



UP-lifting Communities: Structuring collective Action for Sustainable local Transition and Identifying Regulatory Solutions for adopting frontier technologies and disruptive business models

Deliverable 5.1:
“Detailed Report on the legislative, administrative and incentive framework for collective actions in different countries”

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List of Acronyms

OSS – One stop shops

P2P – Peer to Peer

CEP - The Clean Energy Package

CSC - Collective self-consumption

CEC – Citizen Energy communities

REC – Renewable Energy Communities

EAG - Renewables Expansion Law (Erneuerbaren-Ausbau-Gesetz)

PV – Photovoltaic

DSO - Distribution system operator

EIWOG – Austrian electricity act (Elektrizitätswirtschafts- und –organisationsgesetz)

EMD – Electricity Market Directive

ECP - Enduring Connection Policy

IEM - Internal electricity market

EC – Energy Communities

FIT - feed-in-tariff

FIP - feed-in premium

ESCO - energy service company

Executive summary

This report has been developed in the context of the Horizon 2020 funded project UP-STAIRS, within the Work Package (WP) 5 on the Development of UP-STAIRS framework and methodology for collective action.

The main objective of this WP is to facilitate the legal and administrative processes for the implementation of collective projects. Part of this task is to prepare a detailed report on the legislative, administrative and incentive framework for collective actions in different countries.

This report has been based on the main outputs from the research carried out previously in Task 5.1 and the results of questionnaires conducted among key potential actors for collective actions in partner countries. The report contain the main problems, needs, challenges that citizens and all interested actors (e.g. representatives of schools, hospitals, local companies etc.) may face, when they act collectively to scale-up their investments etc. to garner funds or other support.

Key conclusions from the analysis presented in this report are:

- Financial support systems (in the form of subsidies or loans) significantly increase the interest in collective actions
- Interest in the region among potential future participants in the collective action should be carefully examined
- Before the start of the project, a major information campaign should be carried out to promote renewable energy sources and energy efficiency measures
- Continuous information, promoting awareness raising and facilitation, is necessary to keep the programme going.
- Efforts to reduce greenhouse gas emissions must include a high variety of measures. Not all measures are one-off, but constant improvements necessary
- Proper communication between all participants of the collective actions, as well as between the public administration and the DSO should be carefully planned.

Collective actions are very fruitful but tend to be slow processes and can sometime hit and end road due to legislation or bureaucratic never ending processes.

2. Introduction

In recent years, technological innovation and the decreasing cost of technology have made new forms of consumer participation in energy production and management more accessible. Consumers have started to produce, store and consume their own energy and are able to support the operation of power grids and energy markets by changing their load patterns. New forms of collective energy action have also started to emerge, enabling a more active role of consumers in the energy system. Local communities already get involved in initiatives to collectively reduce energy use, manage energy better, generate or purchase energy. Energy cooperatives, peer-to-peer (P2P) energy trading and collective self-consumption run within existing legal frameworks, under regulatory exemptions or in the framework of innovation projects.

This new activism by consumers, acting collectively to widen the reach of their efforts, has been acknowledged by recent EU energy policy documents that address the collective dimension of energy use. The Clean Energy Package (CEP), for example, has elaborated on the central role that collectively acting consumers can play in the energy transition and have established a legislative framework, where “jointly acting consumers” and “jointly acting renewable self-consumers” have more opportunities to get actively involved. The CEP also introduced the concepts of Citizen Energy Communities (CECs) and Renewable Energy Communities (RECs) as a way to engage consumers and increase the acceptance of renewables. Communities and individuals are given the right to produce, store, consume and sell their own energy and are recognized as key stakeholders in the new energy system.

The following section of this report provides an overview of the national legislation that is in place to support CECs and RECs in the pilot regions. This is followed by a review of the role that energy communities have in National Energy and Climate Plans. Section 4 provides a summary of an evaluation of the incentives that have been put in place to support collective action within the partner countries. A summary of the review of the relevant legislative barriers and supports in the partner countries is presented in Section 5. This is followed by a summary of the collective actions survey. The objective of the survey was to obtain the best possible information on administrative barriers, needs and incentive from amongst the partners. Finally, conclusions, drawn from the key lessons learned from this research, are presented. The responses for the questionnaires conducted among key potential actors for collective actions in partner countries are presented in the Annex.

3. Overview of national legislations

Collective energy action initiatives have existed in the European energy system for a long time and under different forms, such as energy cooperatives, community energy groups, associations of consumers and collective purchasing groups. The recent developments in EU legislation – the recognition of jointly acting renewable self-consumers and active consumers as well as CECs and RECs– have paved the way for their widespread diffusion with a more formal role.

The legal framework for collective self-consumption, RECs and CECs in each of the participating countries is presented below.

Table 1. Overview of national legislation on collective self-consumption and energy communities

| Country | Collective self-consumption | Renewable energy communities | Citizen energy communities |
|----------|---|---|---|
| Austria | EIWOG 2017 (Electricity Act) | Renewables Expansion Law (EAG) | Draft CEC definition published as amendment of the electricity act (EIWOG) |
| Bulgaria | Self-consumption framework | - | - |
| Germany | Tenant power model 2017 | - | - |
| Ireland | Climate Action Plan 2019 calls for the “opening up of opportunities for community participation in (electricity) renewable generation as well as community gain arrangements. | Renewable Electricity Support Scheme including a REC definition. Climate Action Plan 2019 also calls for building a supply chain and a model where home retrofits are grouped together to allow 500,000 homes to be retrofitted by 2030. | Sustainable Energy Communities are formed for the sole purpose of improving the energy efficiency of the buildings concerned. |
| Latvia | - | - | - |
| Poland | Energy cluster concept | - | - |

| | | | |
|-------|--|--|--|
| Spain | Royal Decree 244/19 (including use of public grid) | First mention in decree law 23/2020 | First mention in decree law 23/2020 |
|-------|--|--|--|

Austria

In Austria collective self-consumption was established in 2017 as part of an amendment of the electricity act (EIWOG)¹. The act supports private and commercial collective self-consumption CSC (CSC), including electricity sharing. CSC is the term used for the activity of buying surplus solar energy produced by a neighbour's solar panels rather than from a traditional energy supplier via the distribution system or grid. So far, the use of the grid for energy sharing is not permitted. The amendment defined specific aspects of these models such as the role of the different involved actors and the required contractual relationships between them. The costs such as measurement, attribution of electricity to participants etc. are defined by the Austrian regulator E-Control and are provided by and charged for by the distribution system operator (DSO) which is a regulated entity.

A legislative package on the expansion of renewable energy was published for public consultation in September 2020 and recently adopted. The package establishes the Renewables Expansion Law (Erneuerbaren-Ausbau-Gesetz, EAG) and amended a number of existing energy related laws, including the above mentioned electricity act, EIWOG. The new EAG establishes a framework for RECs, while provisions on CECs are introduced to the EIWOG, in addition to the existing CSC scheme that will not be modified. By the end of 2023, the Federal Minister for Climate Protection, Environment, Energy, Mobility, Innovation and Technology has to carry out an evaluation of the EAG, which will cover RECs, CECs, and CSC. The evaluation shall include an analysis of the status quo, obstacles and barriers, suggestions for improvement, and requirements for adaptation.

The legislative provisions for RECs in Austria currently primarily focus on electricity. According to the current draft law, RECs will not only be able to generate, store and supply renewable energy but can also act as an aggregator and provide energy services. RECs can be organized as an association, cooperative, partnership or corporation, association of housing owners or a similar legal body. They can own and operate electricity grids but need to fulfil the same obligations as other DSOs. Even though the current provisions primarily focus on the electricity sector, the technology neutrality of RECs is taken into account by foreseeing the possibility to operate district heating grids. Specific provisions for monetary support of heating grids in RECs are introduced.

RECs in the electricity sector need to be located within one network area and are limited either to local or regional level. They have to be in the area of the same DSO. Reduced grid charges are anticipated for electricity sharing in RECs at medium and low voltage level. In principle, fees for the use of higher voltages systems, at the transmission level, that are superordinate to the low and medium voltage systems within which REC is located could be deducted for electricity exchanged within the REC. The charge reduction was defined on national level for low and medium voltage communities applying to all network areas (in Austria, different tariff structures apply to the network areas). For the

¹ Government of Austria (2020a): Bundesrecht konsolidiert: Gesamte Rechtsvorschrift für Elektrizitätswirtschafts- und –organisationsgesetz 2010
<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20007045>

capacity-based share of the network usage charge, the energy drawn from the public network will be reduced by the energy in the respective quarter-hour drawn from the REC. In addition, the volumetric tariff element for renewables support is intended to be deducted from the network usage charge.

CECs can be established over the entire territory of Austria. Besides electricity generation, storage, sale, and aggregation it can provide services to its members such as energy efficiency services or EV charging services. The effective control is, in line with the Electricity Market Directive² (EMD), limited to natural persons, local authorities, and small companies. Metering and electricity allocation obligations of the DSO are largely similar to those of RECs. However, as CECs may be located in the area of several DSOs, the draft law requires that metering data is shared between the concerned DSOs.

Both, the provisions for RECs and CECs include a list of elements that are at least to be included in the funding documents and/or contracts with the individual members. These build on the previously established elements for CSC schemes defined in 2017. The programme of the current government (2020-2024) foresees the establishment of a one-stop-shop for the support of energy communities³

Bulgaria

Bulgaria has implemented a framework enabling self-consumption but still have no detailed legislation. The “Energy from Renewable Sources Act” currently in force allows the producer to use generated renewable electricity for self-consumption when filing an application for connection to the Electricity System Operator⁴. Shorter time limits for connection are envisaged in case of self-consumption and no building and use permits are required for small systems with an installed capacity of up to 30 kW. The quantity of electricity that is not used for self-consumption shall be purchased by a supplier at a price set by the regulator, according to the conditions and the procedure laid down in the Energy Act⁵.

To improve the enabling framework for renewables self-consumption, Bulgaria plans to streamline legislation and better regulate the rights of consumers. Support will be provided through the possibility to participate in the energy system, facilitating integration into the market, creating favourable conditions to raise public interest in the initiative and developing and putting in place improved administrative procedures that take into account the specific needs of renewable energy communities. During the period 2021-2030 opportunities will be sought to fund projects and measures undertaken to

² Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU

³ Federal Chancellery of Austria (2020): Aus Verantwortung für Österreich. Regierungsprogramm 2020 –2024, p80. Vienna, 2020

⁴ Bulgarian Government (2020): Integrated energy and climate plan of the Republic of Bulgaria 2021 –2030. https://ec.europa.eu/energy/sites/ener/files/documents/bg_final_necp_main_en.pdf

⁵ Bulgarian Government (2020): Integrated energy and climate plan of the Republic of Bulgaria 2021 –2030. https://ec.europa.eu/energy/sites/ener/files/documents/bg_final_necp_main_en.pdf

provide access to energy from renewable sources for low-income consumers or vulnerable households through the social assistance system⁶

Collective actions in the field of energy efficiency are governed through Decree of Council of Ministers No 18 of 02.02.2015 where it is stipulated the mandatory establishment of associations of homeowners to participate in the initiative. There is also a financial mechanism to support energy efficiency in multi-family residential buildings with many apartment owners participating in the “Energy Efficiency of Multi-Family Residential Buildings National Programme” providing grants to the associations of home owners. The main focus of the programme is the implementation of retrofitting and energy efficiency measures in buildings but it potentially can also support RES (e.g. PV on rooftops) in multi-family buildings although financial support is currently only for the building fabric and structural reconstruction measures. Currently the programme is paused due to lack of financial sources and is expected to be continued in the future.

Germany

In Germany there is a long tradition of CSC schemes on building scale. In 2017, the so called “Mieterstrommodell” has been legally introduced⁷. These schemes allow the plant operator in a multi-family house to sell locally produced electricity to the tenants in direct proximity. The unclear definition of proximity has led to a range of individual case-related legal decisions⁸. The plant operator has the status of an electricity supplier. In the case of multi-apartment buildings, the plant operator receives a self-consumption support from the Distribution System Operator (DSO) of 2.1 – 3.7 Cent/kWh for PV electricity, depending on the plant size, for a period of 20 years⁹. According to the law, the precondition is that the PV plant has a maximum installed capacity of 100 kW and is installed in a residential building. In order to receive support, the plant operator can sell the electricity to either: tenants of the building or owners of apartments in the building. The entire capacity supported per year is 500 MW across Germany. The German law explicitly states that, where electrical energy storage is used, the self-consumed electricity after storage rather than the stored electricity defines the self-consumption subsidy. For electricity fed back to the distribution system, the plant operator still receives a feed-in tariff/premium. CSCs have to pay the “EEG surcharge”. This surcharge is part of the retail electricity price and finances the German renewables support scheme (EEG). In a proposal for an amendment of the EEG in 2021, the self-consumption support and

⁶ Bulgarian Government (2020): Integrated energy and climate plan of the Republic of Bulgaria 2021 –2030. https://ec.europa.eu/energy/sites/ener/files/documents/bg_final_necp_main_en.pdf

⁷ BMWI, Federal Ministry for Economic Affairs (2017): Gesetz zur Förderung von Mieterstrom und zur Änderung weiterer Vorschriften des Erneuerbare-Energien-Gesetzes vom 17. Juli 2017

⁸ Verbraucherzentrale Bundesverband e.V. (2018): Ein Jahr Mieterstromgesetz. Berlin, https://www.solarwirtschaft.de/fileadmin/user_upload/bsw_posipap_mieterstrom_2018.pdf

⁹ Bundesnetzagentur (2017): Hinweis zum Mieterstromzuschlag als eine Sonderform der EEG-Förderung. Hinweis 2017/320.

capacity limits would be increased to between 3.79 €/Cent/kWh (up to 10kW) and 2.73 €/Cent/kWh up to a size of 500 kW¹⁰.

