

ENERGY TRANSITION IS IN OUR HANDS



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energytransition.academy

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INTRODUCTION

This document has been prepared in the framework of the European [ASSET project](#), funded by the H2020 programme.

The scope of the project is to create a "[community](#) (universities, companies, policy makers, associations, citizens) to identify the skill gaps and to share knowledge and competences needed for the energy transition, to efficiently train and upskill large numbers of people in diverse and interdisciplinary topics and allow everyone to contribute to the energy transition process.

If you are reading this document, it probably means that:

- you are a citizen **sensitive** to environmental issues (such as global warming), but also to social issues (such as energy poverty);
- you are a citizen **eager to learn** and be informed about energy topics;
- you are a citizen willing to **personally contribute** to the energy transition process.

And if you indeed identified yourself in at least one of the previous bullet points, you are in the right place!

First of all, in this document we will give you some very concise preliminary information regarding the **energy transition process**.



Finally, we will address the "**women and energy transition**" topic, with a focus on energy policies and on the potential contribution of Energy Communities to foster the participation of women in the energy sector.



Later on, we will provide you some concrete examples of "**energy citizenship**" and present you the field experiences of 2 **renewable energy cooperatives**, in Italy and Belgium.



Enjoy the reading!

ENERGY TRANSITION

WHAT DOES "ENERGY TRANSITION" MEAN?

The **energy transition** is a pathway towards transformation of the global energy sector from **fossil-based** to **zero-carbon** by the second half of this century (2050). ([Irena](#))

But it is also a pathway from a **centralised** energy production system, managed by a few companies, to a **decentralised** system, handled by a network of millions of energy citizens, where energy is produced at the location where it is consumed, in the amounts that are needed and at the right moment.



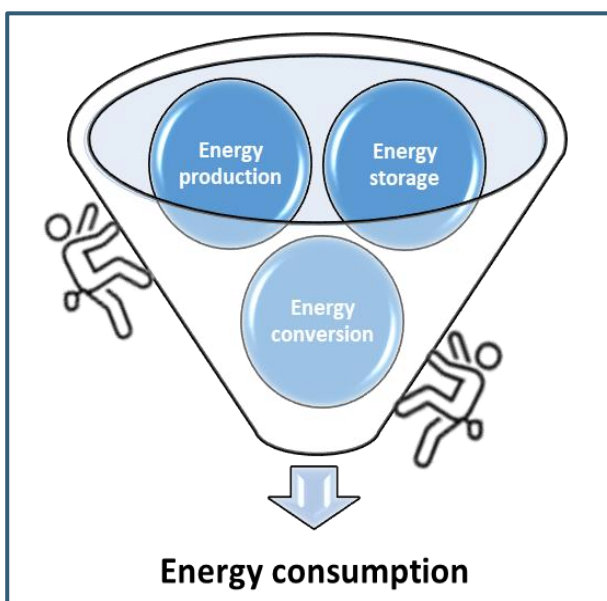
Sunset



Sunrise

Renewable energy production and **energy efficiency** measures can potentially achieve 90% of the required carbon reductions. But contributions from the **heating & cooling** sector and **transport** sector are needed too.

Energy storage (both electricity and heat) is also a key element of the energy transition process, since it allows for an effective use of all renewable energy sources, including the intermittent and non-predictable ones (e.g. PV and wind).



Finally, in order to **empower citizens** and to make the energy transition fair and inclusive, many **societal challenges** need to be tackled, from awareness raising to the improvement of education&training means and resources, that is where ASSET project aims to contribute.

Indeed, what we need is a **holistic approach**, which considers the energy system as a whole.

Unluckily, being an inflated topic, many inaccurate information or, even worse, many **"fake news"** is disseminated over the web. Thus, you should rely only on official scientific datasets and publications.

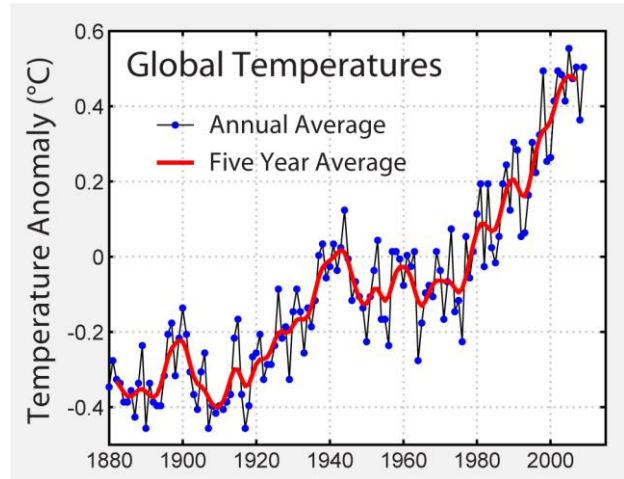
WHY WE NEED ENERGY TRANSITION?

➔ We need energy transition, since we need to **reduce energy-related CO₂ emissions** in order to **limit climate change**.

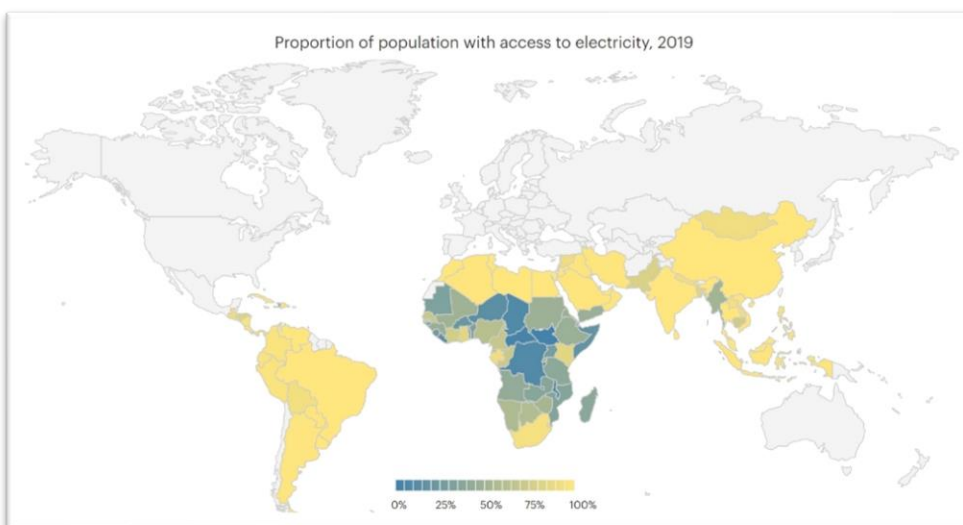
Scientific publications report many historical datasets (e.g. average air and sea water temperatures, atmospheric greenhouse gasses concentration, polar caps surface extension), which show a clear and unequivocal trend: the climate is changing and, in particular, the earth is warming.

