DECIDE

Developing
Energy
Communities
through
Informative
an**D** coll**E**ctive
actions

Project Summary

For the past three years DECIDE partners and involved initiatives have collaboratively researched and analysed challenges and opportunities of collective energy actions across Europe and identified the building blocks and tools needed for initiating, growing and replicating them.
While different initiatives might use different building blocks and tools, these can be classified into four groups: stakeholder engagement, evaluation and monitoring, enabling framework and knowledge sharing. This guide is meant for all those planning to, or already participating in collective energy actions to find resources to help them form, grow or replicate across Europe.

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Introduction

A well-known slogan on the demonstrations to support climate action and push governments to accelerate their speed in responding to the climate emergency is "*change the system, not the climate*". To stay under the 1.5 °C temperature rise, we need to subvert the way of producing and consuming goods, including energy. Energy accounts for 73% of global CO_2 emissions, and its decarbonization is pivotal to reduce the catastrophic effects of climate change and turn toward a sustainable future.

Lucija Rakocevic
R&D Manager and DECIDE project coordinator, ThinkE

The EU Green Deal has placed the citizen at the centre of energy sector. Everyone should be provided the means to contribute to this change and shape up a new way of organizing the production and distribution of energy. Besides adopting more responsible consumption patterns and generating locale renewable energy, people, both individually and as a group, municipalities, small and medium enterprises can collaborate with each other and existing energy sector stakeholders to jointly decarbonize, decentralize and democratize the energy system of Europe.

To mainstream this collaboration and allow large scale participation of citizens and other public and local stakeholders in the energy sectors, collective energy actions, including energy communities and energy sharing represent crucial puzzle pieces to success. This booklet aims at shedding light on various building blocks and tools that collective energy actions can use to boost their growth and replication across Europe.

The present booklet is a distillation of the learnings we gained over the 3-years project. Through the project experience and research, the close work with the pilots, DECIDERs, many other initiatives as well as collaboration with other EU projects, the DECIDE team advanced knowledge on the building blocks and tools needed for wide spread of collective energy actions, including energy communities across Europe.

What type of collective energy actions are there?

There are several options available for people to engage in the energy transition depending on a combination of elements such as governance style, business models, the type of stakeholders involved and the way they are organized and also the legal framework.

One particular form of collective energy actions has lately become particularly. This is the Energy Community, which is a concept described in two European Directives: **the Internal Electricity Market Directive**, which outlines the characteristics of citizen energy communities, and the **Renewable Energy Directive**, which defines what renewable energy communities are. European Member States, at different pace and levels of engagement, are working on creating a legal framework that allows energy communities to become relevant players of the energy system.

Check out this factsheet on **what is an energy community**

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Along its course and based on the interaction with many on-the-ground initiatives that do not fully comply with the two EU legal definitions mentioned above, DECIDE felt the need to propose a more inclusive terminology which encompasses the full range of initiatives which achieve the same goal as required by EU legislation. These are called **collective energy actions (CEA)**, can be for profit, as long as economic and environmental benefits are created, and can be controlled by a private entity whose primary commercial activity is the energy sector, in which case decision making majority must be with representatives from a public body, citizens and/or civil society.

More on the concept of collective energy action can be found in this DECIDE paper **"Widening the support for participation of EU citizens in community and collective energy actions"**

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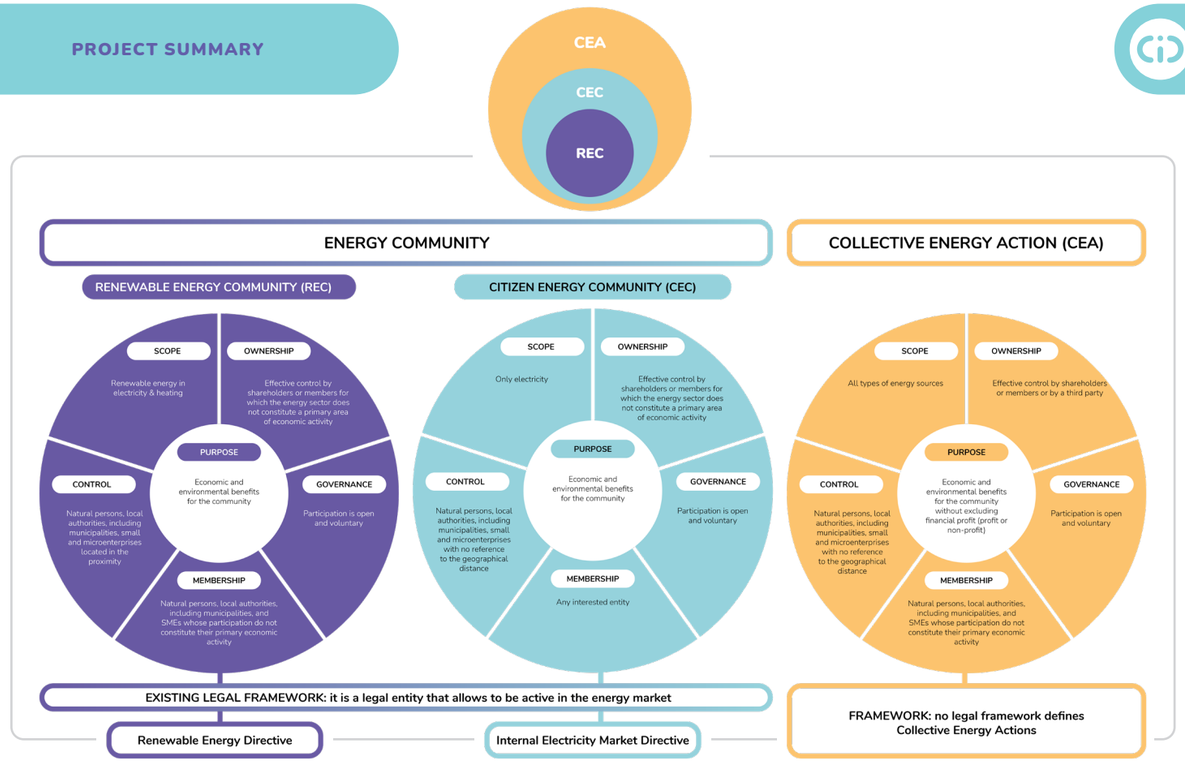

