reschool

Unlocking the **potential** of **energy communities**

42	16	4	6.1M
Months (duration)	Project partners	Pilots in Europe	Budget (Euro)

Picture Credits

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Disclaimer

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TABLE OF CONTENTS

How can energy communities become key actors in Europe's energy transition?

What is needed to turn local initiatives into system-relevant players in increasingly complex energy markets?

And how can citizens and businesses be more effectively engaged in shaping a sustainable energy future?

Over the past three and a half years, the RESCHOOL project has addressed these questions by exploring how energy communities can operate more efficiently and effectively. By combining technological innovation with a strong focus on user behaviour, RESCHOOL has developed insights and solutions to improve the way energy is produced, shared, and managed at community level.

A Timeline of RESCHOOL's Activities

January
Kick-off meeting
in Girona, Spain.

March
Launch of the project's website
and Joaquim Mélendez takes part
in the BRIDGE General Assembly

June
General assembly
in Amsterdam, Netherlands

September
Launch of the interview
series "Reschool Reveals"
on Youtube

October
Reached the milestone of the
"Requirements of technical development
based on Pilot Use-Case"

November
General Assembly
in Athens, Greece

2023

May
General assembly
in Stockholm, Sweden

June
Amsterdam pilot site signs
agreement with local DSO

October
RESCHOOL participates at
ENLIT 2024 in Milan, Italy

April
Joaquim Mélendez takes
part in the BRIDGE
General Assembly

July
All four sites of the
Girona pilot have
smart meters installed

November
18-month
Review meeting

2024

April
RESCHOOL is nominated for „Innovation Actions“ of the Roger Léron Award.

March
Joaquim Mélendez takes part in the BRIDGE General Assembly

June
RESCHOOL participates at ProLight' 5th Capacity Building Workshop (Pierre Kil, Open Remote) and EUSEW (Johannes Vollmer, EREF)

September
UK Minister for Energy visits Amsterdam demo site to explore innovative local energy communities

September
Workshop in Sweden between RISE and 9 representatives from the local energy community

November
RESCHOOL participates at ENLIT 2025 in Bilbao, Spain

2025

January
RESCHOOL participated in ProLight's "Lunchtime Knowledge Exchange"

May
Final policy conference of the project

June
Smart Energy Cluster has a booth at EUSEW

2026

01

Pilot Sites

01

Amsterdam, the Netherlands

Amsterdam faces a major pressure on the power grid due to the city's growth and the rising popularity of electrical appliances, vehicles and heating systems. Expanding grid capacity is expensive, time-consuming and hampered by a shortage of materials. How do we keep the city running without overloading the electricity grid? In the Sporenburg neighbourhood, located in Amsterdam's Eastern Docklands, 125 of the 500 households are joining forces in an energy community called „FlexCitizen". Using smart meters and an app, residents gain real-time insight into their energy consumption. The app offers challenges and rewards to encourage flexible use of electricity.

Scan to find out more about the Dutch pilot site that is not presented in this brochure.

Resourcefully

Gemeente Amsterdam

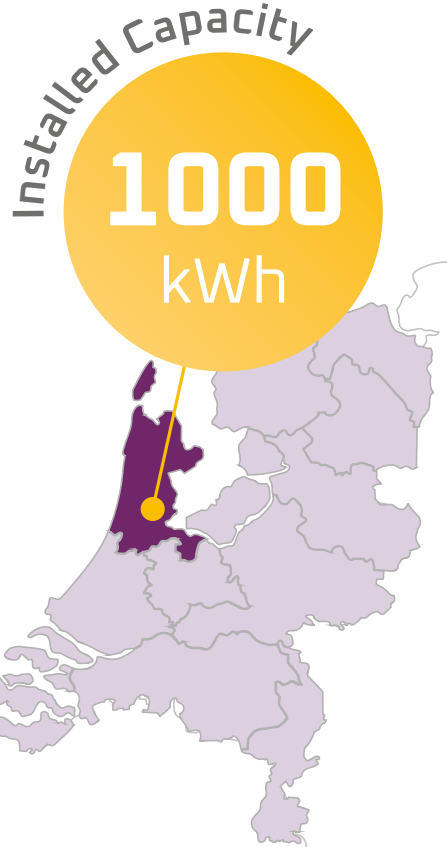
openremote

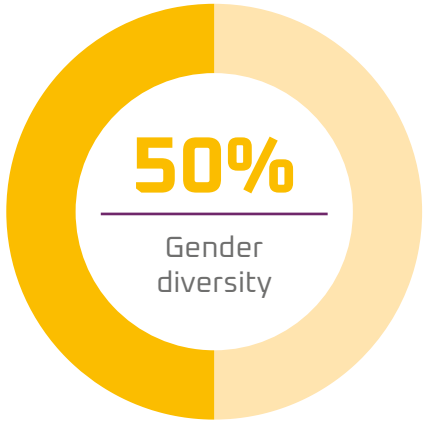
2023
Founding year

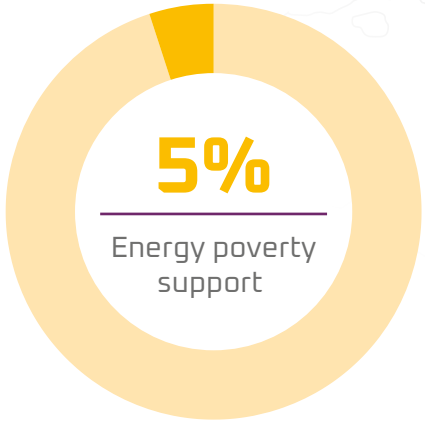
504
Members

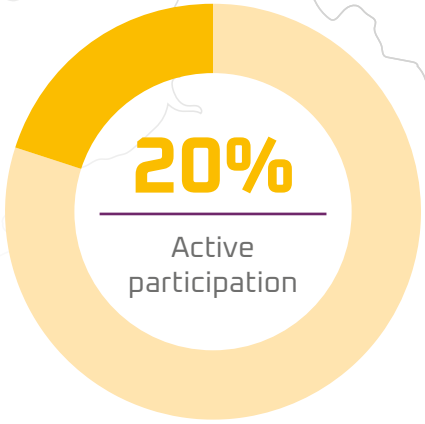
Fields of Activity

- Sun
- Supply Electricity
- Network Electricity
- Flexibility









Introducing the Amsterdam Pilot Site

Originally published in August 2023

We took the opportunity to have a chat with Hugo Niesing, consultant, and founder at Resourcefully and site manager of the Amsterdam pilot about the site.

Background

It feels like a long time ago, but in fact a lot has changed in a short span of time. It used to be that energy supply was one-way; from the large processors such as the pumping station, the gas network, and the electricity grid to the individual consumers at the end of the capillaries of the energy nerve system. But now we are in a playing field where everything is turned upside down, due to sustainability, local generation, and the associated electrification. There are solutions that are being experimented with, the role of government, network operators and prosumers are being redefined. New agreements, new structures and new principles have to be sought out.

Concept & Aims

The RESCHOOL project in Amsterdam is located on the Sporenburg island, in the Eastern Docklands area of Amsterdam, not far from the Central train station and close to the city centre of Amsterdam. This project aims to prove how it is possible to generate and use your 'own energy' at the neighbourhood level as much as possible. In this pilot the use of flexibility is a major concept. By encouraging the bulk of your energy consumption to coincide with periods when local generation is available while you prevent consumption peaks. To achieve this, the electricity demand and generation are predicted a day in advance in 15-minute intervals. It is then determined how this can be optimized by smart charging of cars by residents or building managers who participate. In short, the solar generation that you cannot use is used by the cars, boilers, or heat pumps in the neighbourhood.

> The idea is quite simple, we want to make sure that the 500 households that receive their electricity through the transformer house make their own energy as much as possible and that they can use this without investing much in copper.

That is good for energy independence, the electricity grid, CO2 emissions and the energy bill. It starts with your own connection, where you also use your own generated energy as much as possible, when this is not possible, we look at the building in which you live and the transformer house to which this energy community is all connected.

What to keep in mind

The number of solar panels in this neighbourhood is relevant, producing a surplus of energy regularly between mid-February until early November. On the other hand, the share of electric vehicles is also growing rapidly. In this residential neighbourhood, most of the residents come home at the end of the afternoon and switch the electric car to the charger (both private and public chargers) until next morning.

If flex charging is to work, we should avoid doing everything at the same time to avoid exceeding our connection power. That also includes everyday activities such as cooking, charging EV vehicles and electrical heating. Certainly, the electric car does not need to be charged between 17 and 20 hours and the charging session can be postponed during the night instead. This can be done individually, if you have your own carport, or collectively on the electricity connection of the building (VVE or building manager) at a parking garage. In the public space the municipality and grid operators already do this.

How does it work

We aim for more solar panels on the roofs, to align the charging of the cars with the available energy from these panels and to avoid excessive electricity

consumption between 5 pm and 8 pm. This means that an energy management system is needed with insight into production, demand, and flexibility. Another important point is to not violate people's privacy, so cyber-security is crucial. Finally, we also think that it is important to reward the people who work on this.

The residents who participate receive a smart meter, which provides a mobile app to visualize their electricity consumption and generation. They are encouraged to consume as sustainably as possible. With washing machines and dishwashers, for example, but a far larger share of power usage comes from the electric vehicles and heat pumps. This will be realised through a reward system.

To sum up, in short, it is a major challenge to take steps together towards a flexible, smartly operating energy system in which roles and responsibilities and revenue models are changed. But it is necessary to get these kinds of projects off the ground, otherwise we will not see what is needed towards our energy system 2.0!

Watch the *RESCHOOL Reveals Interview* with *Hugo Niesing* on YouTube

Charging Electric Vehicles has Never Been so Smart

Originally published in August 2023

During the 2nd General Assembly meeting in Amsterdam in June 2023, the consortium was introduced to the Energy Community in the Eastern Docklands neighbourhood and some of its prosumers. In addition, there was a presentation from Equans, a company that manages 5000 charging points for electric vehicles (EV) throughout the city of Amsterdam.

We took the opportunity to have a chat with Roberto Balzarelli, Manager Energy and Technology at Equans E-mobility and Rein Boshuisen, Consultant Smart Charging. We talked about charging stations across Amsterdam and the Netherlands, their role in the energy sector, the challenges they face and much more.

Where are you located and where do you operate?

Equans is located throughout the Netherlands. We are a large technical installation service provider with approximately 6,000 employees in the Netherlands and 90,000 worldwide. Our E-mobility department in the Netherlands operates from Dordrecht and Zaandam, which are very close to Rotterdam and Amsterdam, respectively.

What are your main tasks?

We are Charge Point Operators (CPO), and we collaborate with the large municipalities. We fulfil the public charging needs by investing in chargers, installing and operating them.

What does a charge point operator do?

As CPOs we invest in charging infrastructure, we install, operate, and maintain the chargers. We also supply electricity for the EV driver. Furthermore, we believe that there is a strong potential in using the available flexibility to balance our energy portfolio. We also leverage charging sessions in order to relieve the pressure on the local grid, we call this 'smart charging'.

What are the biggest challenges that you see coming up in the public domain?

In the past two years we faced quite some challenges: the shortage of semiconductor chips in 2021 and the sudden rise of energy prices in 2022. These showed us how an unexpected event can have a significant impact and increase costs in all sectors. For us this means that we should be prepared and create more flexibility in our supply chain and energy contracts.

I believe that the future of electricity will be very different to what we have seen so far, the risk is that electricity price fluctuation will be a recurring theme due to the growing amount of sustainable energy sources. We will have to explore different energy markets and purchasing strategies. Also, we will need to better understand how we can influence charging behaviour to assure better utilisation, minimize cost for EV drivers and alleviate pressure on the grid in peak hours when congestion occurs.

Could you elaborate more on the congestion issue?

Congestion will soon become a daily issue: the electricity grids are getting full, and we cannot add any more chargers. Right now, this is not yet critical, since most cars are still gas or petrol fuelled. However, as soon as the number of EV increases, we will need more charging infrastructure. The only way to increase that will be by smart charging, and of course increase grid capacity.

What is a Smart Charge group and how do you interact with them?

The Smart Charge group is a group of chargers that are connected to our software. We combine them in a in a logical way, so they match the infrastructure in the

street. For example, if there are four chargers in one substation, we put them in one group and we set the grid maximum on that group. That means that if there is only one car charging, it can still get the maximum capacity. However, if all the chargers are occupied, we would have to slow them down to meet the maximum grid capacity.

How do you increase the renewable portion of the charging power?

To do that, we have a daily forecast of the available percentage renewable. When the available quantity of renewable energy is high, we ask the cars to charge at full speed. On the contrary, when there is not so much renewable energy available, we can downscale them. We always start with full charging speed to make sure there are no issues with starting the charging. However, after about a minute we lower the charging speed.

So, our role as a CPO is to combine all these constraints mentioned (Energy portfolio, TSO, DSO, renewable portion) into a specific smart charging signal per group. And with all that we 'smarten' the charging sessions on our network.

Does the Distribution System Operator (DSO) know what the usage of the capacity of the transformer is?

The system operator knows how much electricity can be produced and how much the vehicles normally draws. Therefore, by converting this knowledge into a model we can obtain a signal on how much power we can use.

Normally there is just one peak production meter, which is read once or twice per year. Hence, based on the model and by combining it with the smart meter data and the wind and solar forecast, the capacity can be predicted by the DSO.

How are you involved in RESCHOOL project?

We are involved in RESCHOOL through a contract we have with the municipality of Amsterdam. In the Eastern Docklands area, where the project's Dutch pilot is located, there are 15 public chargers. We operate 13 of these. Throughout the project we will aim to optimize the charging speeds for these chargers based on the signals provided by the RESCHOOL project team in Amsterdam.

A Closer Look at the Sporenburg Neighbourhood and why it is an Ideal Location for an Energy Cooperative

Originally published in April 2024

If it can work anywhere, it's here', says Jasper Klapwijk, the enthusiastic expert in energy policy.

Introducing: Sporenburg, a neighbourhood with little more than five hundred houses in the Eastern Docklands area of Amsterdam.

Sporenburg is one of the urbanized peninsulas east of Amsterdam Central Station, where there used to be an industrial ore transshipment hub, located directly south of the now densely populated district, where cars race invisibly through the Piet Hein tunnel, the traffic artery that lies nearby under the water of the IJ-river.

The Amsterdam pilot of RESCHOOL is coined 'FlexCity', an innovative pilot for which almost a hundred homeowners in the district have now signed up. They have a dongle installed , which transmits the household power consumption data per second to a server. In addition, all participants have an app on their smartphone or tablet , which gives them 'live' insight into their consumption. Participants are rewarded if they use electricity for their washing machine or dishwasher during sunny hours, and do not do so at times when there is a peak in the power grid.

The aim of all this is to investigate whether it is possible to smooth out the peaks in power consumption, and to do so in a geographically narrowly defined area: a transformer house of grid operator Liander.

This inconspicuous transformer, sprayed with graffiti, is the electricity heart of this Amsterdam district. The energy transition requires thousands of these man-sized buildings to be added in the Netherlands. 'Replacing a transformer house costs four hundred thousand euros,' says Hugo Niesing, one of the other driving forces behind the pilot.

It will therefore save society a lot of money if residential areas succeed in organising their energy consumption in such a smart way that fewer transformers need to be installed.

Niesing lives on a houseboat near the adjacent Borneo peninsula. With his company Resourcefully (one of the partners of RESCHOOL), he has been hired by the municipality of Amsterdam for years to roll out the smart charging station network in the city. He is closely involved in setting up the charging stations as efficiently as possible; So that power peaks are avoided and cars can be fully charged at less power at the busiest hours of the day. Since last year, he has also been one of the technical people behind the pilot in Sporenburg.