This phenomenon has been recorded since the last decades of 1800, in conjunction with the beginning of the "industrial era". Starting from this period, the environmental impacts and in particular the so-called "**carbon footprint**" of human activities increased rapidly and continuously. And CO₂ is one of the main responsible of the "**greenhouse effect**".

The higher share of **CO₂ emissions** is linked to the use of **fossil fuels for heat and electricity production** (mainly for industrial use and residential needs). This is why we urgently need to modify our approach to energy production and consumption.



➔ But we need energy transition also to reach one of the United Nations Strategic Development Goal, the **SDG 7**, which aims to "**ensure access to affordable, reliable, sustainable and modern energy for all**" by 2030. Millions of people, still nowadays, do not have access to energy and the 75% of this population lives in sub-Saharan Africa. Thanks to some effective international and national energy policies, the number of people without access to electricity dropped constantly in the recent years (e.g. from almost 860 million in 2018 to 770 million in 2019). Nevertheless, the health and economic crisis caused by **Covid-19 pandemic**



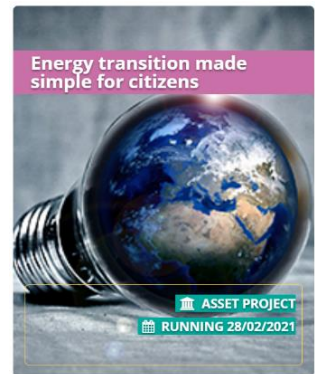
reversed this positive trend and can hinder the achievement of the goal of universal access by 2030. Extra-efforts are needed and the setup of **local renewable energy communities** can represent an effective tool to tackle this challenge.

[Cherry Blossom earliest peak since 812](#) (BBC news)



The cherry blossom season, Japan's traditional sign of spring, has peaked at the earliest date since records began 1,200 years ago. According to [data collected by Osaka University](#), the 2021 season in the city of Kyoto peaked on 26 March. "Increasingly early flowerings in recent decades demonstrate the local increase in temperature associated with global warming and urbanisation" according to a paper published in the scientific journal Biological Conservation.

If you want to learn more about Energy Transition, you can enrol in ASSET dedicated course "***Energy transition made simple for citizens***".



ENERGY CITIZENSHIP

WHO IS AN "ENERGY CITIZEN"?

Despite the lack of an overall policy and regulatory acknowledgement, since some decades we are witnessing the emergence of a **spontaneous movement of citizens** who decide to self-produce the energy they need by employing **renewable energy sources**, thus evolving from "**consumers**" to "**prosumers**" (*producer+consumer*). Prosumers act individually or join within a "community", to benefit from synergies and to share both costs and energy.

But who is an "**energy citizen**"? Surfing on the web and looking for a general definition, we realized that it is not indeed a univocally acknowledged concept. In the U.S. there is even a group called "Energy Citizens" which actually represents the oil and coal lobby and fight against the implementation of climate change legislation!

However, the recently finalized [Clean Energy for All Europeans' package](#) (2019), and in particular the [recast renewables directive](#) (REDII), explicitly acknowledges both "**Prosumers**" and "**Renewable Energy Communities**" as key players of the energy system and explicitly encourage citizens to take the energy management in their hands.



We can thus define an "**energy citizen**" as a citizen:

- who is **aware** of the global energy issues;
- who is **willing** to personally contribute to the energy transition process;
- who **decide**, individually or jointly with other citizens, to become a prosumer, to self-produce, self-store and self-consume his/her own renewable energy.

HOW CAN YOU CONTRIBUTE TO ENERGY TRANSITION?

How can you personally contribute to energy transition and become an "**energy citizen**"?

Many people think that energy transition is such a long, complex and huge process that their contribution is not meaningful or relevant in the overall process. But this is not true!

Look at this picture: the space between the leaves is too big for each single ant, but if many ants contribute to the same challenge, they are able to build a bridge and overcome the obstacle!



You can contribute to energy transition at two different levels:

- you can **act individually**, by changing your energy behaviour and becoming a prosumer;
- you can **join a Renewable Energy Community (REC)**.

These choices are of course **synergical** and positively influence each other, since being part of a REC often encourage people to adopt also behavioural changes and, in the contrary, people who spontaneously choose to modify their energy consumptions are probably in favour to join an energy community, if they have this opportunity.

INDIVIDUAL ACTIONS: BEHAVIOURAL CHANGES & PROSUMERS

When speaking about behavioural changes, the first action that everybody can implement in daily life is **to reduce his/her energy consumptions**.

This can be done:

- by reducing or **avoiding waste of energy** (e.g. switching off the lights in empty rooms, lowering thermostat's temperature when no one is home, run the dishwasher or the washing machines only at full load);
- by **implementing energy efficiency measures** (e.g. replacing lightbulbs with LEDs, replacing old appliances with more efficient ones, investing in more structural interventions in houses/building renovation).



By adopting at least some of these measures, you will not only save energy, but also save money!

A second step you can take is to **use energy produced from renewable sources**.

Here you have 2 options:

- **to self-produce you own renewable energy and become a prosumer**, for example by installing photovoltaic panels on your roof (in case your roof's surface and exposure are suitable for it!)
- **to purchase your energy from a green energy supplier** (in the liberalized energy market you can easily find many different "green offers" and you can choose a local supplier or a supplier who can guarantee the respect of special environmental, social and ethical conditions).



Furthermore, you can think to modify your transport mode, by shifting to **more sustainable and/or electric vehicles** (e.g. bicycles, e-cars) and by preferring public transport whenever possible.