Within the boundaries of those definitions, a great range of activities can be set up. The scope of action, the way the actors engaged in its realization are internally organized and the formal status of their collaboration will determine whether those are collective energy actions or energy communities. Below you can find some out of the many possible initiatives to give an idea of the great diversity at disposal:

- Costumers of grid operator that joins a PV project [**Heron**]
- Local NGO that offers energy audits
- SMEs supporting municipalities in setting up their collective energy action [**Km0**]
- housing association that invest in refurbishment of the building & PV installations to pay off costs [**TREA**]
- Group of local governments that create e-vehicle sharing with SMEs [**Alpine pearls**]
- Cooperative of farmers that collect biowaste to generate energy
- DSO that creates awareness and activates costumers [**Heron**]
- Foundation that buys/hold shares of PV installation
- Municipality that engages social housing companies in energy efficiency systems [**Thermovault** and **Enbro**]
- School that collect funds from parents to buy batteries (Community energy storage)
- Cooperative that create a regional marketplace for clean energy [**OurPower**]
- Thermal energy communities

The project has been working with **7 pilots** across Europe as well as over **20 committed organizations called DECIDERs**, which regularly exchanged within and outside the project to share their experiences.

Tom Verheyen
Product Manager, ThermoVault

"Find out what works for you. Every energy community is unique, you need to find your way and not simply copy and paste what somebody else is doing."

Getting your collective energy action started

Each context and situation is unique, there is no universal solution and no guidelines can be applicable to everyone. The points below are all equally important and they are not listed following relevance or chronological order and very much interconnected.

Check what is possible

The **most difficult part is to start**. The topic is not the easiest one and, even if there are many sources of information, it is difficult to understand what is reliable and updated.

Experiences from other EU countries or even beyond are great inspirations, but it is really important to check the national regulation to be aware of which legal forms could be adopted for a collective energy action. The most popular ones are foundations, SMEs, PPA, cooperatives, partnerships, and associations or NGOs. Legal frameworks greatly differ across countries, for instance in the ways renewable energy projects are remunerated (e.g. feed-in, green certificates, or net-metering), so make sure to refer to an official statal source.

In some cases, municipalities facilitate the sharing of information through energy offices or One-Stop-Shops (e.g., **City of Antwerp**, also thought the **Sonnet project**), elsewhere information is made easy to access by the regional or national governments (e.g. **TREA – Tartu Regional Energy Agency**)

Over the last year the energy landscape changed at an unprecedented speed, and it is not easy to keep up with the latest regulations. DECIDE kept monitoring and tracking them in the **Energy Community Hub** and the latest analysis of the state of art can be found in the third and last yearly **policy brief** updated to May 2023.

Further support is provided by those EU initiatives:

- Energy Communities Repository
- Rural Energy Community Advisory Hub

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Define relevant stakeholders

It might seem secondary, but the **right connections can make the difference** in terms of success. To build a small group, regardless of the formal ties connecting the participants, it is fundamental to join forces to go from plan to reality. Depending on whether you are planning to set up a collective energy action, or if you would rather contribute to one, you need to carry out a stakeholders mapping exercise.

If you want to create collective energy action, this exercise will allow to identify expertise that are missing to complete the core team and secure its success or important allies that can facilitate the work and contribute to the day-to-day management of your initiative. If are rather looking to join an already existing initiative, to map out what is already out there will allow to identify the one that fits better your values as well as your availability of resources.

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To learn more about stakeholder mapping, you can check out these DECIDE toolcards

- Toolcard # 3 (stakeholder mapping I)
- Toolcard # 6 (stakeholder mapping II)

and the recording of this webinar

- How can we get people to join energy communities and collective actions?

DECIDE organized 16 workshops, engaging a total of over 250 stakeholders in 5 EU countries to discuss barriers and enablers, including regulation and business models and partnerships

Orchard Energy Talk No1 (“Energiegespräche im Obstgarten”) 1 July 2021

Ulfert Höhne
Director, OurPower

“To start, it is extremely important to have existing communities to set on. We as OurPower had Helios Sonnestrom, a company who built already 500 PV systems financed by citizens of the region and so there’s trust and an existing community to build on.”

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Set the goal and outline the way forward

One important milestone is to clear the ideas on **what the action should focus on**. From this point onwards, resources can be assigned in a more efficient manner, channelling time, expertise and money toward the goal that has been set. If the collective energy action starts from scratch, it may be difficult to advance in the definition of the goal. The DECIDE team developed an engaging tool to support this phase: the **energy game**, which helps you to form a joint vision on what, how and with whom the action will take place.

Once the final goal is agreed, it is important to reflect on the pragmatic implications and which are the steps needed to get there. It can be very useful to draft a plan to make sure actions are advancing in the desired direction. It is impossible to predict everything in detail and many detours will come along the way, this is why it is extremely important to revise the plan periodically and allow a good rate of flexibility to adapt if changes are needed.