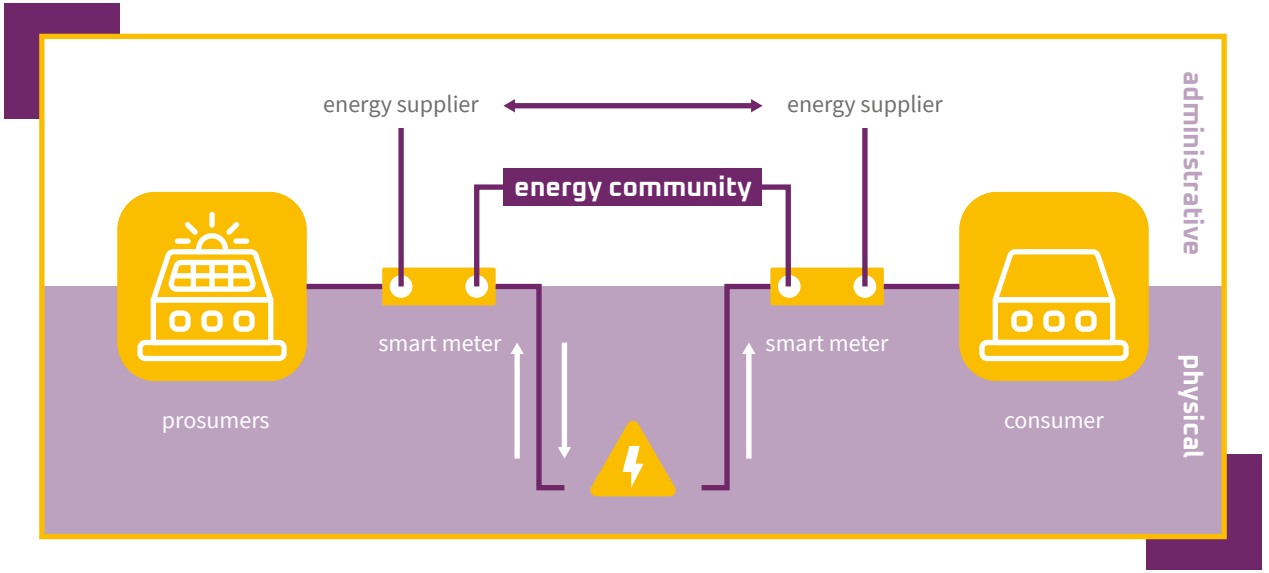
But back to Jasper Klapwijk, who explained why Sporenburg is the ideal place for this pilot. 'When this area was redeveloped in the 1990s, the municipality was convinced: yuppies will live here. So here come apartments without kitchens and only microwaves; Because those people go out for dinner in the centre anyway. Well, the reality turned out to be somewhat

different. Some of the facilities that the municipality had not drawn up in the neighbourhood were taken up by the residents themselves. There was no church, there was no community centre, there was no retirement home, no school was conceived. So that neighbourhood became incredibly self-reliant.

'At that time, a neighbourhood cooperative was set up around a community centre that the residents themselves set up in an empty office building, which they have now also bought. In 2019, there was a neighbourhood summit there, where a neighbourhood agenda was drawn up. One of the priorities was sustainability. That neighbourhood agenda has been taken over one-on-one by the district, which is really great. It's rare for something like this to be embraced without scratching it.'

This 'co-reliance' of the neighbourhood is important for step two of the pilot in Sporenburg: the establishment of an energy cooperative. First of all, the aim is to avoid power peaks by encouraging flexible behaviour among households, which in the ideal scenario are even financially rewarded by the grid operator. Because it means they don't have to install an expensive transformer.

But the dream is even bigger. In Sporenburg, thanks to an energy cooperative, it should be possible to share energy with each other. 'This is already happening at the electron level' says Jasper Klapwijk. 'If I have panels on my roof, and my neighbour has a charging station, my excess electrons go to my neighbour. They never reach the transformer house. So in physical reality, this is already happening. But you also have to be able to account for it administratively.'



fact, the idea is simple. If a household is a net producer (the solar panels generate more than the consumption, measured on an annual basis), they can sell this surplus electricity to households that are net consumers. This will ensure that a win-win situation will be created.

This means that the net producer gets a better price for its surplus power than the supplier, and the net consumer pays less for the neighbourhood power than with his supplier.

Currently, this direct energy sharing is cumbersome and non-existent. A cynical reason is that energy suppliers simply don't make money on this. And the upcoming new Energy Act does not make this much easier. However, the current Dutch Minister for Climate and Energy Policy Rob Jetten has announced that avoiding congestion is one of his priorities.

In the meantime, FlexCity will demonstrate what is already possible. 'We challenge the regulations', is how Klapwijk puts it. 'We do what is technically feasible within the regulations.'

Watch the *How Citizens Are Saving Amsterdam's Energyy Grid* on YouTube

Girona, Spain

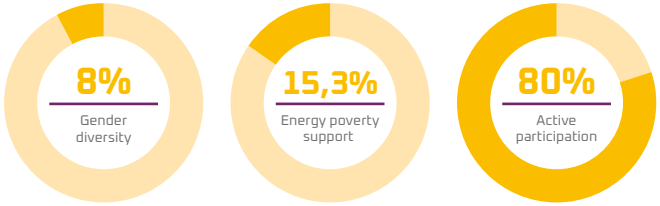
The Spanish pilot takes place in the rural area surrounding Girona. These four villages participate to thepilot: Amer, Rupià, Cellera de Ter, Cornellà de Terri. A total of 90 households, 30 public facilities and 2 local businesses are involved. The main goal of the pilot is to enlarge PV plants, develop and improve storage systems and evaluate the impact of designing local grids.

Currently, 4 small meters were installed to all the municipal equipment, which assesses in detail the consumption and generation of energy. In the next steps all participants will have smart meters installed, while some villages will get shared batteries, increase their PV capacity or get EV charging points.

Scan to find out more about the Spanish pilot site that is not presented in this brochure.

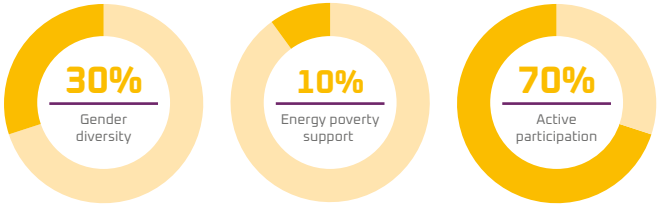
Comunitat Energètica d'Amer

Founding year: 2022
Members: 12
Installed capacity: 45,9 kWh



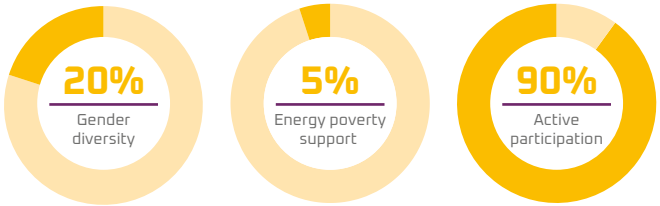
Comunitat Energètica de Cornellà del Terri

Founding year: 2022
Members: 18
Installed capacity: 47 kWh



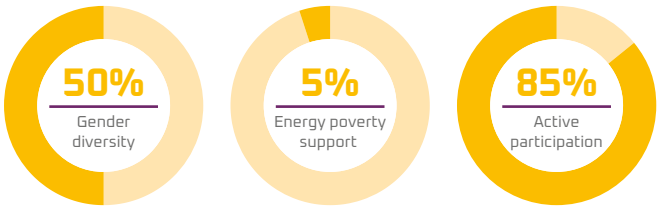
Comunitat Energètica de La Cellera de Ter

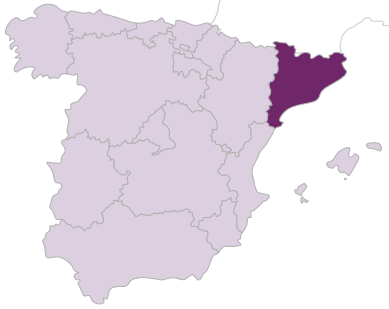
Founding year: 2022
Members: 19
Installed capacity: 43,2 kWh



Comunitat Energètica de Rupià

Founding year: 2022
Members: 37
Installed capacity: 44,9 kWh





Fields of Activity

- Sun
- Energy Efficiency
- Energy Poverty Support
- Flexibility
- Mobility
- Community Development

All Four Sites of the Girona Pilot Have Smart Meters Installed

Originally published in July 2024

Km0 and the Girona Provincial Council, as partners of the RESCHOOL project, met with the citizens adhered to the Local Energy Communities of the four pilot municipalities: Amer, La Cellera del Ter, Cornellà de Terri and Rupià to explain the European project and to provide them with the smart meters that should allow the Energy Communities to grow.

The meetings in each of the municipalities were held during the following dates and the attendance was as follows:

- Rupià: 25/04/2024 – 10 attendees.
- Cornellà del Terri: 07/05/2024 – 18 attendees.
- La Cellera del Ter: 13/05/2024 – 12 attendees.
- Wednesday: 21/05/2024 – 10 attendees.

These devices allow the reading of energy consumption data from homes instantaneously.

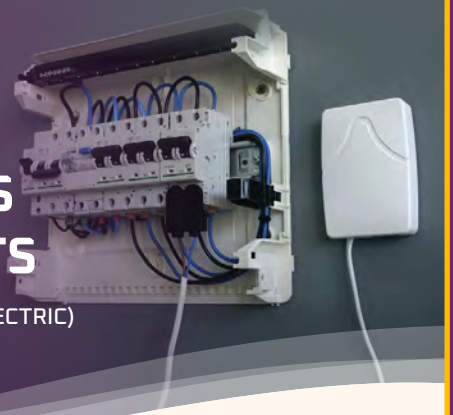
This data will help citizens make the most of the energy received by the installation of the Local Energy Community and will also serve to grow the Energy Communities beyond shared self-consumption.

On the one hand, the citizens who install these meters will be able to see an instant balance of their consumption, as well as the energy received by the installation. With this, participants will be able to move their energy consumption, for example to put the dishwasher or washing machine, depending on the energy received from the installation.

On the other hand, together with the other partners of the project, tests will be carried out asking users to increase or decrease their energy consumption at a specific time slot to see what potential the Communities have to modulate their consumption according to the requirements of the network. This opens the door for Energy Communities to become much more than shared self-consumption.

However, in many cases the on-site assistance of the project partners has been required in order to help users in the installation of these devices, which shows that technological barriers are still very present. This has been facilitated by the specifically produced RESCHOOL factsheet in the Catalan language that explains what the smart meters are and how and why to use them.

reschool



COMPTADORS INTEL·LIGENTS

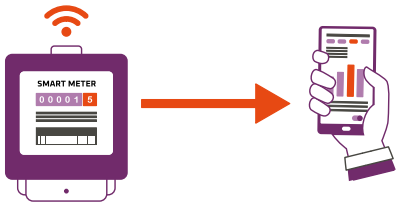
(MESURADORS DE CONSUM ELÈCTRIC)

Què són?

Els comptadors intel·ligents són equips de mesura de consum elèctric que mostren les dades de manera detallada, i que estan connectats a una plataforma en línia on es poden veure en temps real els valors registrats.

Com s'instal·len?

S'instal·len al quadre general de l'habitatge, mitjançant unes pinces de mesura, sense haver de modificar la instal·lació.



Col·laboren

Diputació de Girona

kmO energy

Universitat de Girona

Per què s'instal·len?

A través dels comptadors intel·ligents es pot millorar el coneixement de la demanda elèctrica. L'objectiu és arribar a gestionar el flux energètic, tant individual com de la comunitat, de la manera més eficient, per obtenir un estalvi energètic i econòmic.

Què es fa després?

Una vegada instal·lat el comptador intel·ligent, des de l'equip de desenvolupament de Reschool s'analitzen els consums per conèixer el nivell de flexibilitat de l'habitatge; és a dir, la capacitat que té el consumidor per adaptar el consum a necessitats del sistema elèctric (per exemple, per consumir energia renovable) o a tarifes de preus que millorin la factura.

Caracterització del consum

Una vegada fetes les proves pertinents i identificats els actius gestionables, queden definides les característiques del consum.

Actius gestionables

Són dispositius d'ús domèstic, que normalment tenen un alt consum energètic, els quals permeten de controlar-ne l'activació.

- Aire condicionat
- Rentadora
- Rentaplats
- Bomba per a piscina
- Calefacció elèctrica (termoacumulador)
- Carregador de vehicle elèctric

VISITEU EL NOSTRE LLOC WEB
reschool-project.eu

@ReschoolEnergy Reschool Project

Co-funded by the European Union

Stockholm, Sweden

Hammarby Sjöstad in Stockholm and is RESCHOOL's Swedish demo site. The aim is to build a power reserve together with other property owners, promote local renewable electricity production, demonstrate real-life interactive communication and support tools, which will engage citizens in the energy transition. Additionally, the pilot aims to create a profitable business model for all parties on a flexibility market, help the entire network, including other districts, actively contribute to an energy transition, and ensure electricity production.

Scan to find out more about the Swedish pilot site that is not presented in this brochure.

ELECTRICITY

Local Life

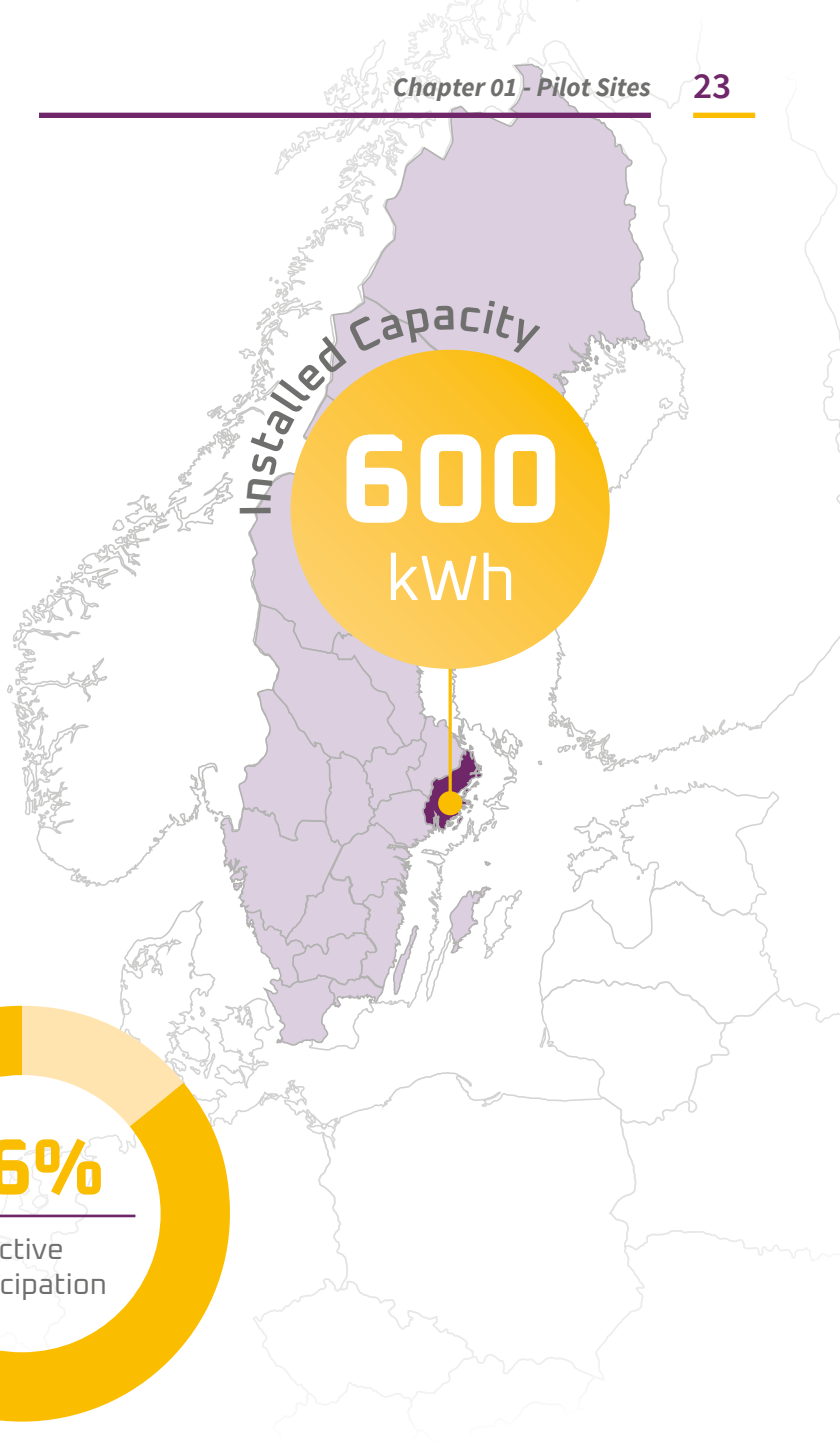
2023
Founding year

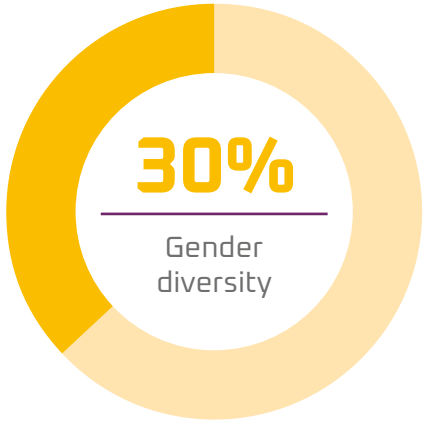
10
Housing associations

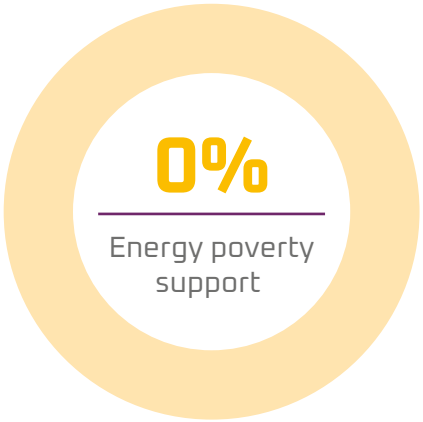
1000
Apartments (total)

