



establishing Community Renewable Energy Webs - Rolling out a business model and operational tool creating webs of households that jointly manage energy to improve efficiency and renewables uptake

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Deliverable 2.4: Collective Action Plan



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Executive summary

The eCREW project aims at fostering the exploitation of renewable sources through the engagement of citizens as prosumers within three virtual Energy Communities (Lighthouse Communities, LCs) to be established in Germany, Spain and Turkey. This Collective Action Plan aims at fostering a collective perspective within each energy community to shift prosuming from being an individual choice and activity to be a collective effort able to enlarge citizens active participation and cooperation in the energy transition. Therefore, the goal is to provide an overview of appropriate tools and strategies that might favour the enrolment of citizens and their participation in LCs, to push their involvement in sharing resources and information and to trigger the adoption of more sustainable behaviors for what concerns energy consumption.

The deliverable is structured as follows. In the first section, a review of the literature on Collective Action is provided in order to clarify the main components of the conceptual framework adopted, mainly considered from a social perspective. Then, attention is paid to the recent development of the regulatory framework in the field of citizens involvement in energy collective initiatives derived from the EU directives on Renewables and Citizens Energy Communities. In section three, a focus on Collective Action Initiatives (CAI) in the Energy Sector, intended as a broader category compared to ECs, is provided through case studies of community building strategies that are presented with reference to three main aspects: Engagement, Governance and Organization and future perspective and scaling up. Finally, these strategies are contrasted with the engagement strategies developed within the eCREW project to roll out the three LCs and that are assigned to four categories of community building activities: (1) Strategies to map and to engaged stakeholders, (2) peer to peer activities carried out at community level, (3) top-down activities proposed by subjects outside the community and (4) monitoring and follow-up activities .

Table of Contents

| | |
|--|------------------------------------|
| Disclaimer | 3 |
| Executive summary | 3 |
| Table of Contents | 4 |
| 1 Objectives and scope | 6 |
| 2 Conceptual Background: Collective Action to address social aspects in Energy Transition | 8 |
| 2.1 Collective Action (CA): an overview | 8 |
| 2.1.1 What is meant by CA? | 8 |
| 2.1.2 Social Aspect of the Energy Transition | 9 |
| 2.1.3 Effects of CA in the energy field and the eCREW project | 11 |
| 2.2 Components and determinants of CA in the energy field | 12 |
| 2.3 Models of CA | 14 |
| 3 The state of the art: CAIs in energy sector | 15 |
| 3.1 Norms and regulations of CE | 15 |
| 3.2 Case Studies of CAIs and energy communities around Europe | 17 |
| 3.2.1 CAI Engagement | 19 |
| 3.2.2 CAI Governance and Organization | 21 |
| 3.2.3 CAI future perspective and scaling up | 22 |
| 4 Strategies for Collective Action: a general overview | 24 |
| 4.1 Introduction of activities and strategy for CA | 24 |
| 4.1.1 CA goal | 24 |
| 4.1.2 CA dimension | Fehler! Textmarke nicht definiert. |
| 4.1.3 CA actors | 25 |
| 4.1.4 CA resources | 25 |
| 4.2 Strategies to map and to engaged stakeholders | 26 |
| 4.3 Peer to peer activities carried out at community level | 28 |
| 4.4 Top-down activities proposed by subjects outside the community | 30 |
| 4.5 Monitoring and follow-up activities | 31 |
| 4.6 Using mobile APPS | 33 |
| 5 Towards an Action Plan for e-Crew Lighthouse Communities | 35 |
| 5.1 Germany | 36 |
| 5.2 Spain | 37 |
| 5.3 Turkey | 38 |
| 6 Conclusion | 39 |
| 7 References | 40 |

| Acronym / Abbreviation | Definition |
|------------------------|---------------------------------|
| CA | Collective Action |
| CAI | Collective Action Initiatives |
| CAE | Community Administration Entity |
| EC | Energy Community |
| EU | European Union |
| LC | Lighthouse Community |
| RES | Renewable Energy Sources |
| PV | Photovoltaic |
| WP | Work Package |
| WPM | Work Package managers |

1 Objectives and scope

The *eCREW - establishing Community Renewable Energy Webs* project aims to implement a model of energy virtual communities (eCrews) able to empower citizens through the adoption of a collective perspective in the management of energy production, exchange and use. Beside and beyond the constraints of EU directives that provided the institutional framework for energy communities to be established (2018/2001 and 2019/944), eCREW therefore targets citizen participation in energy transition as a crucial leverage for the development of a more sustainable and just energy system. Adopting a Collective Action (CA) perspective means adopting a bottom-up approach that involves eCrews' members (*eCrewers* in the following) in performing activities able to shift an eCrew from being a group of consumers to being an actual community of people sharing resources, values and objectives.

Within eCREW project this Collective Action approach is implemented in three pilot initiatives (Lighthouse Communities – LC) that are being established in Germany, Spain and Turkey. The eCrewers can produce, consume and exchange energy within each LC, but they should also take part as much as possible to the real life of the eCrew. Via a dedicated App, eCREWers have control over the energy consumption that occurs within their eCrews and can directly and indirectly interact with other members respectively through forum and chat and by having access to information about the average performance of the eCREW to be considered as a 'collective' benchmark for individual behaviors and choices.

The Collective Action Plan that this deliverable aims at supporting, is intended as a tool to incentivize, steer and manage the adoption of a CA approach within the three LCs established within eCREW and, on the long run, all the communities that will implement the eCREW model beyond the horizon of the project itself (the Follower Communities that will be targeted by a specific project deliverable to be realized close to the end of the project, the CEO information package and Guidebook).

Potential eCrew members can cooperate for social, economic and environmental purposes although the key motivation for eCrew is the environmental sustainability, obtained by promoting the use of energy produced from renewable sources. The purpose of the deliverable is therefore to identify concepts, strategies and tools that might be adopted to foster this cooperation, In other words to motivate energy consumers to join a eCREW and build their own community in order for them to evolve from an individual action perspective towards a collective one, by interacting and building relations within the group.

The adoption of IT devices (mobile app) plays then a crucial role as a component of a collective action plan able to foster this collective shift: on the one hand, it allows participants to be 'active consumers' through push notifications about, e.g., which is the better time slot to use energy coming from renewable sources produced within an eCrew; on the other hand, eCrewers can also create a virtual space in which they can cooperate with the other members thus promoting the actual establishment of an eCrew. For this purpose, members should be able to participate to community social life online, thanks to the App functionalities, but also offline, by taking part to events, workshops and meetings proposed for every LC. Building a community is a delicate self-generating process where individuals are put at the center of the project, in that they are the engine that keep alive the entire community. A community needs social relations in order to grow up continuously. By trusting and encouraging CA, important and lasting social and energetic results may be achieved. Moreover, there is also an economic aspect that should be mentioned: in facts, if there is a good communication and a great use of the push notifications found in the App, members may also get a gradually decrease of the price in the bill. Moreover, with the Mobile App it is also possible to track not only the personal energy consumption, but also the overall consumption

of the CREW. Citizens can thus be aware of the consumption and energy production of each Crew, but also of the creation of a community based on cooperation. The purpose of a Collective Action Plan is to create a stimulating and comfortable context, where individuals can feel part of a community and be aware of the potential of acting together, that is to achieve more valuable results than what they could reach acting individually.

In this Deliverable a theoretical overview (section 2) to properly frame the Collective Action approach is provided, with attention paid to the main determinants and factors for a collective initiative to be successfully implemented.

Once this conceptual framework has been outlined, a focus on collective action within the energy sector is provided (section 3). By means of a careful analysis of the current regulation and a number of European case studies of Collective Action Initiatives (CAI), the topic is explored from different perspectives: CAI engagement, CAI Governance and Organization and CAI future Perspective and Scaling up.

In section 4, attention will then be paid to the main pillars around which a successful strategy for collective action should be designed, namely: objectives, dimension, actors and resources. On this basis, four categories of strategies are identified to be adopted for a successful implementation of CA in the energy sector: (1) Strategies to map and engage stakeholders, (2) Peer to peer activities, (3) Activities realized by subjects external to the community and (4) Monitoring the community.