Ireland

No framework for collective self-consumption in multi-tenant buildings exists yet in Ireland. This is in part a consequence of 97% of residential buildings in Ireland are single dwellings¹¹. However, different local energy generation support concepts are being developed to support the development of energy communities in the Irish context. Irelands Climate action plan 2021 outlines the measures that can and need to be taken to achieves near zero carbon by 2050.

The plan aims to scale-up and improve the Sustainable Energy Communities (SEC), also known as the community energy grants scheme, and the Better Energy Communities (BEC) schemes and the National Retrofit Initiative which enlist a wider range of organisations to anchor its collective approach which are run by the Sustainable Energy Authority of Ireland (SEAI) ¹². SEAI is an Irish governmental body established to promote and aid in the development of sustainable energy in Ireland.

An SEC in Ireland is defined as an entity where people work together to develop and implement a sustainable energy plan for their community. Better Energy Communities is SEAI's, national retrofit initiative with grant support of up to €28 million for 2021 ¹³. The scheme supports new approaches to achieving energy efficiency in Irish communities with funding available to finance upgrades across building types to reduce energy use and costs throughout the community. All projects should be community oriented with a cross-sectoral approach, and you must show that you can sustainably finance the proposed project. This will be done through developing new partners, creating more visibility within communities, and attracting matching finance. The plan envisages there being 1500 SEC's in Ireland by 2030.

The Sustainable Energy Community (SEC) scheme, the Better Energy Community (BEC) scheme are managed by project coordinators appointed by SEAI. Any property entering the schemes must achieve a B2 building energy rating (BER) on completion. To achieve this rating requires an energy performance of less than 125kWh/m2/yr. Under the scheme a fuel poor home can receive 80% funding, social housing managed by an approved housing body can receive 50% funding. Other entities can receive 35% funding towards the cost¹⁴.

A key element of the Climate Action Plan is that the government will:

¹⁰ Federal Government of Germany (2020): Entwurf eines Gesetzes zur Änderung des ErneuerbareEnergien Gesetzes und weiterer energierechtlicher Vorschriften

¹¹ Irish Central Statistical office

¹² Home Energy Grants. Accessed 19th January 2022. Available from: <https://www.seai.ie/grants/home-energy-grants/>

¹³ Community Grants. Accessed 19th January 2022. <https://www.seai.ie/grants/community-grants/>

¹⁴ <https://www.seai.ie/grants/community-grants/>

- Further develop the community engagement role of local authorities, and will pilot ‘climate action community engagement’ offices in a number of Local Authorities
- Through these new offices, Local Authorities will become key partners and enablers of an expanded network of Sustainable Energy Communities across Ireland, complementing the actions for Local Authorities on citizen engagement and community leadership.

A new Renewable Electricity Support Scheme (RESS) was adopted in 2020¹⁵. Community led projects are introduced within this scheme and receive special incentives for renewable generation. The community led projects have to meet the following conditions

- Be part of an SEC.
- The Declaration of community-led project must identify the SEC to which the project is correlated and the relationship between the applicant and the SEC.
- The majority ownership (51%) must be a Renewable Energy Community having as primary purpose community benefits (environmental, economic or social) rather than financial profit.
- At least 51% of all profits, dividends, and surpluses are returned to the REC.
- The project size for energy generation is limited to 5MW.

Ireland also adopted a new electricity system connection policy Enduring Connection Policy (ECP-2) in 2020 assisting community led renewable energy projects to get a connection offer on a preferred basis, thereby reducing implementation barriers¹⁶. The Irish electricity system connection policy’s principal objective is to allow those projects which are ready for implementation to have an opportunity to connect to the network (ECP projects). Shareholders or members of a REC need to be located (in the case of SMEs or local authorities) or resident (in the case of natural persons) in the proximity of an ECP project.

Latvia

The EMD² stipulates that energy communities, among other initiatives should be considered as forms of cooperation, so there should be no restrictions on their type of legal entity. The main feature of energy communities is that the property is managed, and decisions are made by all members or shareholders of the entity. This community is an organizational unit between different persons (legal bodies, companies etc.), where each member retains their rights to leave the community and choose another energy supplier if they wish so¹⁷.

¹⁵ Irish Government (2020): Terms and Conditions for the first competition under the renewable electricity support scheme – RESS1:2020. https://www.dcae.gov.ie/documents/RESS_1_Terms_and_Conditions.pdf

¹⁶ Commission for Regulation of Utilities (2020): Enduring Connection Policy Stage 2

¹⁷ Community (2020): Recommendations for development of renewable energy communities in Latvia

Additionally, Latvia's National Energy and Climate Plan 2021-2030 contains several policies and measures referring to energy communities:

- Direction of action “Economically feasible promotion of energy self-generation and self-consumption”;
- Policy area “Involving society in energy generation” with a focus on energy efficiency and renewable energy targets;
- Support measures including new legislation, feasibility studies and project funding

Poland

The Renewable Energy Sources Act of 2015 focuses on individual prosumers, but the law has recognized energy cooperatives (1982 Cooperative Law) for a considerable period of time. The government focuses on developing so-called ‘energy clusters’. An energy cluster is a civil law agreement, both a cooperation agreement and a commercial partnership agreement, between its participants that does not have legal personality. It includes a large membership base: natural persons, local government units, entrepreneurs, research institutes, universities. It is technology-neutral and focuses on energy generation and balancing, within a distribution network with participants connecting at a rated voltage lower than 110 kV. The main societal value of a cluster is that it contributes to the local economy.

Energy cooperatives are beginning to appear in Poland, however, the institution of an energy cooperative is not known to Polish law, just like in Germany, energy cooperatives are called so because of the function they perform. Cooperatives operate in Poland on the basis of cooperative law, which does not provide for restrictions on the scope of economic activity conducted by the cooperative. Therefore, the cooperative model is not required to conduct activities in the field of civic energy.

Spain

In Spain, there is no detailed legislation on energy communities. The decree law 23/2020 of 23 June 2020 introduced energy communities and aggregators, only defining their general purpose and nature¹⁸. However, Spain has an advanced framework enabling self-consumption in place, allowing for the use of the public electrical system infrastructure, which goes beyond the requirements of Article 21, REDII on CSC.

The Spanish government, on April 5th 2019, approved the Royal Decree 244/19 that regulates the administrative, technical and economic conditions of self-consumption in Spain. This Decree completes the regulatory framework on this issue, driven by Royal Decree-Law 15/2018, which repealed the so-called “sun tax” and provides increased certainty and security to users. Among other measures, the Royal Decree enables individual and collective self-consumption by groups of apartment owners or in industrial estates, it reduces administrative procedures, especially in the case of small self-

¹⁸ Government of Spain (2020): Real Decreto-ley 23/2020, de 23 de junio, por el que se aprueban medidas en materia de energía y en otros ámbitos para la reactivación económica.
https://www.boe.es/diario_boe/txt.php?id=BOE-A-2020-6621

consumers, and establishes a simplified mechanism for compensation of energy fed into the public electricity network. Self-consumption previously was allowed with generation facilities located in the same dwelling only. According to the current rules, power surpluses may be shared with nearby consumers also in other buildings or fed into the electrical network.

Collective self-consumption using the distribution network infrastructure is physically and geographically limited by the following conditions:

- The participating entities must be located within the low voltage distribution network derived from the same power transformer, which interfaces the medium voltage network with the low voltage distribution network..
- The maximum distance between the production and consumption meters is 500m.
- Participants are located in the same cadastral area

The generation facilities are connected to the internal network of associated consumers (also known as direct lines) or via the low voltage network. The right for feeding in electricity and receiving compensation for surpluses is contingent on several conditions. A general distinction is made between self-consumption with and without energy surpluses. The law distinguishes between:

- Modalities for self-consumption without surpluses. In these modalities, an export limitation system must be installed to prevent the injection of surplus energy into the low voltage distribution network.
- Modalities of supply with self-consumption and surpluses. In these modalities, production facilities that are close to and associated with consumption facilities may, in addition to supplying energy for self-consumption, inject excess energy into the distribution networks. In addition, there is a mechanism called “shared self-consumption under compensation” that enables estimation of the distribution of energy further up the distribution network to the medium and high-voltage distribution networks and to each member of the CSC scheme.

If a consumer/prosumer joins a surplus compensation system they are excluded from other types of compensation scheme. CSC schemes using the public distribution network infrastructure are generally excluded from the compensation scheme. Non self-consumed energy would offset part of the energy that had to be secured from the main energy market from the distribution system, at the freely agreed price with the chosen supplier or at the hourly average price of the electricity market. In any form of self-consumption, the consumer and the owner of the generating facility may be different natural or legal persons. Storage elements may be installed in all types of self - consumption.

Production facilities not exceeding 100kW power associated with surpluses will be exempt from the obligation to register as an electricity supplier and will be subject only to technical regulations. Regulations may be developed for production facilities below 100kW for a simplified compensation mechanism between deficits of self-consumers and surpluses from its associated production facilities. For installations above 100 kW,

surplus energy has to be traded on the wholesale energy market. Regarding access to connections and the low voltage network infrastructure, production facilities of up to 15 kW that are located on urbanized land and meeting the urban legislation requirements, will be exempt from the need for access and connection permits.

Besides the actual development of the legal framework for energy communities, the Spanish charges for self-consumption regarding the use of the public grid and the compensation scheme are currently under revision. Given the expanded CSC scheme, the current Spanish framework may be interpreted as a hybrid model between CSC and REC models. Two major differences however remain; an energy community represents an organizational format that requires a legal entity underlying several governance-related rules and its potential activities go beyond self-consumption.

One supportive factor for implementing local RES projects in Spain is an existing framework for Energy Consumption Cooperatives. These cooperatives are entities in charge of managing different activities within the local energy environment and can implement integrated RES projects. The cooperative framework is very suitable for energy communities as they work in different fields from distributed energy resources to citizen/end-user consumption with a legislation that enables and eases their operation. This cooperative framework may therefore set the ground for the organization of energy communities, shared ownership of assets and collective self-consumption¹⁹.

¹⁹ Frieden, D., Andreas Tuerk, Melani Furlan, Boris Pavlin, Alexandros Chronis, Nasos Vasilakis, Lin Herenčić (2020): COMPILE Deliverable D2.3: Regulatory frameworks for energy communities in the pilot site countries Croatia, Spain, Greece, Portugal and Slovenia – Shaping EU framework transposition and project implementation. <https://www.compile-project.eu/downloads/>

4. Energy communities in the National Energy and Climate Plans

With the conclusion of the EU's 2030 climate and energy legislative framework, there are now more opportunities than ever for citizens to get involved in the energy transition. Prior to writing new rules that give effect to new rights and supportive frameworks for citizens and communities, Member States are required to deliver final National Energy and Climate Plans (NECPs). This planning process creates space for establishing high levels support for citizen participation and support of a decarbonised energy system.

This policy report assesses the treatment of energy communities in the NECPs, independently of a pre-existing national framework.

While it is encouraging that many countries positively acknowledge the energy community concept, it was clear from the assessment that the understanding of the role that energy communities can play in the energy sector is very limited, and most NECPs are not accompanied by concrete measures dimensions.

Table 2. Treatment of energy communities in NECPs in partner countries

| | Renewable Energy | Energy Efficiency | Internal energy market |
|----------------|--|--|-----------------------------------|
| Austria | <p>An accompanying integrative approach aimed at achieving decentralised power generation in renewable energy communities, necessary sector coupling, integration of storage technologies and the use of digitisation, and for which network infrastructure needs to be developed further, is dependent on parallel adjustments being made on a number of other legal issues</p> <p>When further developing Section 16a of the Electricity Industry and Organisation Act, which first permitted in 2017 that energy-generating installations in renewable energy communities could form part of a single property, renewable energy communities must be established by transposing the 2018 Renewable Energy Directive.</p> <p>These communities enable bilateral supply contracts to be set up and, likewise, cooperative-type structures for the generation, storage and supply of renewable electricity, even beyond property boundaries. It is also possible to set up and operate local distribution network infrastructures (microgrids) cost-effectively.</p> <p>So that disincentives are not introduced</p> <ul style="list-style-type: none"> – meaning the creation of unnecessary electrical infrastructure in parallel to existing electrical infrastructure which have already been set up and financed | <p>The e5 programme offers support for municipalities looking to use energy in a more efficient and environmentally-friendly manner and to step up their use of renewable energy. To this end, each province has a programme promoter who is available to help municipalities. Ideas, knowledge and personal commitment to energy matters from residents are, above all, an important pillar of the programme. Each e5 community forms an e5 team composed of residents, experts, representatives of environmental groups, companies, municipalities, etc. who are not associated with political structures. As an initial step, the e5 team examines which options for improving energy use are already in place on the basis of a list of measures. Subsequently, suggestions are made as to how energy efficiency could be further improved. e5 municipalities undergo regular independent reviews and are awarded a rating of between one and five ‘e’s, with the best rating being ‘e5e5e5’</p> <p>Approximately 220 Austrian municipalities are already on the e5 programme.</p> | <p>Only mention smart meters.</p> |

| | Renewable Energy | Energy Efficiency | Internal energy market |
|----------------|---|---|-------------------------------|
| Austria | <p>appropriate options must be made available when further developing existing tariff systems for renewable energy communities and the financing mechanisms behind them. This must be ensured, for example, by means of local tariffs or corresponding rolling cost models in the system fee structure. Regionalisation and decentralisation of renewable electricity generation, taking advantage of progressive digitisation in the interests of establishing ‘smart grids’ will also improve supply security and the robustness of the system in general.</p> <p>A key focus for renewable energy funding is that of increasing self- supply, in particular from a system-based point of view by the producers themselves and through renewable energy communities.</p> <p>So that precisely this continually increasing share of renewable energy can be taken into account and included in the strategic planning for funding itself and in reporting on targets, appropriate rules for statistical recording must be laid down by the regulatory authority or settlement centre</p> | <p>The 2018 Renewable Energy Directive requires that renewable energy communities are established. This Directive is transposed by the Renewable Energy Expansion Act. These communities enable bilateral supply contracts to be set up and, likewise, cooperative-type structures for the generation, storage and supply of renewable electricity, even beyond property boundaries. In so doing, it is also possible to set up and operate local grid structures (microgrids) cost-effectively. Regionalisation and decentralisation of renewable electricity generation, taking advantage of progressive digitisation in the interests of establishing ‘smart grids’ will also improve supply security and the robustness of the system in general.</p> | |
| | <p>Comments:</p> <ul style="list-style-type: none"> • No targets are specified • RECs are considered and mentioned – although in the context of collective self-consumption/energy sharing only • The legislation links RECs and municipal/local actors to promotion of energy efficiency • CECs are not considered. | | |