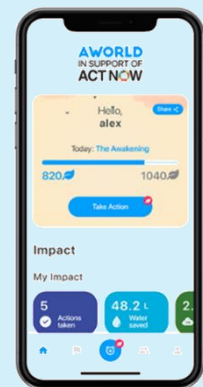


Last but not least, you can also select what you buy, **choosing products with lower carbon footprint**, like local products (especially for food) or sustainable products (e.g. circular economy products or products made with recycled materials).

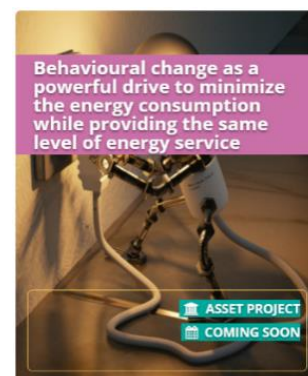


AWORLD The Sustainability Platform

Do you want to calculate the impact of your daily activities? Do you want to receive tips to improve the sustainability of your lifestyle? Do you want to engage in sustainability challenges with friends or colleagues? AWorld has been selected as the official platform to support [ACTNOW](#) United Nations campaign for individual action on climate change and sustainability. Download the app!



Do you want to learn more about Behavioural changes? You can enroll in the ASSET dedicated course "***Behavioural change as a powerful drive to minimize the energy consumption while providing the same level of energy service***".



JOINING A RENEWABLE ENERGY COMMUNITY

A Renewable Citizens Energy Community can be (informally) defined as a legal entity which:

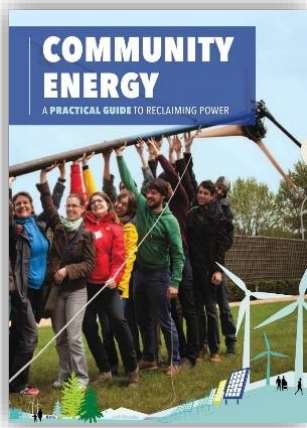
- is based on **open** and **voluntary** participation;
- is **controlled by its members** or shareholders;
- primarily aims to provide **environmental, economic or social community benefits** to its members or to the local area/population where it operates, rather than to generate financial profits;
- may **produce, distribute, sell, consume and store renewable energy** and provide energy services to its members.



Members of an Energy Community can be **individual citizens, small and medium enterprises** and **local authorities** (e.g. municipalities). This depends on the national legislation in force.

Joining a Renewable Energy Community allows every citizen (even the ones who do not have the possibility to install their own renewable plants) to become a **prosumer**, to invest one's money (according to one's means) in renewable energy generation, to take part in the decision-making process regarding how to produce energy and where to install the plants.

This is what we call "**energy democracy**"!



And in case there isn't (yet) a Renewable Energy Community nearby?

You can promote and support the **set-up of a new one!**

How to make it happen? [Friends of the Earth](#), [REScoop.eu](#) and [Energy Cities](#) prepared a **practical guidebook** to support you step by step, with instructions, tips, success stories, advice about what technology to use and guidance on overcoming any barriers you might face, with technical expertise, capacity building and communication activities. Have a look here: [Starters - REScoop.eu](#).

[REScoop.eu](#)

REScoop.eu is the European federation of citizen energy cooperatives, representing over 1900 cooperatives and their 1,25 million citizens. Founded

in 2013 and building on several decades of experience with energy communities, REScoop.eu ensures that the voices of citizens are heard at the EU-level and support energy communities with technical expertise, capacity building and communication activities.

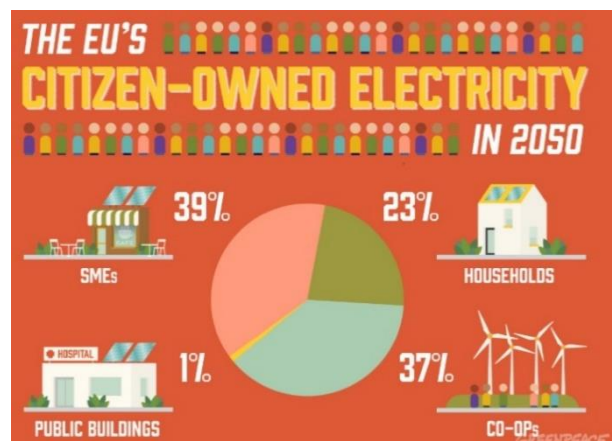


THE POTENTIAL OF ENERGY CITIZENS IN EUROPE

The potential for European households (individually or via energy collectives), public entities and small enterprises to become *energy citizens* and to actively contribute to the future energy system is significant.

As of the end of the 1990s, in Denmark Renewable Energy Communities owned up to 80% of the installed wind capacity, while in Germany, at the end of 2017, around 42 % of installed capacity was owned by citizens in one form or another.

According to a research performed by CE Delft in 2016 ("[The potential of energy citizens in the European Union](#)"), in Europe by 2050 there could be 264 million of energy citizens and around 60% of the electricity could be produced by plants owned by households and energy communities.



WHICH BENEFITS DO YOU GET?

Changing your energy behaviour, choosing to become a prosumer and joining a Renewable Energy Community require some efforts: to gather information, to modify your habits, to invest money and time and to commit yourself.

Nevertheless, you can get many more benefits in return.

Economic benefits



If you save energy and/or consume your own energy, you also decrease your energy bill and save money. This is particularly relevant for vulnerable consumers. If you self-produce more energy than what is necessary to cover your consumptions, you can also share or sell it, earning money from it. Finally, Energy Communities create new job opportunities at local level and you could find a new employment.

Environmental benefits



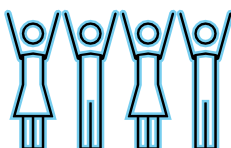
Replacing fossil fuels with renewable energy sources is beneficial for the environment, since renewable power plants do not emit greenhouse gasses (biomass are considered carbon neutral, since the CO₂ emitted during their combustion has been absorbed from the atmosphere during their lifecycle) and do not require long distance and hazardous fuels transportation. Additionally, by realizing your own (individual or collective) plants, you can pay attention to any potential environmental impact and mitigate it (e.g. modifying the plant's design or the location).

Health and life quality improvement



Renewable power plants do not emit air pollutants (like benzene), which are dangerous for human health (e.g. carcinogenic). Additionally, if you commit to change your energy behaviour, you will probably implement more healthy habits (like walking instead of driving your car for short distance transfers).