Finally, in section 5 the focus on the 3 LCs that are being implemented in eCREW will allow to assess the extent to which it has been possible to implement a CA approach in the engagement strategies developed in Deliverable 2.3. The ambition is to systematize theoretical and practical tools for further refinement of the strategies within WP4 and at the same time to foster future development beyond the time horizon of eCREW itself.

2 Conceptual Background: Collective Action to address social aspects in Energy Transition

Collective Action is at the basis of social life and therefore it is crucial when it comes to the consideration of the role played by societal factors and actors within sustainability trajectories and paths. The actors involved in a CA could actively participate in the energy transition by bringing benefits to the environment. Despite this relevance and the many experiences that have been flourishing for the past decades around Europe, a shared knowledge about CA's nature and determinants to be properly implemented in projects related to the use of renewable sources has not been reached yet. For this reason, this Collective Action Plan aims to systematize concepts and strategies on the topic in order to support the adoption of the CA perspective within eCrew to shape the collective activities it will implement.

2.1 Collective Action (CA): an overview

2.1.1 What is meant by CA?

CA, on which relies the development of energy communities (ECs), has been one of the main topics in social theory since ever. Not to mention ancient greek philosophers, it dates to the XVII century when Thomas Hobbes in his *Leviathan*¹ firstly theorized a collective action based on a "social contract". In Hobbes' theory, a society without laws and rules (the "state of nature"), created to control the life of individuals, could not exist. Consequently, it was important to guarantee safety for the members, especially the people most in difficulty. Instead Spinoza, influenced by Hobbes' theories, proposed a different idea of social contract, based on the notion of cooperation between members of a society in which collective action was definitely put at the center.

However, a collective context can be considered also from the negative perspective of the egoistic behaviors it can promote. Hardin, to which we owe the 'tragedy of commons' theory, highlights how the individual perspective can raise as the dominant strategy within a collective action context. In fact, unless individuals act in small group and/or their behaviors are effectively controlled, they tend to act following their own interest with no contribution to the collective interest which finally results in the destruction of shared resources. (Hardin, 1968) Following Hardin, Olson proposed the use of selective incentives to overcome the problems concerning the absence of cooperation in collective contexts. Some examples are extra-rewards for participants, or fines for the ones who did not want to take part. (Olson, 1965)

Ostrom then proposed a 'revolution' in perspective with her work "Governing the commons". She analyzed the way local communities handle natural common resources, as for example the pasture, defining it "Common pool resource". Ostrom demonstrated the importance of a common use of these resources. In fact, this collective use leads in the future to the establishment of rules by people, in order

¹ *Leviathan or The Matter, Forme and Power of a Common Wealth Ecclesiastical and Civil*, published 1651

to handle these resources on an eco-friendly and economic way. (Ostrom, 1990)

According to her vision there are two key factors to make the collective perspective work: the decentralization of the power and the active involvement of individuals. In fact, these two aspects are today fundamental for the development of Energy Communities and creation of Collective Action Initiatives. According to Tilly, Collective Action is a mixture of changing combinations between interests, organizations, mobilizations and opportunities, that determines the collective act of individuals to pursue common interests (Tilly, 1977).

Recently, some scholars have defined this concept as the course of action chosen by all or most individuals leading to expected result (Padovan et al., 2019) to be explored via the joint consideration of the theories of sustainable transition and the theory of social movement. This approach, adopted within the European Project COMETS - Collective Action Models for Energy Transition and Social Innovation - aims at obtaining insights on how collective action initiatives are mobilized to bring a change in the context of the sustainable energy transition (Gregg et al., 2020). In COMETS, CAIs are seen as the basis for the civic engagement in the energy transition to renewables. Different forms of Collective Actions could create new goods. The production of collective goods allows the people involved in these projects to control and own them, because it is collectively handled and produces welfare for the community instead of profit. For this, as underlined in COMETS, new collective goods stand for social innovation and they are in contrast with the idea of privatization and individualization. Moreover, they encourage new interactions within the community and foster a more extended definition of welfare society, compared to traditional approaches, that favors the growth of such initiatives (Padovan et al., 2019).

2.1.2 Social Aspect of the Energy Transition

Promoting collective action, that is moving people to act and interact in the energy field, directly relates to many of the social aspects that have been raising as crucial for energy transition for the past decades. EC and CAI have been recognized as bottom-up experiences able to address, through the social innovation they are able to trigger, the challenges of promoting a fair and just energy transition with attention paid not only to the environmental performance (increase in renewables share) but also to guarantee affordable and accessible energy for all. In this section a brief description of this four concepts is provided: social innovation, bottom-up initiatives, energy poverty, and energy justice.

- Social Innovation

it is a very important concept within social sciences. It has acquired its significance in the challenges imposed by the society concerning environmental sustainability. De Vries and Hoppe offer their own definition, explaining “social innovation in the energy transition as a series of innovations that are social in their means and that contribute to the low-carbon energy transition, civic empowerment and social objectives relating to the well-being of communities”. (Hoppe and De Vries., 2018). It is also appropriate to report the definition given by the European Commission, which describes it as innovations that are social in means and ends. In particular, the production of new ideas (products, services and model) which, on one hand, satisfies social needs, and on the other, create new relationships or social collaborations. These are innovations that are not only good for society, but also improve the intrinsic ability to act in

society (European Commission 2017). On this sense, collective action is connected to the community, with the aim to favor the development of a more inclusive and sustainable society.

Six key characteristics of Social Innovation can be identified (idem):

- *Better satisfaction of a collective need*
the fundamental purpose of social innovation is to find new ways to respond to a collective need in a better way than the pre-existing methods. It is closely linked to an accurate analysis of the context and the actors of reference and to the best use of available assets;
- *Innovation of the relationships between economic and social actors, and of their roles*
it concerns the development of “new” relationships since they are established between subjects otherwise not directly connected;
- *Technology innovations*
although not always they are a necessary component for social innovation, technology represents a potentially very important lever sustainability;
- *Best use of available goods and resources*
it could relate to increasing the efficiency or productivity of the resource in question, or to the absolute reduction of its use;
- *Structural impact*
social innovation is an innovation, when it generates significant change, consistent in the long term and widespread. It means going beyond action in the most limited and urgent cases, worrying more about the impact in the long term;
- *Economic sustainability*
economic sustainability is a necessary feature of social innovation, at least to proceed in the more advanced stages of the initiative; such as the diffusion of new products or services, and structural change of the socio-economic system.

- **Bottom-up Initiatives**

As defined by other scholars, the bottom-up approach is citizen-oriented, in such a way to involve individuals to participate in the initiative in its initiation and its development. The acceleration of the energy transition is due to the innovation of bottom-up initiatives on a collective perspective and represents the passage from individualistic to collective actions. Within communities, a bottom-up participation is connected to the active commitment and to the individual responsibility within a project, whose objective was collectively determined. To implement the link between participation and community, it is important to underline that there is no sense of community without involvement in collective action.

- **Energy poverty**

Energy poverty (or *fuel poverty*) is described by Bouzarovski as the situation in which a family is unable to access a socially and materially necessary level of energy services in the home (Bouzarovski, 2010). The consequences of this phenomenon are negative on the level of well-being as well as on social inclusion. Among the causes identified, there are a combination of low incomes, high energy expenditure and low energy efficiency in homes. Energy poverty also has serious consequences on other aspects of daily life. For example, on health, as people living within this condition are more exposed to the risks of respiratory and mental illnesses. (European Commission, 2017)

Awareness of fuel poverty is becoming increasingly widespread in Europe and is considered a political

priority by several institutions of the European Union. In particular, it is included in the measures of the European Commission's "Clean Energy for All European Citizens" legislative package. In 2018, the European Commission itself created the Energy Poverty Observatory to tackle this phenomenon. Its purpose is to assess, detect and disseminate knowledge and good practices to tackle energy poverty. The theme is broad and difficult to estimate. According to the EU Energy Poverty Observatory, at least one in 10 people live in this condition, about 10% of the EU population.

A coordinated collective action approach, as can be observed in Energy Communities, may be the key to address this problem. In fact, the active involvement of civil society could attend in the definition and implementation of policies aimed at eliminating energy poverty.