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| <p style="text-align: center;">Bulgaria</p> | <p>An enabling framework was developed to promote and facilitate the development of renewables self-consumption and establish renewable communities.</p> <p>When the new directive is transposed, a review will be carried out and relevant legislative changes will be introduced to take account of the specificities of the technologies used to generate renewable energy, the time limits for granting permits will be optimised and the possibility for introducing simplified and less burdensome procedures for distributed production and storage of renewable energy will be considered.</p> <p>Existing measures:</p> <p>The Energy from Renewable Sources Act provides for a simplified administrative procedure for connecting to the electricity distribution networks of small installations with a total installed capacity of up to 30 kW on roof and facade structures of buildings connected to the electricity distribution grid and in real estate adjacent to such buildings in urbanised areas.</p> <p>The contribution of the local authorities to a higher penetration of renewable energy and to the creation of conditions for renewables self-consumption and consumption of renewable energy by separate ‘renewable energy communities’ at local level is essential for the cost-effective development of renewable energy in the country. Directive 2009/28/EC and the new directive require that opportunities for use of renewable energy be considered when planning, designing, building and renovating urban infrastructure, including industrial, commercial and residential areas, and energy infrastructure, with a special focus on the use of heating and cooling from renewable energy sources. As a measure for promoting distributed renewable energy production, a legal basis will be developed that will lay down the rights and responsibilities of final consumers when they participate in ‘renewable energy</p> | <p>Not applicable</p> | <p>To increase the flexibility of the energy system through energy demand response, Bulgaria plans, by taking legislative measures, to establish suitable conditions for creating active consumers, opportunities for associations through aggregators or energy communities and their active participation in demand response in different market segments</p> |
|--|--|-----------------------|---|

| | Renewable Energy | Energy Efficiency | Internal energy market |
|--|---|--------------------------|-------------------------------|
| | <p>communities' which can produce, consume, store or sell energy from renewable sources.</p> <p>The support will be provided by granting access to operation in the energy system, facilitating market integration, establishing administrative requirements in line with the specificities of the renewable energy communities, etc.</p> | | |
| | <p>Comments:</p> <ul style="list-style-type: none"> • No targets or specific objectives are set down. • Most points relating to energy communities were not applicable (REC objectives, EE, objectives in IEM) • Intention to introduce policies and measures to facilitate development of both self-consumption and renewable energy communities • Importance of local authorities in development of renewable energy communities and self-consumption highlighted • Mentioned existing policies & measures for small-scale RES • No reference to energy efficiency • With respect to market design, no specific objectives are identified but references to the requirements for support to active customers and energy communities to, inter alia, contribute flexibility to the system are provided. | | |

| | Renewable Energy | Energy Efficiency | Internal energy market |
|----------------|--|--------------------------|---|
| Germany | <p>Regulatory framework for renewable energy communities that supports and drives forward the development of such communities. This regulatory framework so far covers the following key aspects:</p> <ul style="list-style-type: none"> • Access to renewable energy communities is open to end consumers in Germany in a non-discriminatory manner, • Access of renewable energy communities to the existing support schemes • Special privileges to CECs in calls for funding in the area of onshore wind energy. If selected, these renewable energy communities receive funding not just on the basis of their own bid value but based on the bid value of the highest bid accepted on the same bid date (uniform pricing). <p>The Federal Government is assessing whether changes to the existing regulatory framework are required for the implementation of Article 22 of Directive (EU) 2018/200</p> | Not applicable | Federal states are committed to creating a European internal electricity market, for example by promoting cross-border CECs |
| | <p>Comments:</p> <ul style="list-style-type: none"> • No objectives, policies or measures specified for RECs. • References to existing policies and measures for self-consumption, but nothing new planned • No objectives, policies or measures for CECs | | |

| | Renewable Energy | Energy Efficiency | Internal energy market |
|----------------|--|--|---|
| Ireland | <p>Under implementation:</p> <ul style="list-style-type: none"> Promotion of RECs in auction through auction separate category in auction (<10% of installed generation capacity) <p>Under consideration:</p> <ul style="list-style-type: none"> Simplification of administrative procedures Specific financial support Capacity-building Mandatory community benefit fund and register Mandatory investment opportunities | <ul style="list-style-type: none"> Educational measures Funding measures under Better Energy Communities grant schemes Capacity building through Sustainable Energy Communities network, focused on EE but possible extension to RES generation | <p>Nothing specific except</p> <ul style="list-style-type: none"> Cooperation with TSO Energy poverty addressed by Better Energy Communities <p>Mostly awaiting transposition of Clean Energy Package</p> |
| | <p>Comments:</p> <ul style="list-style-type: none"> No objectives for energy communities. Formal: following the template, over minimum requirements Includes new and planned measures to support RECs. Mix of typical measures (financial incentives, administrative procedures, education and capacity building). Addresses energy communities within energy efficiency. No objectives for energy communities; however, mention addressing energy poverty through energy communities. | | |

| | Renewable Energy | Energy Efficiency | Internal energy market |
|---------------|--|--------------------------|---|
| Latvia | <p>Since own use plays a key role in promoting awareness of the society and support for renewable energy, Latvia has laid down conditions for promoting own use.</p> <p>Development of the legal framework for promoting the establishment of a REC.</p> <p>According to the proposal for transposing Directive 2009/28/EC, Latvia has to establish a point of contact for renewable energy by 2021, which the potential or the current developer of a renewable energy project can refer to if he or she wants to start or has already started to implement a renewable energy technology project. This point of contact is the main “one-stop-shop” in Latvia regarding the issues of renewable energy, including in relation to issuing all permits and decisions required. This point of contact also ensures mediation in communication between all other national regulatory authorities and the specific developer of the renewable energy technology project. There is currently no specific point of contact in Latvia regarding these matters.</p> | | <p>For the benefit of consumers, Section 301 of the Electricity Market Law introduces an electricity net payment system for micro generators in force since 1 January 2014 for all households that produce electricity for own consumption using RES.</p> <p>The process of connecting micro generators takes place according to the Decision No 1/7 of the Council of PUC of 27</p> <p>March 2018 “System Connection Regulations for the Participants of the Electricity System”.</p> <p>Since 2012, the Ministry of Economics has issued about 600 permits for introducing new electricity generators, mostly micro generators with a power from 0.0035 MW to 0.1 MW.</p> |
| | <p>Comments:</p> <ul style="list-style-type: none"> • No mention of objectives for renewable energy communities • Brief mention of intent to establish framework for establishment of RECs • Describes existing measures to support self-generation but no new measures • No acknowledgment of role of energy communities in EE • No objectives for energy communities or self-consumers in market design; identifies existing measures only | | |

| | Renewable Energy | Energy Efficiency | Internal energy market |
|---------------|---|--|--|
| Poland | <ul style="list-style-type: none"> • Focus on micro-generation (30.000 installations, 160 MW) in 2017, no quantitative target or trajectories but general pledge to develop further • Auctions • Feed-in-Tariff (FIT) and Feed-in-Payment (FIP) for small installations, for energy not self-consumed • Investment aid (local) • Regulatory stability for investment • Development of distributed generation through energy communities, energy clusters and cooperatives □ 300 areas by 2030 (investment aid) • Storage • Heat <p>Enabling framework</p> <ul style="list-style-type: none"> • Certification of commercial entities below 600kW needs simplification. • Capacity building in relation to auction, reporting obligation for producers etc. | <p>Building management and demand response educational measures have been linked together.</p> | <ul style="list-style-type: none"> • General pledge to increase flexibility • Educational measures • Smart meter roll-out (80% by 2026) and dynamic pricing • Streamlining and expending existing incentives for consumer engagement, introducing new ones • Self-consumption, local energy communities |
| | <p>Comments:</p> <ul style="list-style-type: none"> • No objectives for energy communities or self-consumption but pledge to develop further • Following the template superficially • Identify measures to support renewables but nothing specific to energy communities • In market design, intend to support individual and collective schemes as well as energy clusters <p>Best practice</p> <ul style="list-style-type: none"> • Energy clusters • Capacity-building services for auction | | |

| | Renewable Energy | Energy Efficiency | Internal energy market |
|--------------|--|--------------------------|--|
| Spain | <ul style="list-style-type: none"> • Simplification of administrative procedures for new technologies or “models of organisations” • Removal of regulatory barriers/gaps • General objective of decentralization generation • Education and capacity- building measures | | <ul style="list-style-type: none"> • Smart meter deployment (no concrete information) • General pledge to continue developing the enabling framework for self-consumption • General pledge for demand-response, balancing RES, consumer engagement and protection • General pledge on smart grid, nopriority dispatch, demand-response |
| | <p>Comments:</p> <ul style="list-style-type: none"> • Following superficially the template • Narrative/general pledge but no concrete measures (except existing measures and possibility of extending them) • Simplification of procedures, education and capacity-building <p>Best practice:</p> <ul style="list-style-type: none"> • Recognizing the need to support technological and social innovations (“new models of organization”) | | |

Targets or objectives for renewable energy communities

According to the template in the Governance Regulation, Member States are encouraged, but not required, to communicate national objectives for the growth of renewable energy communities. The adoption of high-level targets or objectives would provide the basis for strong political commitment and investment signal, as well as the development of a framework (including policies and measures) so that the objective or target can be met.

Due to the non-binding nature of this section of the NECP template, an overwhelming majority partner countries either ignored this section entirely or stated in their NECP that it was inapplicable.

Policies and measures for renewable energy communities

Member States are required to summarise policies and measures that they will put in place to promote and facilitate the development of renewables self-consumption and renewable energy communities under the recast Renewable Energy Directive.

Policies and measures for energy efficiency and energy communities

The Governance Regulation encourages Member States to link energy efficiency with support for citizen's energy communities in their NECPs. Specifically, Member States should, where applicable, include policies and measures to support the role of energy communities in achieving energy efficiency policy objectives.

Objectives in the internal energy market for energy communities

In the section of the NECP template on market integration, Member States are encouraged to include national objectives for how they will ensure consumer participation in the energy system and how citizens can benefit from self-generation and new technologies. While vaguely worded, this suggests that Member States also need to communicate how they will ensure that citizens benefit from participating in CECs.

Policies and measures in the internal energy market for energy communities

Similar to the above, in the section of the NECP template on market integration, Member States are encouraged to include policies and measures for how they will ensure consumer participation in the energy system and that citizens benefit from self-generation and new technologies.

The table below summarises the analysis of the above topics within the NECPs within the pilot states.

Table 3. NECP assessment of performance in addressing energy communities

| | Renewable Energy | | Energy Efficiency | Internal energy market | |
|--|-----------------------------------|------------------------------|--|------------------------|------------------------------|
| | Targets or objectives for RECs | Policies & measures for RECs | Policies & measures for CECs | Objectives for CECs | Policies & measures for CECs |
| Included | | Austria, Ireland, Spain | Austria, Ireland | | |
| Planned | | Bulgaria, Latvia | | Ireland | Ireland |
| Partly included | | | | Poland | |
| Acknowledged but without any detail | Germany, Spain | Germany, Poland | | Bulgaria, Germany, | Bulgaria, Germany, Spain |
| Ignored or not applicable | Austria, Bulgaria, Latvia, Poland | | Bulgaria, Germany, Latvia, Poland, Spain | Austria, Latvia, Spain | Austria, Latvia |
| Unclear | Ireland | | | | Poland |

Conclusions

Despite the diversity of national policies and acknowledgement of energy communities reflected in the plans, it is possible to identify some main trends.

In general, most NECPs mention energy communities but detail is severely lacking on how they will be enabled and implemented. It is encouraging that in general partner countries addressed the topic of community energy in their plans. However, the extent to which this topic was covered in a forward-looking manner varied to different degrees in terms of detail, clarity and concreteness.

It was also noticeable from the current draft NECPs that there is a lack of understanding of the potential of what activities energy communities can engage in, and which national objectives they might be able to contribute to.

Interestingly, Austria and Ireland linked energy communities to energy efficiency and poverty in their plans. This suggests a growing understanding of the potential of energy communities to contribute to energy efficiency and energy poverty objectives. Yet, there is still tremendous room for better understanding by partner countries.

