansen doesn't mention at this point is that he spent almost two years negotiating possible locations, and that implementing just this project was an incredibly gruelling task that required lengthy discussions with a number of different stakeholders. Instead, he nonchalantly summarises the experience with the words: "We had to work like diplomats." The main thing that makes Samsø so special, he says, is the community of islanders, all of whom were eager to get involved. No orders come from above here; everything is decided upon and implemented jointly. It is certainly true to say that the process is "very democratic," but that is also an understatement. The Samsingers do agree on all changes together and implement them collectively – there are countless small groups that meet in the villages to discuss new energy sources and help neighbours install photovoltaic modules – but without the remarkable commitment of Søren Hermansen and his wife Malene Annikki Lundén, this level of progress would have hardly achieved. Anyone with a question will often get the response: "Søren should know that," or "I expect Malene can tell you more about that."

Almost 4,000 people live in the 23 villages on this 112 square kilometers island, and getting them on board was essential to achieving the ambitious goal of climate neutrality. But when Hermansen first started speaking about the ideas catalogue, the climate crisis, the energy transition, and the importance of making a difference, many of them simply shook their heads. They only really started to pay attention when he changed his strategy and focused on an argument that everyone could get behind: profit. "Wind turbines aren't as noisy and look a lot nicer when you're a co-owner," Hermansen explains to the Polish visitors. "That is, when they make you money as soon as the wind starts blowing." Taking this approach, he says, can help avoid drawn-out discussions – whether in Denmark, Poland, or Germany. Many in the group nod in agreement, now looking more interested themselves.

From participation to profits

Part of the energy island's concept is that the Samsingers should not only actively participate in the transition to renewable energies, but above all profit from it. At the beginning of the project, the residents were invited to invest within their means. They purchased shares in the plants in advance, and thus benefited directly from subse-

Farmer Jørgen Tranberg was one of the first to invest in wind and solar energy. He now earns far more than he used to with his dairy cows.

quent profits. Cooperatives and holding companies were founded, then construction began on the heating stations, the photovoltaic systems, the geothermal heat pumps, the solar thermal power plant – and the wind turbines.

“What good are green ideas to me if there’s no money coming in?”

Jørgen Tranberg, farmer, Ballen

Jørgen Tranberg has first-hand experience of how the people have profited directly from the island’s renewable energy projects. When we meet up with the farmer – sporting windswept hair, dirty jeans and a work jacket – a few kilometres away from Hermansen’s meeting, he is standing next to one of his last dairy cows. He used to have hundreds of cattle, but he no longer needs them. Now, the 68-year-old sells 300 tonnes of straw to the combined heat and power plant every year. He was also one of the first to invest in the island’s wind turbines, and later in solar panels, too – investments that have amounted to several million euros over the years. “I never concerned myself with climate issues,” says Tranberg. “What good are green ideas to me if there’s no money coming in?” The farmer, a shrewd businessman, recouped his investments after just a few years and now, on a good day, he earns several thousand euros thanks to green energy.

This is also due to the fact that, by now, Samsø generates more power than it consumes. The surplus electricity is piped to the mainland and sold to national utility company NRGi. Besides Tranberg, this has benefited hundreds of other residents who also own shares in the wind farms. However, a large number have recently sold their shares to an energy company. This decision may seem surprising, but it was – as always – made collectively by all involved. Several meetings were held for everyone to discuss the options and to share their hopes and concerns.

Hermansen tells us that in the end a good 95 percent voted to sell. The main reason behind the decision was that the turbines are now getting on in years and maintenance is becoming increasingly difficult. For example, replacement rotor parts may no longer be available. The parts then have to be procured at great expense or rebuilt, which reduces profits. That’s fine for a large energy company, but not for the Samsingers. And so the

The thermal power plant in the north of the island is powered by leftover wood from agriculture and forestry.

The burning of wood chips supplements the energy generated by the solar collector area in front of the plant.

era of communal wind power ownership on the island came to an end – but at the same time, other new projects are getting off the ground.

Fossil-free energy makes more sense than ever

The combined heat and power plants still belong to the residents and are proving particularly advantageous at the moment: while energy prices across Europe soar as a consequence of the war in Ukraine, they remain stable on Samsø. “Years ago I said: ‘If we install these plants, my grandchildren won’t have to buy from Putin,’” Tranberg recalls. Behind him, three wind turbines steadily rotate as if confirming his story. The one at the front still belongs to him.

That day, Hermansen is visiting Tranberg’s wind turbine with his Polish guests. Standing at the foot of the device, he explains that the islanders have grown so accustomed to the sight of the turbines that demolishing them is out of the question. They are now an integral part of the island. A woman on the edge of the group looks up at the rotating blades. “Søren phrases everything in a way that makes you want to go home and put his ideas into action right away,” she says. “It won’t be easy, but I want to see wind turbines in some of our provinces, too!”

“I would rather focus on community work – either here or elsewhere.”

Søren Hermansen, Director of Samsø Energy Academy

A few hours later, the group has departed and an exhausted Hermansen is sitting at his desk at the Academy. His “edutainment,” as he calls it, takes its toll: “I am a good entertainer; I can make people laugh and teach them something,” he says. “But I do find it tiring sometimes. I would rather focus on what really matters to me.” That is, implementing and achieving something – not for profit, but for the environment. Hermansen is an idealist, but he’s also a realist. He knows that imparting knowledge is important: it forms part of his job and supports the Academy, which finances itself and its eight full-time workers mainly through project funds. Ultimately, his edutainment is a means to foster collaborations with others and initiate new projects that benefit Samsø and other regions.

Camilla Mikkelsen and Philipp Cerny have lived on Samsø for three years. Like many other families who have moved here, they value the green-thinking village community.

"We're like dance partners who take turns leading," says Malene Lundén about working with her husband Søren Hermansen. She is an artist who moved to Samsø from Copenhagen.

The island's successful transition to green energy isn't only attracting visitors, but new residents too. Additional motivation for the Samsingers' efforts to become a renewable energy island came from fears that will be familiar to many village communities elsewhere in Europe: that the community may die out as young people move away. Before the project launched, the island had barely any jobs and low levels of income – except during the summer season, when Samsø is a popular tourist destination. More and more young people were leaving the island for the mainland or the capital Copenhagen, a good 140 kilometres away. But now, many people are actually moving here – a very positive side effect.

A rural idyll with work to be done

A 15-minute drive from Hermansen's office, 41-year-old German native Philipp Cerny welcomes us to his old farmhouse. He leads the way through the kitchen into the spacious garden, where Camilla Mikkelsen, 46, is picking mint leaves to put in a glass carafe of water standing on the patio table. The couple live with their six-year-old son in Toftebjerg, a community of 50 people. "It used to be called 'dung village' because of the pong from the surrounding fields," laughs Cerny. Now, however, young families are flocking to this idyllic rural location.

Cerny and his family have lived on Samsø since 2019 and moved into their own house in July 2021. The couple previously lived in Brussels. Mikkelsen, a Danish native, is a certified organic farmer. She was a member of a global delegation of organic farmers in the European Parliament, where Cerny worked as a transportation expert. He is now a freelancer and has sat on the board of the Samsø Energy Academy since March. The couple wanted to get out of the city and find somewhere with a garden for their son to grow up. They chose Samsø: a beautiful and peaceful island where no one locks their doors – and where they expected to find a high level of environmental awareness.

"There is still much more to be done."

Philipp Cerny, board member of the Samsø Energy Academy

"But like many others, we were somewhat disappointed," says Mikkelsen. "You don't see or feel much of the energy island's external image in day-to-day life. For example, it was a bit of a culture shock to find there was no waste separation here." The new black bins with different-coloured lids have only been outside the islanders' homes for a few weeks. Cerny also complains that old diesel ferries still connect the island with the mainland, despite attempts to change that, and that tractors and the island bus are not powered by solar electricity. "There is still much more to be done," he says. And he wants to be a part of it. That is why Hermansen appointed Cerny to the Energy Academy team, where criticism, ideas, and commitment are always welcome – especially in the area of transportation. Samsø's current goal is to completely abandon fossil fuels by 2030.

Letting ideas grow beyond individuals

But even without that goal, Samsø needs more people like Philipp Cerny – people who want to make a difference and dare to follow in Hermansen's impressive footsteps when it's time for him to pass on the baton. The island's achievements in the area of green energy seem to depend on the individual man Søren Hermansen more than on the much-lauded community spirit. Hermansen grew up on a farm on Samsø and attended school on the mainland from the age of 15. He went on to work on fishing boats in Norway, in agriculture in New Zealand, and to gain a degree in environmental sciences before moving back to the island and taking over his father's farm for a while. In 1984, Hermansen met his future wife Malene Lundén, a photographer from Copenhagen who also knew about group dynamics and leadership. She says she fell in love with him "because his sentences always had a 'we' in them."

The couple became the driving force behind the project, although many helpers joined their efforts over the years. Lundén, who prefers to work in the background, started out by writing a book about the project. It was her idea to receive guests in a circle of chairs: "Because it encourages open discussion and creates a feeling of togetherness." At the numerous community meetings, only those holding the "speaker's staff" are allowed to speak. That way, the islanders don't talk over one another and everyone receives equal attention.

The couple have invested a lot of personal energy over the years. They know how to talk to farmers and villagers as well as politicians, and have shown many different kinds of people how they could benefit from the energy transition. Their job is their life. "As a child, I was already helping out on the farm," says Hermansen. "So it's perfectly normal for me to work evenings and Sundays, doing everything required to keep the farm running." Lundén adds: "That's our lifestyle. Søren was often away at meetings abroad, sitting alone in hotel rooms instead of watching our children grow up. But that was entirely our choice – we're like dance partners who take turns leading."