- **Energy justice**

At the center of this analysis there is the concept of *energy justice*, or the idea that everyone should have equal access to energy and in particular to that produced from renewable sources. The growth of clean energy production must be accompanied by interventions that find a fair compromise between the economic and local needs of the present with the social and global necessities of the future, satisfying both today and tomorrow people.

2.1.3 Effects of CA in the energy field and the eCREW project

Collective Action is a social phenomenon able to trigger many different effects on socio-economic structure and performance of communities. These effects range from the satisfaction of public needs, to the effective management of resources, to the building of 'social foundations' such as trust and solidarity, to the activation of resources for local development, just to name a few (Duncan D. 2020, Padovan et al 2020, Gregg et al 2020, Bowles 2009, Walker et al 2010, Ostrom 1990). When it comes to the energy field, many of these effects seem able to play a role in addressing some of the energy transition challenges that refers to the empowerment of people, to the shift in awareness and behavioral change and to the overcoming of the incumbent centralized system. All challenges that eCREW model aims at contributing to address. In this section, four of these potential effects are briefly described with attention paid to the impact that a properly implemented Collective Action might have on the full exploitation of eCREW objectives and its potential in contributing to address the challenges posed by the energy transition.

- **Decentralization of power**

Through CA citizens might gain relevance within the energy system as prosumers by producing their own energy through the exploitation of RES. Establishing collective initiatives that play as collective prosumers instead of proceeding as individuals represent a relevant shift in the empowerment and decentralization of the energy system. On the one hand, the collective effort enables to become energy producers also that groups of people that, due to socio-economic constraints, would not have been able to become prosumer themselves. In such a way, more people can be involved and more relevance can be gained by the communities models that, from the organizational and political perspective, might reach the critical mass to challenge the incumbent centralized system. Then, from the geographical perspective, given the decentralized nature of many RES that need to be exploit where they are available, the establishment of communities close to the RES to maximize the exploitation of the resources is decentralized by itself. Given its virtual nature, eCREW is more in line with the former perspective with eCrews' members able to take part as collective prosumers to the

reshaping of the energy system. Although a relevant role is still played by the energy provider (CAE in the eCREW) much of the control on the energy produced and consumed is in principle left to the collective.

- **Sense of Community**

Individuals belonging to a community are motivated by a moral duty aimed at mutual aid as they feel a bond based on shared values, such as those of environmental sustainability and participation in the energy transition.

Moreover, Energy Community can help build sustainable development also from an ethical and social point of view, as a means of contrasting energy poverty.. Within an Energy Community, which reduces energy waste and optimizes self-consumption, on one hand energy becomes more accessible and, on the other hand, those supportive mechanisms specific to the community can be triggered to effectively mitigate energy poverty.

The creation of communities is one of the main eCREW's objectives with many of the project activities aimed at favoring the establishment of cooperation and a collective feeling among eCrews' members.

- **Education and awareness on energy communities and renewables**

The transition to renewable sources requires a proper education of people to make them aware of the issues (sustainability of the energy system) and the opportunities (shifting to renewables and acting collectively) at stake. In this regard, belonging to a community increases dramatically the opportunity to share information and exchange knowledge and practices about a specific subject compared to acting individually. Although beyond the aim of the project, eCREW through proper collective engagement strategies might play as a catalyzer of awareness on green energy topics among the members of the eCrews.

- **Behavioral changes**

In close relation to the previous effect, CA is also important when it comes to the need of shifting energy behaviors (to make it simple, *when and how much to consume*) to more sustainable models and habits. By joining a collective initiative in the energy field, the participants are exposed to two forces that might condition their behaviors: the social force composed of the influence coming from the observation of others' behaviors and the motivation raising from the feeling of being active part of a collective effort that contributes to the shift in use of clean energy; the technical *nudge* force raising from the RES production curve that pushes (with not sufficient storage available) production and consumption to be as much simultaneous as possible, a critical challenge at individual level that can be better addressed by a collective. Although behavioral change is not a specific ECREW objective, still the project is able to feed both the two forces mentioned above and therefore could play a role in fostering improvement in energy behaviors in line with the maximisation of self-consumption of the energy produced by the eCrew.

2.2 Components and determinants of CA in the energy field

Collective Action Initiatives (CAIs) in the energy field consist of plans or projects that can strengthen the role of citizens as an active part of the energy system by producing a social, economic and environmental

impact through the combination of different organizational and business models, various technologies and resources in different territorial and socio-cultural contexts.

The role of CAIs in the energy sector has increased over the last decade because it can be the accelerator of the energy transition while creating new conditions for collective and cooperative behavior, thus generating or reinforcing social innovation (Gregg et al., 2020).

Indeed, the energy transition implies the construction of a new model of social organization based on the production and consumption of energy from renewable sources and the active involvement of citizens.

The effectiveness of the energy transition requires cultural changes, both material and immaterial, based on energy saving and consumption efficiency as well as on citizens' awareness.

In such a scenario, the activation of new forms of collective action and collaborative economies (in which production and consumption give life to new exchange systems), combined with the opportunities offered by new digital technologies, constitute the milestones of the energy transition, as well as representing an opportunity for the creation of new green economy models.

If the energy transition is necessary in terms of environmental sustainability, it cannot be fully realized without a joint management of environmental, social and economic problems using a co-evolutionary and interactive approach, given the inseparability and mutual influence of social and technological changes.

Therefore, the purpose of CAIs initiatives is to make citizens' behaviors more sustainable and to pursue a model of energy democracy as an alternative to the traditional fossil-based system.

There are many conditions that influence CAIs development.

The realization of these initiatives requires a motivation on the part of citizens, who also need a quantity and quality of information that allows them to develop a sensitivity towards the energy and environmental issues. In addition to this, expert skills and adequate financial support are obviously required. The motivations differ across countries, and among regions of the same country. This depends on their specific challenges, such as historical development of national energy markets and other cultural, economic, social and political factors.

A part of the literature argue that CAIs depend on shared interests, the identity of their organization, and the mobilization that includes the resources available to the group (Tilly, 1978).

Regarding the first aspect, it has been observed that social cohesion creates a sense of solidarity, equality and participation, and thus shared interests arise. About this, studies have found that the so-called "neighbor effect" can have a greater influence on CAI mobilization than information campaigns or financial incentives (Adil et al., 2016).

In fact, the interests of members depend on psychological, social and moral factors of individuals, including interpersonal trust, social identification with the group and pro-environmental orientation.

However, the sense of belonging to a community is not the only reason that incentivizes the participation of member citizens. Indeed, some scholars reveal that people are driven by a mix of self-regarding motivations as well as pressure to conform to social, cultural and moral norms (Bowels et al., 2009).

Individuals are more likely to act collectively when there are expectations of some return on the horizon. This return may consist of an improvement of the current individual or social situation in terms of money, self-determination and other tangible or intangible goods.

In addition to these factors, it must be considered that there are other elements that may influence the success of a collective action in the energy field. Some of these factors depend on the choices of public decision makers while others depend on different external factors. Many of these factors can often turn into obstacles to citizens participation.

Indeed, the implementation of CAIs often requires finding political support, understanding administrative paths, difficult access to finance and compliance with rules and regulations. All these factors, alone or combined with each other, make difficult to develop and maintain the initiatives over time.

In particular, the legislation and the regulatory framework can sometimes be a significant critical issue, especially the legal and regulatory uncertainty for the renewable support schemes evolution, the lack of standardization of such regimes and the red tape that individuals and collectives face when deciding to start an initiative.

There are also external conditions that may play a role as barriers for CAIs' development among which it should be noted: the lack of public awareness, the inadequacy of communication resources, the lack of availability of free technical information and competences, the limited time available for volunteer-based work, the lack of close-knit community spirit and the lack of environmental concerns within influential members of the population.

Other obstacles to citizens' participation may be found in the lack of interest in the energy transition and the lack of understanding of the benefits that the CAIs' could produce. The technological gaps, such as the stabilization of grid infrastructures, may also get in the way the establishment of CAIs.

2.3 Models of CA

The literature usually refers to CAIs within the energy field as community energy initiatives, which are often organized in the form of energy cooperatives (Walker et al., 2010).