An overall assessment of the role energy communities play in the NECPs among partner countries is presented in the table below

Table 4. Summary assessment of the role of energy communities in NECPs

| Country | Summary | Assessment |
|----------|---|---|
| Austria | No target; include some policies and measures for renewable energy communities mentioned but only in the context of collective self-consumption/sharing/micro-grids; no mention of citizens energy communities | NECPs positively acknowledged energy communities in most of the relevant sections, but there were still gaps in some sections or the level of detail on supportive policies and measures was low. |
| Bulgaria | No target/objective; mention existing policies and intent to introduce policies and measures for self-consumption and renewable energy communities; mention importance of local authorities in developing renewable energy communities and self-consumption | NECPs positively acknowledged energy communities but provided little or no detail |
| Germany | No mention of energy communities and only brief mention of existing measures for self-consumption | NECPs positively acknowledged energy communities but provided little or no detail |
| Ireland | No objectives, but includes concrete measures to support, and acknowledges communities' role in energy efficiency and energy poverty | NECPs positively acknowledged energy communities in most of the relevant sections, but there were still gaps in some sections or the level of detail on supportive policies and measures was low. |
| Latvia | No target, brief mention of intent to establish framework for renewable energy communities | NECPs positively acknowledged energy communities but provided little or no detail |
| Poland | No target, mention vague measures to support distributed generation, energy clusters and energy communities but very unclear | NECPs either positively acknowledged energy communities but provided little or no detail. |
| Spain | No target, include measures to promote self-consumption, and acknowledge social innovation/need to put in place a framework for energy communities, but provide no detail | NECPs either positively acknowledged energy communities but provided little or no detail |

5. Incentives for collective actions in partner countries

The table below summarises existing incentives for collective action in partner countries and activities identified as the most effective on the basis of the conducted questionnaires. The most popular activities were financial support and social campaigns, such as awareness-raising and educational campaigns. Financial support and assistance with technical and legislative aspects were considered to be the most effective

Table 5. Summary of incentives for collective actions in partner countries

| Country | Existing incentives | Most effective incentives |
|----------|---|--|
| Austria | <ul style="list-style-type: none"> • Financial supports • Awareness raising activities • Energy advice and consulting • Comprehensive support programmes • Promoting campaigns | <ul style="list-style-type: none"> • Financial support • Assistance on technical aspects |
| Bulgaria | <ul style="list-style-type: none"> • Government subsidies for energy refurbishment of multi-family residential buildings; • Feed-in tariffs to support RES electricity generated by rooftop PVs, wind and hydro energy. | <ul style="list-style-type: none"> • Financial support (subsidies, loans, etc.) • Assistance on technical aspects • Assistance on organizational aspects • Assistance on legislative aspects • Support for promotional campaigns and direct liaisons with citizens to explain and involve them in the collective action |
| Germany | There are currently no active funding programs, regulations or laws in Germany that support joint activities for renewable energies or energy efficiency measures | - |
| Ireland | <p>The SEAI Community Grant supports energy efficiency community projects through capital funding, partnerships, and technical support.</p> <p>There are a variety of different grants available to make homes warmer and more efficient.</p> | <ul style="list-style-type: none"> • Financial support (subsidies, loans, etc.) • Assistance on technical aspects • Assistance on organizational aspects • Assistance on legislative aspects |
| Latvia | N/A | - |

| | | |
|--------|--|--|
| Poland | <ul style="list-style-type: none"> • Awareness raising activities • Energy advice and consulting | - |
| Spain | <p>There are some citizen consultation processes and other support initiative such as the Project Life.</p> <p>Also, fiscal and tax benefits (depending on municipality) to promote PV generation.</p> | <ul style="list-style-type: none"> • Assistance on technical aspects • Assistance on organizational aspects • Special assistance on citizens empowering |

Summary of legislative measures and incentives

In Austria the current legal norms meet the expectation and do not need to be changed. There are no conflicting legislations and also there are no need for simplification regarding administrative procedures. It was felt that there were no substantial barriers to the development of collective energy efficiency measures or collective RES investment projects. The only barriers observed were typically a result of individual situations and thus require a bespoke approach to addresses these.

Legislation needs to be developed that transposes the elements of the EU legislation regarding RES energy communities into Bulgarian national laws and to be harmonised with the existing provision for collective action for building energy refurbishment as well as with the Law on Cooperatives.

In Germany, there are too many administrative hurdles for energy communities and renewable energy projects for end customers. The key change required to support collective actions, is to ensure the articles regarding RECs and CECs in the Clean Energy Package are transposed into national law. The first EU 'collective actions' under the new Directive likely to be transposed into domestic laws in 2023 – enabling consumer organisations, regulators and other “qualified entities” to commence representative actions on behalf of consumers

With the support of Sustainable Energy Authority of Ireland (SEAI) there are over 500 sustainable energy communities in Ireland. Their growth is hampered by the need to properly procure and fund the development of an energy master plan. Steps are now being taken to have this work carried out on behalf of the energy communities by the local authority who can then claim the money back from SEAI.

Lithuanian law requires significant adaptation to the relevant directives from the Clean Energy Package. The current trends towards civic energy and energy communities are not adequately presented and covered by Lithuanian law or NECPs. There are no specific plans and goals to be achieved with respect to these concepts.

In Poland, the government has focuses on developing so-called ‘energy clusters’. An energy cluster is a civil law agreement, both a cooperation agreement and a commercial partnership agreement between its participants, that does not have legal personality. It includes a large membership base: natural persons, local government units, entrepreneurs, research institutes, universities. It is technology-neutral and focuses on energy generation and balancing, within a distribution network with a rated voltage lower than 110 kV. The main societal value of a cluster is that it contributes to the local economy.

In Spain, government requires trial or pilot projects to provide the evidence base to assess their viability and replication. In order to progress energy communities in Spain, energy agencies need to focus on collective actions and start gathering resources. Furthermore, a need for a support agency for collective energy actions has been identified.

6. Collective Actions Survey

In order to gain deeper insights into the administrative barriers, needs and incentives associated with energy communities a survey was carried out among the collective actions engaging with the project. The questionnaires analysed 20 different collective actions from all 7 countries participating in the project (Austria – 2, Ireland – 2, Bulgaria – 2, Germany – 2, Latvia – 6, Poland – 2, Spain – 6). Conclusions drawn from the analysis of the survey are presented below. The aggregated results of the questionnaires are presented in Annex I.

Motivations of the initiator of collective activity

One of the key objectives of the survey was to learn more about the motivations behind collective actions among the stakeholders. The results indicated that one of the most important motivations is to develop areas or districts by increasing the size and number of investment projects in municipalities, the social sector and businesses through energy contracting and activity. Such activities also support development, energy efficiency and renewable energy investment in one-family homes which contribute to the development of the region. This also enables economic growth, improves the quality of life in the region and also creating regional added value due to climate-friendly investments.

The survey results indicated that such activities directly benefit residents and members of energy communities as a result of reduced energy costs for municipalities related to effective management and generation of energy. For investors in renewable energy sources, it can also result in a reduction in the unit cost for the installation of these technologies due to the efficiencies of coordinated delivery of multiple projects enabling stronger bargaining positions and economies of scale. This also enables residents to initiate renewable projects and to remove barriers with respect to the implementation of RES projects.

At the country level, promoting collective action enables the achievement of national and local goals for energy efficiency as part of sustainable developments was a theme that emerged from the responses. Development of energy communities is based on communities needs for energy-efficient solutions and renewable energy sources that will enable a reduction in greenhouse gas emissions.

Purpose of collective activities

Survey respondents felt that the motivation for organizing collective action is to provide energy efficient service and support for homeowners as well as triggering and supporting energy efficiency and renewable energy investment.

The results indicate that collective action can achieve this goal by reducing barriers related to investment costs as well as the lack of knowledge, which has already been identified as a key benefits of collective action. This allows for easier investment in renewable energy and energy efficiency activities for potential stakeholders.

In some cases, energy communities may apply for additional support (for example. Sustainable Energy Communities facilitate energy retrofitting projects). Additionally,

such projects allow to gather private investors to invest in an action/project with clear sustainability and energy transition goals and also facilitate communication with all stakeholders and provide support from additional institutions (for example National Ministry of Energy and Climate or private institutions promoting renewable energy and energy efficiency).

In the case of pilot actions, the respondents agreed that this allows the establishment of support systems and a legal framework for future community energy projects.

Barriers of collective activity

While there were differences in responses across the partner countries some the analysis of the survey results identified recurring barriers in these countries related to the implementation of collective projects. These include:

- Challenging and slow beginnings to projects
- Banks do not understand the business model
- Ownership issues
- No/few (good) ESCOs
- Lack of information by municipalities /companies
- Low electricity prices
- Public procurement rules (perceived or real barriers)
- Reaching the homeowners at the point of making an investment.
- Activating the citizens
- Lack of proper legislation in country
- Finding a pilot site.
- Lack of qualified personnel
- Finding energy champions
- Seeking additional contractors specialising in energy retrofitting
- Encouraging people to see the value in getting energy audits which take a holistic approach to retrofitting
- Energy communities undefined legislation.
- Dealing with DSO results in a long and difficult procedures.
- Difficulty during implementation of public communitarian actions
- Lack of success case studies in order to learn from their mistakes
- Bureaucratic procedures of legalization.
- Lack of financing schemes and business plans models
- Administrative support (legal, participatory processes etc.)

Conclusions

The analysis of the survey results provided a number of insights into the motivations, purposes and barriers associated with collective actions. The key conclusions from the survey are as follows:

- Financial support systems (in the form of subsidies or loans) significantly increase the interest in collective actions;
- Interest in the region among potential future participants in the collective action should be carefully examined and understood;
- Before the start of a collective action project, a major information campaign should be carried out to promote renewable energy sources and energy efficiency;
- Continuous information, promoting awareness raising and facilitation is necessary to keep the programme going;
- Efforts to reduce greenhouse gas emissions must include a high variety of measures. Not all measures are one-off, but constant improvements necessary;
- Proper communication between all participants of the collective action as well between the public administration and the DSO is critical and steps should be taken to ensure that this takes place.

In summary, collective actions are very fruitful but tend to be slow processes and can sometimes hit significant barriers which may slow or even stop projects typically due to legislation or bureaucratic processes.

Annex I. Questionnaires responses

Austria

| Collective activity No 1 | |
|---|---|
| Collective activity name | OSS for energy contracting in the region of Upper Austria |
| Acronym | Energy Contracting Programme Upper Austria |
| Who was the initiator of the collective action (<i>e.g. citizenship, public body, private body etc.</i>) | OÖ Energiesparverband (ESV), the regional energy agency of Upper Austria |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | Increasing the number of investment projects in municipalities, the social sector and businesses through energy contracting |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | Trigger and support energy efficiency and renewable energy investment through energy contracting. |
| Who are the key stakeholders involved in collective activity? Describe profile of the stakeholders involved (<i>e.g. municipalities, activists, general public, SMEs, etc.</i>) | Upper Austrian municipalities, companies and institutions as potential EPC clients and ESCOs |
| To whom it was addressed? Name the beneficiaries of collective activity. (<i>e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.</i>) | public sector/companies: implementation of energy efficiency measures in buildings, street lighting or production processes or energy supply systems with renewable energy for the provision of heat, possibly also cooling, electricity, compressed air, etc. |
| What was the main steps of this collective activity? | <ul style="list-style-type: none"> activation of potential EPC clients and potential ESCOs |

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| | <ul style="list-style-type: none"> • advice, information, facilitation throughout the customer journey • receipt and processing of funding application on behalf of the regional government <p>check and control of investment measures on behalf of the regional government</p> |
| What was the cost of this collective activity? | <p>Ongoing</p> <p>The regional government of Upper Austria started its first programme to support EPC market development almost 20 years ago.</p> |
| How was it financed ? | <p>Regional government</p> <p>+ national and regional funding bodies supporting the investment</p> |
| Monitoring process <i>(how did you monitor and record the results).</i> | <p>Results are monitored by OÖ Energiesparverband</p> |
| What were the results or what were expected to be obtained? <i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i> | <p>ongoing programme</p> <ul style="list-style-type: none"> - more than 200 projects realised - investment triggered: 60 million Euro |
| What were the pros and cons of this collective activity? | <p>Advantages of Energy Contracting</p> <ul style="list-style-type: none"> - No own investment required: The client's own capital does not need to be invested and remains in the municipality/company. After the end of the contract, the municipality/ company benefits from the energy and maintenance cost savings. - guaranteed energy savings - Investment without debts: Unlike loan financing, energy contracting financing is |