The pilots in DECIDE have drafted an implementation plan outlining social, environmental and economic objectives for the three years of the project. The plans have been revised together periodically and a regular call with the expert team was held to assess the status of advancement and potential need for more support.

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Check out our Implementation plan tool card to have a hint on how the planning for your collective energy action could look like

Implementation plan tool card

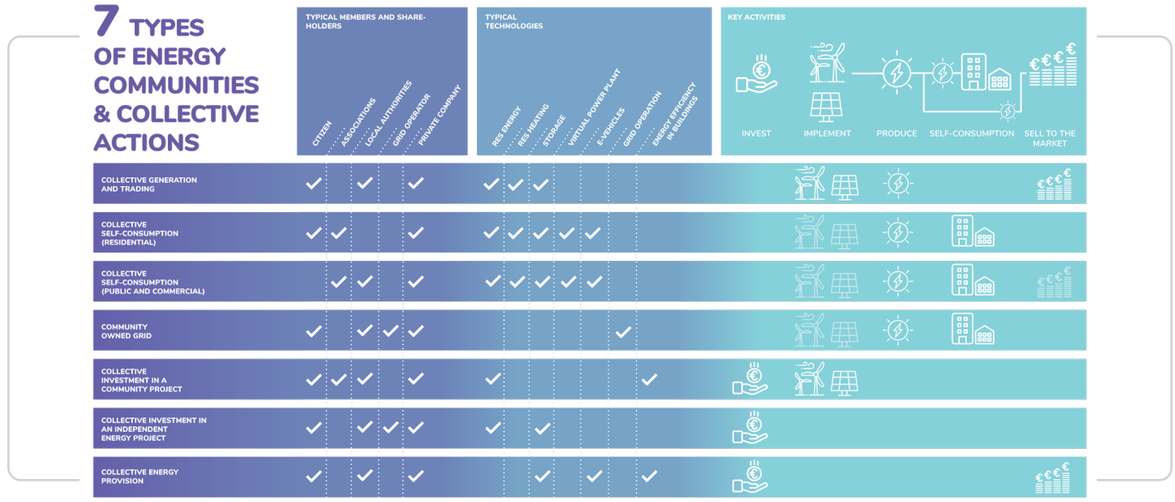
Andreas Klär
Managing Director,
Elektrizitätswerk Hindelang eG

"Find the right topic, find the right people and the right and place, and then just do it because if the idea is good the money which you need for it will come."

Choose your business model

The type of structure that a collective energy action adopts, and the kind of stakeholders involved goes hand in hand with the definition of a specific business model. Each different legal form (foundation, PPAs, cooperative, etc.) corresponds to a different type of ownership and the specific set of economic activities which can be performed as well as the use of revenues as well as the right to participate and to make decisions.

DECIDE has been exploring existing and new business models which collective energy actions are adopting. Based on observations, we propose seven overarching categories.



Johan Konings
CTO, Enbro

"Identify the low-hanging fruits which will get you things going forward, which means you've got your first successes and in doing so also get some money out of that so that you can sustain your team keeping going."

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Find out more on the results of the DECIDE investigation in this report

"Structured overview of existing and emerging business models, related contractual conditions and recommendations"

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From theory to practice

Citizens, local governments, businesses and civil society organizations can all be engaged and actively participate in collective energy actions. According to their exact role in relation many potential steps and behaviours should be considered, a few examples below.

Citizen

Check if there is an energy community which you can become part of and under which conditions? What is in it for you What role do you want to play – initiator, contributor, investor?

Community

Gather interested people's vision and feedback on how the collective energy action should look like.

Get informed about regulations/ incentives on the local, regional and national level.

SME

Open a dialogue on the possibility to provide services to the community or receive services from the community.

Leverage the connections you have with customers to amplify the message and get them involved.

Supplier/DSO

Inform clients about the initiative

Receive data and services from the initiative.

Municipality

Add a dedicated space on the website to inform citizens.

Organize information office or similar space for interested stakeholders to meet and discuss.

Put municipal building at disposal for collective energy action (especially valuable in urban context) or other incentives.

Consider co-investing into the collective energy action and/or providing in-kind resources to the initiative.

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Growing collective energy actions

Even collective energy actions that have existed for a long-time work hard to update and improve their activities, fitting to the changing regulatory frameworks, the needs of the community or collective and modify their visions, mission and business model to guarantee the well-functioning of the overall structure within the energy sector.

Keeping track

We mentioned how helpful it can be to have a written plan and revise it on a regular basis, but how to make sure that the collective energy action is really progressing against the main objectives set?

This is where Key Performance Indicators (KPIs) come into play, a list of assessable quantitative and qualitative elements that are particularly helpful to measure and track the many complex aspects of collective energy action. These can include not only renewable energy production and its associated economic KPIs, but also social impact through democratic participation, active involvement, market impact, scalability or inclusivity.

With the help of the pilots, DECIDE built on preliminary work done in the **COMPILE project** created the **Maturity and Scalability tool** that allows easy and fast assessment of **KPIs in 8 different categories**:

Commitment of Members and Supporters	Engagement of Core Team	Economic Stability	Political and Societal Backing
Capability of Technical and Organisational Structure	Targeted Knowledge Management	Regional Experience with Innovation	Cooperative Market Approach

For every category, the tool allows either a rough estimation of the initiatives maturity in this category or, if wished by the respondents, a fine-tuned assessment. Furthermore, it allows to compare the answers of multiple respondents from the same initiative and gives useful links to access further information about a specific category.