The structure of these communities is made up of individuals linked by neighbourhood proximity, facilitated by demographic and cultural similarities. In these communities, the basis for organization is the place where members are based which they have the incentive to unite, cooperate and make sacrifices when there is the perception that others in the same place will do the same (Caramizaru et al., 2020). Energy communities are very heterogeneous in terms of organisational models and legal forms. On this regard, it is relevant to highlight how the organizational structure of CAIs depends on the institutional and legal frameworks of the specific country in which they are established.

Moreover, the governance models change depending on the legal form chosen. For instance, energy communities can be entirely owned by the members or developed in cooperation with public or commercial actors. In other words, the latter is a shared ownership.

In the European Union there are the following models of energy communities: energy cooperatives, limited partnerships, development trusts and foundations, housing associations, non-profit customer-owned enterprises, public-private partnership and public utility companies.

The most common type of energy communities is currently given by energy cooperative, especially in the renewable energies sector. In fact, cooperatives are generally deemed to provide the best institutional framework for locally owned and participatory approaches to renewable energy projects.

This kind of legal entity, that includes both the social and economic dimension in their scope, is often characterized by a "one member - one vote" decision making process, thus providing high levels of co-

determination (Huybrechts et al., 2014).

In general, the governance of energy cooperatives is led by principles enshrined in the statement on the cooperative identity. This statement has been adopted by the International Cooperative Alliance and it establishes several values among which should be noted the following principles: self-help, self-responsibility, democracy, equality, equity and solidarity.

While the specific governance structure varies depending on national legislation, the participative nature of cooperatives is generally ensured through a general assembly. In case of small cooperatives, the general assembly while larger cooperatives tend to have a board of directors elected by the general assembly.

Limited partnerships may allow individuals to distribute responsibilities and generate profits by participating to the EC. Governance is usually based on the value of each partner's share, meaning that they do not always provide for a "one member - one vote" principle.

Trusts and foundations are characterized by the purpose to generate social value and local development rather than benefits for individual members. Profits are intended for the community, even when citizens do not have the means to invest in projects (for-the-public-good companies). CAls in the form of trusts can be found in the United Kingdom, as so called 'community development trusts' where at times only a specific group of members has the right to vote.

Housing association are non-profit associations that can offer benefits to tenants in social housing, although they may not be directly involved in decision-making. These forms are ideal for addressing energy poverty.

Non-profit customer-owned enterprises are legal structures used by communities that deal with the management of independent grid networks. For instance, they are ideal for community district heating networks widespread in Scandinavian regions.

The Public-private partnership involves public local authorities which can decide to sign agreements with citizen groups and enterprises in order to ensure energy provision and other environmental and social benefits for a territorial community. Finally, the Public utility company is run by municipalities, who manage and invest in the utility on behalf of taxpayers and citizens. These forms are less common but are particularly suited for rural or isolated areas where there are difficulties to find the necessary investments and there is no effective competition on the reference economic market.

3 The state of the art: CAls in energy sector

3.1 Norms and regulations of CE

The European legal system provides for two definitions of energy community, depending on whether this concept is associated with renewable sources or not.

In the first case, the definition is given by the Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources.

Article 2, par. 1, no. 16 establishes that a “renewable energy community” means a “legal entity: (a) which, in accordance with the applicable national law, is based on open and voluntary participation, is autonomous, and is effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects that are owned and developed by that legal entity; (b) the shareholders or members of which are natural persons, SMEs or local authorities, including municipalities; (c) the primary purpose of which is to provide environmental, economic or social community benefits for its shareholders or members or for the local areas where it operates, rather than financial profits”.

It is therefore a composite definition, which presupposes the proximity of the energy production plants to the renewable sources and allows the participation of public entities in the implementation of this model, as well as establishing a non-profit purpose.

The punctual discipline is contained in Article 22, par. 1 of the same Directive, under which “Member States shall ensure that final customers, in particular household customers, are entitled to participate in a renewable energy community while maintaining their rights or obligations as final customers, and without being subject to unjustified or discriminatory conditions or procedures that would prevent their participation in a renewable energy community, provided that for private undertakings, their participation does not constitute their primary commercial or professional activity”.

Moreover, par. 2 establishes that “renewable energy communities are entitled to: (a) produce, consume, store and sell renewable energy, including through renewables power purchase agreements; (b) share, within the renewable energy community, renewable energy that is produced by the production units owned by that renewable energy community, subject to the other requirements laid down in this Article and to maintaining the rights and obligations of the renewable energy community members as customers; (c) access all suitable energy markets both directly or through aggregation in a non-discriminatory manner”.

The same Directive also governs the institution of self-consumption, although only in the field of renewable energy, enhancing the sub-category of the self-consumer who acts collectively. More precisely, Article 2, par. 1, no. 14) defines “renewable self-consumer” as the “final customer operating within its premises located within confined boundaries or, where permitted by a Member State, within other premises, who generates renewable electricity for its own consumption, and who may store or sell self-generated renewable electricity, provided that, for a non-household renewables self-consumer, those activities do not constitute its primary commercial or professional activity”, while no. 15) includes within the concept of “jointly acting renewables self-consumers” the “group of at least two jointly acting renewables self-consumers in accordance with point (14) who are located in the same building or multi-apartment block”. In this case the distinction is therefore given by the plurality of subjects and, once again, by the spatial requirement, consisting of being in the same building or multi-apartment block.

This distinction is relevant for the purposes of applying the following Article 21, which requires Member States to authorize consumers to exercise self-consumption and allows them to treat self-consumer differently in compliance with the principle of proportionality and, in any case, in the presence of adequate justification.

The definition contained in the 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 is different because it is undoubtedly broader.

Article 2, par. 1, no. 11 states that “*citizen energy community*” means “*a legal entity that: (a) is based on voluntary and open participation and is effectively controlled by members or shareholders that are natural persons, local authorities, including municipalities, or small enterprises; (b) has for its primary purpose to provide environmental, economic or social community benefits to its members or shareholders or to the local areas where it operates rather than to generate financial profits; and (c) may engage in generation, including from renewable sources, distribution, supply, consumption, aggregation, energy storage, energy efficiency services or charging services for electric vehicles or provide other energy services to its members or shareholders*”.

In this case the participation of public entities is allowed as well as in the case of renewable energy communities. The difference with respect to the latter one is that, in the case of citizen energy community, the purpose is wider because it consists not only in the management of energy production plants from renewable sources, but also in other activities of the supply chain, from distribution to storage, beside the provision of other energy services, always with the aim to achieve no-profit benefits.

Article 16 of the same Directive requires Member States to adopt a favorable regulatory framework, establishing that “*citizen energy communities are subject to non-discriminatory, fair, proportionate and transparent procedures and charges, including with respect to registration and licensing, and to transparent, non-discriminatory and cost reflective network charges in accordance with Article 18 of Regulation (EU) 2019/943, ensuring that they contribute in an adequate and balanced way to the overall cost sharing of the system*”.

It should also be noted that the following par. 2 provides the right “*to own, establish, purchase or lease distribution networks and to autonomously manage them subject to conditions set out in paragraph 4 of this Article*”, under which “*Member States may decide to grant citizen energy communities the right to manage distribution networks in their area of operation and establish the relevant procedures*”. It is evident that this provision goes in the opposite direction compared to the monopolistic approach once in force in the Member States energy sectors.

Italy has adopted an experimental and transitory regulation in view of the complete transposition of Articles 21 and 22 of the Directive (EU) 2018/2001. To date, nor this directive –nor the Directive (EU) 2019/944 - that takes into consideration energy communities– have not yet been implemented by the Italian legislator. Article 42-bis of the Legislative Decree 30 December 2019, n. 162 converted with Law 28 February 2020, n. 8, allows small-scale collective self-consumption of renewable energy plants below 200 kW for customers linked to the same low voltage distribution sub-grid, defining methods and conditions for activating collective self-consumption from renewable sources and for the creation of renewable energy communities.

3.2 Case Studies of CAIs and energy communities around Europe

In recent times, *Energy Communities* are having a greater relevance, thanks to the fundamental role they are playing in the energy transition process. This theme has been studied and made concrete by two relevant realities: REScoop.eu and Ecolise. REScoop.eu² is the European federation of energy cooperatives. 1500 cooperatives and 1 million involved

² <https://www.rescoop.eu/>

actors who build projects aimed at providing energy services (within and beyond the energy chain). REScoop is inspired by four objectives towards energy democracy:

- It represents citizens' voice to European policy makers;
- It actively supports the start-up of new energy communities and promotes collaborations between them;
- It develops services on business intelligence, community engagement, finance and e-mobility;
- It promotes the cooperative business model within the energy sector.