Fields of Activity

- Sun
- Energy Efficiency
- Transport
- District Heating
- Geothermal
- Network Electricity
- Flexibility
- Community Development
- Supply Electricity
- Financing
- Mobiliy







An Overview of the Hammarby Sjöstad Energy Community, its History, its Aims, and the Challenges

Originally published in June 2024

The pilot in Stockholm takes place in Hammarby Sjöstad, a city-close district with over 20,000 residents. Hammarby Sjöstad was initially planned as an Olympic village for the 2004 Olympics. One condition for the Olympic application was an environmental program. In 1996 this resulted in an environmental program that came to be known as the Hammarby Model. The program aimed to integrate infrastructure systems such as waste management, water purification, heating, and electricity. The goal was to minimize the area's energy consumption, primarily by utilizing residual products.

It turned out that energy consumption was not as low as planned, and since the early 2010s, ElectriCITY Innovation has worked with many housing associations to achieve energy efficiency improvements and transition to renewable energy in the buildings.

Formation of an Energy Community

A previous research project (IntegrCiTy) also discovered that there is a lack of capacity in certain transformer stations in Hammarby Sjöstad. According to the Distribution System Operator (DSO), there is a risk of power shortage in Stockholm as the city grows and the demand for electricity increases. Therefore, there is a significant need to ensure electricity production capacity and to meet the demand for electricity in Stockholm, especially when needs are greatest during the winter.

This is part of the background to the energy community that has now been formed in Hammarby Sjöstad and is included as a pilot in RESCHOOL.

"It is a unique collaboration where new technology is tested in existing multi-family buildings with the aim of increasing sustainability in buildings, neighbourhoods, the city, and globally. The energy community initiative is supported by the Swedish Energy Agency," says Jörgen Lööf of ElectriCITY .

Goals of the Energy Community

The goals of the energy community are to:

- Share electricity
- Collaborate to reduce energy consumption
- Increase renewable electricity production
- Reduce total power demand
- Save money together

"By inspiring, comparing, and learning from each other, virtually sharing electricity tax-free among members, controlling electricity and heating usage during low-cost hours, conducting joint procurements, and promoting sustainability, we strive to create a more efficient and sustainable energy usage for our members." says Ulrika Jardfelt, ElectriCITY, chairperson of the energy community.

Interest and Participation

Many housing associations were interested in participating when the energy community, organized as a cooperative association, was formally established in the fall of 2023. In the end, nine housing associations became founding members, and there is already a waiting list of more associations wanting to join.

Energy Class Journey

In the first phase, the energy community focuses on making energy efficiency improvements in the members' buildings with the goal of achieving an energy class upgrade and lowering the primary energy

Watch *From Rooftop Solar to Shared Power in Sweden's First Energy Community* on YouTube

number. Initially to 68 kWh/m² Atemp, but ideally as low as possible.

The reason is simple: Properties that fall into energy classes A and B are favored in the Corporate Sustainability Reporting Directive (CSRD), making it easier for them to access capital in the form of bank loans.

The information about primary energy numbers comes from the calculations made in the energy declaration, which in turn is based on accumulated and compiled annual energy consumption data.

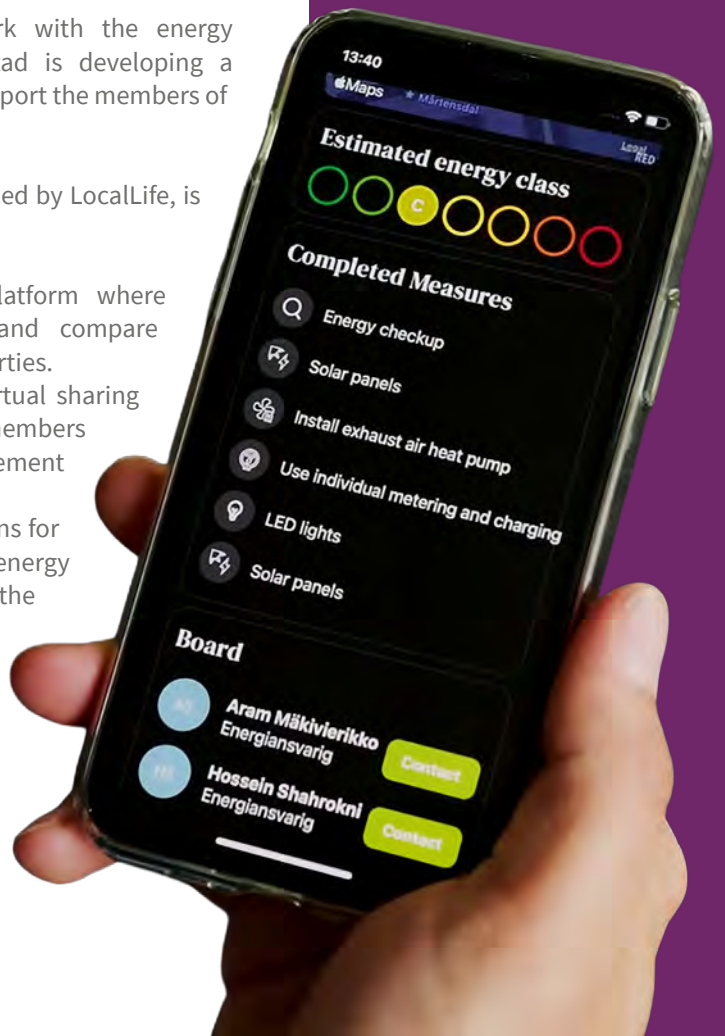
The energy community aims to produce primary energy numbers on a rolling monthly basis so that members can follow the results of efficiency measures continuously and not just every 10 years when the energy declaration is made. The idea is also that when this information is available, comparisons can be made between properties and between energy consumption for different purposes within the buildings, to inspire and showcase good examples among the members.

App Support

An important part of the work with the energy community in Hammarby Sjöstad is developing a digital platform and an app to support the members of the energy community.

The intention of the app, developed by LocalLife, is to:

- Develop a centralized platform where members can monitor and compare energy data for their properties.
- Implement features for virtual sharing of electricity between members using a payment settlement system.
- Offer advice and instructions for automatically optimizing energy usage and reducing the common power demand.
- Integrate with flexibility markets to enable participation and trading in energy services.



"The goal is for the app to make it easier for members to optimize their energy usage and benefit from the collaboration within the community, but also to contribute to increased interest and understanding of energy usage and performance, increased ability to act on energy issues, and understand their role in the energy community." says Jörgen Lööf of ElectriCITY.

Challenges Along the Way

During the development of the app, both challenges and lessons have emerged for the continued work. A significant and time-consuming problem has been, and still is, obtaining comparable data from the nine members in the digital platform.

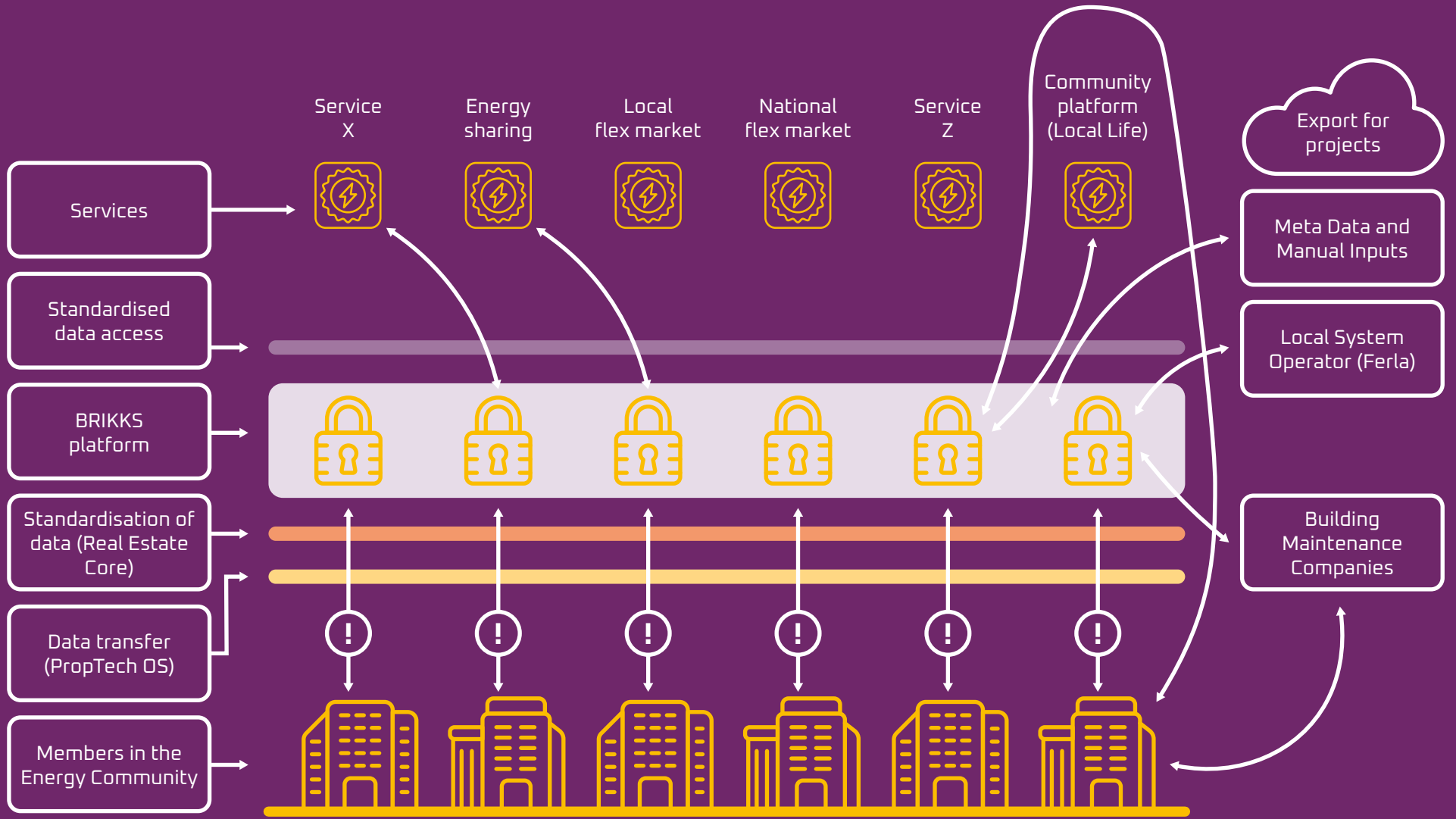
Data transfer for building electricity works just fine, but when it comes to other energy data, there are numerous different systems of various brands installed in all buildings. For example, EV chargers, solar panels, heating and ventilation.

There are several different systems that are not compatible, meaning they speak different "languages."

By using the RealEstateCore ontology, it becomes possible to describe all properties and their objects in the same way, connect the systems, and collect all data in one platform. This then makes it possible to build applications and communicate with the properties' systems. The problem today is, however, that the data needs to be described and tagged to be described according to RealEstateCore. And this involves a lot of manual work.

"When all data is in the platform and the property is connected, the data required for calculation and comparison will come in automatically, and members can follow the development in the app." says Hossein Shahrokni of Locallife.

Right: A schematic overview of the data flow system of the Swedish pilot site.


Service X
Energy sharing
Local flex market
National flex market
Service Z
Community platform (Local Life)
Export for projects
Meta Data and Manual Inputs
Local System Operator (Ferla)
Building Maintenance Companies
Services
Standardised data access
BRIKKS platform
Standardisation of data (Real Estate Core)
Data transfer (PropTech OS)
Members in the Energy Community

Athens & Rafina, Greece

The Greek pilot situated in Athens & Rafina aims to unlock flexibility and explore new market opportunities, engage citizens and stakeholders, fostering the adoption of the concept of energy communities and their active participation in the energy system, and perform social science studies, regarding the social composition and characteristic of energy communities.

Collective Energy is an energy community which currently has 25 active members, who share the energy produced by photovoltaic plant and owns an energy storage system, which is fully controllable Li-on battery system, which is mostly used for demonstration and research activities.