So perhaps it is Malene Lundén and Søren Hermansen themselves who are the real shining examples here. There is no one-size-fits-all solution for the energy transition; a biomass heating plant or a wind turbine might not work everywhere. But people with agile and flexible minds, who can come up with viable and profitable ideas to act more sustainably at a local level, and who can convince the necessary people to implement those ideas – they are something the whole world could use. Naturally, Hermansen thinks this is an exaggeration: "It's all well and good to put a talented striker on a football team to score the goals," he says. "But without ten other players on the team, there wouldn't be a match in the first place." And with that, he dashes off – he has to quickly mow the lawn before joining a Zoom meeting with local government representatives in Canada.

+ Update + Phillip Cerny is still actively involved in the Energy Academy, but now as an employee. He stepped down from the board after taking up his permanent position, but continues his voluntary activities as a board member of the Samsø Energy and Environment Office. As for the old diesel ferries, Cerny reports that, at least on the eastern side towards Zealand – the country's largest and most populous island – two electric ferries will be operating from 2025.

This article can also be found online with more photos: www.ews-schoenau.de/magazin/samsoe-en

CROATIA GOES OVER TO THE SUNNY SIDE

A REPORT BY ADRIAN MEYER / PHOTOS BY TOBY BINDER

DESPITE ITS ENORMOUS POTENTIAL, SOLAR ENERGY HAS YET TO GET OFF THE GROUND IN CROATIA. A GREEN ENERGY COOPERATIVE CALLED “ZEZ” WANTS TO CHANGE THAT.

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SOME IMPORTANT NUMBERS HAVE BEEN UPDATED IN 2024

A solar-powered open-air cinema would be unusual in most locations, but in the middle of a field in Dubrava – a neighbourhood in East Zagreb – it feels particularly out of place. It is a clear September night, and on a plot of land where kids usually play football, a film is being projected onto a big screen. The backdrop is made up of communist-era prefabricated buildings up to 15 storeys high, which tower over long streets of well-kept terraced houses. Here and there, the concrete walls are covered in graffiti tags for the "Bad Blue Boys" – the hard-core fans of local football team Dinamo Zagreb. The club's stadium is not far from this residential area, where few tourists ever venture.

It's not a warm evening – too cool, really, for an open-air film and picnic. Nevertheless, some two dozen viewers are huddled on the ground, blankets wrapped around their shoulders for warmth and a beer or a snack in their hands. They have come to watch the Croatian-German documentary *Love around the World*, which explores love in different cultures, regions, and religions. The 2021 film is very popular in the Balkans. Before it begins, the gaze of the audience takes in a blue car trailer sitting in the middle of the makeshift cinema with the words "Dobra Energija" ("good energy") written on its side. This trailer is actually the beating heart of the cinema: it houses a mini solar plant that powers both the projector and the sound system. Three photovoltaic modules are installed on top, and it contains a battery to store the energy they generate.

"We want to use this film about love to also ignite a love for solar energy."

Melani Furlan, community energy expert with the Green Energy Cooperative (ZEZ)

In truth, this evening's film is something of a decoy: "We want to demonstrate in a simple way that solar energy works," says Zoran Kordić of the Green Energy Cooperative, or Zelena Energetska Zadruga (ZEZ) in Croatian. ZEZ is currently touring the neighbourhoods of Zagreb with its solar cinema to demonstrate the benefits of solar energy. "We want to use this film about love to also ignite a love for solar energy," adds Kordić's colleague, Melani Furlan. Thirty-six-year-old Kordić is co-founder of ZEZ and, along with 31-year-old Furlan, one of its main driving forces.

Informing, inspiring, and motivating

If any of the moviegoers want to learn more about the project, explains Kordić, they are invited to attend one of ZEZ's weekly information evenings that are held throughout the country to educate people about the benefits of solar energy. "Maybe, with our support, they will soon have a photovoltaic system installed on their own roof – and inspire their neighbours to do the same," Kordić adds. He and Furlan have a vision of entire neighbourhoods pooling their resources and jointly purchasing solar panels, which could then lead to the formation of local, citizen-led energy communities.

The cooperative's goal is to establish a decentralised, affordable and renewable energy system that is co-owned by citizens. The members have been working towards this goal for years now, during which time they have already experienced a number of setbacks. Their dream was almost crushed entirely by Croatian politicians, who have been unwilling to advance solar energy and unable to do anything about the monopoly held by national power company Hrvatska elektroprivreda (HEP).

Previous spread: The driving forces behind Croatian energy cooperative ZEZ, Melani Furlan and Zoran Kordic, with their solar cinema trailer

In a country with more than 2,300 hours of sunshine each year, the rooftops of Zagreb offer enormous potential for solar installations.

So much potential – so little power

In fact, Croatia is one of the EU's worst performers in terms of solar expansion. In 2021, solar power accounted for less than one percent of the country's energy mix. And yet in general, renewable energy consumption is relatively high in Croatia: around 70 percent of its electricity is generated by hydroelectric, wind, and biomass plants. Hydropower in particular has long kept electricity costs in the country low, with one kilowatt hour currently costing 1.06 Croatian kuna – the equivalent of about 0.14 euro. But the country is still heavily dependent on oil, coal, and gas imports. In dry years, when the hydropower plants cannot supply enough energy, fossil fuels from abroad fill the gap – and climate change is making low-rainfall summers all the more frequent.

To expand the country's renewables sector, Croatian politicians have so far mainly turned to wind power. Hundreds of turbines have been erected in the country in recent years, often by international corporations. Yet solar energy remained unsubsidised for a long time and was therefore simply not competitive. As a result, Croatia's photovoltaic capacity is still rather meagre: early this year it was a mere 140 megawatts – with a potential of 6.8 gigawatts. And so it is that, in a country that enjoys more than 2,300 hours of sunshine each year, solar energy has barely got off the ground. But this seems set to change: as a result of the COVID-19 pandemic, the Russian war of aggression against Ukraine, and rising energy prices, Croatia is currently experiencing its first-ever solar boom.

While the reasons behind this development are hardly joyful, the resulting situation is, in Zoran Kordić's words, "an opportunity we have long been waiting for." Kordić and Furlan lead us through the loft-like ZEZ office and tell us about their plans. The office is located on the top floor of a brutalist post-war building on the outskirts of Zagreb. Yugoslavian electronics company Radio Industrija Zagreb (RIZ) once produced radio and TV sets in this space; now office dog Kimi pads leisurely over the parquet flooring. Twenty people, including three students, work at ZEZ as part of a young and diverse team.

"We have been infected with the 'solar virus'."

Melani Furlan, community energy expert at the Green Energy Cooperative (ZEZ)

While calm and quiet Kordić works in the background as a strategist, community expert Furlan is more actively involved in concrete projects. Both studied electrical engineering in Zagreb and stayed on in the capital to work for the United Nations Development Programme (UNDP), which is where they met. One of their first projects involved supplying Croatian farmers and their families in remote villages with stand-alone photovoltaic systems. These families had been cut off from the grid since the Yugoslav Wars. Thanks to the solar panels, they were able to produce their own electricity without expensive diesel generators. Saving money on diesel enabled them to buy refrigerators, meaning they could store the milk from their cows and sell it –previously they only produced milk for their own needs. This experience taught Furlan and Kordić that solar energy not only provides electricity, it can empower people to live more independent and self-determined lives. "We have been infected with the 'solar virus' ever since," says Furlan.

From success to standstill

The Green Energy Cooperative (ZEZ) was established in 2013, initially as part of a UNDP project. Passionate about the idea of collective solar energy production, ZEZ saw itself from the outset as an umbrella organisation for the promotion of green energy cooperatives throughout the country.

The members began by organising a successful crowdfunding campaign in the town of Kaštela on the Dalmatian coast. With the help of local citizens, they raised

ZEZ co-founder Zoran Kordić has spent a lot of time and energy drumming up support.

The solar-powered open-air cinema organised by the Green Energy Cooperative (ZEZ) stops off in Zagreb's Dubrava neighbourhood.

enough money to install solar panels on the roof of a state school – a first for Croatia at that time. "This was proof that we could make something happen ourselves," says Kordić. The next step was for ZEZ to find groups throughout the country keen to establish their own local energy cooperatives and to help them on their way with advice and logistics, as a kind of mentor. ZEZ experienced its first success on the island of Krk, where 300 citizens came together to form Croatia's first local energy cooperative and install solar power plants. Their goal was to make the island climate-neutral by 2030. "That was when we really knew that our vision had the power to motivate others," says Kordić.

"The end of the feed-in tariff blocked us for years."

Zoran Kordić, co-founder of the Green Energy Cooperative (ZEZ)

But just when ZEZ thought it was on the verge of a breakthrough, politics got in the way. In 2014, the Croatian government announced the end of the existing feed-in tariffs. "That blocked us for years," recalls Kordić. "No one wanted to invest in solar power any more – it just didn't make financial sense."

Four difficult years passed before ZEZ experienced its next solar success. It was able to motivate citizens in the small town of Križevc northeast of Zagreb to pool their resources and install a photovoltaic system on the roof of the local government building. In just ten days, 53 donors were found who were willing to invest the equivalent of 500 euros each in a 30-kilowatt system that is operated in partnership with the municipal government. Two years later, the initiative developed into the local citizens' energy cooperative KLIK – again with the support of ZEZ. KLIK wants to take the energy transition into its own hands and use solar projects to make the town more energy-independent. Today, Križevci is considered one of Croatia's leading municipalities on the path to climate neutrality.