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| | <p>usually debt-neutral since the ESCO invests and the client only pays the ESCO's contracting rate.</p> <ul style="list-style-type: none"> - Additional benefits: Modern systems and efficient technologies increase user comfort. The use of efficient energy technologies can increase environmental friendliness. <p>EPC: Pros and Cons</p> <ul style="list-style-type: none"> - in principle almost for every building technical and economical saving potentials can be harnessed and therefore EPC is possible - however, small buildings (low energy costs) are very often not profitable for a Energy Performance Contracting project - here "pooling" helps - Examples, when EPC does not make sense: small project size; money for investment available; staff available; - excellent technical know-how of building owner; construction and planning can be done economically |
| <p>What barriers it encountered? (if any)</p> | <p>the first years were challenging and the programme started very slowly</p> <ul style="list-style-type: none"> - The challenges differ - Banks that do not understand the business model - Ownership issues - No/few (good) ESCOs - Lack of information by municipalities /companies - Low electricity prices - Public procurement rules (perceived or real barriers) |

| | |
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| Lesson learnt? | Continuous information, awareness raising and facilitation is necessary to keep the programme going. |
| Further information and sources (links) | www.energiesparverband.at/energiecontracting |
| Collective activity name | OSS for energy contracting in the region of Upper Austria |

| | |
|---|---|
| Collective activity No 2 | |
| Collective activity name | OSS for for energy efficient homes (Energieberatung und Wohnbauförderung) |
| Acronym | Energy Advice Homeowners |
| Who was the initiator of the collective action (e.g. citizenship, public body, private body etc.) | Public: Land OÖ (Region of Upper Austria) |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | Trigger and support energy efficiency and renewable energy investment in one-family homes |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | Service for homeowners to support energy efficient new construction and retrofitting |
| Who are the key stakeholders involved in collective activity? Describe profile of the stakeholders involved (e.g. municipalities, activists, general public, SMEs, etc.) | Network of energy advisers Land OÖ (Region of Upper Austria) Partnership with the regional building programme |
| To whom it was addressed? Name the beneficiaries of collective activity. (e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.) | Private homeowners |

| | |
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| <p>What was the main steps of this collective activity?</p> | <ul style="list-style-type: none"> • activation of homeowners (e.g. through tradeshows, media work, cooperation with banks and municipalities information materials • 10,000 face-to-face energy sessions per year, most of them on-site • phone support throughout the customer journey, also to relevant professionals • receipt and processing of funding application on behalf of the regional government <p>check and control of investment measures on behalf of the regional government</p> |
| <p>What was the cost of this collective activity?</p> | <p>in operation since 1991, ongoing</p> |
| <p>How was it financed?</p> | <p>Regional government</p> |
| <p>Monitoring process <i>(how did you monitor and record the results).</i></p> | <p>check and control of investment measures on behalf of the regional government</p> |
| <p>What were the results or what were expected to be obtained? <i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i></p> | <p>More than 10,000 face-to-face advice session given per year</p> <p>Greenhouse-gas emissions from the buildings in the region were reduced by 30 % in 10 years</p> <p>Energy efficient construction and renovation of private homes (building materials, renewable heating etc.)</p> |
| <p>What were the pros and cons of this collective activity?</p> | <p>Pros</p> <p>Every homeowner can benefit from this advice, especially people who have no external consultant or architect benefit</p> |
| <p>What barriers it encountered? <i>(if any)</i></p> | <p>To reach the homeowners on the point of making an investment.</p> |

| | |
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| Lesson learnt? | <p>Activation of homeowner is key (without that, the best OSS is useless)</p> <p>Situation-specific, target advice given at right moment, i.e. when homeowners are on the point of making an investment, is most effective.</p> |
| Further information and sources (links) | <p>www.energiesparverband.at ></p> <p>Energieberatung > Privathaushalte</p> |

Bulgaria

| | |
|--|---|
| Collective activity No 3 | |
| Collective activity name | National Programme for Energy Efficiency of Multi-family Residential Buildings |
| Acronym | NPEEMRB |
| Who was the initiator of the collective action (<i>e.g. citizenship, public body, private body etc.</i>) | <p>Public bodies:</p> <ul style="list-style-type: none"> • Republic of Bulgaria <p>Asenovgrad Municipality as local authority with its sustainable development targets</p> |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | To contribute to achieving the national and local goals for energy efficiency as part of sustainable development |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | To provide regulatory framework and funding for collective action of private home owners aimed at energy refurbishment of multi-family residential buildings with many individual apartment owners. |
| Who are the key stakeholders involved in collective activity? | <ul style="list-style-type: none"> • Republic of Bulgaria • Asenovgrad Municipality • Citizens |

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| | Associations of home owners |
| Describe profile of the stakeholders involved (<i>e.g. municipalities, activists, general public, SMEs, etc.</i>) | <ul style="list-style-type: none"> • The state as promoter and facilitator of energy efficiency in residential buildings at national level; • The municipality of Asenovgrad as promoter and facilitator of energy efficiency in residential buildings at local level; • Citizens as home owners who invest in energy efficiency in their property to achieve cost savings and contribute to environmental targets; • Associations of Home Owners as representatives of home owners in the process, <p>Banks as vehicle to provide loans to home owners for works not covered by state subsidies.</p> |
| To whom it was addressed? Name the beneficiaries of collective activity. (<i>e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.</i>) | Households in multi-family residential buildings |
| What was the main steps of this collective activity? | <p>direct beneficiaries:</p> <ul style="list-style-type: none"> • Promotional campaign of the initiative; • Help to establish associations of home owners to perform collective action for refurbishing the entire buildings; • Advice on administrative procedures and documents to fill; • Liaison with contractors to do the works; • Monitoring of construction works <p>indirect beneficiaries:</p> |

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| What was the cost of this collective activity? | 13 000 000 euro |
| How was it financed ? | Public funding/subsidies from the state and from the municipal budget, bank loans for measures not covered by public funding |
| Monitoring process <i>(how did you monitor and record the results).</i> | Municipalities oversee the process from establishment of Homeowners Associations, preparation of their application for funding, approval and selection of contractor for the actual works, monitoring the process and results |
| What were the results or what were expected to be obtained? <i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i> | <ul style="list-style-type: none"> • Energy refurbishment of 28 multi-family residential buildings with hundreds of individual owners on the territory of Asenovgrad Municipality <p>Contribution to local sustainable development targets of the municipality</p> |
| What were the pros and cons of this collective activity? | <p>Pros:</p> <ul style="list-style-type: none"> - Energy and cost savings; - Contribution to environmental targets of the municipality and at national level <p>Cons:</p> <p>Low quality of construction works in some cases that has led to citizen complaints and dissatisfaction</p> |
| What barriers it encountered? <i>(if any)</i> | Initially it was very difficult to persuade citizens to get together and form an association in order to apply collective action for refurbishment of their dwellings. |
| Lesson learnt? | Collective actions need a lot of promotional efforts in the beginning and constant liaisons with citizens through the whole process as well as close monitoring and supervision of contractors doing the refurbishment. |

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| Further information and sources (links) | https://www.mrrb.bg/bg/energijna-efektivnost/nacionalna-programa-za-ee-na-mnogofamilni-jilistni-sgradi/ |
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Germany

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| Collective activity No 4 | |
| Collective activity name | Municipal Guideline |
| Acronym | |
| Who was the initiator of the collective action (e.g. citizenship, public body, private body etc.) | Public body: Federal Ministry of Environment |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | The main motivation is the support of municipalities to reduce greenhouse gas emissions. Besides climate protection, actions will improve the quality of life in the region, decrease energy costs for municipalities and create regional added value due to climate-friendly investments. |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | <p>The main purpose of this collective activity was:</p> <ul style="list-style-type: none"> • Consulting for municipal climate protection measures • Development of climate protection strategies • Support the installation of a climate protection manager who implements climate protection strategies in their community • Climate protection initiatives in kindergartens, schools, public sport clubs • Investments in climate protection measures, e.g. sustainable mobility, energy-efficient lighting, energy-efficient data centres |

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| | Ultimately, these activities are supposed to lead to a reduction of greenhouse gas emissions in the municipality. |
| Who are the key stakeholders involved in collective activity? | <ul style="list-style-type: none"> • Municipalities (cities, towns and counties) • Public organizations, e.g., schools, universities, municipal companies, cultural institutions • SMEs with municipal shares |
| Describe profile of the stakeholders involved (e.g. <i>municipalities, activists, general public, SMEs, etc.</i>) | Municipalities, general public, SMEs, education institutions |
| To whom it was addressed? Name the beneficiaries of collective activity. (e.g. <i>households, multi-family houses, public buildings, holiday houses, social housing etc.</i>) | All residents of municipalities, local authorities, public buildings, SMEs |
| What was the main steps of this collective activity? | <p>direct beneficiaries:</p> <p>residents of municipalities:</p> <ul style="list-style-type: none"> • Improved bike lanes and access to bike sharing services • Improved street lighting • Access to energy consultants <p>public buildings:</p> <ul style="list-style-type: none"> • Reduced energy costs (energy-efficient street lighting, data centres, etc.) <p>Energy-savings concepts for public buildings (incl. schools, kindergartens, etc.)</p> |
| What was the cost of this collective activity? | The municipal guideline is part of the national climate initiative which invested 560 million Euros for 12.500 projects in 3.000 municipalities within 10 years. The |

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| | initiative triggered additional investments of 908 million Euros. |
| How was it financed ? | <p>Financed as part of the national climate initiative (NKI), funded by the Federal Ministry of Environment.</p> <p>Municipalities received up to 100% funding, depending on the type of action; the rest was covered by the municipalities</p> |
| Monitoring process <i>(how did you monitor and record the results).</i> | Monitored by regular reporting to the funding organization. |
| <p>What were the results or what were expected to be obtained?</p> <p><i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i></p> | <p>Projects decreased greenhouse gas emissions due to:</p> <ul style="list-style-type: none"> - Improved energy efficiency in street lighting and public buildings - Improved bike mobility - Clear strategies developed by municipal climate protection consultants |
| What were the pros and cons of this collective activity? | <p>Pros:</p> <ul style="list-style-type: none"> - High number of supported actions - Prioritization of structurally weak regions, e.g. increased funding for (former) coal mining regions or financially weak municipalities <p>Cons:</p> <p>Not all developed strategies were implemented</p> |
| What barriers it encountered? <i>(if any)</i> | -- |
| Lesson learnt? | Efforts to reduce greenhouse gas emissions must include a high variety of measures. Not all measures are one-off, but constant improvements necessary |

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| | (also depending on technological advances). |
| Further information and sources (links) | |

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| Collective activity No 5 | |
| Collective activity name | Photovoltaic bundle action |
| Acronym | PV-Bundle |
| Who was the initiator of the collective action (e.g. citizenship, public body, private body etc.) | The PV-bundle activity was initiated by the energy Agency of Munich-Ebersberg, serving a region with approx. 500.000 residents |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | The initiator of the project what's the Energy Agency of Munich and Ebersberg, who is responsible for the energy efficiency measures within the region. The motivation to initiate the PV bundle activity was to help residents to initiate renewable projects and to remove barriers to dealing with a topic like photovoltaics. On top of that residents were offered consultancy with the planning of such projects and of course one main target was to reduce prices for the PV installation due to bundling of many projects and better negotiation position against the installing companies. |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | <ul style="list-style-type: none"> • Reduce barrier of lack of knowledge of PV installation projects • Help save money on total expenditure of PV system installation for residents • Help finding the optimal layout / capacity of PV-system by doing consultancy <p>Increase renewable energy investments in the region</p> |

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| <p>Who are the key stakeholders involved in collective activity?</p> | <ul style="list-style-type: none"> • Energy Agency Munich-Ebersberg • Energy consultants • Residents <p>Installation companies</p> |
| <p>Describe profile of the stakeholders involved (<i>e.g. municipalities, activists, general public, SMEs, etc.</i>)</p> | <ul style="list-style-type: none"> • The Energy Agency Munich-Ebersberg has around 25 employees and is orchestrating the collective action • Energy consultants are employed with the Energy agency and are giving advice to the residents • Residents have mainly single family homes and are interested to enter into a collective action regarding PV-system installations <p>Local small to mid-sized installation companies from the region</p> |
| <p>To whom it was addressed? Name the beneficiaries of collective activity. (<i>e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.</i>)</p> | <p>The collective action was addressed to owners of single family houses, multi-family houses and potentially smaller businesses residing in their own building.</p> |
| <p>What was the main steps of this collective activity?</p> | <p>direct beneficiaries:</p> <p>The <u>residents</u> of the houses had to show their interest in the collective action, had to contact the Energy Agency, had to join a meeting with all others in which information was shared, had to talk to the energy consultant.</p> <p>indirect beneficiaries:</p> <p>The <u>installer companies</u> had to raise their interest into the collective action. They needed to give quotes on the tenders.</p> <p>The <u>Energy Agency</u> asked for a cost sharing of €90 per participating household.</p> |
| <p>What was the cost of this collective activity?</p> | <p>The cost of the PV projects carried out depend on the size and complexity. The</p> |

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| | average PV system costs around €7000. During the last collective action around 25 households participated. |
| How was it financed ? | The PV installations are financed privately by the households. There are funds available by the KfW Bank to support PV installations. |
| Monitoring process <i>(how did you monitor and record the results).</i> | As the residents had to get into contact with the Energy Agency, they were in control of the number of applicants and participants. |
| What were the results or what were expected to be obtained? <i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i> | The results are the installed photovoltaic systems. The Energy Agency is not incentivised to earn money on that collective action, besides the cost-sharing of 90 euro's per household. |
| What were the pros and cons of this collective activity? | Pro's: installation of new photovoltaic systems at reduced prices Con's: the number of participants for the PV systems was relatively small due to the fact that such systems are mostly planned individually in Germany. |
| What barriers it encountered? <i>(if any)</i> | Announcing the Energy Agency's collective activities to interested households is a difficult task, as they can only be reached by advertising, which is costly |
| Lesson learnt? | |
| Further information and sources <i>(links)</i> | https://www.energieagentur-ebem.de/Events/1130/Photovoltaik-Bndelaktion-in-Poing https://www.energieagentur-ebem.de/Projekte/Solarpotenzialkataster |

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Ireland

| Collective activity No 6 | |
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| Collective activity name | RETROKIT |
| Acronym | RETROKIT |
| Who was the initiator of the collective action (<i>e.g. citizenship, public body, private body etc.</i>) | A group of energy consultancy firms based in West Cork led by XD Consulting |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | The lack of information available to multiple property owners and communities about the energy efficiency of buildings in their community/building stock |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | The purpose of the project is to enable landlords, communities and property owners to access the national building energy rating database and extract information from it about the energy efficiency of their buildings. The system developed would also provide information on the costs of various levels of retrofit in each property. |
| Who are the key stakeholders involved in collective activity? | West Cork Consultancy Firms XD consultancy and Fuinniv. The Sustainable Energy Authority of Ireland (SEAI). Cork City Council provided the pilot/demo site information. |
| Describe profile of the stakeholders involved (<i>e.g. municipalities, activists, general public, SMEs, etc.</i>) | XD Consulting and Fuinniv provide consultancy and advice to Government bodies and others about building energy efficiency issues |