Scan to find out more about the Greek pilot site that is not presented in this brochure.

collective energy

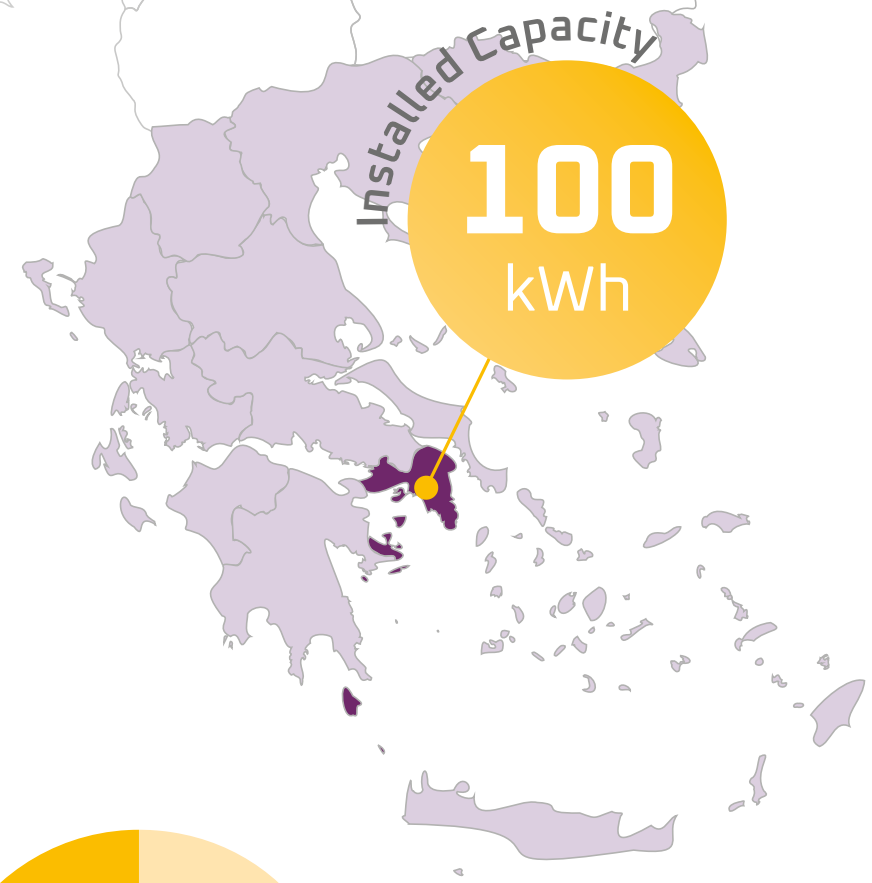
Information Technologies Institute

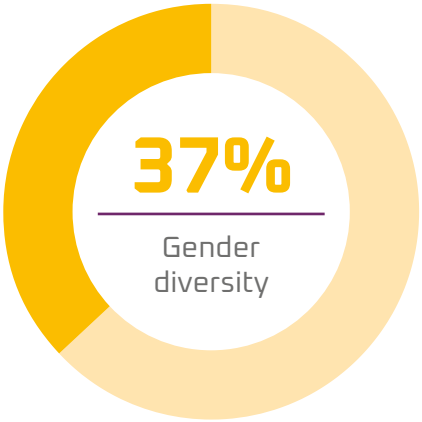
2020
Founding year

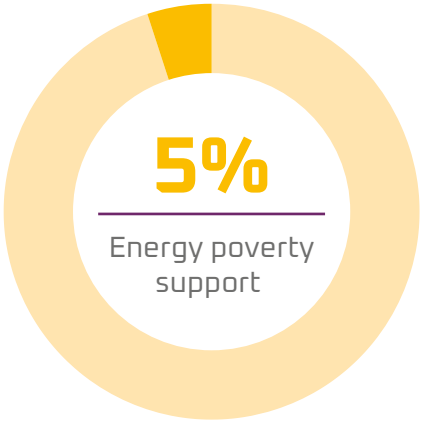
51
Members

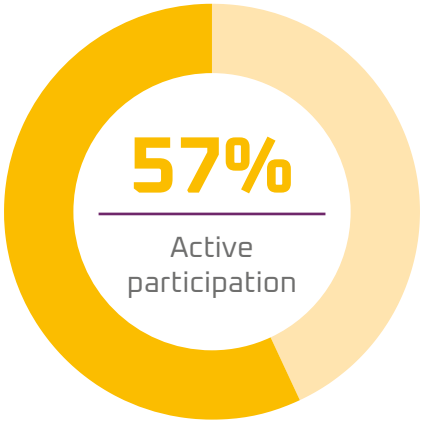
Fields of Activity

- Sun
- Energy Povery Support
- Flexibility



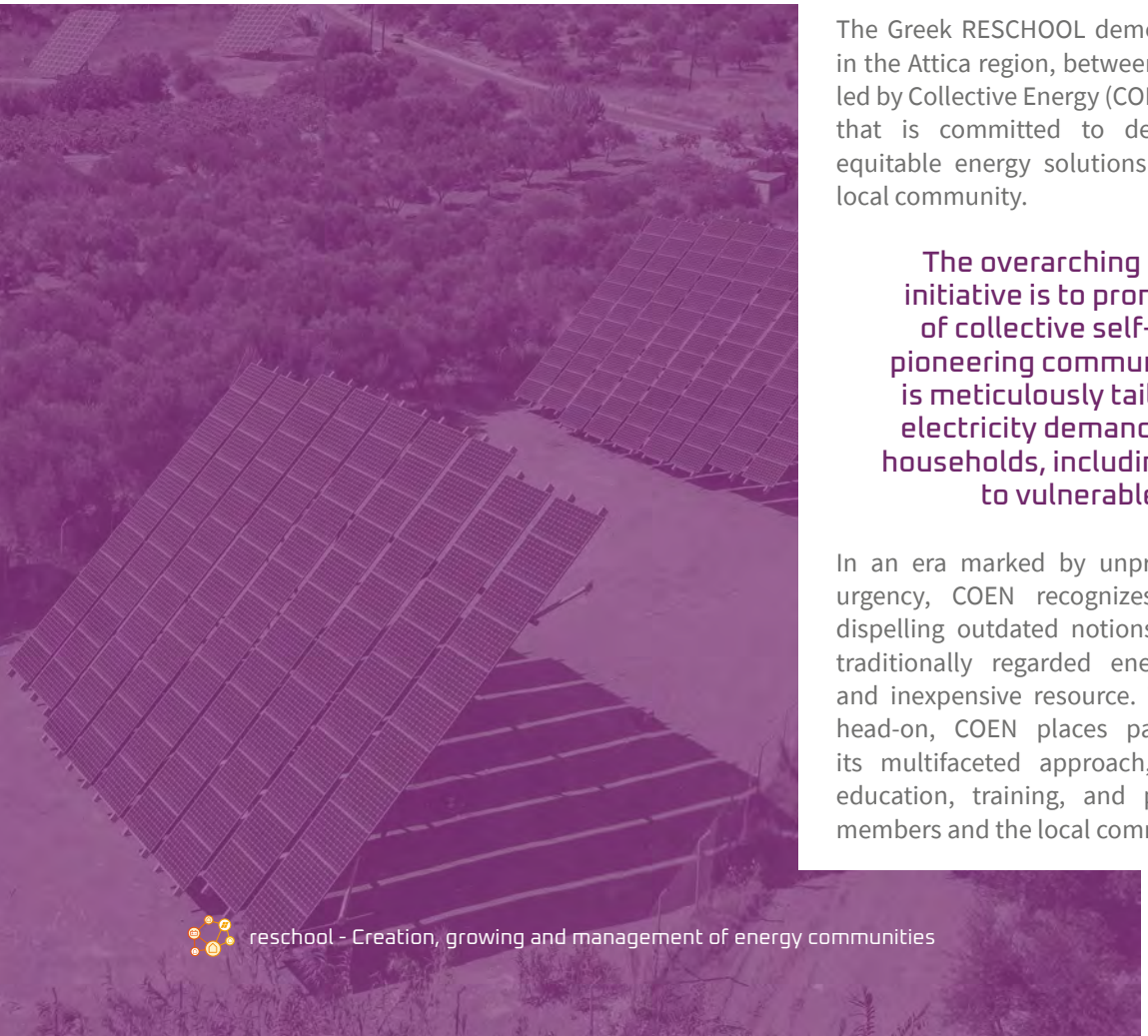






Empowering Communities Through Collective Energy: COEN's First PV Park and Energy Sharing Model

Originally published in October 2023



The Greek RESCHOOL demonstration site takes place in the Attica region, between Athens and Rafina and is led by Collective Energy (COEN). They are a cooperative that is committed to delivering sustainable and equitable energy solutions to its members and the local community.

The overarching ambition of this initiative is to promote the concept of collective self-consumption, a pioneering community endeavor that is meticulously tailored to meet the electricity demands of participating households, including those belonging to vulnerable residents.

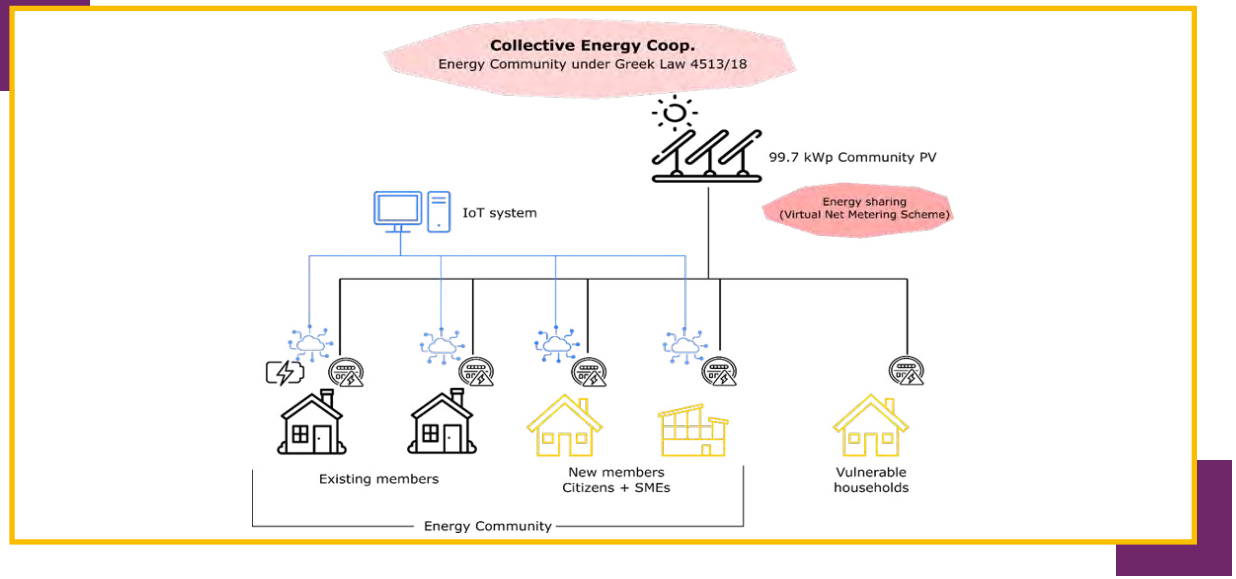
In an era marked by unprecedented environmental urgency, COEN recognizes the imperativeness of dispelling outdated notions and practices that have traditionally regarded energy as an inexhaustible and inexpensive resource. To address this challenge head-on, COEN places paramount importance on its multifaceted approach, which revolves around education, training, and proactive support for its members and the local community.

The Heart of the CoEn Project: A 100kW Solar Power Plant

At the core of the CoEn project is a 100kW solar power plant operating under the framework of collective self-consumption facilitated through Virtual Net Metering. This solar facility is anticipated to produce 145 MWh annually, covering the energy requirements of the community while contributing to the betterment of society. The benefits of this solar plant extend far beyond clean energy generation, as it serves as a shining example of innovation and community empowerment.

The Energy Sharing Model

Collective self-consumption lies at the heart of CoEn's transformative energy sharing model. It's a concept that exemplifies the power of community collaboration and renewable energy generation. The energy generated by the community's solar power plant is collectively shared among its members. Each member's energy consumption is directly linked to their share of the project. This means that if you own a certain percentage of the solar installation, you are entitled to a corresponding percentage of the energy produced.



Let's take a hypothetical example: Imagine a tight-knit community in Greece with 50 members who collectively own a 100 kW solar power plant. Each member's share is proportional to their investment in the project. Member A, who contributed more, might own 15% of the installation, while Member B, with a smaller contribution, might own 5%. When the solar power plant generates electricity, it's distributed accordingly. Member A is entitled to 15% of the energy produced, and Member B receives 5%.

The benefits of the solar plant are extended to vulnerable households, offering them access to clean and affordable energy. This is made possible by the legislation under which COEN is established and this business model is one of the first applications in Greece.

Key Features of the Energy Sharing Model

- **Inclusivity:** CoEn leaves no one behind. By providing clean energy to vulnerable households, it ensures that the benefits of renewable energy are accessible to all members of the community, regardless of their socio-economic status.
- **Affordability:** The energy sharing model not only promotes sustainability but also addresses the issue of energy affordability. Vulnerable households can reduce their energy bills while reducing their carbon footprint.
- **Community Building:** CoEn fosters a sense of community by encouraging cooperation and mutual support among its members. It strengthens social bonds and creates a more resilient local community.
- **Environmental Impact:** By reducing the reliance on conventional fossil fuel-based energy sources, CoEn's energy sharing model significantly contributes to reducing greenhouse gas emissions and combating climate change.

Our First Project is in Progress!

Construction works on the CoEn's first solar project are progressing rapidly. The project has been licensed and is expected to be completed within the next couple of months. Once completed, it is expected that more than 40 households and small businesses in Attica will benefit through the virtual net metering process.

This is a significant milestone for the Community and a testament to the hard work and dedication of everyone involved. It is also a major step towards the Community's goal of reducing the energy costs of households and small businesses in Attica.

COEN solar park and energy sharing model is a pioneering example of how communities can come together to transition to a more sustainable and equitable energy future. The project is a testament to the power of collective action and the potential of renewable energy to create a better world for all.

Energy Poverty and Energy Communities in the European Union: The Energy Sharing Approach

Originally published in April 2024

Energy poverty, a widespread issue impacting millions across the European Union (EU), remains a critical challenge with far-reaching social, economic, and environmental implications. The concept encompasses the lack of affordable, reliable, and clean energy services, directly affecting the quality of life for vulnerable citizens. Recognizing this, the EU has made significant steps, emphasizing the urgency to address energy poverty in alignment with sustainable development goals.

Current State of Energy Poverty in the EU

With an estimated 41 million citizens affected, energy poverty persists as a significant socio-economic challenge in the EU. This issue becomes more pronounced during the winter and summer months when households struggle to keep their homes adequately warm or cool.

The recent 2021 energy crisis has underscored the fragilities in the European electricity market, particularly the disconnect between the cost of energy production and its final consumption, leaving energy-poor and low-income consumers vulnerable to volatile conditions.

Acknowledging the gravity of the situation, the EU has intensified its efforts from the introduction of energy poverty concepts in Directive 2009/72/EC to the recently published EU Recommendation and guidance on energy poverty (Commission Recommendation (EU) 2023/2407). This highlights a commitment to ensuring universal access to essential energy services and products for vulnerable consumers.

Challenges and Opportunities

While the potential of energy-sharing is recognized, legal frameworks and energy-sharing models are still in early stages or nonexistent in certain EU countries. The latest European Commission Recommendation highlights the need for wider energy sharing and emphasizes that active participation in the energy market is often inaccessible to lower-income households.

Our approach

Recognizing the inadequacies of traditional energy delivery models, Collective Energy (COEN) has emerged with a visionary approach to address energy poverty through innovative and community-centric energy-sharing solutions.

COEN is committed to delivering sustainable and equitable energy solutions by introducing the concept of collective self-consumption. The initiative considers empowering vulnerable consumers through the energy sharing scheme, by providing a part of the produced energy to vulnerable households. The vulnerable households are supported without having any obligation towards the energy community, enjoying the benefits of the sharing mechanism. Moreover, COEN plans to develop education programs, workshops, and training on energy-efficient practices and technologies to further empower vulnerables in the local area. COEN aims to dispel outdated notions, emphasizing the importance of education, training, and proactive support for its members and the local community.

As the EU navigates its ambitious climate and energy goals, addressing energy poverty becomes indispensable for an inclusive and just transition. COEN's pioneering efforts, showcase a collective drive towards a more sustainable and equitable energy future, ensuring that no citizen is left behind in the pursuit of universal access to affordable and clean energy services.

Scan to visit COEN's website for further information

02

Citizen Engagement

02

RESCHOOL Community Game

Welcome to the world of the Energy Community Card Game. A unique game designed to introduce players to energy communities, their goals, areas of activity, and the social and technical aspects involved. Inspired by the classic card game Top Trumps, we have designed an entertaining and educational game suitable for all ages. The entire deck was meticulously developed through collaborative sessions with schools, experts, and energy communities.

Embark on a journey with your friends to explore 42 distinct Energy Communities across Europe, each dedicated to environmental preservation. Every energy community card features six primary attributes and a range of icons representing their areas of activity. Strategize wisely, collect cards, and discover the advantages of clean energy to emerge victorious.

Beyond education, the Energy Community Card Game aims to foster a sense of community and promote collective action within energy communities. Created as part of the RESCHOOL project, an initiative under Horizon Europe, our game seeks to enhance community engagement in energy markets, encourage household participation in energy communities, and promote the transition to clean energy through greater use of renewables and improved energy efficiency.

Basic Rules:

1. Shuffle and deal the cards face down.
2. Players pick up their cards and look at their top card only.
3. Player 1 calls out their best stat.
4. Other players see if they can beat this stat (highest wins, except “Gender Diversity” closest to 50%).
5. In case of a tie, the acting player picks another attribute to compare among the tying players.
6. The card with the highest stat wins all cards of that round and adds them to the base of their pile.
7. The round winner then chooses the next stat.
8. Players are eliminated when they lose their last card.
9. The first player to collect all the cards wins!