Using an agreed set of KPIs to assess collective energy actions and to monitor their progress can provide for a clear and standardized method to benchmark and compare various initiatives.

The importance of (continuous) engagement

To organize and build up collective energy actions, stakeholder engagement is key. Even after a successful start, the **initial enthusiasm may fade away**, the early birds may have to reduce their engagement, or the local community can be just saturated. To ensure the continuation of the activities of the collective energy action in the long-run, it is mandatory to invest in the engagement of the existing community, as well as the actors outside of it; but what does this really mean?

By engagement, we any type of action that aims at establishing a connection with actors as recipients or interlocutors of the collective energy action. Engaging stakeholders can take many forms, which will depend on the level of active involvement and motivation within the existing community. DECIDE developed a framework, which clusters different tools and methods along the levels of involvement, i.e. the depth of participation within the community or collective action. Investigating the mechanism standing behind individual decision-making on the energy topic, results showed that an inclusive, open and transparent communication is fundamental to build trust and create a sense of ownership. Further, social norms and influences can be levered to engage and activate citizens.

Stratos Keranidis
DoMX

"Understanding the core needs and barriers of your potential users is extremely critical! At Domx, we were amazed to see how differently end users can value the benefits offered by our products and services."

Matching tools to the level of involvement - The key to effective stakeholder engagement.
The DECIDE Four-Level Framework of Involvement and Participation:

When thinking about engagement, it is good to be open-minded and consider to include stakeholders that may not be of primary interest for the realization of the planned actions. For example, DECIDE created the **Power of Community Game**, an interactive board game targeting children and teenagers to sensitize them about the impact of individual behaviours and the need to shift toward renewable energies. The trials organized in schools were also used to understand the potential for transgenerational learning.

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The power of community game is board game that gives the opportunity to take the energy system closer to the youngest, but not only.

Download the DOY kit here and start to play!

Mona Bielig
University of Seeburg

"Social influences also play a role for the adoption of technology and new usage patterns! An international survey on the acceptance of an automated heat demand response system showed the relevance of other's adoption and collective efficacy."

Game

A total of over 500 sets of game have been sent to 28 schools or institutions working with children and project partners in 12 countries. An overview of the experience is included in the report "Intergenerational learnings: materials and trajectories".

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Network and knowledge sharing

No one is alone in this! There are many municipalities, citizens, NGOs, and businesses all around Europe working exactly towards the same objective. Some initiatives are already mature and stable by now, others are in need to readjust their model, whilst many are trying to find their own way for the first time.

The exchange with peers, even if from a different country, can be extremely helpful to get inspiration on possible solutions, to learn alternative setups and get suggestions on potential partnerships that can unlock the roll-out or upscale of another collective energy action. DECIDE handled an extensive programme of exchange both internal to the project, with the organization of a coffee shop open to pilots and DECIDERs, and external stakeholders with over 20 webinars and workshops offered to a wider audience.

To facilitate the exchange, a dedicated platform was created: the **DECIDE Knowledge Hub**, a gateway for information where anyone can filter by language and country relevant resources.

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All materials created by the project are publicly available on the DECIDE website as well as on the Knowledge Hub.

DECIDE Knowledge Hub

Podcast

The energy revolution podcast has been created with the purpose of understanding what minority communities and ones that are not typically involved in energy transition, think of energy transition and what they would need to become proactive in the process.

The evolution and consequent learnings of the **DECIDE coffee shop** has been condensed in a dedicated factsheet which may be interesting for whom is considering to set up a similar platform.

Designed to be inclusive, viable, upscaled and replicated

Each collective energy action has its unique vision and mission. DECIDE analysed more than 40 running initiatives to understand the variation in their design, organization and governance. Each collective energy action is initiated with a legal document defining its purpose and main rules. In addition, initiatives have contracts with employees and in some cases separate contracts with their members.

DECIDE provides a checklist of social, economic and technical aspects, and scalability and replicability factors that should be taken into consideration when defining the formation of legal documents. These factors are closely aligned with KPIs which can be used to assess the initiative and monitor its evolution over time. The goal of the proposed aspects and factors is to ensure the defining legal documents foster the design of inclusive and scalable initiatives.

Three examples from initiatives – each for one characteristic to consider from each factor:

- Social – diversity of members
- Economic and technical – maturity of applied technology
- Scalability and replicability – reliance on public funding

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More details on how contracts can help you in strengthening your initiative can be found here:

The DECIDE Final report on Business Models, contractual conditions and recommendation

Factsheet Checklist for contractual agreements

Athanasios Papakonstantinou
Energy Markets and Policies expert, HERON

“DECIDE helps us a lot in generating a network around energy communities, developers and technology companies that share the same values with us and want to address the big challenges of our time.”

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From theory to practice

The widespread of collective energy action needs everyone's contribution. Some actions that can be put in place to speed up the uptake are:

Citizen

Share your experience with the neighbourhood or colleagues at work.

Participate in open events to share knowledge and facilitate the work of fellows.

Community

Explore economies of scale to get tech cheaper.

Reflect on the accessibility to everyone the action.

Supplier/DSO

Facilitate the interoperability of systems, create shared standards.

Help strengthening the signal needs to support regulatory changes.

Municipality

Track and streamline initiatives that are happening on the area.

Open a dialogue with existing initiatives to improve the public services they could make use of (access to information, funding schemes.

Include collective energy action in the municipal climate planning.

SME

Promote the experience across other SMEs (through associations) and share a blueprint for taking action

Channel expertise in financing and defining a sound business model.

Help other stakeholders in designing services an initiative.