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| | <p>SEAI are Irelands national authority for reducing Ireland energy consumption and resultant carbon emissions.</p> <p>Cork City Council is a local authority and social housing landlord with over 10,500 social houses</p> |
| To whom it was addressed? Name the beneficiaries of collective activity. (e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.) | Social housing landlords and sustainable energy communities |
| What was the main steps of this collective activity? | <p>direct beneficiaries:</p> <p>Sustainable Energy Authority of Ireland</p> <p>Cork City Council</p> <p>indirect beneficiaries:</p> |
| What was the cost of this collective activity? | |
| How was it financed ? | Funding from SEAI, European Regional Development Fund, Enterprise Ireland, |
| Monitoring process (how did you monitor and record the results). | The product was trialled with Cork City Council |
| What were the results or what were expected to be obtained? (e.g. technology used: renewables; percentage of installed technology as a result of collective action) | The product was well received and KPI's were met. The product is based on an IT platform with access to the national database of Building Energy Ratings. |
| What were the pros and cons of this collective activity? | |
| What barriers it encountered? (if any) | Finding a pilot site. |

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| Lesson learnt? | The next iteration of the system development is to link it to the national database on incomes, electricity and gas consumption |
| Further information and sources (links) | www.retrokit.eu |

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| Collective activity No 7 | |
| Collective activity name | ENERGY-HUB |
| Acronym | |
| Who was the initiator of the collective action (e.g. citizenship, public body, private body etc.) | Community-based organisation |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | <p>ENERGY-HUB was established in 2018 by NCE Insulation and the Northside Community Enterprise Sustainable Energy Community to engage with the communities to help them implement projects that reduce their greenhouse gas emissions.</p> <p>The project aligns with the funding available through the Sustainable Energy Authority of Ireland's (SEAI) better energy communities' scheme (BEC). SEAI is supported by the Government of Ireland. NCE Insulation were also a partner in the NPA funded project called elighthouse. We received some funding through this project to set up a community energy support office to assist communities to become more energy efficient.</p> |

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| <p>Please describe the purpose of this collective activity. What were the main goals of project/ programme, etc.</p> | <p>As a community-based organisation working on the group we noticed a growing interest in people wanted to become more energy efficient and reduce energy bills, however, we also identified a general lack of awareness amongst our community of what practical actions can be taken or services that are available when it comes to reducing energy use and consumption. We established a community energy support office offering guidance to the local community and to Sustainable Energy Communities on how best to develop, finance and implement energy efficiency retrofitting projects (One Stop Shop). The Hub engages with communities seeking opportunities to reduce their greenhouse gas emissions. By pooling resources from many communities together, the Hub is able to create projects of scale with multiple partners that attracts funding from the BEC scheme.</p> |
| <p>Who are the key stakeholders involved in collective activity?</p> | <p>Communities, energy champions, SEAI, Energy Union</p> |
| <p>Describe profile of the stakeholders involved (<i>e.g. municipalities, activists, general public, SMEs, etc.</i>)</p> | <p>Contractors, volunteers, Housing Associations, Parish groups, environmental groups, Credit Unions,</p> |
| <p>To whom it was addressed? Name the beneficiaries of collective activity. (<i>e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.</i>)</p> | <p>Energy inefficient homes and buildings, communities, social housing, and commercial properties.</p> |
| <p>What was the main steps of this collective activity?</p> | <p>direct beneficiaries: set up office, Go out and meet with community groups around Cork City and County,</p> |

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| | <p>Provide support with setting up Sustainable Energy Communities, facilitate energy retrofitting projects.</p> <p>indirect beneficiaries:</p> |
| What was the cost of this collective activity? | |
| How was it financed ? | BEC scheme, bank loans, savings in energy and the sale of energy credits, Green Loans from the Credit Unions called Energy Union. |
| Monitoring process <i>(how did you monitor and record the results).</i> | Energy monitoring systems have been installed in some homes, Heat Pumps and PV panels can be monitored through remote data loggers, where monitors are not installed comparison of energy bills are used. |
| What were the results or what were expected to be obtained? <i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i> | <p>2019 – Harbour View road Cork (Social and private houses)– 78 houses, €2.95m , Energy Savings per annum 1,442,238kwh = 55% savings, A3 rating achieved</p> <p>2018 – Killenreendowney Estate (Social) – 50 social houses, €1,25m , Energy Savings per annum 1,077,962 kwh =47% savings, B1 rating achieved</p> <p>2017- 54 apts + 5 houses in Glenamoy Lawn /46 x bungalows,, €1,95m , Energy Savings per annum 1,491,682 kwh =43% savings, A3/B1 rating achieved</p> <p>2015/2016 – ArdBhaile/Glenamoy Lawn: 161 x Apartments €1,95m , Energy Savings per annum 1,467,230 kwh =39% savings, A3/B1 rating achieved</p> |

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| | <p>City Centre Library energy upgrade €304k , Air to Air Heat Pump , LED Lighting Upgrade 348 x lights , 11kWp PV System 658,667kwh savings per anum</p> <p>Ballyvolane Fire station, €18,528 , 10.92kWp PV Install , 9,691kwh generated per anum</p> <p>Blackpool shopping centre, €680k , LED Lighting Upgrade x 2884 lights , 1,358,680kwh savings per anum</p> <p>Blackpool community centre, €18,476 , 10.14kWp PV Install , 9,740kwh generated per anum</p> |
| <p>What were the pros and cons of this collective activity?</p> | <p>ENERGY-HUB enables community engagement which is crucial to the success of climate projects.</p> <p>Undertaking retrofitting projects for the communities including the elderly and low-income families.</p> <p>Helping communities seeking to reduce their GHG emissions.</p> |
| <p>What barriers it encountered? <i>(if any)</i></p> | <p>Finance, person power, finding energy champions, seeking additional contractors specialising in energy retrofitting, it can be hard for people to think in the long term and to invest when the pay back periods are long. Encouraging people to see the value is getting energy audits which take a holistic approach to retrofitting.</p> |
| <p>Lesson learnt?</p> | <p>Main challenges are:</p> <p>(a)identifying champions in the communities for each project,</p> <p>(b) assisting communities to identify suitable projects,</p> <p>(c) identifying sources of funding, and</p> |

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| | (d) skilled contractors for retrofitting (e) more financial and administration support is required for sustainable energy communities when developing projects. |
| Further information and sources (links) | https://www.energy-hub.ie/ |

Latvia

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| Collective activity No 8 | |
| Collective activity name | Restore and improve EU priority grasslands and to promote their multiple use in Latvia |
| Acronym | GrassLIFE |
| Who was the initiator of the collective action (e.g. citizenship, public body, private body etc.) | |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | 12 farms in all Latvia and experts of Latvian Fund for Nature, University of Latvia and Institute for Environmental Solutions are working together to save and restore grasslands in Latvia. Grasslands hold the unique biodiversity of plant species as well as a part of the Latvian nation and cultural identity. |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | Improve the protection status of EU priority grasslands in Latvia and to make their management more efficient. |
| Who are the key stakeholders involved in collective activity? | Institute for Environmental Solutions The Latvian Fund for Nature University of Latvia State Regional Development Agency Republic of Latvia |

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| | <p>WKND</p> <p>12 farms</p> |
| Describe profile of the stakeholders involved (<i>e.g. municipalities, activists, general public, SMEs, etc.</i>) | Local authorities, institutes and research centres, universities, SMEs |
| To whom it was addressed? Name the beneficiaries of collective activity. (<i>e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.</i>) | 1320 ha of semi-natural grassland in Latvia |
| What was the main steps of this collective activity? | <p>direct beneficiaries: Develop grassland restoration plan for each of partner farms, including restoration goals, indicators, baseline for evaluation of restoration success.</p> <p>Suggest the best methods for restoration and develop recommendations for further management.</p> <p>indirect beneficiaries:</p> <p>Research and assess the grassland ecosystem services.</p> <p>Develop new ideas for grassland products.</p> <p>Develop sets of recommendations for grassland management for farmers.</p> <p>Develop the first grassland connectivity model for Latvia.</p> |
| What was the cost of this collective activity? | |
| How was it financed ? | European program LIFE, State Regional Development Agency Republic of Latvia. |

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| Monitoring process <i>(how did you monitor and record the results).</i> | Experts will assess habitats, vegetation structure, indicator species, soil analysis results. |
| What were the results or what were expected to be obtained? <i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i> | Promotion of grassland products and services. Educate and introduce 200 pupils with semi-natural grasslands. Restore wooden meadows that are overgrown with bushes and large old trees. Restore grassland biodiversity. |
| What were the pros and cons of this collective activity? | + 1320.5 ha of priority grassland habitats have been restored. + the quality and protection status of habitats have been improved. + Economic research of grasslands, biodiversity and business has been performed. At least 10 high value-added lawn-related products have been identified. |
| What barriers it encountered? <i>(if any)</i> | |
| Lesson learnt? | |
| Further information and sources <i>(links)</i> | https://www.lifeprogramma.lv/lv/projekti https://grasslife.lv/projekta-pase/ |

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| Collective activity No 9 | |
| Collective activity name | Alina Life Formulations in Open-Source Platform |
| Acronym | LIFE-ALFIO |

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| Who was the initiator of the collective action (e.g. citizenship, public body, private body etc.) | |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | The presence of volatile organic compounds (VOCs) and biocides in paints is seen as an environmental problem worldwide, with harmful effects on the environment, biodiversity and human health. |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | LIFE-ALFIO will pilot the use of a non-toxic substitute for biocides found in paints and coatings |
| Who are the key stakeholders involved in collective activity? | LLC "ALINA" University of Latvia Riga Technical University |
| Describe profile of the stakeholders involved (e.g. municipalities, activists, general public, SMEs, etc.) | University and LLC that produces state-of-the-art clay mineral materials |
| To whom it was addressed? Name the beneficiaries of collective activity. (e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.) | manufacturers, because the aim was to cut VOCs in the manufacturing process and University of Latvia, and Riga Technical University, LLC Alina manufacturers |
| What was the main steps of this collective activity? | direct beneficiaries: University of Latvia, and Riga Technical University, LLC Alina manufacturers indirect beneficiaries: everyone because it reduced the air pollution. |
| What was the cost of this collective activity? | 2,398,160.00 € |
| How was it financed ? | EU LIFE+ Program, and The Administration of Latvian Environment Protection Fund |

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| Monitoring process <i>(how did you monitor and record the results).</i> | Developed an online platform for: 1) paint formulation publishing, 2) transparency and traceability of paint and coating components, 3) industry communication. |
| What were the results or what were expected to be obtained? <i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i> | Sixteen new paint and coating formulas; Prototype organoclay industrial production line with a capacity of 120 tonnes/year; 10.4 tonnes of organoclay exhibit batch: 400 kg for 1 000 litre sample batches of each of the 16 formulas; 10 tonnes for 400 000 litres of paints and coatings (25 formula co-creation projects, online platform and research activities); 3.5 tonnes of biocides substituted; and VOCs reduced by 16.6 tonnes. |
| What were the pros and cons of this collective activity? | + Improved air quality + Promoted VOCs and biocide diminishing options. |
| What barriers it encountered? <i>(if any)</i> | |
| Lesson learnt? | |
| Further information and sources <i>(links)</i> | https://www.lifeprogramma.lv/lv/projekti https://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=6741 https://www.rtu.lv/en/university/rtu-projects/open?project_number=4184 |
| Collective activity No 10 | |
| Collective activity name | Integration of climate change adaptation into the work of local authorities |
| Acronym | LIFE LOCAL ADAPT |

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| <p>Who was the initiator of the collective action (<i>e.g. citizenship, public body, private body etc.</i>)</p> | |
| <p>Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action</p> | <p>Climate change adaptation (CCA) is a demanding challenge for small to medium-sized municipalities, as these are typically restricted in knowledge on climate change, identifying specific threats at the local level, and personnel and financial capacities to additionally integrate CCA into their administrative practice and implement necessary measures.</p> |
| <p>Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc.</p> | <p>improve the resilience of European municipalities and regions to adverse negative impacts of climate change</p> |
| <p>Who are the key stakeholders involved in collective activity?</p> | <p>Technische Universität Dresden – Chair of Meteorology and European Project Center Global Change Research Institute Climate Service Centre Germany The Saxon State Office for Environment, Agriculture and Geology Provincial Government of Styria Valka Municipality in the Republic of Latvia</p> |
| <p>Describe profile of the stakeholders involved (<i>e.g. municipalities, activists, general public, SMEs, etc.</i>)</p> | <p>municipalities, local authorities, institutes, and research centres</p> |
| <p>To whom it was addressed? Name the beneficiaries of collective activity. (<i>e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.</i>)</p> | <p>municipalities</p> |
| <p>What was the main steps of this collective activity?</p> | <p>direct beneficiaries: Local risk and vulnerability assessment, improvement of</p> |

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| | <p>municipal knowledge, analysis of funding opportunities, establishment of advisory service, development & enhancement of regional CCA assessment tools in the project regions</p> <p>indirect beneficiaries:</p> |
| What was the cost of this collective activity? | 3,070,065.00 EUR |
| How was it financed ? | EU funding and project partners |
| Monitoring process <i>(how did you monitor and record the results).</i> | |
| <p>What were the results or what were expected to be obtained?</p> <p><i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i></p> | <p>Implementation of specific climate change adaptation measures in cooperation with municipalities</p> <p>Integration of climate change adaptation into the administrative practice of local authorities</p> <p>Enhancing the knowledge of municipalities on climate change adaptation</p> <p>Improving the data and information base on climate change impacts</p> |
| What were the pros and cons of this collective activity? | |
| What barriers it encountered? <i>(if any)</i> | |
| Lesson learnt? | |
| Further information and sources <i>(links)</i> | <p>https://life-local-adapt.eu/en/links</p> <p>https://www.lifeprogramma.lv/en/projects</p> |
| Collective activity No 11 | |