Social benefits



By joining an Energy Community you will build and/or strengthen the relationships with other people in your neighbourhood or territory, you will start new collaborations with other similar activists' groups, you will learn new competences which could be useful both in your everyday life or for your work. Additionally, Energy Communities are usually more inclusive and open to diversity, which could foster the participation of women.

FIELD EXPERIENCES

In this section we are going to present 2 different field experiences promoted and implemented by two renewable energy cooperatives: **ènostra coop** in Italy and **Ecopower** in Belgium.

The two selected experiences differ both in the **aims** of the initiative and in the **scale** of implementation:

- the experience of **ènostra** is related to the strategies that can be implemented to actively involve the members of a national cooperative and setup Local Groups, which can promote initiatives in their own territories, thus magnifying the positive impacts of being members of a renewable energy cooperative;
- the experience of **Ecopower** is referred to a research project focused on maximising the solar energy production in a specific urban neighbourhood involving all the population in order to share costs and benefits.

For each of the 2 experiences we are going to define the **aim**, to describe the **activities** and to summarize the main **outcomes**.

THE EXPERIENCE OF ÈNOSTRA COOP IN ITALY

Ènostra coop with over **7.600 members**, is the biggest Italian renewable energy cooperative (excluding historical traditional cooperatives): develops collective power plants (PV, wind, hydro) and delivers renewable energy to its members (households, SMEs and not for profit organisations, who deserve special tariffs).



The cooperative is a **collective enterprise**, grounded on the active involvement of its members and on the adoption of a bottom-up approach.

Ènostra was founded in 2014 and in 2015 became member of the **REScoop.eu Federation**.

In 2020, ènostra delivered nearly **21 GWh of renewable electricity**. At least 14 % of this electricity is generated by power plants owned by ènostra and other small operators; the rest is purchased on the market and certified with Guarantees of Origin.

To make sure that the energy sold to its members is both **sustainable and ethical**, ènostra developed a "sustainability matrix" assessment tool, to select power plants and energy wholesalers. Among the exclusion criteria, the tool assesses, for instance, that a photovoltaic system does not subtract land for agricultural use or that the producer is not involved in fossil power production, nor has economic connections or interests on fossil fuels, thus encouraging a divestment approach, avoiding bare green washing practices and supporting renewable energy production with particular favour for collective and socially accepted plants.

Given its nature and specific profile, in a liberalized market characterized by aggressive and unscrupulous sellers, ènostra has the privilege of being perceived as **trustworthy, reliable, transparent** and close to its members and customers.

Ènostra aims to promote an **overall change in the energy system** and in particular aims to:

- **increase the Renewable Energy Source (RES) share in the national energy mix**, by developing new collective renewable plants, by promoting the self-consumption from local RES plants and by fostering the increase in the renewable energy demand;
- **reduce the overall energy consumption and the waste of energy**, by offering energy auditing services, promoting the implementation of energy efficiency measures and fostering the adoption of behavioural changes;
- **foster sustainable mobility**, by promoting electric mobility and offering special tariffs for electric vehicles charging stations;
- **raise awareness on the energy transition**, by organizing communication campaigns and collaborating with a network of media partners;
- **build a new democratic, fair and inclusive energy model**, by promoting and supporting the creation of local renewable energy communities and by offering targeted training activities for vulnerable consumers to tackle energy poverty.

COMMUNITY OF PRACTICE AND LOCAL GROUPS

Ènostra is a cooperative with **national coverage** and thus its members are spread all over Italy. Due to the high number of members (over 7.600) and the lack of direct connection with a specific territory and with a reference community, the active involvement of members in the cooperative activities, besides the annual general Assembly and some specific events, is not an easy task.

Nevertheless, in the last years an increasing number of **pro-active members** started to self-organize local initiatives to increase the cooperative visibility, engage more members and join forces to promote local projects.



These members' positive attitude, combined with the Cooperative willingness to support and coordinate these initiatives, led to organize **a set of online meetings** between the cooperative staff and the more active members.

The **aims** of this path were:

➔ to share experiences: **what does it mean to be an active member?**



➔ to discuss on members needs and expectations:

what can the cooperative do for the active members?



➔ to discuss on members availability and resources to be shared:

what can active members do for the cooperative?



The initiative has been designed and developed with the support of some experts in social research and social processes management ([CODICI Ricerca e Intervento](#)).

The experience

The idea was to start building a [Community of practice](#) (CoP) and to outline an accompanying path towards the setup of **Local Groups** of active members.

A **Community of practice** is a group of people who "share a concern or a passion for something they do and learn how to do it better as they interact regularly".

It is through the process of **sharing information and experiences** with the group that members learn from each other and have an opportunity to **develop personally and professionally**.

A **preliminary survey** was submitted to all the cooperative members to identify those willing to take part in this process.

After an **introductory meeting**, where the aim and the methodology of the initiative were presented to the participants, a set of 3 specific meetings were organized to discuss the following aspects:

- 1 **How to attract new members:** plenary discussion and showcase of good practices promoted at individual level;
- 2 **How to gather and engage groups of members at local level:** groups discussion aggregating members from the same areas and final plenary discussion to report the outcomes of each group;
- 3 **How to activate in local contexts to promote a positive energy culture:** plenary discussion and showcase of good practices promoted by local associations/groups.

During each event some members' experiences were presented, discussed and the following aspects were analysed: how the initiative was organized? which **resources** were employed? which **criticisms** were faced? which positive points and new **opportunities** emerged during the action? what can be **improved**? Can this experience be interesting for other local groups and **replicable** in different contexts?

Following these 3 meetings, an additional meeting has been organized for some little groups of active members located in the same area, where the "density" of active members was considered sufficient to enable the "**start-up**" of an **ènostra Local Group** (e.g. Rome, Florence, Milan). This was intended as the launch of follow-up service that the Cooperative offers to each rising Local Group and includes periodic ad-hoc meetings to ensure the **sustainability** of the local groups.

1 In the **1st meeting**, two members presented their **individual initiatives** called "**cenetta bolletta**" (which sounds like "dinner & energy bill"), which consist in a special dinner organized to present ènostra to some potentially interested persons and to persuade them to join the cooperative.