Furthermore, the project ECOLISE³ – *European Network for community-led initiatives on climate change and sustainability*. Almost all the initiatives towards the energy transition are generally led by citizens. The topics of these projects are of various kinds, such as food or work, but with a common feature: environmental sustainability.

Local responses on a global scale to the causes of climate change are the starting point for ECOLISE to participate in the energy transition. An example of communities endorsed by ECOLISE are the ecovillages. In an ecovillage the inhabitants live in harmony with nature, experimenting with technologies how to create a more sustainable, peaceful and alternative way of life. Within it, several objectives are reached: social, ecological and economic. In 1995, the Global Ecovillages Network (GEN), that is the European association of ecovillages, was founded. It promotes the concept of eco-villages and supports the protection of the environment, the care of the earth and the building of harmonious communities. GEN-Europe favors the development of eco-villages as a model of sustainable human settlements through the exchange of communications, participation, education and networking. It provides assistance in the development of ecovillages, sustainable communities and networks in Europe, in Middle East and in Africa.

Parallel to these two phenomena, in the social field, various initiatives with a specific focus on the energy transition matter, have been developed by citizens: the *Collective Action Initiatives*.

In Energy Communities it is important to strengthen a collective perspective because joint actions towards the same goals could lead individuals to achieve better expected results.

To try to increase the concepts of *Collective Action* and *Collective Action Initiatives* within each Crew, it is useful to propose a review of different Case Studies on the subject. This is necessary both to be able to expand the scope of these actions and to take them as an example and implement them within the eCrew project.

CAIs are considered as potentially influential players in the energy field, with the aim of expanding their range of action to make a greater contribution to the energy transition.

COMETS - Collective action Models for Energy Transition and Social Innovation, an H2020 project, published in May 2021 a report on 6 CAIs case studies.

The Countries covered by the case studies carried out are 6: Belgium, Estonia, Italy, Netherlands, Poland and Spain. Within these projects energy is produced exclusively from renewable sources, such as:

- Belgium: wind power, hydro power, biomass and solar PV;
- Estonia: solar PV;

³ <https://www.ecolise.eu/>

- Italy: PV;
- Netherlands: wind power and solar PV;
- Poland: biogas, geothermal energy, solar PV;
- Spain: solar and thermal energy.

This review of case studies is very important, because in addition to being one of the first investigation about CAIs and it allows a complete transversal perspective on various social, economic and environmental issues.

For this reason, with the aim of arguing the CAIS for the eCrew project, some of these themes closely related to those of the Deliverables (2.2/ 2.3/ 3.1) will be used: engagement, governance and organization and scaling up.

3.2.1 CAI Engagement

Engagement is one of the recurring themes that appears in the studies of the eCrew project (DVL 2.2 / 2.3). Thanks to the report produced by Comets, it is possible to understand the results obtained by CAIs in 6 different contexts and take them as an example, as a guide for the three realities of eCrew: Germany, Spain and Turkey.

- **Belgium**

CAIs have set up a Cooperative Company, with a double purpose: both to implement financial incentives in favor of members who adhere to it and to advertise energy supplier

Moreover, different levels of participation in the CAI are created: for example, an individual can choose whether to participate to the project actively or passively. Participation in the CAI, however, has not always been positive; some job skills are specific and should be performed by people who deal with that. But most of the time, this does not happen, as the various roles are carried out by the members of the Communities, and not by competent people. Consequently, it aims at improving the efficiency of some tasks, which are fundamental for the Crew.

CAIs are an important means, because try to overcome the barriers of energy poverty by helping the most vulnerable members.

- **Estonia**

In this Country, participation is regulated by an association, in which a series of condominiums take part and it consist in the installation of technologies to produce renewable energy. In this association, however, the re-production of the CAI model does not have a particular value.

- **Italy**

There are different experiences related to the participation to CAIs: ecovillages, energy cooperatives, cooperative companies, associations, energy communities. The various projects that are developing renewable energy seek collaborations with associations and institutions in the local area where they are settled and implement engagement strategies to offer competitive energy prices to members. One Cooperative in particular, èNostra, has created a Participation Plan which aims to involve the members to have a more active role in the development of the cooperative's themes.

Thanks to the CAIs, it emerged that the motivation linked to environmental sustainability exceeds the economic one. Members benefit of the energy transition by engaging in sustainable, fair and clean behaviors.

- **Netherlands**

In this type of CAIs, there were several difficulties in finding people to participate to the COMETS project. Without offering an economic advantage, it has been proved to be a problem to entice an individual to change his energy supplier.

Furthermore, to recruit member that want to be part of a CAI, it was concluded that it is easier to convince people who are already part of a network of acquaintances and that it is easier when the project has already reached a concrete implementation phase. If the project to be implemented has not yet been developed, it has been shown that it is more complicated to convince people only with "theory".

- **Poland**

In this case study, potential CAIs are energy clusters and the initiatives developed have the characteristic of a top-down system.

The main factor to engage people is the economic one; however, a more positive approach to environmental sustainability was noted. Individuals seem to be more aware of pollution and demand cleaner energy.

- **Spain**

The commitment in the CAIs is deeply felt in Spain; associations are identified in communities, in which members pursue environmental and social objectives. The "*sense of belonging*" is developed as a useful tool to keep the participation of CAI members active.

In addition, the creation of a community based on common value is the key to develop CAIs.

Local Entities and volunteers play a fundamental role in the promotion and implementation of CAIs.

Thanks to the CAIs, Spanish tries to solve the problem of energy poverty, including practices of social inclusion; in this regard, cheaper economic tariffs and training groups on energy issues have been created.

As emerged from these six different realities, the factor of citizens participation in sustainable projects is important for everyone. Thanks to engagement and continuous maintenance of participation, CAIs could build a community based on reciprocity, mutual help and a bottom-up decision-making system. Only in Netherlands and Poland has emerged a greater propensity to the economic factor, instead of the community and sustainable one.

The engagement is the basis for the development of CAIs and, as noted in Spain, it is a relevant factor for the development of the "*sense of belonging*". This is a great starting point to see how member participation in the eCrew project will develop, particularly in the Spanish Crew.

Furthermore, Spain is very attentive to the problem of energy poverty. In recent years it has also assumed an important role in the European Union, by including specific measures in the Package Energy 2030.

3.2.2 CAI Governance and Organization

To create any reality linked to an energy project, it is necessary to have a clear idea of which organizational model the project will have and to know the reference governance.

As for energy communities, individuals can experiment organization with innovative roles in the social, ethical and civil fields; they participate in the local governance with direct responsibility, at the basis of which citizens, associations and entrepreneurial realities share a set of principles, rules and procedures concerning the management and government of the community. This is done to achieve self-management and resource sharing objectives. Initially, governance procedures are more likely to be activated, experimenting with new energy saving technologies in residential facilities. This model can be extended to the apartment building and surrounding neighborhood. Subsequently, governance procedures can lead to the creation of a collective entity, a cooperative, a living lab or a community association. Alternatively, the roles of organizations can be integrated in the area with the governance principles adopted by the community.

- **Belgium**

CAIs have the legal status of cooperatives or that of non-profit organization. The General Assembly is the main body, it deals with strategic decisions. The members, in special meetings, are required to express their opinion on the development of the cooperative.

These CAIs create employments; jobs have been created in the cooperatives, as it was possible to hire qualified administrative staff.

- **Estonia**

Being condominiums, CAIs in Estonia are regulated by national government laws. None of the respondents expressed a preference for setting up a separate body to control energy communities. The economic factor, such as saving on the bill, prevails over the energy goal of sustainability.

- **Italy**

The prevailing legal form among the CAIs is that of the energy cooperative. An initiative is created, for which members can consume clean energy, but they can also produce it. Citizens can also choose to become the owners of the renewable technology used for green energy production. Ecovillages are an exception in the energy field, as they do not enjoy official institutional recognition.