Good Practices to scale up a collective energy actions

We tried to share some **tips and good practices on how to start and scale up** a collective energy action. Based on experience of DECIDE but also many other projects that have been and still are investigating this phenomenon, below is a summary of things that anyone should keep in mind when running, considering to start or join a collective project:

- When setting the initiative's vision and mission do not consider only technical aspects, the collective energy action should also bring environmental and social benefits to the community or collective!
- Create a learning atmosphere, understanding that defined vision and mission might change over time.
- Ensure legal documents foster the design of inclusive and a scalable initiative.
- Identify the KPIs that allows you to effectively monitor the evolution of your CEAs.
- Define a sound business model with multiple actions/services to be more risk averse and flexible in the future.
- Start early with getting feedback from your members and adjusting your initiative.
- Be aware of possible rebound effects! This is when people adapt new technologies– where increased energy efficiency leads to increased energy consumption, offsetting some or all the initial energy savings.
- Assess the different models of business and governance to identify the one that suits you and your collective/community best.
- Make sure to keep a good level of involvement with transparent, relevant and clear communication within and outside the community.
- Periodically revise your target, your progress, and the stakeholders that you are engaging.
- Check the materials, the language, and the schemes that are proposed. Do they allow for the participation of everyone who should? If not, what can be done in order to facilitate this?

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Date of start: 01.10.2020
Area of work: 5 cities across Greece
Number of engaged pilot homes: 50
Energy savings per home: 32%

DomX

DOMX offers a unique retrofit solution that enables the smart management of legacy heating systems. The system brings several advantages to end consumers, including reduced energy consumption (up to 35%), smart and remote control, improved climate comfort, improved understanding of consumption behavior and environmental impact.

Their objectives in DECIDE:

- **Social** – reduce energy costs achieved through improved heating efficiency; increase energy and cost savings collectively by providing a feedback app to customers; understand the benefits of Demand-Response (DR) services; set up the business model and engage people in a collective action.

- **Technical** – Deploy the DOMX IoT controller and smartphone application at 50 pilot homes and improve their functionality through the collected feedback; Develop a heating dashboard for detailed consumption insights.

What did DomX do under DECIDE

Through DECIDE, 50 residential pilot consumers of HERON's portfolio have experienced the advantages offered by the DOMX product and services for smart heating. Through the analysis of pilot collected data, DOMX verified the achieved energy savings (32%) and climate comfort (91%), which results have been communicated to pilot participants through the app. In addition, the tight interaction between DOMX and HERON resulted in an improved business model for delivering new energy services to natural gas suppliers. Several prototypes have been designed and tested, for improving the applicability of the hardware solution across a wide range of heating systems and vendors. The same process was also applied for improving certain features of the app that are relevant to each user group, including the visualization of energy savings for the end users and the assistance in the device installation process for the installers. The latest version of the app includes the delivery of advice through push notifications on reducing the heating costs and improving the living comfort. Through the collaboration with CLUBE, the application of a relevant solution for district heating systems was also investigated.

What would be the next steps

Extensive surveys that approached both pilot users and targeted consumer groups, enabled an in-depth understanding of the key drivers (energy savings, smart control, environmental impact, etc.) that can motivate end consumers to adopt smart heating services. The organization of multiple stakeholder workshops, assisted in identifying the key business and technological barriers and the needs of the HVAC installation and maintenance sector. The gathered data enabled DOMX to analyze the segmentation & group dynamics and to define a more focused marketing strategy able to attract both end consumers and business partnerships. DOMX has already managed to set up new collaborations among the approached business partners and aims at upscaling towards a substantial client base across different cities of Greece.

Date of start: 01.06.2020
Area of work: Tartu, Estonia
Number of consumers: 1100
Energy savings: 2,5 GWh

TREA – Tartu Regional Energy Agency

Since its foundation, TREA worked to facilitate the energy transition and reconstruction of the city of Tartu and its surroundings and now it is one of the first initiators of energy communities in Estonia. Sharing of information and awareness raising are among its core activities, together with facilitating dialogues with public and private entities.

Their objectives in DECIDE:

- **Social** – support decision making in early planning stage, raise awareness of benefits of collective energy actions EC and higher on-site renewable energy consumption, enable use of locally produced renewable energy, creating tools to scale most promising support and counselling.

- **Technical** – suggestions to improve community energy policy, 1000 consumers, full or part actions, 4 GWh energy savings (ca. 50% per building), 150 kWp PV panels, 12 kWp productions.

What did TREA do under DECIDE

In DECIDE the focus was on the city's district of Annelinn where almost 1/3 of Tartu's population lives mostly in apartment blocks from the 70's and 80's that need refurbishment. TREA established dialogues with the apartment associations which represents the apartment's owners and are the decision bodies of the buildings as well as with the national government to guide the shaping of a national law on energy communities through a series of round tables between CE stakeholders, DSO and the ministry. The "Thermometer campaign" with affordable liquid crystal thermometers was started to give people feedback on their energy behavior and to increase the knowledge about the link between indoor temperature and energy consumption. Indoor climate sensors and electricity meters were installed to analyze the indoor climate and the electricity consumption. The data gathered are instrumental to forecast the potential benefits and possibilities that transforming from apartment base contracts to joint electricity contract could allow, due to the increased on-site consumption of rooftop solar. This information is relevant to better design the solar plants. Unfortunately, the initial plan was hindered by the delay in the publication of the national reconstruction grant.