Some **key advice** for other members to replicate the initiative are:

- to identify sensitive friends or colleagues among each one's network of contact;
- to collect all the necessary information about the procedure to become a member of the cooperative and to change the energy provider;
- to be prepared to explain the meaning of the different cost items within the energy bill;
- to explain that the choice to join a renewable energy cooperative and select it as its own energy provider is more a "value" choice rather than an "economic" choice.

2 In the **2nd meeting**, it was discussed how to **gather and engage** the members living in the same area. The main request emerged by the active members was to have the possibility to **reach** the other members located nearby, for example by appointing members as **local contact-points**. Some **initiatives** identified as suitable to create links and **start a collaboration** among the cooperative members at local level were also discussed:

- to organize a "**andle-lit**" **happy hour or dinner** within the annual initiative "[M'illumino di meno](#)", a national campaign launched in 2005 by the Italian public radio station Radio 2 (every year the event is associated with a specific topic linked to sustainability and energy efficiency themes);
- to organize **cultural events** to raise awareness about the energy transition topics and discuss specific themes (e.g. sustainable mobility, circular economy);
- to promote and support the **set-up of local Renewable Energy Communities**;
- to create or strengthen the **links with other local organizations**, for example signing agreements to offer a "welcome" discount on the energy bill for members of the other associations who decide to join the cooperative;
- to promote and support the **installation of new renewable power plants** (e.g. PV panels) in order to increase the cooperative's available capacity.



3 In the **3rd meeting** it was discussed which potential **initiatives** can be promoted by ènostra local groups to spread a **positive culture**, related to energy and **sustainability** in general, in their territories and local communities. Two different initiatives developed by local associations/groups were presented:

- **reforestation project ([Piantiamola](#))**: this project has been implemented by a local group of environmental activists who joined to fight the soil consumption and the excessive urbanization of their territory. After a severe meteorological event, which caused several damages in the area and showed the territory's vulnerability and the climate changes effects, the reforestation approach was identified as the most effective to contrast these effects. The project allowed for the rehabilitation of the degraded areas, the increase of biodiversity and in particular the increase of autochthon plant species, the implementation of awareness raising activities for citizens and schools and the engagement of new activists.
- **communication campaign on social media channels** (Instagram and Facebook): the initiative (Ci Siamo!, which sounds like "here we are") has been launched by some people already involved in local Ethical Purchasing groups (called GAS – [Gruppi di Acquisto Solidale](#)). The promoters selected some relevant topics (e.g. plastic use reduction, sustainable mobility) and used similar campaigns promoted in other EU countries as a model. The social media pages were launched in 2020 and in a few months gathered over 4.000 followers. These kinds of initiatives are more effective when combined with "traditional" face-to-face activities, which usually guarantee a stronger engagement of the people involved. Nevertheless, they allow



to easily reach and inform many people (especially young generations) with low efforts and costs, can represent a first contact-point for people who successively join the promoters group, allow to easily collaborate and exchange information with other similar initiatives spread all over the world (even in pandemic times!) and, in the long run, can anyway support in building a virtual community.

The outcomes

Overall, some key observations and suggestions emerged from the experience of ènostra coop:

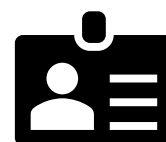
- ✓ A **community of practice** is a valuable "tool" to strengthen the relationships among the (active) members of a cooperative and support the creation of a shared identity, since members can exchange information, tips, best practices, ask questions and provide support to each other;
- ✓ **Time availability** is often the key (limiting) resource for members who are willing to participate actively in the life of the cooperative and thus the role of "active member" should be kept as flexible as possible, to allow everyone to participate even occasionally;
- ✓ **The creation of a network** of particularly sensitive and active people allows to create synergies and join forces with other initiatives focused on topics connected with the energy transition (e.g. circular economy, sustainability, energy poverty);
- ✓ **The historic moment**, and in particular **the pandemic situation** we are going through, are favourable for the rise and growth of environmental initiatives linked with social themes, since they contribute to awareness raising and to the increase of citizens sensitivity. The lockdown experiences pushed in particular the "remote" and online initiatives, but people are now (even more) willing to meet in person and organize events and local initiatives.
- ✓ **The slogan "Think globally, act locally"** can well summarize the approach needed to tackle the energy transition challenges within the cooperative framework, since the cooperative gives the overall goals and strategies, while the active members can act locally to implement them.

With reference to each specific question raised at the beginning of the experience, the following answers were given:

➔ **What does it mean to be an active member?**

An "active member" is:

- a member who **commits** himself/herself, even occasionally, to act personally to foster the energy transition process;
- a member who **feels the need**, even with different sensibility and different approaches, to promote an energy transition culture;
- a member who often already **actively participates** as a volunteer in other similar initiatives at national or local scale due to his/her special sensitivity to environmental and social themes (e.g. environmental associations, ethical purchasing groups, spontaneous local movements);
- a member who is **available and willing** to share his/her own resources (time, competencies, money) for the cooperative aims according to his/her means;



Anyway, it emerged clearly that **there isn't a univocal and homogeneous profile** of the "active member", since the cooperative is quite multifaced and gathers many different members, with different experiences, different professional profiles and coming from different territories.

Diversity and inclusivity are key features of the rising active members community.

→ What active members can do to support the cooperative?

- Make the cooperative known to the large public by attending events and presenting the cooperative (e.g. conferences, local fairs, events);
- Increase the number of cooperative members, by organizing personal or local initiatives to present the cooperative to potentially interested and sensitive people (word of mouth effect);
- Raise awareness about the energy transition themes (dissemination) and support projects and initiatives linked to them (ambassador);
- Create links and promote collaborations with other environmental and social sensitive organizations.



→ What the cooperative can do for the active members?