Knowledge grows stronger when it is shared...

At RESCHOOL, we bring this principle to life by connecting generations through play and real-world learning experiences. In our Spanish pilots, we've been exploring intergenerational learning for a while.

Since October 2025, we are using our card game to complement classroom activities about energy communities. So far, we've reached 100 students aged 11 and 12, and the results have been truly inspiring!

The card deck has become a favorite tool, sparking questions, and teamwork. Even when the session time was over, the kids wanted to keep playing! Teachers shared that the game is a powerful pedagogical resource, helping students consolidate key concepts about energy consumption and sustainability.

The main themes explored:

- Why do we need to reduce our energy consumption?
- What is self-consumption, and how does it empower us?
- What is an energy community and how does it empower us?
- How can we manage individual and community reduction?

For more information about RESCHOOL's Energy Community Game, as well as to download the full game, please visit our website.

The Human Factor:
Bridging Gaps in Energy Communities Through Performing Arts

Written by Juan Fernández González, originally published in July 2025 in illuminem Voices

Energy communities can be a tool to improve social cohesion and ensure a fair energy transition, but several social challenges still lie ahead. As part of the RESCHOOL project, researchers are studying whether theatre could be an effective tool to tackle them.

When the lights go out in Font de la Pólvora, the only option neighbours have is to wait. In this marginalised area on the outskirts of Girona, a Catalan city in northern Spain, power outages lasting 10 to 12 hours are a regular part of life. And most of the time, residents find no response from the power company nor the local government.

There are many reasons behind complex cases of extreme energy poverty and exclusion such as this, and the way citizens are used to relating to energy production and consumption is no minor factor. In the transition to a clean energy system, energy communities could play a crucial role in ensuring justice and reducing energy exclusion.

Cracking the challenge won't be easy — but researchers at the University of Girona have a bold idea: bring theatre into the mix to spark intergenerational learning and shift how people see energy communities.

The green revolution is also collective

Traditional, centralised energy systems, mostly based on fossil-fuel power plants, still dominate Europe's electricity generation. Despite the efforts to increase the share of renewable sources in the energy mix, they represented 24.5% of the European Union's final energy use in 2023, according to the European Environment Agency.

In this scenario, collective energy production and consumption is gaining ground as a way not only to empower citizens, companies, or public institutions to produce, manage and consume their own electricity, but also to cut costs, boost efficiency, and speed up the deployment of renewable energy.

There are an estimated 9,000 energy communities currently in operation across the EU, according to the European Commission — a figure that has increased markedly since the adoption of the Clean energy for

There are an estimated 9,000 energy communities currently in operation across the EU, according to the European Commission

all Europeans package in 2019, which provided a legal framework for energy communities.

Research institutions and innovative energy companies are also partnering to boost, promote and help energy community projects grow. As part of the RESCHOOL project, several pilot communities have been launched throughout Europe with the main goal of enhancing the technology and behaviour of their users. But there is more to it.

“Within all the mechanisms available for promoting energy communities, we study intergenerational learning,” says Anaïs Varo, Assistant Professor in Political Science at the University of Girona, one of the 16 partners of the RESCHOOL project.

> “Intergenerational learning refers to the information sharing processes between people of different generations. We focus on how this knowledge could transform practices and attitudes towards energy, and especially energy communities,” she adds. “After some research, we decided the best place to start testing this hypothesis was schools. And theatre.”

Bringing the discussion home through school theatre

As part of the RESCHOOL Spanish pilot, four energy communities have been established in the rural area surrounding Girona. A total of 90 families and two local businesses from the villages of Amer, Rupià, Cellera de Ter, and Cornellà de Terri have deployed community-managed photovoltaic plants, and are working together with researchers to improve storage systems and evaluate the impact of designing local grids.

However, boosting energy communities is not just a matter of installing solar panels on rooftops. It requires a cultural shift and sustained effort to inform and organise neighbourhoods.

“We discovered that the community interventions that work best in order to improve intergenerational learning and change the way we relate to the energy system are interventions with students. They connect kids with their local context and then pass this knowledge on to the older generations within their families,” points out Anaïs Varo.

And they decided to start testing an innovative pedagogical tool: theatre. Researchers designed a modular, flexible proposal so schools can choose activities and length. The main goal is to bring energy communities into the classroom and help the students take the information home.

The two-session proposal, for instance, starts with a set of introductory activities, covering basic concepts about energy communities and clean energies through several group games. Then, the second session brings up dilemmas related to energy communities that the students have to dramatise, choosing among the available solutions and creating a short dialogue to justify their decision.

These dilemmas cover many of the conflicts that can arise when anybody decides to get involved in an

energy community, from space issues to changing consumption habits or energy poverty.

“It is an innovative way of talking about these problems and collectivising them at the school level,” explains Varo.

> “For the intergenerational learning to happen, it is essential that the activities relate to the students’ personal and contextual experiences, and that the kids have to do something at home. In our case, we designed a short activity they have to complete together with their parents, their grandparents, or any other adult at home.”

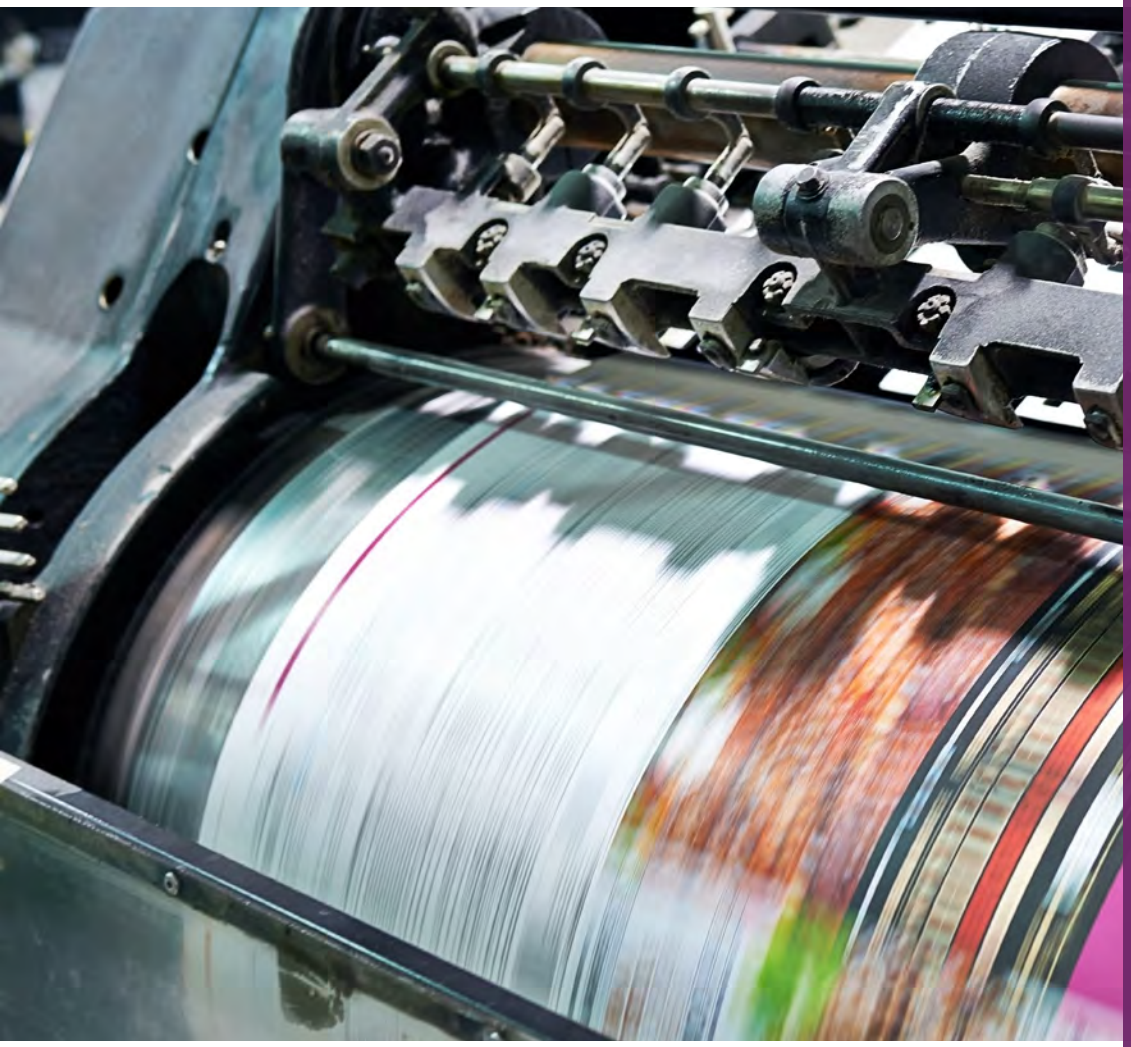
Research is still ongoing, but the schools and the students have shown positive attitudes towards this kind of intervention. Many institutions are eager to repeat and even expand the project, even though teachers are usually overwhelmed and under pressure to meet curriculum requirements.

“We think schools are a key element for intergenerational learning, and we believe our results will demonstrate it. But we are also seeing that more investment is needed to support teachers’ work,” adds the Catalan researcher.

Energy communities are growing throughout Europe. Legal and technological challenges have been largely overcome, and now the largest barriers are social.

For years, households and businesses have had a very distant relationship with their energy production and use. Convincing them of the many benefits of changing this relationship is essential to boosting energy communities and redefining Europe’s energy system.

Improved social cohesion, better energy efficiency, lower bills, reduced energy poverty and more local green job opportunities await. Intergenerational learning and theatre can open a new way to achieve this.



03

Fresh off the Press

EU Now Has 9,000+ "Energy Communities": Smart, Decentralised, Flexible Generation and Consumption

Written by Luca Arfini, originally published in November 2023 on energypost.eu

The goal of the EU's "Clean Energy for all Europeans package" (CEP), adopted in 2019, is to improve the functioning and design of Europe's energy markets and systems. Luca Arfini, writing for ESCI, explains how, as part of the CEP, new market actors called "active customers/consumers and citizens" and "energy communities" are being established. As variable renewable generation grows, the whole system needs to be more decentralised, smarter and flexible, and energy communities are part of the solution. There are now over nine thousand operational in the EU. Arfini looks at the EU-funded RESCHOOL pilot on Sporenburg island in Amsterdam, generating energy at the local level and consumed by 540 households. One notable benefit is that, as excess large-scale generation forces prices low – threatening business models – the community prices are stable. Demand and supply are being matched in a way that the big grid operators cannot always manage, says Arfini.

A recent Eurobarometer survey showed that EU citizens overwhelmingly expect more investments and commitment from the European authorities to the energy transition in the future.

> According to the data, over 80% of the respondents want more investments in renewable energies. 82% also believe that boosting energy efficiency in buildings, transportation, and goods can reduce our dependence on energy sources from outside the EU.

This survey also comes at a time in which the contribution of citizen-led initiatives and projects to the energy transition in Europe is at an all-time high, highlighting the active commitment of EU citizens to securing a sustainable future for the next generations.

Nine thousand operational energy communities in the EU

However, given that 77% of the EU greenhouse gas emissions come from the energy sector, it becomes evident that prioritising the energy transition is not only a matter of rhetoric but a crucial necessity that demands concrete actions, as demonstrated by the nine thousand operational energy communities within the EU actively contributing to climate change mitigation.

> "[An energy community is] not a company. It's not a government-based entity. It's a collective of citizens with some self-rule and tries to deliver energy services to its members and participants," explains Jasper Klapwijk, an energy community expert based in Amsterdam.

Energy communities can function as unified entities, gain equitable access to all relevant energy markets, and ultimately help move towards a more decarbonised economy.

The Netherlands is one of the countries in Europe with the highest number of energy communities—nearly 700 in total. These initiatives align well with

the Dutch historical tradition, founded on collective water and land management, shared welfare systems, cooperatives, and social services. In this context, energy communities represent a natural modern progression rooted in the same ethos.

The first local examples of energy communities emerged in the country around the late 1980s. At the time, the participants usually owned wind turbines jointly and promoted sustainable living. Subsequently, the liberalisation of the energy market in 2004 increased opportunities for local initiatives, accelerating their growth in the 2010s.

“The initial energy cooperatives began by acquiring or building local windmills, but over time, they expanded their scope to include a wider range of energy sources, from solar to heating. Their primary goal was to place more means of production in the hands of citizen collectives to provide energy as a service to the community,” explains Klapwijk.

In other words, an energy community is a legal entity in the energy market with a primary objective of benefiting its residents in terms of the environment, economy, or society rather than pursuing profits.

EU’s “Clean Energy for all Europeans package”

These initiatives are regulated in the Netherlands by the Energy Act 2022, which replaced the Gas and Electricity Act 1998 with a modern and updated market regulation framework. These changes were made in response to the new EU-level rules introduced through the ‘Clean Energy for all Europeans package‘.

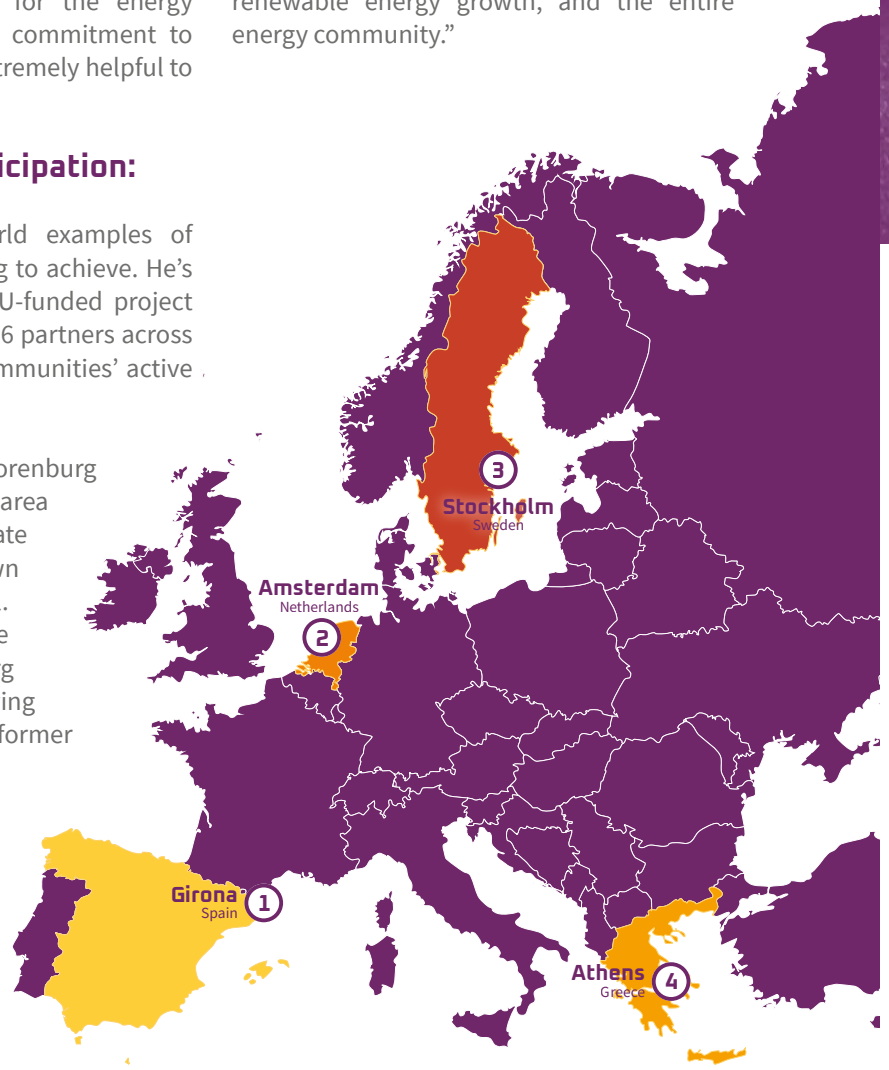
“The government’s recognition of energy communities is a powerful means for citizen collectives to establish their presence,” says Klapwijk. “We see that the networks they create attract more members to these communities and mobilise people for the energy transition. The Dutch government’s commitment to supporting energy communities is extremely helpful to this cause.”