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| Collective activity name | Demonstration of climate change mitigation potential of nutrients rich organic soils in Baltic States and Finland |
| Acronym | LIFE OrgBalt |
| Who was the initiator of the collective action (<i>e.g. citizenship, public body, private body etc.</i>) | implementation of innovative climate change mitigation measures in management of nutrient-rich organic soils in cool & TCM climate region |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | <p>implementation of innovative climate change mitigation measures in management of nutrient-rich organic soils in cool & TCM climate region to contribute to the United Nations Framework Convention of Climate Change Paris agreement. Also, to improve the GHG accounting methods and activity data for nutrient-rich organic soils under conventional management conditions;</p> <p>2) to identify and to demonstrate sustainable, resilient and cost-effective climate change mitigation measures applicable in nutrient-rich organic soils;</p> <p>3) to provide tools and guidance for elaboration, implementation, and verification of results of the climate change mitigation policies.</p> |
| Who are the key stakeholders involved in collective activity? | <p>Ministry of Agriculture of the Republic of Latvia (Latvia)</p> <p>Latvia University of Life Sciences and Technologies (Latvia)</p> <p>University of Tartu (Estonia)</p> |

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| | <p>Natural Resources Institute Finland LUKE (Finland)</p> <p>Lithuanian Research Centre for Agriculture and Forestry (Lithuania)</p> <p>Association Baltic Coasts (Latvia)</p> <p>Michael Succow Foundation (Germany)</p> |
| Describe profile of the stakeholders involved (<i>e.g. municipalities, activists, general public, SMEs, etc.</i>) | Ministries, universities, research centres, national and local authorities |
| To whom it was addressed? Name the beneficiaries of collective activity. (<i>e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.</i>) | national and local authorities |
| What was the main steps of this collective activity? | <p>direct beneficiaries: development of project framework, elaboration of communication platform , implementation of climate change mitigation measures in selected democities, monitoring and measurement of socio-economic impact.</p> <p>indirect beneficiaries: filling knowledge gaps, networking, training events</p> |
| What was the cost of this collective activity? | 3 360 948 EUR |
| How was it financed ? | by EU LIFE program and Latvian Environmental Protection Fund Administration |
| Monitoring process (<i>how did you monitor and record the results</i>). | |
| What were the results or what were expected to be obtained? | 1) Improve the knowledge base for the assessment, monitoring, projection and implementation of effective climate change mitigation measures |

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| <p>(e.g. <i>technology used: renewables; percentage of installed technology as a result of collective action</i>)</p> | <p>in the management of nutrient rich organic soils;</p> <ol style="list-style-type: none"> 2) Enhance the capacity of national and local authorities to apply the obtained knowledge in practice in the TCM climate zone; 3) Contribute to the demonstration of innovative climate change mitigation technologies, systems, methods and instruments that are suitable for being replicated, transferred or mainstreamed for management of nutrient rich organic soils in TCM climate zone in Europe and beyond its borders; 4) Contribute to sustainable land use, agriculture, and forestry by creation of tools and guidelines for implementation of climate change mitigation measures in nutrient rich organic soils, as well as socio-economic analysis of the initiated actions. |
| <p>What were the pros and cons of this collective activity?</p> | |
| <p>What barriers it encountered? (if any)</p> | |
| <p>Lesson learnt?</p> | |
| <p>Further information and sources (links)</p> | <p>https://www.orgbalt.eu/ https://www.lifeprogramma.lv/en/projects</p> |
| <p>Collective activity No 12</p> | |
| <p>Collective activity name</p> | <p>Coastal Habitat Conservation in Nature Park "Piejura"</p> |
| <p>Acronym</p> | <p>LIFE CoHaBit</p> |

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| Who was the initiator of the collective action (<i>e.g. citizenship, public body, private body etc.</i>) | Carnikava Municipality |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | To improve the ecological state of the Natural Park |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | To mitigate heavy anthropogenic pressures and to restore vulnerable coastal habitats of Piejūra Nature Park, a Natura 2000 network site. |
| Who are the key stakeholders involved in collective activity? | Carnikava Municipality, Saulkrasti Municipality, Latvia Nature Conservation Agency, Latvia NGO Baltic Coasts, Latvia Riga City Council - City Development Department, |
| Describe profile of the stakeholders involved (<i>e.g. municipalities, activists, general public, SMEs, etc.</i>) | Local authority, NGOs |
| To whom it was addressed? Name the beneficiaries of collective activity. (<i>e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.</i>) | |
| What was the main steps of this collective activity? | direct beneficiaries: Carnikava municipality, Nature Park “Piejura” indirect beneficiaries: the local community including landowners, local residents |
| What was the cost of this collective activity? | 970 067 EUR |
| How was it financed ? | EU contribution and project partners funding |
| Monitoring process (<i>how did you monitor and record the results</i>). | |
| What were the results or what were expected to be obtained? | Update the park’s nature management plan; |

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| <p><i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i></p> | <p>Implement concrete conservation and restoration actions;</p> <p>Control alien species invasion; and</p> <p>Involve the local community including landowners, local residents and other stakeholders in sustainable management of the park by implementing an effective awareness raising/educational campaign.</p> <p>An updated and approved site management plan;</p> <p>Restoration of 75 ha of coastal dune habitats (priority grey dunes, wooded dunes, embryonic shifting dunes and white dunes) in the Mangali area;</p> <p>Restoration of 5 ha of priority coastal lagoons in the Daugavgriva and Mangali areas;</p> <p>Restoration of 4.5 ha of priority Boreal Baltic coastal meadows and the surrounding complex of alluvial semi-natural grasslands in the Vakarbuli area;</p> <p>Significantly diminished deterioration of habitats of Community importance - allowing regeneration of natural vegetation on at least 800 ha in the Mangali, Garciems, Carnikava and Saulkrasti areas;</p> <p>Improved conservation status of bird species associated with the target habitats;</p> <p>Clearing of invasive species on an area of 175 ha; and</p> <p>Establishment of an information and education centre in the park.</p> |
| <p>What were the pros and cons of this collective activity?</p> | <p>+ improved environmental state and ecosystem of the Natural Park</p> |
| <p>What barriers it encountered? <i>(if any)</i></p> | |
| <p>Lesson learnt?</p> | |

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| Further information and sources (links) | https://www.lifeprogramma.lv/en/projects http://baltjaskrasti.lv/blog/projekti/life-cohabit/ |
| Collective activity No 13 | |
| Collective activity name | Implementation of River Basin Management Plans of Latvian towards good surface water status |
| Acronym | LIFE GOODWATER IP |
| Who was the initiator of the collective action (e.g. citizenship, public body, private body etc.) | |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | Improvement of water quality in Latvian rivers |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | To improve the status of water bodies at risk in Latvia by means of the full implementation of the measures laid down in the Daugava, Gauja, Lielupe and Venta River Basin Management Plans (RBMPs). |
| Who are the key stakeholders involved in collective activity? | Latvian Environment, Geology and Meteorology Centre, Public administration institutions, Scientific research institutions, Local and regional authorities |
| Describe profile of the stakeholders involved (e.g. municipalities, activists, general public, SMEs, etc.) | State LLCs, Ministries, Universities, NGOs, |
| To whom it was addressed? Name the beneficiaries of collective activity. (e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.) | 164 water bodies at risk in Latvia (89 rivers and 75 lakes) |
| What was the main steps of this collective activity? | direct beneficiaries: Point source pollution, testing and analysing decentralized sewerage systems and small wastewater treatment plants |

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| | indirect beneficiaries: create a common online platform on water resources and their management, ensure project visibility and disseminate the project results and lessons-learned. |
| What was the cost of this collective activity? | 14,568,050.00 |
| How was it financed ? | EU contribution, complementary funding from EAFRD, CF, ERDF, Norwegian Financial mechanism, and other public and private funds |
| Monitoring process <i>(how did you monitor and record the results).</i> | common online platform on water resources and their management Capacity building thematic training courses, lectures and seminars will be systematically structured according to the needs of the project's target groups |
| What were the results or what were expected to be obtained? <i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i> | The project expects to achieve good status for 9 (5%) of the surface water bodies currently at risk. In the long term, up to 50 water bodies (30%) affected by similar pressures and other common characteristics are expected to reach good status as an indirect result of the project |
| What were the pros and cons of this collective activity? | |
| What barriers it encountered? <i>(if any)</i> | |
| Lesson learnt? | |
| Further information and sources <i>(links)</i> | https://www.lifeprogramma.lv/en/projects/projects_124.html http://goodwater.lv/en/home/ |

Poland

| Collective activity No 14 | |
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| Collective activity name | energyREGION Michałowo |
| Acronym | - |
| Who was the initiator of the collective action (<i>e.g. citizenship, public body, private body etc.</i>) | Zielona Energia Michałowo Sp. z o.o and IEN Energy Sp. z o.o. – private body |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | The main motivation was to develop and promote the idea of energy cluster. energyREGION Michałowo was one of the pilot clusters established in Poland. |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | The main purpose of this collective activity was: <ul style="list-style-type: none"> • renewable energy production • development of energy infrastructure • energy efficiency and eco-development • economic activation of local residents in the field of renewable energy production • improvement of the knowledge and qualifications of local residents in the field of local energy production |
| Who are the key stakeholders involved in collective activity? | <ul style="list-style-type: none"> • Michałowo municipality • Gródek municipality • Tykocin municipality • Zabłudów municipality |
| Describe profile of the stakeholders involved (<i>e.g. municipalities, activists, general public, SMEs, etc.</i>) | municipalities |
| To whom it was addressed? Name the beneficiaries of collective activity. | Beneficiaries: |

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| <i>(e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.)</i> | All residents of municipalities, local authorities, public buildings, social houses. |
| What was the main steps of this collective activity? | <p>Direct beneficiaries:</p> <ul style="list-style-type: none"> • Residents of municipalities: • Installation of renewable energy sources in households • Replacement of carbon heat sources in households • Thermomodernization of resident's buildings <p>Public buildings:</p> <ul style="list-style-type: none"> • Supplying the local public buildings with heat from renewable energy • Photovoltaic installation on the building of the Municipal Cultural Center in Michałów • Photovoltaic installation on the building of the Social Welfare House "Jawor" in Michałów • Modernization of internal lighting in public buildings <p>Indirect beneficiaries:</p> <p>All residents of municipalities</p> <ul style="list-style-type: none"> • Increasing energy security of the commune by building an energy storage • Construction of a fast charging station for electric vehicles • Construction of a local renewable energy educational center in Michałowo. • Purchase of low-emission buses and electric bikes for transportation in the commune |
| What was the cost of this collective activity? | |

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| How was it financed ? | own funds of communes, subsidies from regional programs, subsidies from the EU |
| Monitoring process <i>(how did you monitor and record the results).</i> | annual summary meetings |
| What were the results or what were expected to be obtained? <i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i> | Agricultural biogas plant PV farm Ultimately, total energy self-sufficiency of the municipality is planned |
| What were the pros and cons of this collective activity? | |
| What barriers it encountered? <i>(if any)</i> | High modernization costs |
| Lesson learnt? | Knowledge about the entire process of formation and operation of future energy clusters in Poland. Future projects not part of the pilot program may encounter bigger problems in raising funds and in the case of administrative matters. |
| Further information and sources <i>(links)</i> | http://klastermichalowo.pl/projekty/ |

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| Collective activity No 15 | |
| Collective activity name | Energy Cooperative Eisall |
| Acronym | Eisall |
| Who was the initiator of the collective action <i>(e.g. citizenship, public body, private body etc.)</i> | Eisall Energy – private body |

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| <p>Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action</p> | <p>Supporting the development of civic energy and energy efficiency in the cooperative</p> |
| <p>Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc.</p> | <p>The main purpose of this collective activity was:</p> <ul style="list-style-type: none"> • renewable energy production • development of energy infrastructure • energy efficiency and eco-development • economic activation of local residents in the field of renewable energy production • improvement of the knowledge and qualifications of local residents in the field of local energy production |
| <p>Who are the key stakeholders involved in collective activity?</p> | <p>Municipalities</p> <ul style="list-style-type: none"> • Michałowice • Raszyn • Nadarzyn <p>Private Bodys</p> <ul style="list-style-type: none"> • Einsall Energy • Neo Energy Group • Neo Energy Storage |
| <p>Describe profile of the stakeholders involved (<i>e.g. municipalities, activists, general public, SMEs, etc.</i>)</p> | <p>Municipalities and private body</p> |
| <p>To whom it was addressed? Name the beneficiaries of collective activity. (<i>e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.</i>)</p> | <p>Cooperatives participate, energy consumers - lower energy costs, energy producers - higher selling price</p> |
| <p>What was the main steps of this collective activity?</p> | <p>Conducting an analysis and recommending the optimal combination of energy sources.</p> <p>Choosing the right energy storage, which allows you to increase energy self-sufficiency and optimize costs.</p> |

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| | <p>Ensuring energy security and lowering the cost of purchasing energy to the participants of the cooperative while increasing the revenues of its producers.</p> <p>Comprehensive support for the development and construction of renewable energy sources.</p> <p>Supporting the structuring and organization of financing</p> |
| What was the cost of this collective activity? | |
| How was it financed ? | Private founds |
| Monitoring process <i>(how did you monitor and record the results).</i> | Not public |
| What were the results or what were expected to be obtained? <i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i> | <p>Mostly solar system with energy storage, oslo heat pumps</p> <p>Providing lower costs for energy consumers and greater profit for producers</p> |
| What were the pros and cons of this collective activity? | It is economically viable |
| What barriers it encountered? <i>(if any)</i> | No financial support system for energy producers, a large initial investment is needed |
| Lesson learnt? | Knowledge about the entire process of formation and operation of energy cooperative in Poland.. |
| Further information and sources <i>(links)</i> | https://eisall.eu/about.php |