- Give feedback on the effectiveness of members' initiatives (e.g. number of new members or new contracts);
- Support the communication activity by creating and distributing a "tool kit" which includes the following information: how to present the Cooperative (history, values, members), how to read and explain the energy bill cost items; how to become a member and change the energy provider (video-tutorial);
- Create an ad-hoc section for active members' initiatives on the cooperative's website to give them more visibility and to gather all the communication material;
- Organize training initiatives on both some hot topics of the energy sector (e.g. Energy Communities, new technologies) and some practical topics (e.g. the advantages to join *ènostra coop*, the special conditions reserved to no-profit associations);
- Reserve more attention to some members' profiles specificity (e.g. female members, special social profiles not adequately represented);
- Put in touch the active members located in the same geographical area to ease the creation of Local Groups;
- Coordinate the active members initiatives (e.g. by setting a recurring date), but at the same time leave them some "freedom" to act;



THE EXPERIENCE OF ECOPOWER IN BELGIUM



[Ecopower cv](#) was founded in 1992 as a cooperative under Belgian law. The organisation has three main goals: invest in **renewable energy**, supply 100% **green electricity** to our cooperative members, promote a **rational use of energy** and the cooperative business model in general.

By the end of 2020 Ecopower reached over **60.000 members** and **50.000 customers**, which correspond to about 1,5% of the Flemish household market.

To invest in renewable energy projects, Ecopower gathers financial resources from cooperative members (shareholders).

By the end of 2020, Ecopower reached the threshold of **54 MW of installed capacity**, of which 47 MW of wind turbines, some little hydropower installations and 7 MW of decentralised photovoltaic plants all across Flanders. The overall electricity production of these installations was about **106 million kWh**. Ecopower owns also a factory that produces **wood pellets** for residential heating (production capacity: 5 tonnes/hour). Very recently Ecopower invested for the first time in a **heat network**, which supplies rest heat from an industrial player to consumers of a new residential area.

In order to supply 100% green electricity to its cooperative members, in 2003 Ecopower received a permit to sell electricity on the Flemish market. Citizens who want to become Ecopower clients have to buy at least one share in the cooperative.

Ecopower does not make a profit on its energy supply activities, since it is considered as a service to its members. In the last years, the total energy supply was covered by the cooperative installations production.

Ecopower is a Renewable Energy Sources Cooperative (**REScoop**), that is an autonomous organisation where people unite voluntarily in order to produce, distribute or supply renewable energy or engage in energy efficiency. REScoops respect 7 basic principles defined by the International Cooperative Alliance (ICA):

1. **Voluntary** and **open** membership;
2. **Democratic** control by members;
3. Economic participation;
4. **Autonomy** and independence;
5. **Education, training** and information;
6. **Cooperation** amongst cooperatives;
7. **Concern for community**.



Ecopower is a full member (and vice-president) of REScoop Vlaanderen and REScoop.be, the Flemish and the Belgian Federation of groups and cooperatives of citizens for Renewable Energy. Ecopower is also one of the **founding members of REScoop.eu**, the European federation of groups and cooperatives of citizens for renewable energy, which is in turn an associate member of Cooperatives Europe.

THE "BUURZAME STROOM" PROJECT



How can we generate as much solar energy as possible at the neighbourhood level, allow everyone in the neighbourhood to enjoy the proceeds and at the same time keep the electricity grid stable?

That was the key question of the "Buurzame Stroom", a **research** project that ran from March **2018** to January **2020** in the Sint-Amandsberg-Dampoort neighbourhood of **Ghent** (Flanders, Belgium). The name "buurzame" is a mix of neighbour (buur) and sustainable (duurzaam).

The project involved collaboration between citizen cooperative EnerGent, civil society organisation Samenlevingsopbouw, the City of Ghent (and Energiecentrale), grid operator Fluvius, citizen cooperative and energy supplier Ecopower, Ghent University and citizen cooperative Partago.

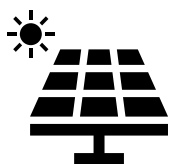
The **overall project's aim** was to gain experience with large-scale **socially-focused solar energy projects**, identify thresholds and deliver recommendations to policymakers.



They had **3 main specific objectives**:

1. to generate **as much solar energy as possible** on roofs in the neighbourhood;
2. to involve **vulnerable consumers and families** and residents of social housing;
3. to analyse **technical solutions** for the electricity grid of the future, where local production, consumption and storage play a central role.

The experience



Objective 1 - AS MUCH AS POSSIBLE SOLAR PANELS

A first goal was to generate as much solar power as possible on nearby roofs.

Residents were informed about solar panels during neighbourhood **meetings** and events, through **flyers**, **websites** and information sessions. They were made an offer to participate in a **group purchase**, to get troubleshooting upon installation and, if required, to get an **energy loan**. Thanks to the project, solar panels were installed on 102 houses of families, 2 apartment buildings, 8 rental houses, 2 schools and 8 buildings of companies and organisations. 11 out of 120 businesses located in the project area decided to have solar panels installed: 3 companies made the investment themselves and 8 companies made use of a third-party funding system. A total of 2,535 solar panels were installed for an **overall capacity of 720 kWp**.



Objective 2 - ONE OFFER FOR VULNERABLE FAMILIES

The sun shines for everyone and this should apply also to the benefits of solar energy. Therefore, the project consortium wanted to reach also vulnerable families, such as families with limited resources and residents of social housing. For these groups, Buurzame Stroom developed an **intensive guidance** and **tailor-made offer**. Since the principal barrier to the installation of solar panels for families with less financial means is a lack of funding for the investment, an alternative financing scheme has been developed, based on **loans with maturities above 10 years**. In this case, energy bill savings often exceed the monthly instalments. 23 families who participated in “Buurzame Stroom” funded their solar panels through the Flemish energy loan.

An additional barrier for the installation of solar panels were the unsuitable conditions of many vulnerable families' buildings roofs (uninsulated or derelict roofs). In these cases, a **combination of solar panels installation and roof renovation** and isolation was tested.



Objective 3 - TECHNICAL SOLUTIONS ELECTRICITY GRID OF THE FUTURE

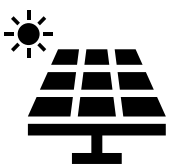
A third aspect of “Buurzame Stroom” was the development of the electricity grid of the future, where **local production, consumption** and **storage** play a central role. Ghent University investigated the usefulness of orienting solar panels on flat roofs in an east-west direction and the inverters' dimensioning in relation to the solar panel capacity, in order to increase profitability. The Buurzame Stroom project was successively extended with other research projects: thanks to [WiseGRID](#) and the Life [BE REEL!](#), 100 smart meters have been installed in the neighbourhood (WiseGRID investigates to what extent district residents can become more independent from the grid together) and within [cVPP](#) (community Virtual Power Plant) 14 batteries were digitally interconnected in the neighbourhood (with the aim to test whether the local electricity grid can be relieved by smart management and control systems).