EU-funded community participation: RESCHOOL

Klapwijk himself provides real-world examples of what he and his colleagues are trying to achieve. He’s currently an active advisor in the EU-funded project RESCHOOL, an initiative that unites 16 partners across 7 European countries to promote communities’ active participation in the energy markets.

The RESCHOOL Dutch pilot on Sporenburg island, in the Eastern Docklands area of Amsterdam, aims to demonstrate how to generate and use ‘your own energy’ at the neighbourhood level. The objective is to ensure that the 540 households in the Sporenburg neighbourhood who are receiving their electricity through the transformer house produce and use their energy as much as possible without investing excessively in copper.

“Through this cooperation, I use my neighbour’s solar production to charge my electric vehicle. He receives a small incentive because he doesn’t feed excess electricity into the grid. In turn, I pay a bit less because I consume the energy when it’s generated,” says Hugo Niesing, the site manager of the RESCHOOL Amsterdam pilot. “This benefits our finances, infrastructure, renewable energy growth, and the entire energy community.”



Volatile electricity market prices

"The major problem," Niesing explains, "is the current volatile electricity market." Energy contracts often feature hourly fluctuating prices, with a growing reliance on wind and solar energy generation.

While this arrangement is acceptable, it reveals a fundamental challenge: the electricity grid's capacity to accommodate all the North Sea-based wind-generated electricity within its network is constrained by a physical limit. This restriction results in scenarios where the 'market' energy price remains notably low, unlike the 'community-generated' electricity, which maintains a stable but higher price point.

"In Amsterdam," Niesing adds, "we face the challenge of reinforcing about a thousand of these transformer houses before 2030. Here, flexibility is highly needed because the grid operator simply cannot realise this. The costs are very high, but the main problem is Amsterdam's lack of personnel, materials, time, and space."

As Jasper Klapwijk concludes, "What the energy community does and needs to do is make the means of production—the capacity of energy production— in the neighbourhood available for the people who live there. On the other hand, they have to convince people on Sporenburg to change their behaviour to use the energy when it is available from the solar source."

High upfront investments + technical and regulatory knowledge

In short, energy cooperatives offer numerous benefits to their local communities, including enhanced social cohesion, technical innovation, progress in the energy transition, relief from local grid congestion, and reduced energy costs. However, they also face obstacles to their establishment, including the need for high upfront investments and sound technical and regulatory knowledge.

The Netherlands has committed to achieving the EU's emissions reduction by 2030 and climate neutrality by 2050. If the work of Klapwijk and Niesing is successful, energy communities like the one in Amsterdam may set a new standard to assist the Netherlands and the rest of the EU in staying on course with their climate objectives.

How Energy Communities Could Help Europe Reduce Energy Poverty

Written by Massimiliano Saltori, originally published in April 2024 on EARTH.ORG

Energy communities are easy to establish, eco-friendly, and crucial in helping low-income and vulnerable communities access affordable energy. Yet, they are struggling to take off. Why?

Today, the European Union is torn between reducing carbon emissions and addressing the growing social inequalities within its 27 constituent nations. As each country finds itself exposed to an overreliance on foreign providers and market volatility, how its citizens consume energy locally is becoming more relevant.

Data suggests this volatility may increase. According to Eurostat, 9% of the EU population struggled to heat their homes adequately in 2022, compared to 7% the year before. That's 40 million people, almost comparable to the total population of Spain. Energy poverty can affect people's health, education, and economic opportunities.

Instead of building bigger and more expensive power plants, the EU has enacted several directives to promote a more decentralised energy system, aiming to allow local initiatives, known as energy communities, to flourish.

Energy communities are small organisations, sometimes run by citizens, companies, or public institutions to locally produce and consume generated sustainable energy. For example, neighbours could band together to install solar panels on their roofs, or purchase a stake in a wind farm. The energy generated by these systems can be distributed among people to reduce their energy costs, or sold to the main grid for income.

EU law regarding energy communities is based on two main regulations: the Directive on Common Rules for the Internal Electricity Market (2019) and the revised Renewable Energy Directive (2018). The former aims to help consumers adopt energy communities by enabling them to take part in energy markets, and provide flexible services through demand-response and storage. The latter promotes the use of renewable energy and allows citizens to play an active role in the development of renewables "by enabling renewable energy communities and self-consumption of renewable energy." National initiatives level the playing field further through grants and other initiatives.

Yet, the public is still mostly unfamiliar with such initiatives.

"The first impression we often encounter from many people is that they are not aware of what an energy community is," said Alexandros Chronis, pilot manager of Collective Energy (COEN), a non-profit founded in Athens in 2020.

As he and his colleague Athanasios Vasilakis explained, building trust with locals is crucial to start an energy community, but it can be complicated.

"Our priority is to showcase the concept as clearly as possible to establish trust with prospective members and investors,'' Vasilakis told Earth.Org. ''But it's not easy, given that we are a small organisation still working to gain recognition."

Nevertheless, things seem promising in Greece, with around 1,500 energy communities established as of 2023.

Chronis is keenly aware of the future challenges organisations like COEN face. "To capture the public's interest, we need more success stories demonstrating that these initiatives can benefit citizens," he said.

To address this issue, COEN has partnered with an EU-funded project, RESCHOOL, which focuses on public engagement.

The EU has already addressed energy poverty through various policy initiatives. For example, the Clean Energy for All Europeans Package supports locals to develop energy communities throughout Europe. Local authorities also play a role. In Spain, municipalities can select vulnerable families to insert them into social projects linked to energy communities.

In the Spanish city of Girona, a company called Km0 Energy offers consultancy to residents interested in joining local energy communities. Girona launched the Comunitats locals d'Energia (Local Energy Communities) initiative to encourage its municipalities and citizens to create energy communities. The first four energy communities were implemented with the help of Km0 Energy.

Spain, like Italy and Portugal, faces unique challenges in terms of energy poverty, as it endures both high and low temperatures between summer and winter. According to Statista, in 2021, one out of ten Spanish households still consumed less energy than the national median, suggesting financial difficulties in a significant part of the population.

Javier Muñoz, Km0's technical pilot site manager, says initiatives like the one in Girona are crucial to provide citizens with technical, legal, economic, and participatory tools to combat rising energy costs.

"These services are offered to prevent energy poverty among citizens, allowing them to be part of energy solutions and save on their monthly electricity bills," he said. Like COEN, the project collaborates with RESCHOOL to foster engagement.

Scan to visit the website's of *ProLight* and *TIMEPAC* for further information about the projects

Other similar EU projects tackle the energy issue from different perspectives.

PROLIGHT, for example, aims to retrofit existing European buildings to improve their energy efficiency, with six demo sites and energy communities currently developing a neighbourhood-based approach. Another project, TIMEPAC, promotes energy efficiency in existing buildings and houses to comply with EU certifications. The efficiency of households plays a significant role in exacerbating energy poverty. Inefficient buildings tend to waste more energy than modern and efficient ones, primarily through heating, cooling, and lighting. It is estimated that almost 75% of the EU building stock is energy inefficient, contributing to higher utility bills for citizens. For low-income individuals and families in vulnerable socioeconomic situations, this can be a significant problem.

Despite energy communities' promising role in addressing critical social issues and the sheer amount of European-funded projects, these programs are still struggling to gain momentum. Poor awareness and perhaps a reluctance to invest by local citizens may have something to do with it. In this regard, the Recovery and Resilience Facility, the centrepiece of NextGenerationEU, could provide funding where initial capital is missing. However, this measure cannot be effective without a quicker permitting process, especially as substantial hindrance stems from the member states' excessive bureaucracy and red tape. Some, in fact, already widely support energy communities. In contrast, others restrict their expansion, resulting in a highly fragmented policy and regulatory landscape.

The energy transition is a necessary step for Europe's future. However, realising the full potential of energy communities and other initiatives hinges on addressing long standing regulatory issues, ultimately bridging disparities among European nations.

The EU is currently taking measures to bridge the existing gap. For example, last October the bloc published a new proposal to amend the existing directives to improve the Union's electricity market design. In its new form, the Directive ensures that households and Small and Midsize Businesses have access to regulated retail prices during periods of crisis. In addition, member states are compelled to establish a system of suppliers for emergencies. Consumers can also either share renewable energy with each other or develop new energy communities, a process the new Directive strongly facilitates.

This should become the new standard for all 27 EU nations.

Energy Communities are Gaining Ground in Spain

Written by Massimiliano Saltori, originally published in December 2024 on nextcity.org

Watch *A Tranformative Revolution Is Underway Called "Energy Communities"* - a video about the Girona pilot site on YouTube

reschool - Creation, growing and management of energy communities

Across the European Union, traditional energy systems are still dominated by centralized fossil fuel power plants, slowing the transition to more ambitious climate targets.

Spain is no stranger to this. Today, the country's electricity generation accounts for nearly 15% of its global greenhouse gas emissions, ranking third after transportation (30%) and industry (18%).

The good news is that the last five years have also been crucial for developing new solutions to curb emissions and improve energy efficiency. To reduce greenhouse gases, the E.U. has passed several directives promoting a more decentralized energy system, allowing local initiatives to flourish. One of the most promising efforts is the implementation of energy communities, a field in which Spain has taken the lead.

These initiatives are a relatively recent development in Spain, only gaining momentum after 2019 — when national regulations on collective self-consumption and photovoltaic installations were introduced. Since then, however, they have been steadily expanding, although reaching and informing the public remains challenging.

"Most people in Spain don't know what an energy community is," says Javier Muñoz from Barcelona-based firm Km0 Energy.

> "To bring them on board, you must show them tangible results, like reducing energy consumption by 30% or 40%."

The small firm is currently promoting new energy solutions at the local level. The company partners with the Provincial Council of the Girona, a city in Catalonia, and plays a pivotal role in the local demo site of RESCHOOL, an E.U.-funded energy community management project.

Muñoz and his team act as a bridge between the project's objectives and local energy communities in the villages of Amer, Rupià, Cellera de Ter and Cornellà de Terri. The project aims to expand photovoltaic plants, develop storage systems and assess local grid design. In total, 90 households, 30 public facilities and two local businesses are involved.

The Girona pilot aims to go beyond traditional collective self-consumption models. Muñoz emphasizes that participants must first understand and trust the model.

To enable this, the Provincial Council and Km0 Energy have organized a series of meetings to inform citizens.

“We always start with an open dialogue for the entire municipality to show what benefits they can obtain,” Muñoz explains. “Our hope is that this approach will demystify the process and encourage broader participation.”

According to Muñoz, Spain’s energy communities have already contributed to significant policy changes, with a noticeable shift in energy management and an increasing trend toward collective self-consumption installations.

“Energy communities show us that a decentralized model is viable, and citizens can play a central role in the energy transition.”

Another promising example is also found in Guernica, in the Basque Country. The town’s first energy community project was established three years ago through the local Basque-speaking San Fidel Ikastola School.

The building now boasts 200 solar panels that supply renewable energy to the school and its surrounding infrastructure, including 140 families, shops, and public buildings such as the local cultural center, Casa de Cultura.

The project — part of another E.U.-funded initiative, ProLight — promises to curb as much as 885 tonnes of CO2 annually, about the same amount as the emissions of 80 average European households over the same period. But according to its project leaders, this is just the beginning.

“This installation generates around 108 megawatts per hour per year, covering about 25% of the energy needs for those involved,” says Javier Zuazola, sales director at Edinor, a Spanish renewable energy semiconductor manufacturer supporting the project.

He explains that the energy generated is used immediately, with any excess sent directly to the grid, benefiting even those not yet part of the community.

> “A model of direct self-consumption like this cuts costs immediately for families and businesses.”

Like in Girona, the initiative’s success depended on the community’s willingness to embrace change. Residents are drawn to the community-joining process because of its straightforwardness, with registration for the service only taking a month following the submission of the documents. Word of mouth also helps, and the concept of energy communities seems to appeal to a sense of collective responsibility toward future generations.

However, Guernica’s mayor, José Mari Gorroño Etxebarrieta, points out that scaling these efforts will require more than just goodwill.

> “We need many more communities like this one to collect data and truly understand the benefits for families. ...This is why raising awareness is crucial.”

The city council is already advancing plans to install 272 photovoltaic panels at the local sports center. Discussions are underway to establish an eco-innovation park in the industrial zone and a vocational training center focused on environmental disciplines.

Establishing these initiatives outside Spain may prove challenging, as the E.U.’s legislative framework for energy communities is still evolving.

“The problem is that each country has different regulations,” says Itziar Vidorreta, an international project manager at Gaia, a major Technology and Digitalization Cluster in the Basque Country, also involved in ProLight.

“What works in Guernica might face different legal hurdles in Germany or Sweden. That’s why we’re also working through ProLight and other similar initiatives to harmonize these policies on a European level.”

If implemented across the E.U., such initiatives could transition society toward a more sustainable lifestyle, Vidorreta says, but she stresses the importance of local engagement.

“Culture plays a key role here,” she notes. “Guernica, as a historical symbol of freedom and resilience, is deeply rooted in the Basque and European identity. For example, including the Casa de Cultura in the ProLight project helps connect with people on a deeper level … hopefully raising a sense of collective responsibility toward the environment.”

Can 'Smart Grids' Quell Europe's Next Blackout?

Written by Corinna Hackenbroch, originally published in April 2025

Last Monday (28 April), 15 gigawatts of electricity capacity dropped off the Spanish and Portuguese grid, triggering one of the biggest blackouts to ever happen in Europe.

The blackouts affected around 55 million people across Spain, Portugal, and parts of France. People were evacuated from trains, ATMs stopped working, and many were cut off from internet access.

Experts still do not know the exact cause of the blackout, though investigators are checking if the congested national grid or malfunctioning infrastructure played a role. Old and strained energy grids elsewhere mean that no European country is safe from the same fate.

Amsterdam's low electricity grid capacity means the city is already struggling to meet increasing demand. Late afternoons see excessive electricity consumption, while in summer the grid is often overloaded by midday surplus production from solar panels.

The city needs a lot of investment to upgrade its infrastructure to meet these challenges.

> "Amsterdam is very much characterized by a city which is running towards the end of the capacity of the electricity grid," said Hugo Niesing of Resourcefully, an energy consultancy in the city.