What would be the next steps

TREA is planning to move ahead with implementing a citizen energy community pilot in Tartu and getting some more practical knowledge to help the start of energy communities in Estonia. The Energy and Climate Action Plan of Tartu City "Tartu Energy 2030" set important targets for the city such as renovate 50% of apartment buildings (980,000 m^2) and renovate 40% of private houses (412,000 m^2) by 2030, develop developing a local consumption scheme and business model for renewable energy produced in the Tartu area by 2024 and increase the production of renewable energy through association activity, achieving the establishment of renewable energy plants owned by energy associations with a capacity of at least 10 MW by 2028. Tartu seems to be already in good track, by the end of 2022 2,66 MWp in the residential sector was connected to DSO grid, which means about ¼ of the Energy and climate plan target has been already achieved.

Connected to that, TREA will continue to contributing to as much as possible to the creation of an enabling framework for collective energy actions and to support apartment associations to renovate their buildings by piloting innovative solutions and services to decrease costs and make the process easier.

Date of start: 2021
Area of work: Greece
Number of costumers: over 80,000

HERON

With over 300.000 customers, HERON is an independent electricity and gas retailer active in Greece. HERON has developed a community solar business model EN.A (ENergy Autonomy) which sees the possibility for end consumers to buy a virtual share of HERON's and TERNA ENERGY's PV capacity and benefit from the respective energy production revenues through a flat fee of minimum €100. A calculator is available on the website to see what is the monthly / yearly discount as well as to estimate the revenue. Moreover, the sum can be readjusted according to costumers needs (e.g. the initial sum can build on it through gradual instalments over the period of 3 years). Customers can increase their participation to completely offset all bill-related costs and become "zero-billers".

Their objectives in DECIDE:

- **Social** – Compile and offer detailed information on potential effective RES-based saving; Develop new financing schemes and promote major RES-installation.
- **Technical** – Smart meters for real-time monitoring of energy consumption; Upgrading of HERON's existing energy metering platform Integrating real-time generation; information on potential effective RES-based savings; Design a market-based financing scheme and tools for a solar-based EC.

What did HERON do under DECIDE

HERON is committed to examine new technologies and how they can be integrated into business models that then can lead to commercial products and allow exploring sustainability options. In the past years, the company has been working on the engagement of individuals on two main aspects: better communication and easy access to energy services. In the online platform real-time generation of EN.A PV unit together with a PV integration gives to customers participating in HERON's pilot the chance to see the savings they had by participating in a collective energy action or in EN.A through association with specific asset (EN.A 500 kW). Moreover, the first group of around 100 residential end-users has been equipped with smart meters at company's cost to collect real time data. Finally, a new SME pilot has been developed by installing IoT devices on the premises of two medium-term rental housing complexes, in order to provide consumption control and saving solutions.

What would be the next steps

Heron's next step is to expand even further the residential pilot by installing smart meters and plugs, relays and motion sensors to HERON customers and provide similar services to SMEs, rented apartments, server rooms etc. by installing IoT devices in the business premises. Furthermore, the development of the HERON Energy App is under process, which will promote electricity savings to residential and commercial users. Finally, HERON is integrating an automated administration and billing system for the management of energy communities, making HERON the first Greek energy retailer with the ability to host energy communities in their clientele.

Date of start: 1923
Area of work: Bad Hindelang, Germany
People served: over 5000
Energy produced: 20 Mio. kWh

EWH

In 1923, 48 citizens and SMEs and the municipality founded the Elektrizitätswerke Hindelang e.G. (EWH) cooperative, an "energy community" ante litteram. EWH generates electricity from local resources (hydro and solar power), organizes local energy supply to approximately 5.000 inhabitants and operates the grid of Bad Hindelang. While today the cooperative has over 300 members and is a settled energy company, it still runs on the rule "every member has one vote", regardless of his share. Bad Hindelang has with over 20 Mio. kWh a close to 100 % RES electricity supply, but it seems to be difficult to change the heating supply system.

Their objectives in DECIDE:

- **Social** – reinforce the strong cooperation with regional energy communities to secure reliable and independent organisation for energy supply in Bad Hindelang.
- **Technical** – improve the hydro, solar and wind power installations and storage; raise awareness on heat pumps and CPH for cooperative heating; implement electric vehicle charging options.

What did EWH do under DECIDE

Within the framework of DECIDE, fundamental considerations were made for the path to climate neutrality and in particular, one of the main areas of work was the social component of renewable energy. On one hand there is the interest in understanding the viability of shifting to a centralized heating system, complemented by heatpumps that can be powered by the energy surplus created by the PV installations or by biomass during the winter.

On the other hand, there is the need to gain acceptance an expansion of the solar assets in a context where landscape conservation is particularly important for environmental and economic reasons, tourism being an extremely relevant activity and key source of income. A series of meetings has been organized and the DECIDE team facilitated the dialogues with local stakeholders and a survey to understand citizens' interest in participating in RES projects has been designed and is currently running.

What would be the next steps

In order to continue advancing the work done within DECIDE and foster the approach taken even after the conclusion of the project further funding from a national funding program has been granted. Those will be deployed for the planning of a local heating network in the area of the industrial park. The vision of a "local energy market" could not yet be further concretized due to the unfavourable regulatory framework conditions currently existing in Germany and it is put on hold for the moment until a national framework is set up.

Successes have also been achieved in other areas of work such as the expansion of photovoltaics on the roofs (+ 25% of PV power EWH owns, reaching 200kW) and the development of charging infrastructure for Electric Vehicles. Regarding the latter, during the term of DECIDE, a further 5 public charging stations, including one fast-charging station, were added to the 2 charging stations already existing providing now at least one charging station in every district EWH supplies. All charging stations are all not bidirectional, because this is not yet possible in Germany due to the lack of standards and technical protocols for this.