- **Netherlands**

There is no real internal organization for this type of CAIs. Smaller CAIs can receive help from larger ones, thus gaining access to greater skills.

The sharing of internal knowledge should become a fundamental factor that can be shared with other external CAIs.

- **Poland**

Different types of initiatives are promoted for the definition of CAI related to the energy sector. For examples, Energy Cooperatives, NGOs, Housing Associations etc. CAIs energy clusters have a top-down perspective, in which Government invest in renewable energy system.

- **Spain**

CAIs are composed by a lot of small organizations, which have advantages such as: ease of

management, community dimension and ease of replication model. A different model of CAIs develops, more on the democratic dimension of the community, in terms of production and consumption of renewable energies. The Community model is an example of this.

Comparing the different case studies proposed by COMETS, it can be seen that the organization assumes different roles and levels in the development of CAI in each country. The energy community model is the one that brings together most of these realities, implementing a democratic decision-making strategy and system based on bottom-up participation.

3.2.3 CAI future perspective and scaling up

Before analyzing the case studies, it is important to report as a future perspective, a European regulation on Energy Communities starting from 1 March 2020. This European measure was born within the Clean Energy for All Europeans Package, with the Renewables Directive 2018/2001 (RED II), and the Electricity Market Directive 2019/944 (IEM). The Directives, with the aim of putting citizens at the center of a new model of production and consumption, determine Member States to regulate and promote solutions of increasing complexity: single self-consumption, collective self-consumption and the Energy Community.

For example, in Italy, can be seen Milleproroghe Decree (Law 30 December 2019, n.162), then the Relaunch decree (Law 19 May 2020, n.34) and the Superbonus, which have activated various incentive mechanisms. According to the data collected, self-consumption has great potential in Italy: it is estimated that by 2030 it will be able to add 17 GW of new renewable energy capacity, directly involving citizens, businesses and local authorities in the energy transition process. This estimate would make it possible to achieve the objectives established by the National Integrated Energy and Climate Plan (PNIEC), thus making the energy communities essential for increasing the share of clean energy by 30% (equal to 22.8 TWh total).

- **Belgium**

In this case study, there are two type of growth: short- and long-term development.

In the first case there are examples of renewable energy projects with a pragmatic strategy; in the second, the CAIs try to build a more stable and clear long-term strategic vision.

From what emerged from the Belgian CAIs, one of the future objectives is to try to maintain a local identity. While on the factor of diversification of production, they want to develop new models of technologies to produce energy from renewable sources. The participation and development of projects is an important factor in creating both economic and employment opportunities. Although the work proposed in the communities is on a voluntary basis, a level of job specialization is necessary for the accurate development of projects.

- **Estonia**

Energy communities are a fundamental development factor, as they go hand in hand with the needs of society. Thanks to this, the objectives to be pursued are to continue to increase energy efficiency, implement bottom-up participation models, increase the importance of the collective

perspective and ensure that more cooperatives cooperate to achieve qualitatively better results in the field of renewable energies.

- **Italy**

In Italy, as mentioned above, there are several implementations of energy CAIs. But the future objectives are common to all of them: the spread of the use of renewable sources for the production of clean energy and the acceptance of this technological innovation on the Italian territory. One aspect that emerged, relating to energy communities, is that of the relationship with the territory to encourage collective consumption. While, ecovillages are relied upon to implement new discussions on the decisions to be made for the development of initiatives on renewable sources. However, one of the problems that emerged relates to the size of the communities; they must not be too small to be reduced to mere self-consumption. The CAIs, for this reason, contribute to develop forms of collective self-consumption.

For example, èNostra has two affiliated projects: RESCOOP and Retenergie. This synergy allows it to be active throughout the national territory with a diversified strategy for the development of its future projects.

- **Netherlands**

In terms of upscaling, different energy environments emerge. Zonnerdorpen is known for its commitment to building solar parks, but is studying other renewable alternatives to be implemented to expand its reach. By doing so, CAIs can increase solar and wind energy at the community level.

The Windpark Nijmegen cooperative has given rise to the definition of "energy transition" to indicate the optimal management of the territory in a sustainable key. Finally, the social enterprise Bronnen VanOns aims to decrease the barriers to upscaling between CAIs; to do this, it helps energy cooperatives in developing the projects to be implemented. The more ambitious and larger projects are, the more there is a need to involve experts in the process.

- **Spain**

For the Spanish CAIs are essential to grow towards three dimensions: locally, geographically and through the network, creating synergies with other energy communities. The line to be followed is to increase investments in terms of innovation and to enhance the means for the production and consumption of renewables. In this regard, the growth of CAIs takes place both thanks to a human factor, as the people who work there are fundamental, and to an economic factor. For this reason, it is important to attract potential investors to be able to implement projects.

The technological challenge is the most relevant in terms of CAIs, as the Spaniards are already very advanced in this innovation, but they should still create synergies with other CAIs and expand their knowledge on the subject.

As can be seen from these five case studies, the community factor is the common thread that leads to greater production of renewable energy. Geographical expansion and technological innovation are the other two fundamental factors that allow an aware and effective participation in the energy transition. In these contexts, the support and action of the CAIs plays a decisive role for the future and growth of projects linked to sustainability.

4 Strategies for Collective Action: a general overview

4.1 Introduction of activities and strategy for CA

The implementation of a collective action plan depends on a variety of factors.

The main of these factors will be dealt with in the following pages and essentially it consists in the setting of a goal to be achieved, in the identification of the community dimension to realize, in the choice of the actors to be involved and in the availability of the economic resources.

Goals

In order to define the goal to be achieved within a collective action plan, it is necessary to focus on some relevant aspects, including the social, economic and environmental aspects.

In some cases, these aspects may coexist with each other, while in other cases this is not possible.

Innovation is certainly a concept that can encompass economic and social aspects, while at the same time may contribute to achieving higher standards of environmental protection. From this point of view, through collective actions it is possible to experiment with technological solutions, the benefits of which fall on the community of a specific territory.

In the energy field, some specific goals could be identified.

First, collective actions aim at increasing the ability of consuming self-produced and locally generated electricity. In this way, the local community decreases its dependence from the provider and contributes to meeting the energy supply needs on a more general level. In other words, collective actions aim at achieving local energy independency and self-sufficiency.

On the subject, scholars have found that the ability to consume self-produced and locally generated electricity is increased as well as facilitating the adoption of solutions and services for energy efficiency and active demand (Gangale et al., 2020).

Increasing consumer understanding and engagement in energy efficiency also leads to a reduction in energy consumption and electricity bill costs, which are two significant environmental and economic benefits.

There are also examples of collective actions whose objective is broader. In the case of Rootcause, for instance, collective action aims to improve life in a community by aligning philanthropic resources, direct social services, public institutions and community efforts to reduce barriers to success, such as those related to race, class, gender and geography (rootcause.com).

In fact, the main idea is to bring together different stakeholders and competitors to create a situation where the joint initiative realizes the necessary level of confidence in the compliance of others. As such, collective actions could be a key tool for creating a level playing field for companies and for addressing some of the more systemic challenges to corruption identified as crucial in a specific context.

Size and community

The second factor that affects how a collective action is implemented is the community dimension which can be appreciated from a territorial, quantitative and qualitative point of view.

First of all, it is necessary to ask whether collective actions should develop within a territorial community identified by public institutions or whether they can develop spontaneously by individual citizens. In the

bottom-up approach that characterizes collective actions in the energy sector, the answer is the second. Therefore, the criterion on the basis of which to delimit the community must be sought from time to time according to the type of collective action that takes place. For example, in the hypothesis of renewable energy communities, the proximity of the renewable energy production plant could play a fundamental role, while in the case of energy self-consumption the location of the condominium could be important. A criterion that is undoubtedly decisive in identifying the dimension of collective actions to be developed is that of sharing values and goals. In other words, the community cannot include subjects who do not share the spirit that the collective action proposes to carry out.

The community can instead include subjects who, even if they do not know each other and have no pre-existing relationships, share the values that inspire the collective action. With reference to the quantitative aspect, a limit cannot be fixed a priori. In order to define the adequate number of subjects participating in the collective action, it is necessary to verify which is the purpose of the collective action and what are the methods to be applied.