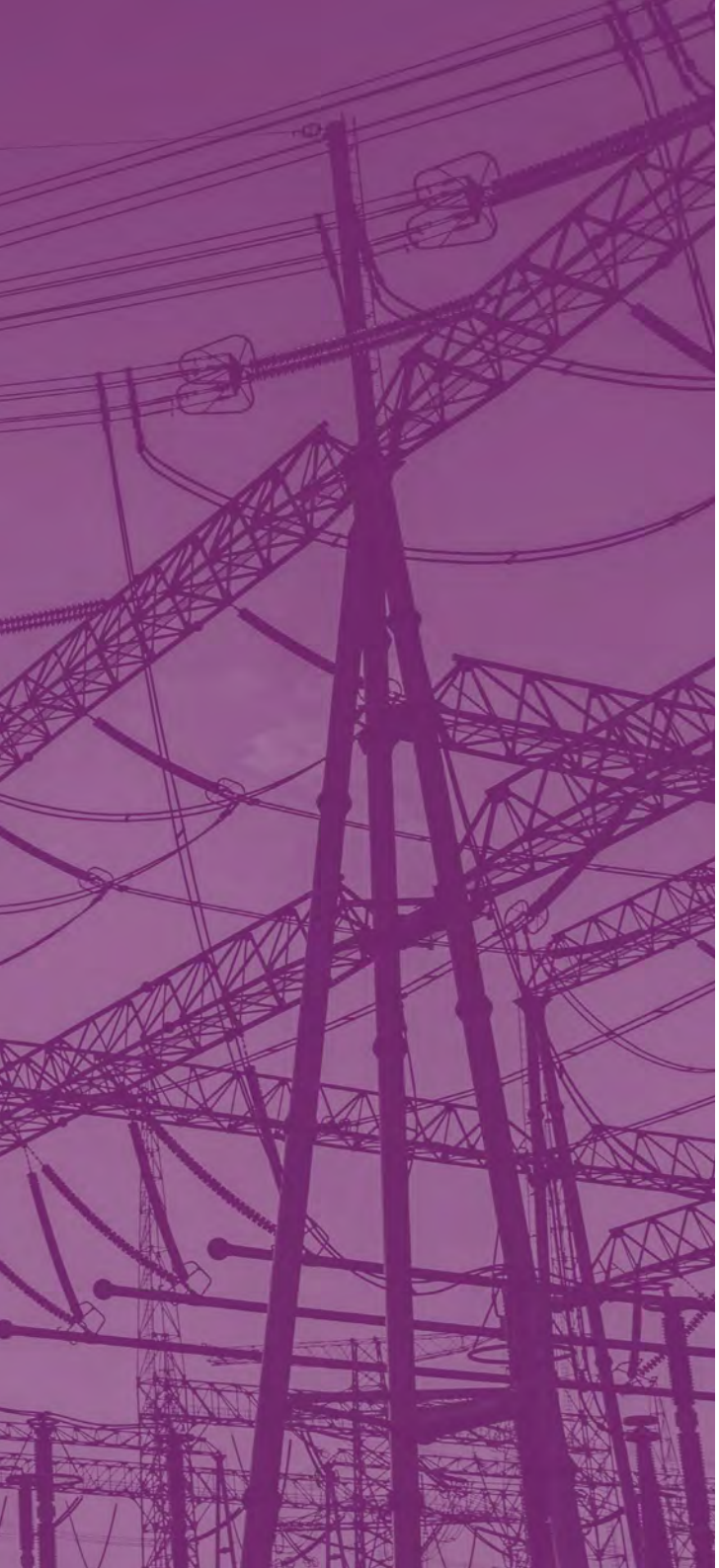
He says the grid needs €400 million worth of upgrades, though the grid operator lacks the people, materials and time to do so.

Instead, both demand and supply should become more flexible to ease pressure on the grid.

Investing in energy communities

Part of this flexibility is now coming from the city's 'energy communities' – local groups that generate and deliver energy services to themselves. There are nearly 700 of these energy communities in the Netherlands. One in the Sporenburg neighbourhood of Amsterdam has 540 households contributing renewable energy to the grid via solar panels and heat pumps.

Communities generating and delivering their own electricity lessens demand on the national grid,



lessening the chances of surges in the national grid and blackouts.

> "The energy communities here are actually quite big and that is because the Dutch government at one point realized that the energy transition cannot be done without citizens," said Jasper Klapwijk, an energy expert in the Netherlands. "You need companies, you need the state itself, but you also need the citizens and citizen collectives to actually reach your goals in the energy transition."

Support from locals and the government are being complemented by the European research project RESCHOOL, which brought on board a distribution system operator. They make sure that self-generated renewable electricity is delivered efficiently to households in the Sporenburg energy community.

Encouraging behaviour that helps the grid

The project designed an app to encourage grid-conscious behaviour and optimise power consumption. Software both measures how a Sporenburg resident is consuming energy and forecasts possible congestion problems on the network.

Using this information, the app sends people challenges to change how they consume energy, for example by using appliances like dishwashers at a different time of the day. People who join these challenges earn points, which can later be exchanged for payments from the city of Amsterdam.

These challenges also encourage grid-sensitive behaviour, helping to prevent blackouts and reducing the need for expensive grid upgrades. The app both helps residents to save money and energy and empowers them to participate in the community's energy management.

> Hugo believes that education and community engagement are crucial to achieving real change. "Sharing information is needed to optimize energy consumption," he says. "So we really want to have an interactive process with the prosumer to create understanding. To show why you are participating and what difference it makes."

As the pressure on Amsterdam's grid continues to grow, the Sporenburg Energy Cooperative offers a sustainable, cost-effective and community-driven way forward. In this way, the costly replacement of transformer stations can be postponed. It's a blueprint for the future of energy management in other cities, and its smart app is already publicly available.

04

Scientific Results

04

How Can We Achieve a Long-Term Effect of Serious Energy Games on the Change in Residential Electricity Demand?

Anton Belinskiy; Ioannis Lampropoulos; Hossein Nasrollahi; Jan Dirk Fijnheer; Remco C. Veltkamp; Wilfried van Sark

As global energy concerns escalate, there is a growing need for effective strategies to promote sustainable energy practices among individuals and communities. Gamification, the integration of game-design elements in non-game contexts, emerges as a promising tool to enhance user engagement and foster sustainable behaviour in energy management. In this review, we examine the theoretical aspects of gamification and its application in energy management in users' households, highlighting its potential to transform repetitive or even monotonous tasks into engaging activities, focusing on studies that measure a long-term effect. We delve into various gamified elements adopted in long-term studies, such as feedback, social interactions, point systems, leader boards, narrative-driven challenges, etc., to understand their effect on user motivation and behavioural changes. From our set of studies, we found out that strong social game elements contribute the most to the long-term behaviour change of energy usage. One more condition of behaviour change is strong positive user satisfaction: the game should be engaging. We highlight the possible limitations of gamification in an energy management situation, a strong need for better practices of design and evaluation, and innovative approaches (such as DSM; Demand Side Management) in gamification for long-term engagement in household energy management.

Review of Serious Energy Games: Objectives, Approaches, Applications, Data Integration, and Performance Assessment

Hossein Nasrollahi; Ioannis Lampropoulos, Stefan Werning, Anton Belinskiy; Jan Dirk Fijnheer, Remco C. Veltkamp, Wilfried van Sark

In recent years, serious energy games (SEGs) garnered increasing attention as an innovative and effective approach to tackling energy-related challenges. This review delves into the multifaceted landscape of SEG, specifically focusing on their wide-ranging applications in various contexts. The study investigates potential enhancements in user engagement achieved through integrating social connections, personalization, and data integration. Among the main challenges identified, previous studies overlooked the full potential of serious games in addressing emerging needs in energy systems, opting for oversimplified approaches. Further, these studies exhibit limited scalability and constrained generalizability, which poses challenges in applying their findings to larger energy systems and diverse scenarios. By incorporating lessons learned from prior experiences, this review aims to propel the development of SEG toward more innovative and impactful directions. It is firmly believed that positive behavior changes among individuals can be effectively encouraged by using SEG.in gamification for long-term engagement in household energy management.

Assessment of Electric Vehicle Charging Hub Based on Stochastic Models of User Profiles

Marc Cañigueral, Llorenç Burgas, Joaquim Massana, Joaquim Meléndez, Joan Colomer

A significant challenge in the electric mobility transition is the planning of proper charging infrastructures to incentivize the use of electric vehicles (EV) and guarantee a reliable charging service to EV users. This aper proposes to model generic EV user profiles (e.g. worktime, commuters, etc.) together with

a simulation framework to appropriately assess charging hubs that become undersized due to growing EV demand. First, Gaussian Mixture Models (GMM) of different EV user profiles are developed in order to simulate multiple scenarios of EV sessions per day (*N*). Second, an algorithm is presented to simulate the occupancy of a charging hub based on two parameters: (1) the number of charging points (*P*) and (2) the connection time limit (*H*). Finally, the charging hub assessment is performed according to a metric designed to consider the interests of both the EV user and the charging hub operator, recommending the optimal *P* for expandable hubs, or the optimal *H* for limited hubs. Both cases are analysed in the validation section of this work employing a real-world use case. Results validate that the presented methodology can be used by EV charging hub operators to achieve a balance between the exploitation of the charging installation and the satisfaction of EV users.

Transició energètica: electrificació de la demanda i gestió de la flexibilitat (Published in Catalan)

Joaquim Meléndez Frigola

Les agendes europees dels propers anys progressivament limiten les emissions de gasos d'efecte hivernacle forçant, per una banda, la substitució de fonts fòssils per fonts renovables i, per una altra, l'electrificació de la demanda. Aquesta electrificació és més evident en dos sectors principals, el transport per carretera i la climatització d'espais (edificis principalment del sector terciari i residencial). D'aquesta manera passem la responsabilitat de les emissions a la combinació de fonts primàries utilitzades en la generació elèctrica i posant pressió en la substitució de generadors convencionals (combustible fòssil) per generadors de fonts renovables. Aquest canvi comporta una reducció de la capacitat de control de la xarxa (tant de la freqüència com de la tensió) degut a una major volatilitat d'aquestes fonts d'energia renovable (eòlica i solar) i, a la vegada, a una major distribució de la generació per tota la xarxa. Es fa necessària una millor gestió de la flexibilitat que la demanda pot oferir per tal d'incorporar el màxim de generació renovable al sistema. Existeixen diferents estratègies per gestionar la demanda, que poden consistir en tarifes variables (flexibilitat implícita) o en l'establiment de mercats de flexibilitat (flexibilitat explícita), en què el consumidor final podrà participar mitjançant un representant encarregat de proporcionar serveis d'agregació i de gestió de la flexibilitat. La generació distribuïda a la xarxa de distribució, el desplegament d'estacions de recàrrega de vehicle elèctric i l'electrificació dels sistemes de calefacció i refrigeració afegeixen complexitat a l'operació de la xarxa de distribució. Es fa necessari incrementar l'observabilitat de la mitjana i baixa tensió i dotar de més intel·ligència els sistemes de gestió de la xarxa de distribució (xarxa elèctrica intel·ligent) i comptar amb una participació més activa del consumidor final en la cadena de valor del sistema elèctric a partir de programes de gestió de la demanda.

Enabling Charging Point Operators for Participation in Congestion Markets

Joaquim Massana, Llorenç Burgas , Marc Cañigueral , Andreas Sumper, Joaquim Melendez, Joan Colomer

This paper explores the viability of electric vehicle charging point operators to act as flexibility service providers in local flexibility markets. The work focuses on the requirements for operating in local intra-day markets and specifically in solving grid congestion at the distribution level. The explored approach assumes an alternative to bilateral agreements constrained to the capacity of the charging point operator to forecast the electric vehicle demand and flexibility effectively. The current paper analyses the flexibility capacity and proposes a methodology to address the re-dispatch process within the GOPACS (The Netherlands) context. The flexibility estimation methodology comprises two forecasting steps: forecasting the aggregated flexibility capacity and forecasting

electric vehicles flexibility. A detailed case study presents data from the real electric vehicle sessions in Amsterdam City. The experimental results validate the effectiveness of the proposed methodology, establishing a robust basis for further research.

A Serious Game Connecting the Smart Meters of Residential Users for Demand Side Management: Lessons Learned in the Preparation Stage

Ioannis Lampropoulos; Hossein Nasrollahi; Anton Belinskiy; Stefan Werning; Remco C. Veltkamp; Wilfried van Sark

Increasing shares of intermittent renewable energy sources and targets for greenhouse gas emissions reduction challenge the reliable and economic operation of energy systems. An effective energy transition requires urgent actions to empower consumers, enable demand-side flexibility, and promote new roles such as prosumers, aggregators, and energy communities. Currently, citizens' engagement in new energy services and products is hindered by energy market regulation and lack of information, two-way communication, and trust with utilities. We envision learning communities as vital in enabling citizens to participate in socio-technical imaginaries of user-centered, sustainable, and affordable energy systems. We will develop and demonstrate integrated tools for citizens' long-term engagement and empowerment in energy applications through research on persuasive and inclusive serious game design, coupled with artificial intelligence (AI) techniques, energy models, and smart meter data input, to provide informed and reliable feedback to citizens about optimal home energy management. While we are eager to complete the development and proceed with experimentation, the steps taken so far and the lessons learned during this preparatory stage are useful to document and share with practitioners and the academic community.

Solidaric Solarities: Governance Principles for Transforming Solar Power Relations

Siddharth Sareen , Alevgul H Sorman, and Bérénice Girard

Solar energy has become the world's cheapest and fastest scaling electricity source. Multiple societal sectors are electrifying, and the scale and pace of change give some hope of near-future rapid climate mitigation through solar rollouts despite the bleak record to date. Critiques of utility-scale solar development foreground injustices like displacing marginalised groups and perpetuating resource inequity. Governance scholars argue for stringent regulations towards just transitions, and community energy research shows that smaller-scale solar solutions hold promise in being more equitable. Our contribution argues for the possibility of redistributive and emancipatory solar development, drawing from scholarship on governance (institutional configurations, policy mixes and cross-sectoral regulation) and scale (comparative energy geographies with attention to context-specificity and trans-local connection). We conceptualise and operationalise the term 'solidaric solarities' as modalities of harnessing solar energy to advance empowerment, interconnectedness and community wealth for victims of energy injustices. This focuses on political economy issues, where solar development can advance solidarity with historically marginalised groups, to create affordable distributed future renewable energy systems. The analysis underpinning this normative orientation leverages secondary research and scholarly expertise on solar rollouts. We offer pragmatic governance principles informed by values that engender solidarity, illuminating potential pathways to enable solidaric solar transitions.

Enabling a Just Energy Transition Through Solidarity in Research

Siddharth Sareen, Bérénice Girard, Mathias Lindkvist, Anna Sveinsdóttir, Silje Kristiansen, Vito Laterza, Mariel Aguilar-Støen, Oluf Langhelle

A just energy transition is as much about acknowledging and acting on the socio-material needs of marginalised classes and groups as about informing inclusive and deliberative policy-making towards more equitable energy futures. In democracies, energy social scientists hold a privileged position and special responsibility to do both, thus offering critical support to decision-makers and practitioners. We articulate the challenges and opportunities for energy social scientists to embody solidarity in their research orientation and practices. First, we articulate the need to repoliticise, redemocratise, and negotiate a multiplicity of energy transitions. This includes recognising and engaging with multiple scales and contexts of marginality, repoliticising energy transitions, and addressing contestation and negotiation. Then, we argue that by embracing solidarity in research, energy social scientists can meet these needs in a holistic manner. We provide three principles through which social scientists can embrace solidarity to move energy research towards enhancing just transitions. These include (i) taking direct action and relating in solidarity, (ii) recognising responsibilities and limitations of energy social scientists, and (iii) nurturing a political realist culture of solidarity. In espousing these principles, we articulate solidarity as integral to pragmatic research practices in the face of urgency and rapid energy transitions.

Watt Sense of Community? A Human Geography Agenda on Energy Communities

Siddharth Sareen , Håvard Haarstad , Huiwen Gong, Gerald Aiken , Tomas Moe Skjølsvold, Benjamin Ronald Silvester, Jelena Popovic-Neuber, Mateusz Stopa, Mathias Lindkvist , Micol Pezzotta, Lea Sasse, Shayan Shokrgozar, Bård Torvetjønn Haugland , Oluf Langhelle, and Tor Håkon Jackson Inderberg

Energy communities can potentially advance just transitions towards low-carbon systems by devolving energy production and consumption to local scales. During vibrant debates on evolving energy geographies for more than a decade, human geographers have engaged with conceptualization and emergent models of energy communities in generative ways. We argue for a research agenda where these understandings of space, place and scale enhance research on energy communities. Three points hold particular importance and relevance for this agenda: (a) Pluralising understandings of energy communities, (b) Spatializing perspectives on the potential of energy communities to advance just transitions, and (c) Contextually situating technological-energy innovation strategies.

Energy Communities in Sweden: Barriers and Driving Forces

Yelena Vardanyan

Purpose of Review: Recent energy crises entailed more interest in local energy sources and development of energy communities. Energy communities have enormous potential to contribute to sustainable energy systems. Its deployment results in numerous challenges and opportunities from regulatory, economic, technical and social aspects. This paper aims at providing a comprehensive review of the energy communities' conditions in Sweden and identifying barriers and incentives to promote them.

Recent Findings: Regulatory authorities should develop frameworks incentivizing distribution system operators and energy communities to cooperate. Efficient cooperation will ensure unlocking flexibility potential from distributed energy resources to alleviate local grid needs.