Battling an anti-cooperative culture

But to get to this point, ZEZ had to convince a lot of people – both politicians and ordinary citizens. Melani Furlan recalls how much time and energy this work required: "There was very little interest, and our campaigns made only very slow progress. The people and politicians just didn't understand what cooperatives can achieve." The problem, she says, was not only the high investment costs but also a culture of self-interest that prevails in Croatia today and makes life difficult for cooperatives. Following the violent breakup of Yugoslavia, the sense of community suffered: "The war created lasting mistrust and has led to people only looking out for themselves," Furlan explains. "The idea of contributing to the common good has neither political nor cultural support." Also, the Croatian word for cooperative ("zadruga") evokes unpleasant memories of the communist era, when agriculture was forcibly collectivised and – following the land reform – dominated by state-run cooperatives.

It's time for a cigarette break. Furlan and Kordić climb onto the roof of the office and get out papers and tobacco. From up here, we look down on a derelict building with a modern office complex right next door. Behind that are the treetops of the huge Maksimir Park – Zagreb's green lung – and the sloping roofs of suburban terraced houses. The massive potential for solar installations is immediately clear. "There could be solar panels on all these roofs," says Kordić, making a sweeping gesture. He sounds both wistful and hopeful.

Speaking to Kordić, one senses that he would like to be a lot further along with ZEZ's vision and is worried the past years may have been wasted time. Because of the brakes that were put on the solar sector's development, ZEZ had to temporarily focus its attention simply on surviving financially as an organisation. It achieved that by participating in EU research and innovation funding programmes – eight in total. "We took anything we could get," says Kordić. Through those programmes, ZEZ helped more than 30 towns make progress in the areas of energy efficiency and renewables. Kordić recognises that they built up a lot of trust with that work – and that this trust could now start bearing fruit. But even while their efforts were tied up in the EU projects, Furlan and Kordić never lost sight of their citizens' energy vision, and continued to work out a plan as to how that dream could yet become a reality.

New incentives and approaches

ZEZ is taking a more pragmatic approach: "We need to work on the general solar infrastructure before focusing too much on founding cooperatives," explains Kordić. The main thing, he says, is to get the solar sector moving again after all the years of stagnation – and the easiest way to do that today is through private photovoltaic systems on homeowners' roofs. As an added bonus, the Croatian government even introduced state subsidies in 2019 to encourage homeowners to generate their own solar power. "That's the new focal point of our campaigns." Current legislation has left ZEZ little choice but to put the idea of community energy on the backburner for now. The cooperative would also like to help tenants get involved in the energy transition. The closest thing to the ideal picture of citizen-owned energy, they say, is neighbours joining forces to install and operate a photovoltaic system together. But sadly, such systems are still not permitted on the roofs of rental buildings.

Online platform for information and networking

So ZEZ decided to specifically target those homeowners for whom a solar installation is already an option. Two years ago, the cooperative launched the online platform "Na sunčanoj strani" ("On the sunny side"), which provides free advice to homeowners looking to install their own photovoltaic system. ZEZ checks whether it is worthwhile at the specific location, how much investment it would require, and what the savings would be. ZEZ also informs users about which permits they need and how to find an installer. To this end, the cooperative works with various certified solar technology companies, which can be contacted via a directory on the website.

Furlan, Kordić and their fellow campaigners also organise information events throughout the country on an almost weekly basis to present their online platform and answer any questions about private photovoltaic systems. When Melani Furlan asks the audience when they want to install their own solar panels, most of them answer: "As soon as possible!" But many simply don't know how to go about it.

This is precisely the information gap that ZEZ wants to fill. With its "sunny side" campaign, the cooperative has already provided free advice to some 2,000 people. "For us, this is a huge success," says Furlan. The team

is also trying to consolidate the contacts it has made through this work with a view to building a robust solar community. On Facebook, for example, ZEZ has set up the "Solar Club," which now has 36,000 members who actively exchange information about solar energy and motivate each other to become solar power producers. The cooperative hopes this community maybe even has the potential to grow into a nationwide citizens' movement.

Neighbourhood pioneers

One of the homeowners who caught the solar virus thanks to ZEZ is Tomislav Lokmer, a 46-year-old IT engineer who lives in a quiet neighbourhood of terraced houses in East Zagreb. Ten years ago, he built his own home 200 metres from his parents' place. It has a modern interior, with much of the furniture handmade by Lokmer himself in his garage. The exterior of the house immediately stands out due to the solar heating system and eight PV modules installed on its roof. Two other roofs in the immediate vicinity are also decked out with PV systems – but they are the only ones in the entire neighbourhood. "We are pioneers!" Lokmer laughs. That's no overstatement, given there are only 3,000 solar installations in the entire country.

"Having support from ZEZ was a great help!"

Tomislav Lokmer, IT engineer, Zagreb

Lokmer came across ZEZ on the internet a year ago. He initially made contact merely to enquire about a measuring device the cooperative was selling, but he got into conversation with one of the members, who suggested that he invest in his own photovoltaic system. Back then, homeowners could apply for state subsidies for private solar plants – and Lokmer decided to try his luck. He explains how ZEZ supported him throughout the process: "It was a great help!" He began producing his own electricity this summer – officially making Lokmer an electricity "prosumer." And as the August sun provided far more energy than he himself required, Lokmer now also benefits from the new renewable energy law: Croatia's national energy company HEP pays 80 percent of its usual tariff for the surplus electricity he generates. The credits are automatically deducted from his electricity bill.

Ultimately, Lokmer opted for a PV system to save money. It cost around 6,000 euros, and he received almost half of that from subsidies. "The system will have paid for itself in six years," he says. "Probably even faster with the rising cost of electricity." Financial benefits aside, he is also a proponent of the technology: "The fact that it also protects the environment and makes Croatia more independent is a big plus."

More and more Croatians are beginning to share Lokmer's view. Something has changed in the past few months – the team at ZEZ can feel it. The number of enquiries has doubled this year, and three times as many people are coming to the information events. As rising energy prices put increasing strain on Croatian households – who are now paying up to 20 percent more for their electricity – solar power has suddenly become a worthwhile investment.

Since the beginning of the year, the number of private solar installations in Croatia has almost doubled, from 1,500 in February to almost 3,000 in the summer. Kordić is well aware that this number is still very low, but he is sure that this is just the beginning: "Solar energy will now grow exponentially in Croatia." He envisages that by 2030 100,000 households in Croatia will be producing their own solar power – that's one in five households. "It's a realistic goal!" Kordić insists.

With the long solar standstill and a great many obstacles now behind Kordić and Furlan, this seems like a promising time to implement new plans. Soon, they aim to establish a new cooperative called "Sunce" ("Sun") that will focus even more on solar expansion. The goal is to create a social platform that brings together towns and municipalities with investors and new members for energy cooperatives. This way, they hope to revive the original idea behind ZEZ: for citizens to collectively take the solar energy transition into their own hands, giving them greater energy independence and a share of the profits. Kordić is certain of one thing: Croatia is finally going over to the sunny side.

+ Update + Since the summer of 2022, ZEZ has ramped up its commitment to citizen-led solar expansion with educational activities and online services. By offering joint financing to local groups, it has facilitated the installation of 60 additional PV systems with a capacity of 430 kilowatts. A total of one megawatt of additional solar energy has been achieved so far thanks to ZEZ.

This article can also be found online with more photos: www.ews-schoenau.de/magazin/croatia-en

"We are pioneers!" says 46-year-old IT engineer and solar power producer Tomislav Lokmer.

SOLIDARITY THROUGH SUNLIGHT

A REPORT BY SVENJA BELLER / PHOTOS BY ANA BRÍGIDA

A COOPERATIVE IS INSTALLING SOLAR PANELS ON THE ROOFS OF SOCIAL FACILITIES IN PORTUGAL – AND DEMONSTRATING HOW CITIZENS' ENERGY INITIATIVES CAN PROMOTE SOLIDARITY AND COMMUNITY SPIRIT.

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It is an unusual day in an unusual winter when João Braga Lopes and Alekson Dias da Luz lead us up a narrow stairway to the roof of this facility for people with disabilities. They open the door to the outside; today the sky above is overcast – a very rare thing during these past few weeks. This winter has been extraordinary, with the clouds seemingly reluctant to shed any rain. Portugal is suffering from an extreme drought, with more than 90 percent of the country experiencing water shortages – and that in the middle of winter, when downpours are normal and expected.

Lopes and Luz, both in their mid-20s, are members of Lisbon-based energy cooperative Coopérnico. The cooperative predicted droughts of this kind years ago, when the Portuguese government allowed the construction of one hydropower dam after another. In early February 2022, five of the country's approximately 60 hydroelectric plants had to close because their reservoirs were drying up. In some of these reservoirs, the water disappeared to reveal the ruins of villages that were flooded to build the dams.

Social facilities go solar

The members of Coopérnico derive little satisfaction from being right about the water crisis – but they are happy to be able to offer a solution. The collective relies on an energy source that will not run dry in times of drought – the sun. The roof where Lopes and Luz are now standing is home to 122 solar modules. They usually shine brightly in the sunshine, but today they only gleam faintly in the pale light that seeps through the grey clouds – funny how things don't seem to work when someone's watching! In full sunshine, this solar facility can generate 30 kilowatt hour (kWh) of electricity – that's the amount consumed by four Portuguese families with two children each. The

— Ana Rita Antunes, founding member of "Coopérnico"

With their solar projects, Catarina Simões and Luís Besugo from Centro Júlia Moreira are supporting both social engagement and the energy transition.

In the “Centro Júlia Moreira”, people with disabilities do arts and crafts together in small groups.

Alekson Dias da Luz (L) and João Braga Lopes have set out to transform Portugal’s energy landscape.

electricity is fed into the public grid – for the time being, at least. In a few years, the centre for people with disabilities will be able to use the electricity itself.