Spain

| Collective activity No 16 | |
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| Collective activity name | Oleada Solar |
| Acronym | - |
| Who was the initiator of the collective action (<i>e.g. citizenship, public body, private body etc.</i>) | Ecoo Revolución Solar (non-profit company) |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | Oleada Solar offers the possibility of participating in the project that will combine 100 solar homes in a community, reducing the final price for self-consumption installation in the home by up to 30% |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | <p>Coleective purchase of photovoltaic installations for homes.</p> <p>Promote the change of the energy model, with PV panels, taking advantage of all the benefits of self-consumption and the “crowdsourcing”.</p> <p>One of the strongest feature of Oleada Solar is precisely the network building in terms of community, engagement, etc. They have a social-activist profile and communication strategy that helps them to have a strong community</p> |
| Who are the key stakeholders involved in collective activity? | Nuevo Modelo Energético, UNEF, Alianza por el autoconsum, Sannas, Reas Madrid, citizenship |
| Describe profile of the stakeholders involved (<i>e.g. municipalities, activists, general public, SMEs, etc.</i>) | citizen platform, PV spanish business association, citizen platform, business association, social economy anticapitalist platform |

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| <p>To whom it was addressed? Name the beneficiaries of collective activity. (e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.)</p> | <p>Particular citizens and households. And also some organisations</p> |
| <p>What was the main steps of this collective activity?</p> | <p>direct beneficiaries:</p> <ul style="list-style-type: none"> • Installation of renewable energy sources in households and some organisations • Power generation energy from 100% renewable sources <p>indirect beneficiaries:</p> <ul style="list-style-type: none"> • The citizens decide how to generate, manage and use the energy that comes from the sun |
| <p>What was the cost of this collective activity?</p> | |
| <p>How was it financed?</p> | <p>In terms of business model, I would say that the collective purchase is an important finding that at the same time helps the creation of community.</p> <p>Crowdsourcing (collective purchase)</p> |
| <p>Monitoring process (how did you monitor and record the results).</p> | |
| <p>What were the results or what were expected to be obtained? (e.g. technology used: renewables; percentage of installed technology as a result of collective action)</p> | <p>262 installations done, increasing in a 35% the number of homes with self-consumption in Spain since 2017</p> |
| <p>What were the pros and cons of this collective activity?</p> | |

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| What barriers it encountered? (if any) | |
| Lesson learnt? | |
| Further information and sources (links) | https://eco000.es/oleadasolar/ |

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| Collective activity No 17 | |
| Collective activity name | Revo Solar |
| Acronym | - |
| Who was the initiator of the collective action (e.g. citizenship, public body, private body etc.) | Solar PV contractor |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | The main purpose is to buy photovoltaic solar installations collectively. In this way we save up to 30-40% of the cost of a solar installation! |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | It is a social movement created to promote the release of energy through the implementation of solar energy in our society, on a local / regional scale to make the introduction of solar energy in our country a reality in an economically viable way for everyone. |
| Who are the key stakeholders involved in collective activity? | solar panel installation company, municipalities, |
| Describe profile of the stakeholders involved (e.g. municipalities, activists, general public, SMEs, etc.) | Companies, citizen, municipalities. |

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| <p>To whom it was addressed? Name the beneficiaries of collective activity. (e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.)</p> | <p>The main beneficiaries are the households.</p> |
| <p>What was the main steps of this collective activity?</p> | <p>direct beneficiaries:</p> <ul style="list-style-type: none"> • Power generation energy from 100% renewable sources • Save up to 30-40% of the cost of the solar installation. <p>indirect beneficiaries:</p> <ul style="list-style-type: none"> • The citizens decide how to generate, manage and use the energy that comes from the sun |
| <p>What was the cost of this collective activity?</p> | <p>Through RevoSolar</p> |
| <p>How was it financed?</p> | <p>Through RevoSolar</p> |
| <p>Monitoring process (how did you monitor and record the results).</p> | <p>Webpage</p> |
| <p>What were the results or what were expected to be obtained? (e.g. technology used: renewables; percentage of installed technology as a result of collective action)</p> | <p>44 energy collectives</p> |
| <p>What were the pros and cons of this collective activity?</p> | <p>The opportunity to buy collectively saves you up to 40% on solar installation, this means that for the installation to be cheaper you have to agree with your neighbours.</p> |

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| What barriers it encountered? (if any) | They have a huge problem finding workforce to build the facilities, poor training |
| Lesson learnt? | The local tax subsidies are a really good incentive to non-activist citizens |
| Further information and sources (links) | https://www.collectiu-solar.cat/ca/inici |

| Collective activity No 18 | |
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| Collective activity name | Som Energia |
| Acronym | - |
| Who was the initiator of the collective action (e.g. citizenship, public body, private body etc.) | Cooperative |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | Change in the model of power generation involving the citizenry |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | Collective purchase of PV facilities |
| Who are the key stakeholders involved in collective activity? | photovoltaic installation companies, engineering companies, cooperative and citizens |
| Describe profile of the stakeholders involved (e.g. municipalities, activists, general public, SMEs, etc.) | Activists mainly |
| To whom it was addressed? Name the beneficiaries of collective activity. (e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.) | Groups of local people from above the mainland. |

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| What was the main steps of this collective activity? | <p>direct beneficiaries:</p> <ul style="list-style-type: none"> • Installation of renewable energy sources in households • Produce and market energy from 100% renewable sources <p>indirect beneficiaries:</p> <p>Decentralization of power generation</p> |
| What was the cost of this collective activity? | The costs of the advice and technical support to local groups is provided by the cooperative itself |
| How was it financed ? | By the cooperative members themselves |
| Monitoring process <i>(how did you monitor and record the results).</i> | Website |
| What were the results or what were expected to be obtained? <i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i> | 1106 PV facilities, 3318 kWp |
| What were the pros and cons of this collective activity? | Pros: reduced cost of PV purchasing, collective guarantee of PV installation quality |
| What barriers it encountered? <i>(if any)</i> | |
| Lesson learnt? | |
| Further information and sources <i>(links)</i> | https://www.somenergia.coop/ca/produeix-energia-renovable/autoproduccio/ |

| Collective activity No 19 | |
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| Collective activity name | Gares Energia |
| Acronym | Gares |
| Who was the initiator of the collective action (<i>e.g. citizenship, public body, private body etc.</i>) | Citizen promotion group for the local development. |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | The Gares municipality was concerned about their energy sovereignty and the citizens participation and engagement in the energy transition, this project had two motivations, the lack of empowered citizens and the low renewables share in the energy mix. |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | The main goal is to create a community which can then take collective actions in the energy field. |
| Who are the key stakeholders involved in collective activity? | Gares City Council Gobierno de Navarra Citizens Promotion Group |
| Describe profile of the stakeholders involved (<i>e.g. municipalities, activists, general public, SMEs, etc.</i>) | All kinds of profiles, municipality, supramunicipality, energy agencies, organised citizens, SMEs and cooperatives, university... |
| To whom it was addressed? Name the beneficiaries of collective activity. (<i>e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.</i>) | Gares municipality and its citizens. So far, public buildings will be the main beneficiaries of the project implementation. |
| What was the main steps of this collective activity? | direct beneficiaries: The creation of a “promotion group” by the citizens. PV generation plant and the subsequent rise of renewables in the local energy mix. indirect beneficiaries: |

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| | <p>-The gain of energy sovereignty for all the municipality as well.</p> <p>-An invaluable case study to replicate and to learn from.</p> |
| What was the cost of this collective activity? | 990.000€ |
| How was it financed ? | The PV plants have been funded by the Government of Navarra. The rest was funded with municipal funds and participatory processes funds. |
| Monitoring process <i>(how did you monitor and record the results).</i> | The process is being closely monitored, followed and supported by the Government of Navarra. PV generation and collective actions or processes are being monitored. |
| What were the results or what were expected to be obtained? <i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i> | The main result was and still is to empower Gares citizenship by letting them decide about the energy supply and generation without any external influences. This was addressed by creating a participatory process that led to a PV plant and other generation plants. |
| What were the pros and cons of this collective activity? | <p>The pros of this collective actions are countless and range from fighting climate emergency to citizenship high rates of participation. On the other hand, as there aren't many success cases, it was a very slow and difficult process.</p> <p>One of the most important point about this collective action is that it was a bottom-up design. The public entities only stepped in to support but in any case to coordinate or decide.</p> |
| What barriers it encountered? <i>(if any)</i> | <p>The three main barriers encountered were.</p> <p>-Energy communities undefined legislation.</p> <p>-DSO long and difficult procedures.</p> |

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| | -The difficulty on implementing public-communitarian actions. |
| Lesson learnt? | There needs to be a direct and active link between the public administration and the DSO. |
| Further information and sources (links) | |

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| Collective activity No 20 | |
| Collective activity name | Pedraforca Energy Cooperative |
| Acronym | Saldes coop |
| Who was the initiator of the collective action (e.g. citizenship, public body, private body etc.) | The Saldes city hall. |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | The main motive was for the municipality to become more energy autonomous, nevertheless, citizens engagement and empowerment was also a key motivation. |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | The purpose is the increase the renewables energy share in the municipality. That purpose will be accomplished first with PV generation. |
| Who are the key stakeholders involved in collective activity? | Saldes City Council Catalonia Cooperative Hub Saldes citizens (approx 40) |
| Describe profile of the stakeholders involved (e.g. municipalities, activists, general public, SMEs, etc.) | Mainly general public, municipality, and support from energy agencies and cooperative hubs. |
| To whom it was addressed? Name the beneficiaries of collective activity. (e.g. households, multi-family houses, public buildings, holiday houses, social housing etc.) | Saldes municipality and its citizens. Public and private buildings. |

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| <p>What was the main steps of this collective activity?</p> | <p>direct beneficiaries:</p> <p>The municipality had a long history of energy investments such as the lighting system, this one is the first which is collectively managed but already planning more.</p> <p>The citizens were easily engaged and started to from part of the cooperative.</p> <p>indirect beneficiaries:</p> <p>The whole municipality and the natural park in which the municipality is located.</p> |
| <p>What was the cost of this collective activity?</p> | <p>560.000€ (not finished)</p> |
| <p>How was it financed?</p> | <p>Mainly cooperativists funds and municipal funds.</p> |
| <p>Monitoring process <i>(how did you monitor and record the results).</i></p> | <p>This is still an ongoing process and still being monitored.</p> |
| <p>What were the results or what were expected to be obtained? <i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i></p> | <p>The municipality plans on installing 600kW of PV generation. Both in public buildings and fields. They are planning to produce 70-80% of the annual energy net consumption.</p> |
| <p>What were the pros and cons of this collective activity?</p> | <p>The municipality is taking more steps towards energy autonomy and zero emissions objectives. On the other side, the public-cooperative scheme is very difficult to set up.</p> |
| <p>What barriers it encountered? <i>(if any)</i></p> | <p>There were many barriers encountered, from legislative, administrative (DSO), and natural protection to comply with.</p> |
| <p>Lesson learnt?</p> | <p>Collective actions are very fruitful but tend to be slow processes and can sometime hit and end road due to legislation or bureaucratic never ending processes.</p> |

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| Further information and sources (links) | |
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| Collective activity No 21 | |
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| Collective activity name | Participatory financing schemes |
| Acronym | Ecrowd |
| Who was the initiator of the collective action (e.g. <i>citizenship, public body, private body etc.</i>) | Ecrowd was founded in 2014 by Jordi Solé and Matthieu Van Haperen. |
| Motivations of the initiator for triggering the action, what incentives or enabling factors facilitated the success of the collective action | Participatory financing schemes weren't in the picture and they could push forward many projects by making them economically viable. |
| Please describe the purpose of this collective activity. What was the main goals of project/ programme, etc. | The purpose is to gather private investors (95% citizens) to invest in an action/project with clear sustainability and energy transition goals. |
| Who are the key stakeholders involved in collective activity? | Ecrowd Individual persons Private entities and companies Public administration Project promoters |
| Describe profile of the stakeholders involved (e.g. <i>municipalities, activists, general public, SMEs, etc.</i>) | All kinds. They are starting to involve the municipality in the participatory funding schemes. |
| To whom it was addressed? Name the beneficiaries of collective activity. (e.g. <i>households, multi-family houses, public buildings, holiday houses, social housing etc.</i>) | It is specially addressed to legal entities trying to fund a project (minimum 20.000€). Now the project is also focusing on the public administration and neighbourhood communities. |
| What was the main steps of this collective activity? | direct beneficiaries: |

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| | indirect beneficiaries: |
| What was the cost of this collective activity? | 6,6 milion euros fundraised |
| How was it financed ? | 95% individual persons and 5% legal entities |
| Monitoring process <i>(how did you monitor and record the results).</i> | More than 130 projects funded, all projects that are uploaded get the necessary funding. |
| What were the results or what were expected to be obtained? <i>(e.g. technology used: renewables; percentage of installed technology as a result of collective action)</i> | A huge increase of PV generation plants all around Spain and de democratisation of the energy sector. More than 5500 MMT of CO2 emission savings. |
| What were the pros and cons of this collective activity? | The main advantage is to succeed at promoting a project which would have never happened, the only disadvantage is that there is a fee which might have a small impact on the project and its business plan. |
| What barriers it encountered? <i>(if any)</i> | Most of the barriers have been when trying to fund the public administration and the lack of success cases on this matter. |
| Lesson learnt? | The early adopters take lots of resources but are well invested. |
| Further information and sources <i>(links)</i> | |