The outcomes

Overall, some key suggestions emerged from the Buurzame Stroom project, which are:

- bundle **information, troubleshooting** and **financing** in a single offer;
- **long-term loans** turned out to be a suitable and sustainable financing scheme.

With reference to each specific objective, the following conclusions were drawn:



Objective 1:

The group with the greatest potential for quick installation of more solar panels is **families that own a house** with a well-insulated roof.

In case of **rental homes** there is the problem that the landlord makes the investment while the tenant reaps the benefits of a lower electricity bill. In this case, a modified agreement between landlord and tenant has been experimented, where the tenant handed over part of the profit to the landlord in the form of a slightly higher rent. This was a win-win solution, but required considerable extra efforts in terms of communication and administration compared to the results (only 50 solar panels on 8 rental homes).

In case the **tenants** wish to invest themselves and where the installation of solar panels on the roof of their rental house presents difficulties, the "solar sharing" solution can be considered: tenants invest in solar panels on a nearby roof, while the proceeds are deducted from their electricity consumption.

Developing a manageable offer for **blocks of flats** turned out to be problematic, since connecting the solar panels on the communal roof to the occupants' individual electricity meters was very complex both from a legal and technical perspective. It needs to be checked if the national regulatory framework allows the distributor to consider each flat as a single "producer and consumer". Additionally, it would be helpful if occupants could keep their energy suppliers.

Buildings with large roofs have considerable potential for solar panels and represent a cost-efficient solution, since several solar panels can be installed in one go. However, the financially optimal PV installation often turned out to be considerably smaller than the available roof surface, since such installations are usually profitable only if a sufficiently large part of the electricity generated is consumed on site and little electricity needs to be injected into the grid. For this reason, schools are less suitable at present, since solar panels mostly generate electricity in summer, when energy consumption in most schools is very low. Nevertheless, there are opportunities for the development of a financially interesting framework concerning solar sharing or energy communities, in which families without a roof of their own are given the opportunity to invest in solar panels in the neighbourhood. There are also interesting opportunities in the exchange of electricity between companies located in the same area.



Objective 2:

Crucial to the success of **public loans** is smooth handling with as **few procedures and intermediaries** as possible. Due to the short term to maturity and high interest rates, the offer of private banks for solar panel financing is not suitable for this target group.

A **combination of solar panels installation and roof renovation** and isolation often turned out to be profitable, since the return generated by the solar panels contributes to the repayment of the investment in insulation and renovation. In addition, applicants are more likely to receive subsidies if they combine different renovation works.

In case of highly vulnerable house-owners, a simple system of **free loans or solar panels rental**, combined with **a fund providing the investment** amount and **free assistance** for total renovation, represent a sustainable solution, since the direct return from solar energy production can balance the costs.

In case of **social housing**, the investment cost for the solar panel installation done by the building owner can be recovered through a slight increase in the rental fees. The availability of a tool which employs a conservative approach and considers the actual consumption and saving figures allow to obtain a net cost reduction for tenants and at the same time an acceptable cost recovery period for the landlords.



Objective 3:

Within this context, Ghent University investigated the usefulness of orienting solar panels on flat roofs in an east-west direction to increase profitability, which turned out to be generally not advisable. On the other side, a strong under-dimensioning of the inverter's power in relation to the solar panel capacity proved to be useful as well in the current situation of tariffs as in the future situation.

Regarding the other additional projects ([WISEGRID](#), [BE REEL!](#), [cVPP](#)) is too early to draw conclusions. Keep checking their website for updates!



WOMEN & ENERGY TRANSITION

The relationship between **women** and **energy** has many sociological, cultural and economic implications.

And overall, it is widely acknowledged that **diversity** and **inclusivity** bring value added in technical, economic and social contexts.

To go deeper into this topic, we started reading two recent researches performed by [GWNET](#) (Global Women's Network for the Energy Transition) and [Nextenergyconsumer](#).

WHICH IS THE ROLE OF WOMEN IN THE ENERGY SECTOR?

Starting from **education**, we can see that women are still underrepresented in STEM studies (11% of women graduating vs 22% men), probably the most sought-after study paths in the coming years.

Going down to **job sector**, as clearly emerges from the statistics published by different international organizations, the percentage of women employed in the energy sector at EU level is still very low (22% in comparison to 78% of men). In the renewable energy field, the ratio women/men is a bit higher (32% of women in comparison with 68% of men) but still unbalanced, and anyway women hold less qualified (e.g. administrative positions with limited decision-making power) and less paid positions compared to men's positions. Indeed, only 7% of women are sitting at boards in the energy sector (compared to 21% in finance sector).

Finally, regarding **policy making**, we see that in 2018 women represented only 21.6% of EU government ministers dealing with the environment, climate change, energy and transport policies.



On the other hand, it is widely acknowledged that **women suffer the most from climate warming and energy poverty** worldwide and around 80% of people displaced by climate change are women and girls.

Additionally, **women have a different relationship with energy than men**: they manage the majority of domestic work (with all the related implications regarding energy use at home) and they usually have also different consumption patterns and different transportation habits.

DO ENERGY AND CLIMATE POLICIES ADDRESS GENDER ISSUES?

A wider involvement of women in the energy sector is desirable from different perspectives: to increase **women's job opportunities**, to **fight energy poverty**, to build a **more inclusive social and economic model**.

The [European Gender Strategy](#) adopted in 2020, acknowledges that "addressing the gender dimension can have a key role in leveraging the full potential of [climate] policies."

Nevertheless, the **EU energy and climate policies** currently in force remain mostly **gender-blind**, meaning that they don't acknowledge those differences and still tend to see "consumers" or "households" as a single block, that shares the same interests and priorities. Issues related to gender, ethnicity, age, physical or mental disability, class or socio-professional category are overlooked and disregarded.

For example, neither the [Energy Union](#) nor the [Clean Energy for All package](#) or the [Green Deal](#) refer to gender issues or even mention terms like gender or women, despite they all refer to UN [Sustainable Development Goals](#) and put consumers at the centre of the energy markets.