Fourteen people live in Centro Júlia Moreira, and another 81 are cared for and work here during the day. The pink building is situated in western Lisbon, in the Penha de França district, far from the sophisticated square Praça do Comércio in the city centre, the restaurants and bars in the winding cobbled lanes, and the popular viewpoints where street musicians entertain tourists. You won’t find any tourists in this part of town, with its plain and austere tower blocks and quiet residential streets echoing with the calls of pigeons and seagulls. Centro Júlia Moreira is part of the Associação Portuguesa de Pais e Amigos do Cidadão Deficiente Mental (Portuguese Association of the Parents and Friends of Mentally Disabled Citizens – APPACDM), whose emblem consists of two candles, one with a large flame and the other with a small flame. The message is clear: large and small stand together. The association runs five institutions, including vocational training centres and a day nursery. And on the roofs of each one, solar modules are busy collecting the usually copious amounts of sunshine.

A decade of commitment to the energy transition

That is Coopérnico’s idea of a decentralized and socially responsible energy supply. The energy cooperative is the first, and until now only, of its kind in Portugal. It was founded in 2013 by Nuno Brito Jorge, who had recently returned from Barcelona, where he’d learned about the Catalan energy cooperative Som Energia. There was nothing comparable to that in Portugal, and so Brito Jorge gathered 16 friends and colleagues together, many of whom are environmental activists, to found the first energy cooperative in the country. One of those people was Ana Rita Antunes. At that time she was working for Portuguese conservation organization Quercus, now she is Chief Coordinator at Coopérnico. When asked to describe her duties, she laughs… “I do everything!” she says.

“I am very motivated to do something for the good of society.”

João Braga Lopes, Communications and Project Manager with Coopérnico in Lisbon

The cooperative received start-up funding from other energy cooperatives in Belgium, the Netherlands, and Spain. The cooperative was organized by REScoop, the European federation of citizen energy cooperatives. Coopérnico’s goal was to combine climate-friendly electricity generation with social projects. To do so, it sought out social institutions like Centro Júlia Moreira so that it could install solar panels on their roofs. The agreement is fairly straightforward: Coopérnico pays the institutions a monthly rent for the roof area, and after 15 years the institutions can use the plant’s electricity themselves.

In the meantime, Alekson Luz, who is responsible for the technical monitoring of Coopérnico’s solar installations, is taking readings of the performance of the rooftop modules. “Pretty low today,” he says. That’s no surprise, given all those clouds. Next, Lopes and Luz – whose name appropriately translates as “light” – check the transformers. These are attached to a wall in the attic, behind another door. A colourful bundle of cables leads from the transformers up to the modules. Luz is pleased to discover there are no error messages. If problems do crop up, he is informed via an app. He doesn’t have to head out to the installation himself but can assign a local technician to go and fix the problem. He rarely visits the facilities in person – he’s actually only here today for our benefit. Luz and Lopes have worked with Coopérnico for one year, out of conviction and commitment to the cause. “I am very motivated to do something for the good of society,” says Lopes. “By pooling forces, we are taking power out of the hands of the big companies. And solar energy is the great hope for the energy transition.” Up on the roof, the two colleagues can see as far as the Tejo, the broad river that flows through Lisbon.

Project partners become energy companheiros

Two storeys down, we meet Luís Besugo, who is responsible for the association’s development. The room’s walls are adorned with photographs of the centre’s inhabitants and the colourful collages they have made. On a cupboard is a picture of a rainbow with the words “Vai ficar tudo bem” – “Everything will be fine.” Besugo greets us and tells us about the partnership: “The projects in our facilities were among the first Coopérnico initiated. That was in 2014.” Coopérnico first contacted Besugo two years previously, a year before the official founding of the cooperative. Besugo was immediately persuaded of the project’s value and promptly became a member of the cooperative himself.

“I thought it was a good idea straight away,” recalls Besugo, a tall man with friendly eyes behind rimless spectacles. “Our institution wants to work for the good of society,” he says. “And contributing to climate change mitigation is certainly a way to serve society.” For Besugo, therefore, promoting solar energy is a profoundly social obligation. He and his colleagues wasted no time: little more than a year after the initial contact, the panels were in place on the roof and the facility was earning additional income from the rent.

“Finding roofs is the biggest problem.”

Ana Rita Antunes of energy collective Coopérnico in Lisbon

Not every facility is so decisive. “When I first started working for Coopérnico, I thought the major issue would be getting hold of enough money,” says project coordinator Antunes. “But I was wrong. Finding roofs is the biggest problem.” And yet any institutions that make their roofs available don’t have to pay a single cent for the solar plants. Quite the contrary: they receive rent for a currently unused surface and, after 15 years, their operating costs decrease significantly, when they are able to use the electricity from the modules themselves. Antunes’ explanation for why so many facilities reject Coopérnico’s offer is that opting to have the photovoltaic plants installed is a decision for the next 25 years, as that is the average lifetime of the modules. “Many people are nervous about making such a long-term commitment.” And some people

find the panels ugly. “But how beautiful is the chimney of a coal-fired power station?” asks Antunes in exasperation. Obviously too few people have recognised the urgency of the need to switch to renewable energy sources. Antunes takes a deep breath. That’s something she does fairly often, she says, as this topic is particularly vexing.

Driving the energy transition with the handbrake on

This Thursday afternoon, Antunes has come to Biblioteca Orlando Ribeiro in the district of Telheiras in the far north of the city. The white-painted library has tables and chairs set out in its inner courtyard. Antunes was invited here by members of a local citizens’ initiative that have requested her advice as they would like to found an energy collective. The initiative aims to produce and manage its own energy, sharing the costs and the profits. In 2019, the Portuguese government passed a law to allow the creation of such energy collectives. “But to this day there is not a single one because the law is so poorly drafted,” complains Antunes. The legislation is too complicated, she says; no one can make head nor tail of it – yet another reason for Antunes to take a deep, slow breath. She believes that the government is not doing enough to promote the transition to a truly sustainable, democratic, and socially responsible energy system.

And yet, Portugal is considered an energy transition role model by much of Europe. After asserting that it would phase out coal power by 2030, the Portuguese government brought that goal forwards to 2023 and finally to 2021. In January 2021, the former state utilities company Energias de Portugal (EDP), which was privatised some years ago, decommissioned the power station in Sines in southern Portugal. In November of that year it shut down the country’s last coal-fired power station, Pego, in the centre of the country. EDP says it brought the dates forward due to the increased cost of European emissions trading and higher taxes. With this move, Portugal became the fourth country in Europe to eliminate coal after Belgium, Sweden, and Austria. Germany does not plan to bid farewell to coal until 2035. In late 2021, Portuguese energy agency Adene reported that 73 percent of Portuguese electricity is generated from renewable sources, with the rest coming from gas-fired power plants run on imported gas. Portugal has no gas, oil, or coal deposits; fossil fuels are delivered by ship to this country on the southeastern edge of Europe.

In 2020, most renewable energy in Portugal came from wind and water. They each had a 40 percent share. Biomass had a 12 percent share. But solar energy had only 5.5 percent, which seems absurd in a country where the sun nearly always shines. “But it’s not the hours of sunlight that are decisive,” says Antunes. “It’s the political measures.” Most government assistance for solar power development is going to big solar parks in the hands of corporate investors. Currently, they are delivering twice as much energy as smaller plants. For a brief period in 2008, Portugal’s first solar park was the largest in the world, with a capacity of 46 megawatts. Now, the next mega-project is in the pipelines – and it’s the source of much controversy. Construction of a new solar park in the central Portuguese district of Portalegre will require the felling of more than a thousand cork oaks. But these trees enjoy protected status in Portugal and may only be chopped down if they are sick or dead. Local inhabitants are therefore protesting vociferously against the park’s construction.

The wind farm “Mendoiro-Bustavade.” Unlike solar energy, wind power is booming in Portugal: It made up around 40 percent of the country’s renewable energy in 2020. Photo: Zuma Press Inc. / Alamy Stock

Coopérnico seeks an alternative path

That is not how Coopérnico envisages the energy transition. “We have to get the people on board,” says Antunes. And the cooperative is showing how that can be done. Since its founding in 2013, it has gained more than 2,300 members, who are encouraged to help shape Coopérnico’s strategy. Via local groups spread across the country, they can, for instance, publicise the cooperative’s work and goals, get their electricity from the cooperative, or invest in new projects. And those investment schemes can work remarkably well, as one example from late 2020 shows: within five minutes, twelve members were able to finance a solar project worth 22,000 euros in Tavira on the southern coast of Portugal. They receive a three-percent return on every investment.

This way, Coopérnico has been able to realise 32 projects, with a total investment volume of more than 1.8 million euros. Since Lisbon’s government reduced the feed-in compensation for solar energy from 100 to 45 euros per megawatt hour in 2019, the cooperative no longer initiates projects that feed energy into the grid, as it simply isn’t worthwhile financially. Instead, the institutions in the current seven projects use the solar power themselves – as does the facility in Tavira. There, a day nursery and crèche now use the electricity generated by the solar plants on their roofs.

The reduced feed-in tariff has made it even more difficult for the cooperative to find partner institutions, because using the electricity oneself is not always the best solution. For instance, sports facilities that are primarily used in the evenings would have to temporarily store the electricity generated during the day and then feed it back in again – but electricity storage systems are still very expensive.

“People here are still not used to getting involved in democratic processes.”