Finally, the cooperative is also intensively working internally to reach climate neutrality with the aim of achieving it by 2030 by drawing up its carbon footprint.

Date of start: Aug 2019
Area of work: Austria
Number of power buyers: 1300
Number of power sellers: 250
Energy Supplied: 8,0 GWh/a

OurPower

OurPower Energiegenossenschaft SCE is an energy cooperative based in Austria that operates a peer-to-peer marketplace for RES electricity generated by its members. Any prosumer with privately owned installations may join and share their power via www.ourpower.coop while OurPower handles the online matching services as well as the whole process of electricity supply and billing, applying a commission fee of 1,0 ct/kWh.

In 2018 OurPower was selected as an innovation project by the Vienna Business Agency and received a co-funding of 35%. That money was well invested since OurPower started its supply business in August 2019 and today has 800 members, supplying 1300 private and business consumers from a portfolio of 250 generators of all kinds of RES from small rooftop solar PV, a biogas plant, wind farms and 20 small hydropower plants to MW-scale PV farms.

Their objectives in DECIDE:

- **Social** – support decision making in early planning stage; build up a citizen energy community with regional sections; empower citizens via workshops, education activities and events.
- **Technical** – establish a P2P marketplace for cooperative energy supply; facilitate P2P energy sharing without technical barriers; Improve community services and online tools for easy participation and citizen empowerment.

What did OurPower do under DECIDE

Identity is one of the keywords of OurPower's work in DECIDE. Together with the project research team, the pilot developed an experiment to understand the key motivation for prosumers to join a P2P market place community. Producing three different postcards and corresponding websites to test the concepts of "our climate", "our region", "our friends" against each other, the winner was clearly the regional identity which resulted to be the better argument for citizens to become active A couple of workshops and events with the local communities and relevant stakeholders confirmed the result and supported the intuition to focus OurPower's communication in building up their second regional office in Graz.

Many events and community activities has been organized but, following the energy crisis and the consequent increase of energy costs, the most challenging aspect for OurPower was to fit their business model to the rally of energy prices as price stability to customer is a high priority.

Area of work: Belgium
ASTER project: 93 Municipalities, 310 buildings, 35MWp for sharing
SUNFIN/FLUCTUS project: 60 housing corporations, 480MWp total potential

ENBRO

ENBRO is a Belgium energy broker that provides guidance on energy supply for residential users, companies and to public organisations. Guidance starts from energy contracts, connection infrastructure, renewable production on site and energy efficiency. In 7 years since its inception, ENBRO has supported over 50.000 corporate clients and holds a portfolio of more than 40.000 residential users. In the brokerage, ENBRO has a strong commercial position in the market, with a specific soft spot for challengers in the energy supply market, helping them in their go-to-market for innovative products and services that promote energy transition. Connecting people, companies, and public organisations, ENBRO demonstrated that energy communities can work without eroding business nor the role of distribution and transmission companies.

Their objectives in DECIDE:

- **Social** – set- up collective solar project for self-consumption depending on the regulatory developments; educate, involve stakeholders, communication for trust; Connect living labs perspective & connect to new services; Awareness / Making use of legislative and market developments.
- **Technical** – automation through AI and optimization of energy sourcing in function of individual consumption and of consumption in the energy community; district energy storage increased with charging stations; using electric mobility as a buffer for increasing self-consumption in the energy community; blockchain for cooperative energy supply.

What did ENBRO do under DECIDE

A first pilot demonstrating the entrepreneurial bottom-up approach is the contract with IGEAN addressing the rooftops of 29 municipalities. In this context the municipalities required the opportunity for their citizens to take part in the financial revenue from the solar project. Enbro developed a concept of an energy cooperative FLUCTUS.NET to allow for a guaranteed annual return to the shareholders of 4% to 7% while avoiding any development and construction risk and ensuring performance during the lifetime of the installations. The action has led to a collaborative approach of municipalities to allow them to create a collective action that will allows citizens to invest in the solar installations on the rooftops of the public building.

A second pilot is the collaboration with ASTER, a housing corporations and representatives of the tenants that targets the rooftops of 165.000 rentals in the social housing in Flanders (Belgium). Via DECIDE workshop, ENBRO helped ASTER to understand how a collective action will allow for solidarity in benefits between tenants with and without PV and to stabilize the revenue model of ASTER which in turn will decrease funding costs of the project.

What would be the next steps

The municipal focus with developing into energy communities as this crowdfunding will progress and energy will be shared among all members, focusing in reducing grid unbalance. The roll out of the collective energy actions is targeting 93 municipalities, which is 1/3 of Flanders region.

Tools have been developed to illustrate the financial benefits of energy sharing which is leading to a momentum for more solar based upon the consumption in de community rather than the consumption under the rooftop.

After two years of planning and almost one year of roll out of the solar systems by ASTER, the next step will be to start sharing the solar energy to tenants that have not solar rooftop. The concepts of energy sharing will be stretched to embrace the model that focuses on reducing grid imbalance. Enbro is continuing its work and support to collective energy actions and energy communities, rolling our lessons learned to both public and private environments, including the development of tool in the EU project FEDECOM.

Date of start: 2017
Area of work: Belgium, France
Number of devices controlled: +2000
Energy storage controlled: 7Mw

ThermoVault

ThermoVault is a Belgian start-up that offers an innovative solution for the control and regulation of electric boilers, accumulators (storage heaters) and heat pumps. By installing a small device on already existing appliances, ThermoVault can transform them into energy-efficient storage devices that can adapt to changing electricity prices and grid conditions as well as be aggregated into a virtual power plant and jointly participate in the electricity market by providing reliable network balancing services as Frequency containment reserve (FCR).