Summary: Despite the adopted legislation to promote energy communities, further regulatory support is still crucial to removing barriers in Sweden. The necessary measures for policymakers include 1) creating beneficiary conditions, 2) ensuring redesign of current markets to create fair conditions for all actors, 3) ensuring economic stability of energy communities by lowering taxes and grid fees

Increasing Hosting Capacity of Low-Voltage Distribution Network Using Smart Charging Based on Local and Dynamic Capacity Limits

Marc Cañigueral a, Rick Wolbertus b, Joaquim Meléndez a

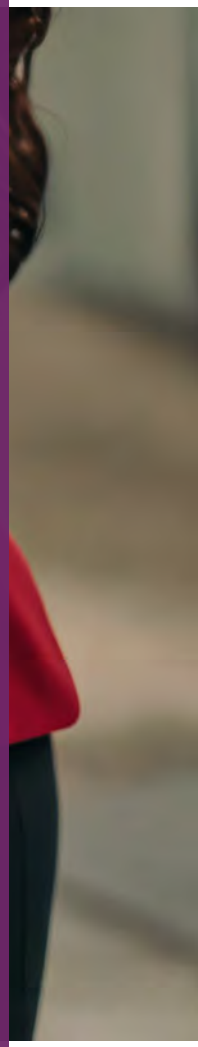
While the Municipality of Amsterdam wants to expand the electric vehicle public charging infrastructure to reach carbon-neutral objectives, the Distribution System Operator cannot allow new charging stations where low-voltage transformers are reaching their maximum capacity. To solve this situation, a smart charging project called Flexpower is being tested in some districts. Charging power is limited during peak times to avoid grid congestion and, therefore, enable the expansion of charging infrastructure while deferring grid investments. This work simulates the implementation of the Flexpower strategy with high penetration of electric vehicles, considering dynamic and local power limits, to assess the impact on both the satisfaction of electric vehicle users and the business model of the Charging Point Operator. A stochastic approach, based on Gaussian Mixture Models, has been used to model different profiles of electric vehicle users using data from the Amsterdam public electric vehicle charging infrastructure. Several key performance indicators have been defined to assess the impact of such charging limitations on the different stakeholders. The results show that, while Amsterdam's existing public charging infrastructure can host just twice the current electric vehicle demand, the application of Flexpower will enable the growth in charging stations without requiring grid upgrades. Even with 7 times more charging sessions, Flexpower could provide a power peak reduction of 57% while supplying 98% of the total energy required by electric vehicle users.

Download the Report on Economic Sustainability of the RESCHOOL Pilot Communities and the National Reports on Evolving Regulatory Frameworks for the Market and System Integration of Energy Communities

05

Collaborations and Events

05



RESCHOOL is active member of the Smart Energy Cluster

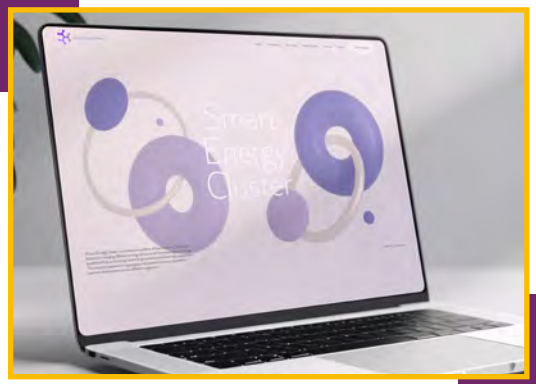
New #SmartEnergyCluster Website Launched

Originally published in June 2024

The #SmartEnergyCluster, is a collaborative effort of more than 20 EU projects including RESCHOOL that is focused on merging different energy services and incorporating non-energy benefits whilst overcoming market fragmentation and fostering cooperation. After more than one year from the establishment of the group, the Smart Energy Cluster (initiated by the LIFE project InEExS), is now glad to announce the launch of its brand-new website, that aims to become a solid hub of information for all the projects part of the group, while making easier for all audience to keep track of their outputs and events.

The website was built around the idea of building a participative and user-friendly hub where all projects part of the Cluster can participate to ease the news sharing and the collaborations among and outside the group. In this aim, the website includes:

- Dedicated sections with the list past and current projects that are or were part of the Cluster
- A form to easily apply to be part of the Cluster
- A form for those who are already part of the Cluster to submit news and events that will be published on the website
- A section with all project information where you can collaborate and reach out easily.



Scan to visit the *#SmartEnergyCluster* website

The RESCHOOL Project Visits an Energy Community

Originally published in November 2023

On 25th October the RESCHOOL project visited the Sunsud energy community in Brussels in conjunction with the RE-energising Europe Conference. The visit was organised by Dara Turnbull from Housing Europe.

SunSud is the first solar energy redistribution project in social housing and it was set up in a building of 110 social housing units in Brussels. The project generates energy on the roof of the building using solar panels it has installed there. It gives its inhabitants the opportunity to benefit from this energy that is cleaner and less expensive than that of the market. The project continues autonomously and is still managed by the owner and the tenant committee.

How it works?

The principle is to share excess electricity from a photovoltaic installation with users who are located close to it (same building, same neighbourhood, same city, etc.). The project was initiated December 2020 with the installation, on the roof of the building, of around a hundred solar panels purchased by Foyer du Sud, a public service real estate company. The production of renewable electricity from these solar panels supplied two common meters connected to the elevator and the boiler room. However, such a large installation produces much more electricity than these common meters need. This production surplus can be shared between the residents of the building. This is called electricity sharing. Participating tenants sign a contract with Foyer du Sud and benefit from a smart meter, an essential tool for measuring the production and consumption of electricity produced by the panels. Concretely, tenants use this electricity during the day when the panels produce abundantly but keep their contracts with their electricity suppliers to cover consumption at night or on days with little sunshine.

Participation in sharing is on a voluntary basis. When the project started, 16 households out of 110 participated in the project.

What are the advantages of such a project?

Such an Energy community setup has environmental, social, and economic benefits:

- **Environmental benefits:** The possibility of sharing surplus production with tenants was the motivation to invest in a solar installation. The project also has the effect of increasing

the production of renewable energy and thus reducing greenhouse gas emissions.

- **Social benefits:** This type of project, thanks to its collective dimension, contributes to social cohesion within the building. Furthermore, by offering cheaper electricity at a stable price, the project contributes to the fight against energy poverty.
- **Economic benefits:** The project will benefit all tenants thanks to a reduction in charges for the common areas of the building, partially powered by the electricity produced on the roof. The surplus electricity which is generated is sold to tenants at a much lower rate than that offered by the official suppliers. It also offers the tenants long-term price stability. In fact, the price of electricity produced by solar panels does not depend on the international situation, unlike electricity purchased by suppliers.

Implications?

This is the first time that an electricity sharing project has included social tenants in Belgium. In a context of social fragility and energy insecurity, the aim was to test the extent to which this new mechanism for redistributing green, local, and cheaper energy can bring economic, ecological and social added value.

RESCHOOL at ENLIT 2024 & 2025

From Policy to Pilots - and to the Bright Future of Citizens' Energy

The RESCHOOL Finale - 20 May 2026 at COMET, Brussels

09:00 – 09:30 **Arrival & Registration**

09:30 – 10:30 Opening session - **From collective citizen initiatives to smart energy hubs?**

In the context of RESCHOOL, the opening session reviews the current state of community energy in Europe, with many communities set to evolve from collective citizen actions into smart energy hubs that are system relevant and act on local energy markets. EU as well as sector representatives will further debate how to close the gap between policy ambition and Member States implementation progress, including through the recent EU reform initiatives on Citizens Energy and European Grids.

Contributors

- Jonathan Bonadio, Head of Policy, REScoop
- Achille Hannoset, Policy and Legal Officer, DG Energy – Just transition, consumers and local initiatives, European Commission
- Joaquim Meléndez, RESCHOOL Project Coordinator, University of Girona

Moderation

- Johannes Vollmer, Senior Project Officer, European Renewable Energies Federation

10:30 – 11:00 **Coffee break**

11:00 – 12:15 Panel 1 - **Energy policy: what's the hold-up?**

This session on energy policy looks at reasons why there hasn't, despite the many obvious as well as indirect benefits energy communities offer, been more significant deployment of community initiatives across Europe. Designed to identify major regulatory and legal bottlenecks, an expert line-up from among authorities, policy-makers, energy communities and cooperatives will explore additional policy measures and governance frameworks that are needed to support energy communities, and how successful initiatives such as the RESCHOOL pilots can be scaled up.

Contributors

- Nazim Khiari, Council of European Energy Regulators
- Jörgen Lööf, CEO, ElectriCITY & RESCHOOL Stockholm Pilot
- Oscar Ortega, Energy Transition Expert, ICLEI Local Governments for Sustainability
- Sara Capuzzo, Director and Head of Advocacy and Innovation, ènostra coop
- Robert Lange, Policy Advisor, European Renewable Energies Federation

Moderation

- Mathieu Bourgeois, Policy & Campaigns Officer, Energy Cities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Final Policy Conference
20 May 2026, 9-17h CET || COMET – Brussels
MEET THE PANELISTS
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European Renewable Energies Federation
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CERTH
Maria Santos
Friends of the Earth
Liam Wegimont
GENE
Albert Sabater Coll
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12:15 – 13:15 **Lunch**

13:15 – 14: 30 Panel 2 - **System integration and digitalisation: Energy communities and DSOs – friends or foes?**

The session highlights energy communities and energy sharing as system-level solutions that can improve grid efficiency, resilience, and affordability. Supporting the integration of renewable and local autonomy, expert panellists from RESCHOOL pilot, DSOs, and in digitalisation will showcase hardware and digital solutions that improve distribution system operation, with the objective to better understand how DSO frameworks and their implementation must further evolve, in the context of the EU Grids Package.

Contributors

- Anastasia Skapoula, E.DSO for Smart Grids
- Cristina Corchero, CEO, bamboo energy
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- Witold Krasny, Head of Products & Services, Smartgrid Digital Architectures & Business Models, Digital4Grids
- Hugo Niesing, Project Lead FlexCitizen, RESCHOOL pilot Amsterdam

Moderation

- Joaquim Meléndez, University of Girona & RESCHOOL Project Coordinator

14:30 – 15:00 **Coffee break**

15:00 – 16:15 Panel 3 - **Social innovation and education - learning about energy and climate through community projects**

The panel explores how to effectively engage citizens and local businesses in energy communities, examining motivations and barriers to active participation. Experts from science, education and civil society will reflect on lessons learnt from intergenerational learning and gamification, the role of policies that help raise awareness and get people engaged into the transition to net-zero.

Panel introduction - RESCHOOL engagement through gamification and intergenerational learning

- The RESCHOOL card game - Efthimios Hamilos, Project Manager, Centre for Research & Technology Hellas
- The RESCHOOL intergenerational learning experience - Anaïs Varo, Professor, University of Girona
- The RESCHOOL gamification approach – Anton Belinskiy, PhD candidate, Utrecht University

Panel debate on related best practices and education policies

- Julia Jansen, Social Scientist Energy Transition, TNO
- Maria Santos, Community Energy and Renewables Campaigner, Friends of the Earth
- Liam Wegimont, Executive Director, Global Education Network Europe

Moderation

- Albert Sabater, Professor and Researcher, University of Girona

16:15 – 16:30 **Closing remarks**

People of the Project

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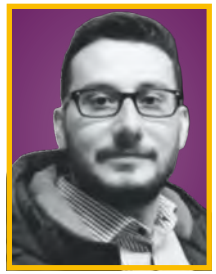

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Glossary

Citizen Energy Community (CEC)

An energy cooperative is a legal entity that operates based on voluntary and open participation. It is owned and controlled by its members, who can be natural persons, local authorities (including municipalities), or small enterprises. CECs prioritise community and environmental benefits, engaging in various energy-related activities to promote sustainability, local empowerment, and resilience while providing services that support their members and the local areas in which they operate. Financial profits, while not the primary focus, may be generated to sustain the community's operations and further support their objectives.

Clean Energy Package (CEP)

The Clean Energy for all Europeans Package adopted in 2019, will help to decarbonise EU's energy system in line with the European Green Deal objectives. It addresses five key dimensions.

- Energy security
- Internal energy market
- Energy efficiency
- Decarbonisation of the economy
- Fostering research, innovation and competitiveness

It includes a robust governance system to ensure effective implementation and coordination among EU member states. The key elements of this governance system include the development of integrated 10-year national energy and climate plans (NECPs) for the period of 2021-2030. They contribute to global efforts to combat climate change, reinforce the EU's leadership in climate action, and support its long-term vision of achieving carbon neutrality by 2050.

Demand Response

Demand response refers to the practice of adjusting or modifying the power consumption of an electric utility customer in order to align it more closely with the supply and demand dynamics of the electricity grid. It involves changing electricity usage patterns to respond to fluctuations in electricity supply, grid conditions, or price signals. The objective of demand response is to balance the demand for electricity with the available supply in a more efficient and cost-effective manner. By adjusting their electricity usage during peak demand periods or when there are grid constraints, customers can help alleviate strain on the grid and reduce the need for additional power generation capacity. This can lead to improved grid reliability, stability, and reduced electricity costs.

Distribution System Operator (DSO)

A Distribution System Operator (DSO), is responsible for operating and maintaining the electric power distribution system. This system delivers electricity from the high-voltage transmission grid to end users, including households, businesses, and other consumers. DSOs operate at the lower voltage levels and focus on the final stage of electricity distribution to end users within specific local areas or regions. In many countries, there are multiple DNOs/DSOs operating at a local level, serving different geographic areas. This local structure allows for more localized management, efficient operation, and effective coordination with the transmission system operator to ensure a reliable and balanced electricity supply to consumers.

Electric Vehicle (EV) Charging Station

EV charging stations are specifically designed to supply electrical power for charging plug-in electric vehicles, including various types such as electric cars, electric trucks, electric buses, neighbourhood electric vehicles, and plug-in hybrids. These stations provide a dedicated infrastructure for charging electric vehicles and are essential for supporting the widespread adoption of electric transportation.

Energy community

Energy communities play a vital role in promoting a clean energy transition and engaging citizens in the process. These communities are typically organized by groups of individuals, neighbourhoods, or local organizations who come together with the common goal of advancing renewable energy and sustainability. They provide platforms for citizens to contribute to renewable energy projects, such as collectively investing in solar panels, wind turbines, or other forms of clean energy infrastructure. This collective action not only allows individuals to benefit from clean energy themselves but also helps increase public acceptance of renewable energy projects.Energy communities are instrumental in mobilizing citizens, fostering public acceptance, and facilitating private investments, all of which contribute to a smoother and faster transition to clean energy sources while putting citizens at the forefront of the movement.

Intergenerational Learning

Intergenerational learning is a mutual exchange of knowledge, skills, values, and experiences between people of different generations: Older people are teaching younger individuals (like grandparents passing down traditions), and younger people sharing new perspectives, technology skills, or cultural trends with the older generations.

Renewable Energy Community (REC)

REC members actively participate in the development, operation, and ownership of the renewable energy projects, which can include solar, wind, biomass, or other forms of renewable energy generation. RECs empower local stakeholders and facilitate the transition to a more sustainable and decentralised energy system. By engaging and involving community members, these initiatives promote renewable energy adoption, increase public acceptance, and contribute to the local economy and environment.

Renewable Energy Sources (RES)

Renewable Energy Sources (RES) are derived from natural sources that are continuously replenished, ensuring a sustainable and virtually endless supply. These energy sources include sunlight, wind, biomass, geothermal heat, and hydropower. Unlike fossil fuels, which are finite and non-renewable, renewable energy sources have the advantage of being abundant and widely available. Renewable energy sources offer numerous benefits, including reducing greenhouse gas emissions, enhancing energy security, and fostering sustainable development. As technology advances and economies of scale improve, the costs of renewable energy generation continue to decrease, making them increasingly competitive with traditional fossil fuel-based energy sources. The transition to a renewable energy future is a key component of global efforts to combat climate change and create a more sustainable and resilient energy system.

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Local Life

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