Ana Rita Antunes, Chief Coordinator of Coopérnico in Lisbon

Despite obstacles like this, Coopérnico is continuing to grow. In 2016 the cooperative was able to pay back its start-up funding to the other European energy cooperatives. Last year, it was even in a position to help new Greek cooperative Hyperion with initial funding. But, in comparison to other cooperatives in Europe, Coopérnico is still small in scope. In Germany, more than 800 energy cooperatives with a total of around 200,000 members are shaking up the electricity market. Antunes assumes that there are cultural reasons Coopérnico has thus far failed to inspire any emulators in Portugal: “Our democracy is only 48 years old. People here are still not used to getting involved in democratic processes.”

Energy poverty, and how to escape it

And yet it is precisely in Portugal that many people are in need of urgent financial assistance or self-generated energy. Portugal is one of the European countries worst affected by energy poverty. Of course, that is felt particularly strongly during winter. Portuguese homes are poorly insulated and rarely have central heating. Most people heat intermittently at moments of greatest need with small fan heaters or electric fires. According to an EU survey, almost a fifth of the Portuguese population is unable to keep their living spaces sufficiently warm in wintertime. Only in Latvia, Bulgaria, Cyprus, and Turkey are people worse off. Electricity prices are high in comparison to the low average wage. In response, the government introduced a special social electricity tariff for low-income households in 2021. Antunes believes that is not the right approach: “It’s like being given money to buy medicine that treats the symptoms of your disease without considering the causes,” she says.

Coopérnico is calling for the creation of a national monitoring centre for energy poverty. The cooperative is also the Portuguese coordinator for the EU project Powerpoor, which offers support to low-income households, advising energy-poor citizens on how to change their energy use behaviour. Powerpoor also implements small-scale energy efficiency interventions and encourages the use of alternative financing schemes.

Within the scope of the project, Coopérnico has set up energy advice offices in the municipalities of Ermesinde, Mértola, and Lisbon.

Social responsible energy

At Centro Júlia Moreira Luís Besugo and his colleague Catarina Simões are doing a final round of the building. In the corridors, some of the residents fling their arms around them. “We’re not allowed to do that, because of Covid,” whispers Simões with a smile, and gently repositions a mask or two. In the foyer, a large gold number 60 shines out from the wall, surrounded by blue, white and yellow balloons – the institution has just celebrated its 60th anniversary.

In one of the workrooms, a group of people are putting together plastic parts for an electronics firm, in the next another is painting pictures for a company that manufactures lifts – these are intended as gifts to say sorry to people who have been stuck in the company’s lifts. And in the typography workshop, a few people are making paper tags for Portuguese airline TAP.

In seven years, the solar energy from the institution’s rooftop will help power its lighting and the radios that are on in the rooms nearly all day long. That should greatly reduce the centre’s high electricity bills. The centre's inhabitants are curious, and Simões is figuring out how to explain the project in terms everyone can follow. But a large papier-mâché sun in the stairwell is a symbol of what is happening up on the roof.

The solar plant on top of this building is still little more than a nucleus for the dream of a decentralized, sustainable and socially responsible energy supply that Coopérnico is striving towards. As long as this is the only energy collective in Portugal, it is likely to remain nothing more than a dream. But Ana Rita Antunes and her comrades do not allow themselves to become discouraged. It was not so long ago that the Portuguese people peacefully freed themselves from a dictatorship. That historic moment is known as the Carnation Revolution – maybe the next milestone will be a solar revolution!

This article can also be found online with more photos: www.ews-schoenau.de/magazin/coopernico-en

Clean energy for a country where the sun almost always shines – this is the vision that unites Ana Rita Antunes, Alekson Luz, Catarina Pereira, and João Lopes.

A BEACON FOR BERLIN

A REPORT BY PETRA VÖLZING / PHOTOS BY SASKIA UPPENKAMP

THE BÜRGERENERGIE BERLIN COOPERATIVE HAS BEEN FIGHTING FOR OVER A DECADE TO SECURE A COMMITMENT TO CLIMATE PROTECTION AND CITIZEN PARTICIPATION IN THE CITY'S ENERGY GRIDS.

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It was an October evening during the coalition negotiations for Berlin's new state government, and members of the energy cooperative BürgerEnergie Berlin (BEB) had gathered in the city's Moabit neighbourhood. In Kulturfabrik, a former factory turned cultural hub, they poured over technical drawings and freshly painted banners. This was the scene as the cooperative prepared for a demonstration in front of Berlin's town hall, the Rotes Rathaus, to drum up support for its core demand: citizen participation in Berlin's energy grids. "We want the Berlin state government to join forces with us to realise that goal," says BEB board member Christoph Rinke, explaining the reason the cooperative gathered in front of the Rotes Rathaus back in the autumn of 2021. "Citizen participation in Germany's largest electricity and heating grid would have a huge impact," stresses Rinke. "It would make Berlin a shining example of citizens actively joining forces with politicians to shape the future of their cities."

Taking on a major fossil-fuel player

BEB was founded with the goal of achieving co-ownership of Berlin's electricity grid, thus giving citizens active participation in and direct influence on the city's infrastructure. At the time, that was a particularly bold move, as it meant going up against Berlin's grid operator, the multinational energy company Vattenfall. To date, the young citizens' cooperative has managed to raise a remarkable twelve million euros from a wide range of people, all eager to demonstrate their willingness to get involved – even without any guarantee of participation from the senate.

Founded in December 2011, the cooperative entered Berlin's 2012 tender for concession of its electricity grid for the next 20 years. BEB's goal at that time was to drive out Vattenfall and partner up with the state of Berlin as joint grid operators. Seven years later, it had advanced to the final three in the bidding process. Ultimately, the contract was awarded solely to the state of Berlin – but BEB has persevered with its goal, tirelessly campaigning for state-owned grid operation with civic input through a citizens' cooperative. "Time and again, the positive response and encouragement we have received from so many people is what has kept us going on this long journey," says Christoph Rinke. "It has confirmed our belief that cooperative participation can indeed become a reality."

Getting creative together at the Kulturfabrik theatre

A Herculean task for Berlin

In mid-2021, the state of Berlin bought back its energy grid. That represented an important first step for BEB – all the more so because the state government has a grand vision: to achieve climate neutrality by 2045. The ambitious Solarcity Master Plan is particularly important in pursuit of that goal. It aims to bring about a massive increase in Berlin's solar energy consumption – from the current three percent to 25 percent by 2045. For that goal to become a reality, starting today the city will need to install as much photovoltaic capacity each year as has been installed over the past 25 years in total.

The power grid plays a crucial role in this rapid expansion plan, as each individual system must be technically integrated into the grid. It's fair to say, therefore, that the state of Berlin has a Herculean task ahead of it. According to an analysis by the Berlin University of Applied Sciences (HTW), one third of the newly created capacity will have to be installed on the roofs of privately owned residential buildings. That means involving real estate companies, property managers and individual owners in the installation of around 150,000 small PV systems.

"We urgently need citizens to become part of this solar boom – at an institutional level," Rinke emphasises. Moving forward, grid operators and citizens will have to cooperate as partners: citizens with PV systems will require easy access to the grid with minimal bureaucracy, and the electricity grid operator must learn to understand the needs of participating citizens in order to ensure fast and efficient progress. Up to now, the task of an electricity grid operator has been to simply distribute energy from a few large plants to consumers. "From now on, however, the need for dialogue will increase tremendously, as there are a lot of new players coming onto the field," says Rinke. "We bring in the citizens' perspective – along with our own expertise from the numerous projects we've been part of and implemented."

Bringing ideas to the people

BEB's commitment to fighting for greater citizen participation, climate protection and solar power has been well received in Berlin. Matthias Hinnecke is a volunteer for the cooperative. He recruits supporters at BEB information stands, where he has experienced this positive response first hand: "People from all different walks of life approach me, wanting to get involved," he says,

Team member Matthias Hinnecke
at the BEB information stand in Biesdorf

One of the initiators of BürgerEnergie
Berlin: Arwen Colell

Christoph Rinke (middle)
at a volunteer team meeting

Kirsten Heininger visiting Berlin's
Climate Justice Camp in September

explaining that many laypeople have their own personal experiences of how difficult it is to generate their own energy. Hinnecke is a freelance consultant for photovoltaics and energy efficiency and has been with BEB practically since day one. His passion for the idea of citizen-owned energy was ignited when he heard about how the so-called "Schönau electricity rebels" successfully took over their local power grid via their green electricity cooperative Elektrizitätswerke Schönau (EWS). BEB is now a long-standing partner of EWS, selling its energy to consumers and receiving support for its own work in return.

Hinnecke likes to share his knowledge and experience with those who stop by the information stands. "I particularly enjoy getting into in-depth conversations, even though they can be quite time-consuming," he says as he loads his information material back into the box of his cargo bike. "People have such varied questions on the topic, and I like sharing helpful information and tips." It is a Saturday, and Hinnecke has just spent six hours staffing the BEB information stand at a summer festival in Berlin's Biesdorf district – just one of many afternoons and evenings he dedicates to the cause. "It can be exhausting sometimes," he admits. "But it's worth the effort. Even if we don't always recruit new members on the spot, we're still getting our ideas out to the people."

Positive responses to wide-ranging activities

And BEB is certainly not struggling to find members: today, at least 3,000 people are contributing financially for a stake in the electricity grid via BEB. The cooperative's active participation in political discourse has no doubt helped raise its profile. In the lead-up to Berlin's parliamentary elections, for example, BEB organised various energy policy events. One that drew a lot of attention was a panel discussion where the leading political candidates debated future climate, and energy policies and the core role of the energy grid. "Achieving a climate-neutral Berlin will take more than just adding a bunch of solar panels," says Christoph Rinke. "Climate neutrality requires a profound transformation of society – and we want to support that transformation."

"We want to develop ideas that are fit for a sustainable city and give people the space they need to actively participate."