And just 7 [National Energy and Climate Plans](#), describing Member States' contributions towards the binding [EU energy-climate targets](#), mention a gender-inclusive approach or the difference of men and women's perspectives in the energy and climate transitions.



Only the [EU Climate Pact](#), the most recent European Commission's initiative to involve the population in actions for the environment, aims to "pull-down barriers to climate action including the barriers resulting from personal characteristics, such as **gender, age and disabilities**".

Do you want to know more on how culture and diversity shapes and impacts engineering, and in particular the design of technology -based products and services? You can enroll in ASSET's dedicated course "[Innovation and Diversity in engineering](#)".



ARE ENERGY COMMUNITIES MORE INCLUSIVE?

Besides reading reports and literature data, we decided to go on the field and check if energy communities are more sensitive to gender issues. **Ènostra** and **Ecopower** cooperatives, who are both partners in the ASSET consortium, performed a **survey** among their members.

The questionnaire has been elaborated by two researchers of the Department of Social and Political Sciences at Università degli Studi di Milano (Prof. Cinzia Meraviglia and PhD student Aurore Dudka), who were already analysing the **specific dynamics of the women participation** in some renewable energy cooperatives in Europe.

Indeed, energy communities/cooperatives are built on the social and political concepts of **energy democracy** and **energy justice** and, in theory, should represent a model of active participation and **inclusivity** for each citizen choosing to join these collective initiatives. This is why energy communities are considered as an opportunity to foster women's participation in a field where they have been traditionally excluded (Pearl and Martinez 2015).

However, this belief is quite optimistic: from two pilot studies concerning European cooperatives emerged that women are still largely underrepresented (Fraune 2015; Łapniewska 2019). This raised some questions (Clancy et.al 2017; Fraune 2015; Łapniewska 2019; Lieu et.al 2020) as:



Why are women still underrepresented? What hinders their representation? Why is it important having women's perspective in energy transition? How can we foster their participation?

The case study of ènostra (Italy)



Premises:

- Research on the Italian situation as regards to energy communities is scarce
- Italy is one of the most gender-stereotyped countries in the European Union and can exacerbate the difficulties for women (Special Eurobarometer 465 2017)

The sample characteristics:

- It is the biggest energy community in Italy (at 31/12/2020 it had 7107 physical shareholders, where 60% are men and 40% are women);
- It is one of the few cooperatives in Europe led by a woman and the only one in Italy;
- Around 300 people answered to the online questionnaire.

The results:

- Women became shareholders since the early days of ènostra and continued joining the cooperative along the years;
- Women are more often than men both financing members ("socio sovventore") and cooperative members ("socio cooperatore"), however women tend to invest lower amounts;

- Respondents are rather highly educated, with men holding a tertiary degree more often than women; additionally, men are more likely than women to have taken energy-related courses in their educational careers;
- The cooperative is a friendly environment with people respectful in their exchanges: both men and women feel comfortable in expressing their own views during interactions with other members; however, women think that men tend still to take the floor during the meetings, while men think they don't...;
- A lot of women occupy technical functions in the cooperative and members (either men or women) are not surprised to have to deal with women on technical energy issues;
- When considering managerial issues in the cooperative (investment decisions and management work), women and men show the same level of self-efficacy; however, when technical issues are at stake, women say they are less able than men to understand them;
- Men and women show a different pattern of participation in ènostra activities: on one side, women tend to attend meetings less often than men, on the other side, women are more likely to attend courses to improve their technical skills on renewable energy, while men are more likely to engage in activities to make the cooperative known and to attend seminars;
- Women think (more often than men) that having a woman as the cooperative president helps to attract more women as investors and is a factor that fosters their trust in the cooperative;
- Additionally, having a female president acts as a role model, since it seems to be connected to women's views on women in the energy field, especially concerning the role they could play and jobs with responsibility they could get; this is true also for men, even if to a lesser extent;
- Finally, women think (more often than men) that having women in the executive board of the cooperative brings less competition and more collaboration.

Conclusions:

- the energy world – as far as ènostra is concerned – is gender-neutral on many respects (motivation for becoming members, exchanging views);
- nevertheless, gender (self)stereotyping is to some extent present, especially regarding women' trust on their competencies and the potential of women's investments;
- Ènostra proves to be a women-friendly environment, and as such is a role model in itself for bringing more women in the energy field, thus increasing its inclusiveness and democracy.



Girl power
The role of women in
the energy transition
24 MARCH 2021 | 09:30 - 13:00



GIRL POWER: the role of women in the energy transition

The ASSET project organized an event (March 2021) to discuss the role of women in the energy transition from different points of view: are EU energy policies sufficiently inclusive? Is it appropriate to address gender consideration from a numerical point of view? Do energy communities represent a virtuous model? And talking about education and training, which are the limitations, and which are the opportunities? If you missed it, you can watch the recording of the event and download the speakers presentations.

MORE INFORMATION

Do you want to read and learn more about the topics we discussed so far?

Here you have the references of some useful **publications** and **websites**:

- ❖ [Energy transition made simple for citizens \(europeanmoocs.eu\)](http://europeanmoocs.eu)
- ❖ [Intergovernmental Panel on Climate change](#)
- ❖ [SDG7: Data and Projections – Analysis - IEA](#)
- ❖ [Renewable Capacity Statistics 2021 \(irena.org\)](http://irena.org)
- ❖ [The potential of energy citizens in the European Union](#)
- ❖ [Community Energy: A practical guide to reclaiming power - summaries on the role of local authorities - REScoop](#)
- ❖ [We the Power | The Future of Energy is Community-Owned](#)

Are you a **teacher** or do you want to explain energy transition to your **children**?

- ❖ [Home | NASA Climate Kids](#)

LOOKING FOR SUPPORT?

Are you willing to become a **prosumer** and to set-up your own **Renewable Energy Community**, but you need some support or specific information regarding the legislation, the potential subsidies and the technical requirements?

You can contact the following organizations or project teams:

Organizations

- REScoop.eu
- [Global Women's Network for the Energy Transition \(GWNET\)](#)

Projects

- [COME RES](#)
- [DECIDE](#)
- [POWERPOOR](#)
- [REScoop MECISE](#)

....and don't forget:
ENERGY TRANSITION IS IN OUR HANDS!



This publication has been prepared by



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