In general, a distinction can be made between small and large groups based on the ability of their members to maintain interpersonal relationships. As pointed out, approximately 1000 people is the threshold for working group-based cooperation of community members. Above that number, people may not know each other well enough, and the level of mutual trust tends to decrease (Doci, 2021).

CA actors

Collective actions can involve members or partners from three stakeholder groups: public sector, business sector and civil society.

With reference to the public sector, collective actions can concern local public bodies (regions, municipalities, etc.) as well as public companies, especially those that are active in the sector of public environmental services. The involvement of public sector is significant because the implementation of collective actions often requires finding political support, understanding administrative paths, difficult access to finance and compliance with rules and regulations.

The business sector refers to private companies, especially those that are active in the sectors of production, distribution and storage of electricity. In fact, these subjects have the administrative authorizations and market information needed to carry out the activities required by collective actions.

The civil society is represented by citizens and non-profit associations that can directly participate in the implementation of collective actions through the individual engagement, the provision of structures or the allocation of economic resources.

CA resources

The financial sustainability is considered the biggest challenge for collective actions to survive over time. In fact, if activities are slow because there are no funds, participants may drop out of the initiative due to frustrations over slow progress.

The sources of funding that support collective actions can be different depending on the context in which they operate.

In the first place, the economic resources can come from the membership fees paid by the members of the community. The citizens may have also participated to the project giving loans. For instance,

REScoops gives the opportunity to citizens to financially participate in both of the aforementioned different modes (Rijpens, J. et al., 2020).

These solutions, however, does not seem to be able to cover all the expenses necessary for the initiation and development of a collective action.

It is therefore necessary that the collective actions are financed by public contributions or by philanthropic donations or by the profit of the services carried out by the community. Indeed, many collective actions are funded under, or have initially started under, a fund or a grant. A challenge for these initiatives is to ensure their continued independent operation after this fund runs out.

4.2 Strategies to map and to engage stakeholders

In order to create an efficient collective action plan the engagement of stakeholders is capital. In fact, the stakeholders are the main actors and the most important factor that can determinate the success of the collective action plan.

On this regard, many experiences may be observed. In particular, within the context of the European Union project named CICERONE (Cicerone, Deliverable 4.1), it has been noted that to actively involve stakeholders it is important to properly identify their key interests in order to communicate to stakeholders the goal of the collective action plan. For this reason, the project CICERONE has submitted a questionnaire to the members of the project asking which were the stakeholders' interests, goals, expectations, concerns and needs. Another way to map stakeholders' opinion, for example, is to organize workshops and dedicated meeting or to use online intelligent platforms. Furthermore, after the selection of key interests, it has been suggested to divide stakeholders into different groups to better shape their role and contribution within the development of the project. On this regard the "Egyptian Junior Business Association Integrity Network Initiative" (Egyptian Junior Business Association Integrity Network Initiative, 2018) has proposed three main different groups of stakeholders (public sector, business sector and civil society) and then has underlined for each one of them the principal challenges. For the public sector, which is the most important (if considering the amount of resources, it can offer), but also very difficult to properly engage, one of the biggest challenge is that there could be a lack between the legal mandate and the power or the interests in realizing the goal of the project. Moreover, it has been registered a gap between the official mandate and the informal political agendas because not always the most useful projects are those who help politicians to win the elections. Finally, it has been observed that usually there is a significant difference between high level politicians and middle-local administrators who are less powerful and do not have the same number of resources as the first ones to realize projects.

On the same matter, the European Commission Joint Research Center (Gangale, F. et al, 2020) has identified sub-categories for each group of stakeholders that are usually present in the development of collective action plan within the energy field. In particular, with reference to the public sector the authors of the report have detected: municipal utilities, public institutions, universities and research institutes. Considering the business sector, the attention has been paid to: consultancies, ICT companies, energy cooperatives, energy management service providers and distribution system operators. Concerning civil society, it has been highlighted that it could be more difficult to spot specific groups because it is a very heterogeneous category; nevertheless, the authors of the JRC report have identified two main sub-categories: the networks/interests groups and the "other" which includes non-profit-organizations,

associations, foundations, etcetera.

Once the mapping of the different group of stakeholders involved has been done, to implement a collective action plan, it might be useful to make a list of alternative stakeholders to engage from each group because, sometimes, is not possible to engage those who seem more suited. Secondly, it is important to identify how each group could contribute to the definition of the collective action plan and, consequently, to make sure that each group has fully understood the final goals. This may be difficult with a lot of members involved and for this reason, sometimes, it could be better to start with small numbers and selective groups and then, when the project is solid and well on track, to enlarge the number and the types of groups of stakeholders involved. In order to do that it is crucial to periodically map and revisit the strategies of involvement of stakeholders' groups because the motivations and barriers to the engagement could change over the time and during the project.

Another way to map stakeholders has been suggested by the Jeder Institute (Jeder Institute, 2019) whose strategy is based on six levels that have been imagined as six concentric circles of which the first level is the innermost circle and the sixth is the outermost circle. Moreover, each level has been combined with a range of tools that could suit the participatory community building strategy. The considered levels/tools are:

- Individual: skills and abilities
- Community: resources and connections
- Organisational: opportunities and resources
- Partners / Stakeholders: know / don't know
- Systems: elemental, agents, components
- Ecological: land, humans, other creatures

Following this scheme, always according to Jeder Institute's experience, there are three key steps that should be taken in order to connect people and strengthen the sense of community and mutual needs among the participants. In particular, these keys steps may be useful to map and to enhance the assets already present in the community. The three key steps are: discovering the assets, connect the assets together and then to establish the favorable context to make the assets work synergically. The authors of the Jeder Institute's Guidebook have proposed the following four questions to accomplish the path outlined by the above said key steps.

- What functions can community residents perform by themselves?
- What functions can community residents do with some additional help from government and agencies?
- What functions must government and agencies perform on their own?
- What functions must government and agencies STOP doing?

Another useful experience is the one proposed by the Invasive Animals Cooperative Research Centre that in its Guidebook (Alter, et al., 2017) has reported few principles that are capital for a community development. First of all, it is necessary to improve stakeholders and community members' awareness on the addressed matter by the project; secondly it would make it much easier, if those who do not have enough knowledge on the subject, could improve their understanding in order to properly confront with the aim of the project; thirdly, to make sure that the activities on which the project is based on continue, it has been noticed that citizens need a perspective about future opportunities to constantly engage each other; finally the leaders of the project, if present, have to coordinate the activities to make sure that those opportunities, as well as an effective communication of the results, remain an essential part of the process.

Taking inspiration from these principles few best practices have been identified. In fact, to successfully engage citizens it is essential:

- to plan and program in advance the activities and the timeline of each step;
- to create a heterogeneous group of stakeholders because the diversity of ideas and socio-cultural backgrounds are added values when making a collective action;
- to be clear and transparent about the goals of the project and about how it is going on by sharing with participants risks, problems and difficulties as well as positive achievements and successes;
- to make sure that stakeholders' efforts have a real and effective impact on the project;
- to promote dialogue with public institutions and the other realities of the civil society of the interested territory.

About these steps the International Association for Public Participation (IAP2) has designed the “Spectrum of Public Participation” which represent figuratively the above mentioned principles in logical and temporal perspective.

IAP2 Spectrum of Public Participation



IAP2's Spectrum of Public Participation was designed to assist with the selection of the level of participation that defines the public's role in any public participation process. The Spectrum is used internationally, and it is found in public participation plans around the world.

| INCREASING IMPACT ON THE DECISION | | | | | |
|-----------------------------------|--|--|---|---|--|
| | INFORM | CONSULT | INVOLVE | COLLABORATE | EMPOWER |
| PUBLIC PARTICIPATION GOAL | To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions. | To obtain public feedback on analysis, alternatives and/or decisions. | To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered. | To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution. | To place final decision making in the hands of the public. |
| PROMISE TO THE PUBLIC | We will keep you informed. | We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision. | We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision. | We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible. | We will implement what you decide. |

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4.3 Peer to peer activities carried out at community level

The second phase of an efficient collective action plan consists in the organization of peer-to-peer activities which enable the different types of stakeholders to create synergies and to constantly share their ideas, difficulties, suggestions and to involve new members.