Christoph Rinke, board member
of Bürgerenergie Berlin

BEB is providing support at various levels. In addition to political initiatives and campaigns, it also participates in cultural and public awareness events that look at the impact of climate change on society – like Berlin's Long Night of the Climate, for example. The cooperative even runs its own solar energy projects. "We are interested in anything and everything to do with the community and social innovations – be it on a technical, political, or emotional level," explains Rinke. "We want to develop ideas that are fit for a sustainable city, breathe life into those ideas, and give a wide range of people the space they need to actively participate."

This approach is also reflected in the broad range of perspectives within BEB itself, whose members include students and retirees, experts in technology and energy, socio-political activists, high earners, and low earners – even a former German economics minister. The volunteers that make up the organisational team, which is responsible for events, overseeing projects and coming up with new ideas, are just as diverse in their interests and skillsets. As a result, the focus of the cooperative is not solely on solar technology and the electricity grid concession, but includes topics as wide-ranging as social justice and digitalisation.

"I want to make a difference and I know I can always count on my team's support – it's a good feeling."

Kirsten Heininger, BEB member

Organisational team member Kirsten Heininger likes this open approach. She works in environmental education and has been an active member of BEB since 2014. "I really care about the political and social aspects of Germany's energy transition," she explains. One of her main passions is gender equality: "We at BEB want to reach as many people as possible, which means we also need to promote gender equality," she says. "That's why we make sure, for example, that there is a balance of female and male speakers at events and that we use gender-appropriate language." Heininger is clearly proud of her team: "Everyone contributes in a different way," she says. "I want to make a difference in this area, and I know I can always count on my team's support – it's a good feeling."

A resonating choir practice

The ambitious idea of cooperative participation in Berlin's electricity grid was born in the summer of 2011 as the brainchild of Luise Neumann-Cosel and Arwen Colell. "Luise and I came up with the idea together after a choir rehearsal," recalls Colell. The two friends wanted to prevent Berlin's electricity grid concession from being awarded to big coal and nuclear companies like Vattenfall, Eon, or the State Grid Corporation of China. They believed that decisions regarding the city's energy should instead be driven by climate protection, the *Energiewende* (Germany's term for its energy transition), and citizen participation. Neumann-Cosel and Colell quickly won over many people with their brave idea and laid the foundation stone for what is now Berlin's largest energy cooperative. Both women are still active at BEB today, where they continue to develop the cooperative as members of the supervisory board.

"The rapid increase in membership proved to us that a grid takeover is not just about the technical infrastructure," says Colell. "Energy grids are also a public service, so this is very much a societal issue that must include the community's input and support." Colell is a political scientist who completed her doctorate on the potential of a citizen-led energy transition. She was appointed to the supervisory board of the now state-owned energy company Stromnetz Berlin in 2021 – a positive signal for the future of cooperative participation.

She considers civic energy to be an essential driving force behind the decentralisation of Germany's *Energiewende*: "The energy transition affects our everyday lives in many ways," says Colell. "It's far more than a technological revolution or a purely political process – it

represents a change in society as a whole." She goes on to add: "Citizen cooperatives are the best way forward in the *Energiewende*, as they provide an authoritative body to voice the community's views on key aspects of public services."

Boosting participation and projects

That is why BEB regularly comes up with a wide variety of new ideas to gain even more participatory support. Recently, for example, the team discovered the potential of allotment gardens: "There are a lot of allotments in Berlin and most of them are connected to the grid," says Christoph Rinke. "But it would be great if those 60,000 green-fingered gardeners could also be harvesting power with their own little PV systems."

Those who don't have their own roof space can also participate in the citizen-led *Energiewende* thanks to BEB's tenant electricity projects. The cooperative also promotes balcony modules as a particularly low-threshold way for people living in flats to produce and consume their own solar power. For homeowners, BEB is looking into how the idea of a solar DIY cooperative – which has been successful so far in Switzerland – could be transferred and adapted to the conditions in Berlin. In a pilot project, BEB members are helping each other install PV systems on their roofs to save costs, share know-how, and, of course, because they enjoy spending time together.

Meanwhile, back in Moabit, Rinke is sitting with Kulturfabrik board member Stefan Fürstenau at the bar of local pub and venue Laika, looking back on the success of the latest Long Night of the Climate. The most recent edition was held in 2023 under the motto "Know, Feel, Act" and featured a jam-packed programme of more than 50 events, including film screenings, musical performances, workshops, and keynote speeches on the challenges and consequences of climate change.

Fürstenau considers the Long Night of the Climate a great success: "Over 1,000 people came together to get involved in projects, discuss ideas, and have a good time. The programme made it very clear to participants that we can't just have 'business as usual' and that everyone can take action to change the world for the better." This is also the philosophy that motivates Rinke in his work as a BEB board member: "Many cooperatives are demonstrating the way that society needs to develop in order to protect our planet from further damage. Their work and passion is not driven by the ideas of growth and profit maximisation, but by the wellbeing of people and the environment."

"Citizens are not only ready for a change – they are willing to put their heart and soul into it."

Matthias Hinnecke, BEB member

The late-October weather for BEB's demonstration at the Rotes Rathaus was glorious, with blue skies and sunshine. Sunbeams carefully crafted from recycled foil were unfurled and positioned to make them "radiate" out of a miniature cut-out of the TV Tower. Behind the green BürgerEnergie Berlin banner, campaigners held up cardboard signs as they chanted: "Our climate! Our grid! Our chance!" The sentiments that were expressed at the time of the coalition negotiations are more relevant today than ever: three years after purchasing the electricity grid, the state of Berlin is now in the process of also buying back the district heating grid from energy giant Vattenfall. "We have put down on digital paper all of the pertinent issues," says Matthias Hinnecke. "And that is further proof that Berlin's citizens are not only ready for a change – they are willing to put their heart and soul into it."

BEB's demonstration in front of the town hall three years ago secured the cooperative's goals a place in the resulting coalition agreement. Unfortunately, however, that success was short-lived due to the repeat election in 2023 and the new senate led by Kai Wegner. In future, the state will operate both the electricity and district heating networks. That requires not only an integrative view of the technology involved in the regenerative production of power and heat, but also – and most importantly – far greater involvement of citizens.

"Once again, this is a huge opportunity for Berlin," says Arwen Colell, "We have the chance to set up a modern public company that operates in close coordination with the citizens. The door is wide open – now we really need everyone to get involved and help shape a climate-neutral future." So, what's the next step? "Now it's up to the Berlin senate to reach out and take our hand," smiles Christoph Rinke. "Then we can set off on the most important leg of our journey so far!"

This article can also be found online with more photos: www.ews-schoenau.de/magazin/beb-en

BEB demonstration in front of the town hall in Berlin

VILLNÖSS ENERGY COOPERATIVE

A REPORT BY LUCIA DE PAULIS / PHOTOS BY IVO CORRÀ

FUELLED BY COMMUNITY SPIRIT: HOW A SMALL REGION IN THE DOLOMITES SUCCEEDED IN MEETING ITS OWN ENERGY REQUIREMENTS

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As we leave Klausen in the Eisack Valley of South Tyrol, the road squeezes through a narrow gorge and moss-covered cliffs rise up on either side. Earlier, on the Brenner Autobahn, we were driving past hillside vineyards and chestnut forests, with the first buds visible on the trees. But further up, as the rocky gorge opens out into the valley of Villnöss, with the jagged peaks of the Odle mountains towering behind it, winter returns. Heaps of snow line the road, and every few kilometres we pass house-high piles of wood stacked neatly on the bare fields. The villages and hamlets that make up the municipality of Villnöss are named after saints, and the same surnames appear time and again on the shopfronts. It's as though passing through the rocky gorge has not only taken us to a different season but to a different time: the usual countless hotels and rows of ski hire points and souvenir shops have been replaced by rustic farms and centuries-old houses with weathered wooden façades. One thing is clear: Villnöss certainly took a different path to its neighbouring Dolomite communities.

The road continues to climb, but we are still surrounded by meadows and forests – not a gondola or chairlift in sight. The hamlet of St. Magdalena sits at an altitude of almost 1,300 metres above sea level and has the only T-bar lift in the valley. Directly opposite stands an inconspicuous flat-roofed building that might be mistaken for a barn were it not for the white steam rising from the chimney. The Odle mountains provide an impressive backdrop to the scene. On the wooden façade of the building is a sign in German that reads: "Our energy, from our home – Energie Villnöss."

This unremarkable structure is one of two state-of-the-art district heating plants in Villnöss. And while "our energy" may sound like an empty advertising slogan, we quickly realise in our conversations with local people that it is accurate. Almost a third of the 2,500 inhabitants are members of local energy cooperative Energie Villnöss – an initiative that has always been about more than just energy production: it has strengthened the local economy and has helped shape the development of the valley and the identity of its inhabitants. When the people of Villnöss talk about energy, the most commonly used pronoun is "we."

Sticking together – through good times and bad

The Villnöss energy cooperative is one of the oldest in South Tyrol. In 1921, three local farmers and a craftsman founded an electrical company in St. Magdalena with a

Left: Hannes Messner, the managing director of Energie Villnöss

Centre: Set amidst this picturesque scenery is a quaint 15th-century farm.

Right: The wood used to generate hot water and heat comes exclusively from the surrounding area.

church loan of 15,000 Italian lire. The company's founding charter declared its intention "to generate and sell electrical energy in order to provide members with lighting and power and to boost the economy." The promotion of local craft trades and industry is part of that.

The promissory note for the loan stipulated an interest rate of 4.5 percent and held the debtors personally liable, with all their private property as security. Work quickly commenced, and in 1922 – a little under a year after construction began – the first of the now three cooperative-owned hydropower plants went into operation in St. Magdalena. Support from the locals promptly grew, and with that the number of members and the bond this common cause created. When the cooperative found itself on the verge of bankruptcy in 1929 during the global economic crisis, the farmers once again put up their property as collateral.