Their objectives in DECIDE:

- **Social** – more structured way to approach the customer and their needs, willingness to become active, information exchange; Learn about decision making of different stakeholders: savings, labels, emissions; Creation of a compelling customer journey for installation of ThermoVault technology for individuals; Investigate the possibilities and willingness of the pilot end consumers to create an energy community in terms of CEC that allows customers as members.

- **Technical** – Boiler modules on site- realized; structured way to approach the customer and their needs; Provide DR steering solution on household, community & nationwide level; Create, optimize and validate a structured sales approach towards social housing companies, associations of co-owners and decision makers.

What did ThermoVault do under DECIDE

The initial target of increasing the number of connected families from 87 to 400 by the end of the project was overachieved, reaching over 1.600 households. ThermoVault's controllers reduced the steered appliances' energy consumption by an average of 20% in water heating and 10% in space heating. This results in €82k in energy cost savings for the tenants and 57 ton CO_2 reduction each year. On top of the savings in energy, the controlled assets are used to help balance the electricity transmission grid (Elia) via FCR through the national balancing market. Such service leads to additional CO_2 savings, which come from not using CO_2-intensive fast-reacting gas-fuelled power plants.

Moreover additional learnings in the field of social sciences were made. ThermoVault offers its product in a B2B2C configuration where the social landlords are the decision maker for purchasing the devices. As part of DECIDE randomised A/B tests were set up to improve this communication and increase acceptance rates among end users and the learnings have been integrated in the ThermoVault communication.

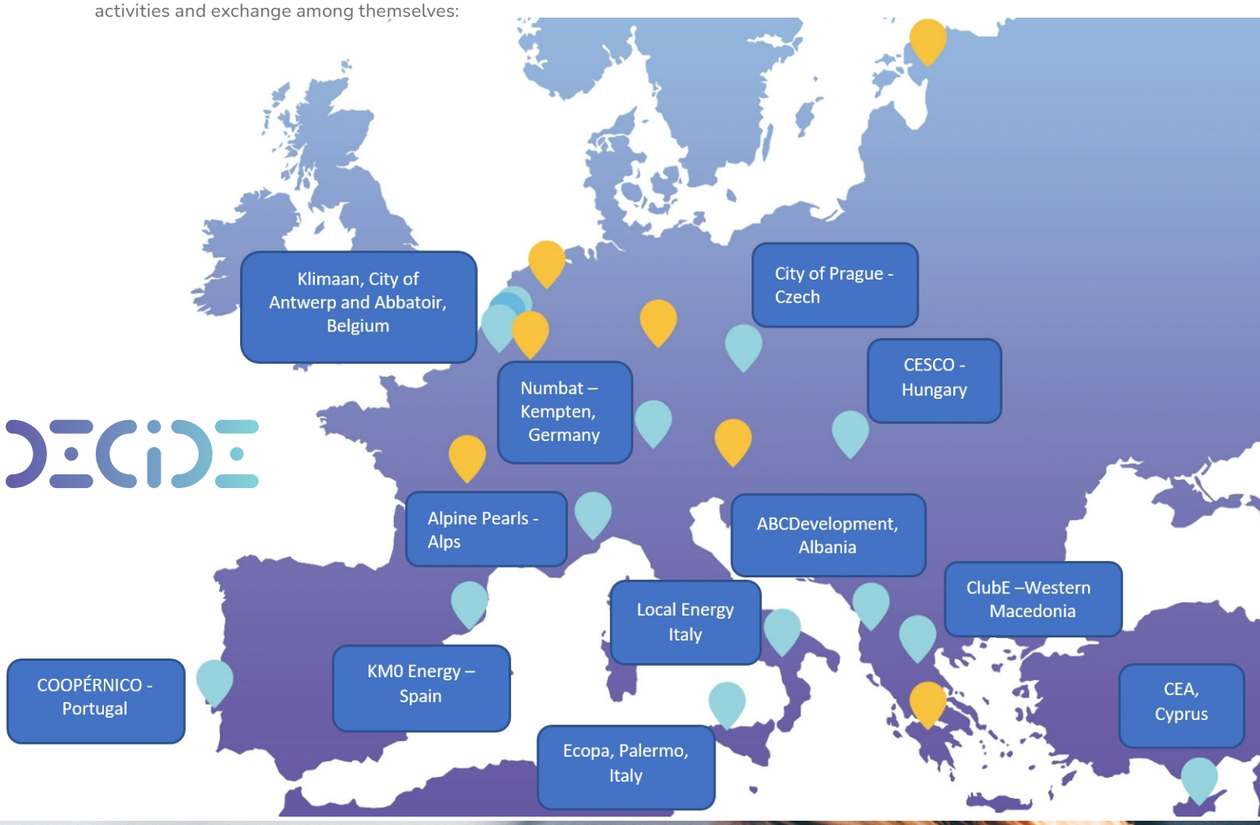
These changes are currently used as leverage for future planned installations.

What would be the next steps

The success of the DECIDE project, including the ThermoVault pilot site has paved the way for the future H2020 project, BeFlexible which aims to further promote energy efficiency and flexibility in buildings through advanced energy management systems, demand response strategies, and renewable energy sources.

In parallel, the commercial activities of ThermoVault continue with a focus on Belgium but entering soon the French, Italian and Spanish markets.

Along the course of the project, DECIDE built also an extended network of replicants, called DECIDERs. Initiatives that expressed their interested in being engaged in the project's activities and exchange among themselves:



PROJECT SUMMARY

Project Partners

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