Strengthening identity through natural energy

The loyalty shown by the people of Villnöss to their energy cooperative makes particular sense when seen within its historical context. After the First World War, South Tyrol was annexed to Italy. Beginning in 1922, linguistic minorities were subjected to years of fascist "Italianisation."German was banned from being taught or spoken in public; German associations and traditions were shut down; German-language newspapers were censored; and German names – both of places and people – were forcibly translated. This is the historic background that informs the German-language slogan "Our energy, from our home."

Boosting the economy with hydropower

"The people of Villnöss have always been happy to take matters into their own hands," says Hannes Messner with a smile, as if it were no surprise that the community brought electricity to the entire valley a century ago, on its own initiative and using private funds. Messner – a 42-year-old with a friendly, youthful face – grew up on a farm in the valley. He joined Energie Villnöss in 2010, and has now been managing director of the cooperative for three years. He takes us way back in time to help us understand the history of the cooperative. In the 1930s, he says, the Italian government was primarily concerned with the electrification of industrial areas. Mountain valleys like this one – as well as other remote regions of the country – were regarded as unimportant from an economic standpoint; they would simply have to wait longer for the arrival of electricity. The people of Villnöss refused to accept this. "Thanks to the work of the cooperative, by the 1940s we were already generating enough electricity for our mills, sawmills, craft trades, and citizens – and this at a time when people elsewhere were still gathering by candlelight," explains Messner. "Before that, there were no paved roads in Villnöss and the mills in the valley were powered by the stream."

So Villnöss now had plenty of electricity, but individuals were still responsible for their own heating. That changed in 2007 and 2008, when two wood-burning heating plants were built to create a district heating network. When the locals were surveyed as to who they thought should operate those plants – the cooperative or the municipal government – the response was unanimous: the heating grid should also be in the hands of the energy cooperative.

"Today, Villnöss is an impressive example of successful decentralised, community-based energy production."

Hannes Messner, managing director of Energie Villnöss

Construction of the combined heat and power plants revolutionised household heating in the valley. Today, 97 percent of the buildings in the villages of St. Magdalena and St. Peter are connected to the network. This also benefits the inhabitants financially, as electricity and heating prices have remained stable here for more than ten years. After all, the fuel for the heating plants comes from the valley, and electricity is generated by water. "Even in 2022 when energy prices exploded everywhere else, ours remained 70 percent lower on average – despite the fact that a lack of snow and rainfall the previous year meant that the amount of our hydropower-generated electricity dropped by a third," explains Messner. The cooperative can offer such stable electricity prices because Villnöss produces an average of 15 million kilowatt hours per year and consumes only six million itself. In the summer months, it sells its surplus electricity; only in the winter does the municipality sometimes have to purchase electricity to cover its needs. "Today we are a virtually self-sufficient energy oasis – successfully decentralised, climate-friendly, and citizen-led," says Messner with pride. "Even our Alpine huts at altitudes of up to 2,300 metres are now supplied with electricity and fibre optics. And we have achieved all of this ourselves, without any public subsidies."

District heating from local biomass

In front of the St. Peter heating plant, a loader dumps great amounts of fresh woodchips into the fuel bunker. The sweet smell of pinewood fills the air and makes it feel like we're standing in the middle of a forest. "Unlike other heating plants, we have very short transport distances," says Messner, giving us a tour of the facility. "We supply only a few households and cover our needs entirely with locally grown trees. That means we can guarantee Villnöss farmers a long-term fixed purchase price for their wood."

During the tour, Messner frequently checks his watch; he's under time pressure. The Villnöss energy cooperative has only six employees besides Messner: one admin staff member and five technicians. This small team manages the entire supply of electricity and heat to the valley. Working in shifts, they take care of customer service – on site and via their hotline – 365 days a year.

Left: Getting along great: Hannes Messner and the former managing director of the cooperative, Paul Profanter, with the technicians

Centre: The boiler room at the St. Peter heating plant

Right: Rudi Rienzner, managing director of the South Tyrolean energy association SEV in Bolzano, is calling for local, citizen-based energy management.

“It is practically impossible for us to cope with the regulatory requirements.”

Hannes Messner, managing director of Energie Villnöss

A few years ago, the Italian regulatory authorities began requiring thermal power plants to submit regular reports on their emissions and production data. “These regulations were created for the large district heating plants in northern Italy, but they also apply to small cooperative plants like ours. The administrative effort this requires is practically impossible for us to cope with – we would need three or four more people to stay on top of it,” says Messner.

“In any case, our readings are usually better than required and certainly better than those of the large district heating plants,” Messner explains. “It’s keeping up with the communication that is the issue,” he adds, as he opens the door to the boiler room. Inside, it is pleasantly warm. A yellow glow flickers behind a thick glass pane that provides a view of a ceiling-high boiler. In here, the wood chips are burned at 900° C, heating the water in the tank above.

Pumps transport the 90° C water through underground pipes, distributing thermal energy to those buildings in the surrounding area that are connected to the system. There, the hot water is fed into the respective heating and water circuits. After use, the cooled water is returned to the district heating plant and the cycle starts all over again. In addition to generating heat, the plant offers major environmental benefits, as the exhaust gases from the chimney of the district heating plant are specially filtered and emissions levels are strictly regulated. Plus, this one central boiler replaces the work previously done by hundreds of separate – often outdated – wood, gas, and oil burners, and this has had a great impact on air quality. In a 2011 study, the European Academy Bozen/Bolzano (EURAC) reported that since the commissioning of district heating plants throughout South Tyrol, particulate pollution in the province has fallen by 90 percent.

Heating networks: a model for other regions?

District heating clearly has many advantages – but is it a sustainable solution that can be used on a larger scale? We put this question to Thomas Egger, an energy and environmental engineer who co-founded Klima Club Südtirol (Climate Club South Tyrol) in 2021. He told us: “District heating certainly makes sense as a local solution, especially when there is so much damaged wood available, as is the case right now as a result of storm damage and bark beetle infestations. But it would be a very problematic development if large district heating plants that currently run on gas – such as the one in Merano – decided to convert to wood, as there is also not a limitless supply of wood in South Tyrol.” It would be better, says Egger, for district heating plants to adapt as best as possible to a range of alternative energy sources.

But they do not have the luxury of time: the South Tyrolean government’s climate and energy plan aims to make the province climate-neutral by 2040 at the latest – partly by banning the installation of any new fossil-fuel heating systems from 2023 onwards. “That’s a good start,” says Egger, “but 80,000 heating facilities are still currently running on fossil fuels that all need to be replaced by renewable heating systems in the next 17 years.” A small proportion of those will connect to district heating systems, he explains, but the majority will be replaced by heat pumps. “The electricity for these heat pumps needs to be generated by photovoltaic systems, as we have almost exhausted our hydroelectric potential in South Tyrol,” Egger adds, emphasising the need for targeted, massive expansion of photovoltaics in the province.

A climate plan with flaws

Egger believes that the solar expansion measures outlined in South Tyrol’s 2040 climate plan fall far too short: “Currently, the PV systems installed in the province have a total capacity of 280 megawatts. But according to our calculations we need at least six times that amount to become climate-neutral by 2040.” So back in 2021, the Klima Club made a recommendation to the South Tyrolean government that, in addition to installing solar panels on buildings and in open spaces, it should focus on the expansion of agrivoltaics. For instance, compact PV modules could be mounted on the struts holding up anti-hail nets in some of South Tyrol’s apple orchards.

“In view of the climate crisis, we can no longer afford to put aesthetic concerns first.”

Thomas Egger, energy and environmental engineer at Klima Club Südtirol

“If we assume that 1,250 megawatts of PV power is installed on buildings by 2045, that leaves around 550 megawatts that will probably need to be generated through agrivoltaics,” explains Egger. He estimates that this would require an area of around 1,100 hectares – less than ten percent of the land currently used for apple cultivation. Implementing agrivoltaic solutions would therefore have a minimal impact on income from food cultivation – and would in fact be more lucrative for the plots where the systems are installed. “Yes, these PV modules would alter the appearance of our landscape,” Egger admits. “But in view of the climate crisis, we can no longer afford to put aesthetic concerns first.”

Calls for decentralised energy management

Rudi Rienzner is managing director of the South Tyrolean energy association SEV, which represents the political interests of energy cooperatives and offers

Left: Georg with his father Paul Profanter, who switched to organic farming methods years ago and founded the South Tyrol-wide cooperative Bio-Regio.

Centre: The St. Magdalena district heating plant is set against an imposing backdrop

Right: Chef Oskar Messner also buys from local producers and supports the local economy: he has made Villnöss the first recognised Slow Food Travel destination in the region.

sector-specific services like the purchase and sale of electricity – precisely what small cooperatives like the one in Villnöss have trouble managing. Rienzner – a grey-bearded 65-year-old – is an old hand in the energy business, having already managed the public utility companies in Brixen and Verona. “For years, the SEV has been calling for energy management to be shared between associations, municipalities, and cooperatives,” he says. “The successful promotion of district heating in the 1990s showed that involving the community and creating cooperatives is the right way to go. Energy policymakers today should remember that.”

“Local energy management strengthens local supply chains.”

Rudi Rienzner, managing director of the SEV in Bolzano

Rienzner explains that decentralised energy production management could reduce electricity costs for consumers by 10 to 20 percent. “And those savings may encourage involvement by people who are not convinced by the environmental argument,” he adds. He also emphasises that local energy management strengthens local supply chains, citing another study by EURAC that showed that 70 cents of every euro paid by consumers in South Tyrol for locally produced electricity and district heating stay in the local community.

The valley’s lucky break

Next, we pay a visit to Paul Profanter, former managing director of the Villnöss energy cooperative. He now runs the long-standing organic farm Ganoi, which was first mentioned in a document dating to 1277. The farm is perched on a hill close to St. Peter and affords a breathtaking panoramic view of snow-covered mountaintops and vast expanses of Alpine meadows. Anywhere else, this sort of view would probably be enjoyed from the infinity pool of a massive spa hotel.

But here, the pastures are reserved for the Tyrol Grey cattle, who gaze at us in curiosity. Profanter – an athletic 71-year-old with a weather-beaten face – radiates the calm of an experienced mountain guide. He sees the Villnöss valley as a good example of how local, citizen-based energy management has strengthened the economy and had a positive impact on the community and its residents. “Villnöss has always had good soil for growing grain – and early electrification by the cooperative helped agriculture in the valley get up and running a long time ago. That was our lucky break,” says Profanter.

He also sees the conscious rejection of ski tourism in the Villnöss valley as a sign of a strong, self-determined community: “We rely on a well-balanced relationship between agriculture and nature-based tourism,” he explains. “When ski tourism began to boom elsewhere, we already had a strong economy thanks to the cooperative and could therefore afford not to get involved. For us, the energy cooperative has never been solely about economic progress – it is also about jointly taking matters into our own hands in a way that benefits everyone.”

“We have achieved a great deal together.”

Paul Profanter, former managing director of Energie Villnöss

When we ask Profanter about his more than 40 years as managing director of the cooperative, he does not boast about his personal successes – instead, like so many people here, he lapses into the collective “we” and straightens up slightly, as if physically bolstered by thoughts of the community: “We have achieved a great deal together – we built three hydroelectric power plants and two district heating plants, we even supplied the mountain huts with electricity and fibre optics. Villnöss is now a shining example of sustainable energy management.

Forging their own path together

A few meadows away at Pitzock, a restaurant in St. Peter, a few Villnöss residents are standing at the bar enjoying an aperitif as the sound of clanging pots and pans comes from the kitchen. In a glass cabinet, an award from the Gault & Millau restaurant guide and reviews from gourmet food magazines are positioned next to traditional woollen hats and photos of traditional Tyrolean wool jackets. The chef and owner is Oskar Messner – also a member of the cooperative, of course. In 2011, he had the idea of transforming this former village tavern into a Slow Food restaurant that sources its ingredients from as many local producers as possible. This idea strengthened the local economy and quickly proved itself a successful business model – in 2022, Villnöss became the first recognised Slow Food Travel destination in the entire region of Trentino-South Tyrol.

When we ask him about the energy cooperative, Messner says: “The people of Villnöss have always forged their own path. We are all quite headstrong and we have a pioneering spirit – which definitely originates from our history.” With a smile, he tells us an anecdote about a Russian businessman from the Caucasus who came to South Tyrol in 2014 to find out about local Alpine farming. “He also came to Villnöss and a group of residents, including myself, showed him around. When he asked about our gas consumption, Paul Profanter replied: ‘Gas? Oh no, we don’t need that here!’” At this point in the story, Messner proudly emphasises the “we” – once again making it clear that the cooperative has not only transformed Villnöss into a self-sufficient energy oasis and boosted the local economy, it has fostered a community spirit in the valley that is just as strong and sustainable as its energy production.

This article can also be found online with more photos: www.ews-schoenau.de/magazin/villnoess-en

FOLLOWING UP

Our reports on eight energy cooperatives from across Europe show the diversity of experiences with the energy transition. Sharing ideas and perspectives is what brings energy cooperatives together as a strong community. In that spirit, this special edition provided a welcome opportunity to reach out to the cooperatives with four follow-up questions. Here's a selection of their responses.

What is your advice to new renewable energy cooperatives?

"Our advice for new citizen-led energy projects and new energy communities is to focus on building a strong community from the start. It's important to involve small local communities, make sure they are well informed, and encourage them to actively participate in the energy transition. It is also crucial to build partnerships with other stakeholders in the energy sector and work towards a sustainable and fair energy future – with a strong focus on price and security of supply." ***Philipp Cerny, Samsø Energy Academy, Denmark*** *> see portrait on p. 26*

"Learn from other renewable energy cooperatives that already exist and listen to the members of your own cooperative. Renewable energy cooperatives belong to the citizens." ***Rita Atunes, Coopérnico, Portugal*** *> see portrait on p. 42*

"Be the change. Employees should be representative of the community where they are working. Build scalable models that focus on supporting the internal health of the organisation as much as delivering things externally. That means starting with working conditions, company culture, employee wellbeing, and wages. We need to attract and retain the best minds." ***Agamemnon Otero, Energy Garden, London, United Kingdom*** *> see portrait on p. 20*

"Take a business-like approach with your projects from the start, as national supporting mechanisms will probably happen slowly." ***Zoran Kordić, ZEZ, Croatia*** *> see portrait on p. 34*

Who or what is your source of inspiration for the energy transition?

"The old watermills and windmills as well as the older solar thermal plants, which teach us the importance of renewable and clean energy sources and, at the same time, offer citizens the opportunity to make use of them independently. This was our inspiration to take the initiative and set up our energy cooperative." ***Charalambos Giannopoulos, Minoan Energy, Greece*** *> see portrait on p. 6*

"There are many of them. One of the strongest inspirations is the Solar United Neighbors community in the United States – I like the passion they put into every campaign, be it advocacy or citizen engagement. There are also many EU cooperatives that do incredible things every day. They are all heroes of ours and a source of inspiration." ***Zoran Kordić, ZEZ, Croatia*** *> psee portrait on p. 34*

"The blatant corruption and greed of multinational energy developers and financiers has driven me to create alternatives over the past 15 years that are regenerative and collective." ***Agamemnon Otero, Energy Garden, London, United Kingdom*** *> see portrait on p. 20*

"For over 40 years now I have been observing the technical progress of solar and wind power, and I find it fascinating how the tireless efforts of numerous dedicated individuals have helped turn initially ridiculed forms of energy provision into revolutionary technologies that now dominate the market, thanks to their economic efficiency alone. I foresee a similar future trend for battery and heat pump systems. It gives me hope that we can still join forces to achieve the energy transition – however daunting the challenge may be." ***Heinz Eschrich, BürgerEnergie Berlin, Germany*** *> see portrait on p. 50*

How did your energy cooperative deal with the effects of the energy crisis following the war on Ukraine?

"We focused on bringing clarity to the opaque energy industry. We created a new model in our education curriculum to help citizens understand the current energy landscape and their energy bills. We empowered young people to understand energy generation, efficiency, and fuel poverty so that they can take this knowledge into their communities. We made energy studies fun, visually appealing, and hands-on so that people can have a tangible connection to the systems that shape their lives." ***Agamemnon Otero, Energy Garden, London, UK*** *> see portrait on p. 20*

"Since the start of the war, we have received an increasing number of enquiries about landlord-to-tenant electricity and the self-installation of solar panels, where the focus has been not only on climate protection, but also on supply security. During this time, many citizens have realised that investing in renewable energies also pays off financially. We have therefore expanded our activities in both areas in order to meet the increased demand for advice." ***Heinz Eschrich, BürgerEnergie Berlin, Germany*** *> see portrait on p. 50*

"We had the busiest year in the last decade: the Croatian solar market, which is what we are focusing on, doubled in 2023." ***Zoran Kordić, ZEZ, Croatia*** *> see portrait on p. 34*

"The war in Ukraine sent energy prices skyrocketing, which had a negative impact on households. But there were positive effects for our community, as it increased interest and we gained more new members. This goes hand in hand with our goal: participation of the people." ***Charalambos Giannopoulos, Minoan Energy, Greece*** *> see portrait on p. 6*

"The natural gas price crisis almost ruined Coopérnico. In 2022, we lost more than half of our customers after we had to switch them to index-linked tariffs. It was only towards the end of 2022, when energy prices stabilised at a lower level on the wholesale market, that our customer numbers began to rise again. Last year, things went very well for Coopérnico and we more than doubled the number of members and customers." ***Rita Atunes, Coopérnico, Portugal*** *> see portrait on p. 42*

Which ideas will boost the transition to energy democracy in the future?

"The idea that the energy transition does not have to be in the hands of large companies. European citizens can participate in the energy transition, and more and more of them are becoming aware of this. That is why an increasing number of citizens are joining renewable energy cooperatives and more energy communities are emerging." ***Rita Atunes, Coopérnico, Portugal*** *> see portrait on p. 42*

"Simplicity. Models based on common sense and collective ownership." ***Agamemnon Otero, Energy Garden, London, United Kingdom*** *> see portrait on p. 20*

"To sustain momentum in the citizen-led energy transition, we must actively involve people in decision-making processes, democratise the energy supply, and support new energy communities and decentralised citizen projects at local level. Other factors that can help accelerate the energy transition include innovative financing models, technological progress, and political initiatives." ***Philipp Cerny, Samsø Energy Academy, Denmark*** *> see portrait on p. 26*

"If I had to choose one thing, I would go with energy sharing, as that will allow ordinary people to participate in the energy business." ***Zoran Kordić, ZEZ, Croatia*** *> see portrait on p. 34*

"The key is to get more and more people interested in the benefits of sustainable energy generation. This is a goal we must continue to pursue with tenacity – in business and in politics, but also at information stands, on the streets, and among friends and acquaintances. We must not be deterred by the pushback and we must not let the threads of communication be severed. This is another area where I believe cooperatives are making an important contribution." ***Heinz Eschrich, BürgerEnergie Berlin, Germany*** *> see portrait on p. 50*

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