Concerning the peer-to-peer activities there are many examples that have been recommended by academics and organizations that have already had the opportunity to realize a collective action plan. The

following lines will take in consideration only a few of these activities and, in particular, those who are more pertinent with the birth and development of energy communities.

In fact, it has been noted that applying the dynamics based on the sense of community, it is easier to foster individual cultural and behavioral changes in the use of renewable energies (Gangale, F. et al, 2020).

The study conducted by JRC, which considered 22 projects, has divided the activities that may be conducted at community level in four macro-categories. The four macro-categories are: the increase of awareness; the participatory approach, the incentive and rewards, the community trusted actors.

In the first macro-category (the increase of awareness) are included: the distribution among citizens of information and communication materials (i.e. promotional videos, animations, graphic tutorials, brochures, street posters, etcetera) in order to inform as many people as possible; the social comparison which consists in the comparison of the performance (meaning the saving of money from energy bill, the reduction of pollution in the considered area (CIVIS project⁴); the efficiency in the consumption monitoring) among people that are part of the project with those that are external to the project and which have (more or less) the same social-economic and cultural characteristics in order to demonstrate the benefices resulting from the participation in the project; the demonstration - through the distribution of monitoring devices to the participants - of how the project will enable them to monitor their consumption of energy and to know how much renewable energy is produced and consumed within the community. The second macro-category (participatory approach) includes: community events such as thematic meetings, workshops, conferences, public events, etcetera; online aggregation forums and the use of social networks; the involvement of stakeholders in the design of the project in order to make them more committed to the results of the project and to give them the chance to express their point of view and their expectations.

The third macro-category (incentive and rewards) takes in consideration the incentives, typically financial, that may derive from the implementation of the project. Another important and innovative instrument that could be used is the gamification which allows, through the use of playful challenges, to engage more actively the stakeholders (Davidson P., 2019).

Finally, the fourth macro-category (the creation of community trusted actors) aims at identifying the leaders of the community who voluntary engage themselves into the project and who widespread in their local area the project and its goals. In this way they facilitate the recruitment of new members and reinforce the participation of the members already involved (Gangale, F. et al, 2020).

A useful toolkit to engage stakeholders and realize peer-to-peer activities has been created by the global design and innovation firm, Frog (frogdesign.com/CAT). It is divided into six sections which are meant to help communities to reach their goals through the development of their projects. In particular, each section of Frog's toolkit has the same structure: there is a theoretical explanation part; the indication of how organize the activities with the group and the duration of each activity; the materials necessary to carry out the activity and a final part in which the user should focus on the lessons learned from the specific activity.

⁴ <https://civis.eu/en>

4.4 Top-down activities proposed by subjects outside the community

In some experiences, it has been observed that the presence of subjects external to the community may facilitate the development of a collective action plan. For example, in the experience of the Egyptian Junior Business Association Integrity Network Initiative, the external subject who facilitates the stakeholders' engagement and the creation of CAI, has been called "facilitator" and it could be both a legal or a physical person. The facilitator has to be perceived by the community as reliable, competent and open to new ideas and solutions and, because he/she is external to the initiative, he/she might bring in news resources, expertise, and credibility.

The facilitator acts as intermediary between the groups of stakeholders and the other subjects involved within the project, such as local entities, the society that produces and sells energy and the public institutions. The facilitator is supposed to accomplish the following tasks:

- to supervise the project in order to guarantee that it stays on the track;
- to introduce new ideas and to evaluate new suggestions coming from the stakeholders;
- to create and/or widen the network contacts;
- to manage potential difficulties and tensions that could rise among stakeholders.

Nevertheless, on the other side, the role of the facilitators is not easy because the tasks are not always so clear and defined. In addition, the community and the stakeholders may see the facilitator as an outsider who is not part of the community and for this reason has no right to take any decision or to coordinate the project.

In light of the above, before the beginning of the project it is necessary to properly and clearly define which will be the facilitator's role and duties as well as which powers, he/she will have (COMPILE, Deliverable 4.1, 2021); this would allow to avoid any confusion during the implementation of the project.

According to the Invasive Animals Cooperative Research Centre, the facilitator has the characteristics of a leader even if he/she is not necessarily a subject matter expert. Indeed, the facilitator "rather than being a player, acts more like a referee" (Alter, et al., 2017) and he/she should behave in the most neutral way possible in order to do not interfere with the stakeholders' decisions⁵. In addition, the facilitator has to manage three main aspects of the project that are: organizing the content of the project; to take care of the relationship among the stakeholders; to shape the participatory activities in order to build an effective engagement strategy.

A further example of an external subjects who may contribute to create an energy community is Energy4all⁶, a federation of British cooperatives whom goal is to help local groups to implement their own collective action plan and to collect financial resources to support the creation of energy communities. Another similar initiative has been realized by the French social foundation Energie partagée⁷ that gives

⁵ This provision is coherent with the Principle 2 of the ICA (International Cooperative Alliance) which establishes the Democratic Member Control of the community.

⁶ Energy4All currently includes 28 independent renewable-energy co-operatives, has 13,250 individual members and creates 30MW of electricity capacity, <https://energy4all.co.uk>.

⁷ Energie Partagée, "Energie Partagée", Available at <https://energie-partagee.org/>

technical, economic and structural support to locals' initiative financing the early stages of the project with the intention of raising more money from citizens and then to let the project continue with its own strength.

A very important category of external subjects who technically are not part of the community but whose participation is essential, are the local public authorities. On one hand local authorities and public institutions could be considered as a fundamental category of stakeholders⁸, while on the other hand they might be seen as a very important component for the implementation of the project but not as a stakeholder strictly speaking. In particular, the inclusion of public authorities may result in an additional financial help or in the possibility to use public spaces to develop the project and to organize the activities to engage new members. For example, within the project Lochem-Energie Cooperative, the cooperative itself and the local government are business partner, and this relationship enables a win-win situation where both parties could benefit from the other participation and interests.

Other two possible external subjects that might be involved in the development of an efficient collective action plan are the experts and other cooperatives. With regard to the first one, for example, in order to avoid that the development of the wind park – from which the community would have produced renewable energy – could disturb or harm the birds living in that area, the cooperative Lucéole⁹ has decided to involve ornithologists during the process of creation and design of the wind park. Concerning the second abovementioned external subject that might be involved, the cooperatives, it has been noted that the cooperation among cooperatives, engaged in various activities, could encourage the exchange of the best practices and the best solutions for the engagement strategies between the different cooperatives.

4.5 Monitoring and follow-up activities

In order to improve a collective action plan effective and efficient, it is necessary to revise periodically the different parts that compose it. In particular, it would be useful to analyze:

- the results of the activities implemented so far;
- to which extent the stakeholders have been contributing to the development of the collective action plan;
- which strategies applied to engage more members have been working and which do not;
- how much the plan has been respected and which scheduled activities have been changed during their execution;
- which group of stakeholders is not satisfied about its role within the implementation of the plan and why;
- the suggestions coming from public authorities, citizens, stakeholders, energy companies to improve the engagement strategies.

One of the most important elements that raises the necessity to constantly make an assessment of what has been done so far and how it has been done, is that usually the birth and the functioning of a collective action plan involves several aspects among which many represent a novelty for the community involved.

According to the above, the assessment is a fundamental step of the collective action plan, and this is

⁸ For example, within REScoop 20-20-20 project, Best Practices – Report I, p. 13 local authorities are considered key stakeholders.

⁹ Lucéole Société Coopérative à responsabilité limitée is a REScoop from the Walloon region in Belgium.

why the evaluation process has to be included within the plan itself since the beginning. In addition, it should be desirable to identify – also since the beginning of the project – the people in charge of the monitoring and reporting.

The Community Energy Strategic Planning Guide (U.S. Department of Energy, 2013) suggests establishing an assessment form for each action or phase provided for in the plan; doing so it will be easier to identify which “level” of the plan needs to be revised. The Guide proposes the following points as the basis on which build an assessment form:

- measurable indicators such as the quantity of energy saved or produced and the financial saving;
- the baseline from which to start calculating each indicator;
- the process used to collect and analyze data;
- how often the evaluation of data will take place;

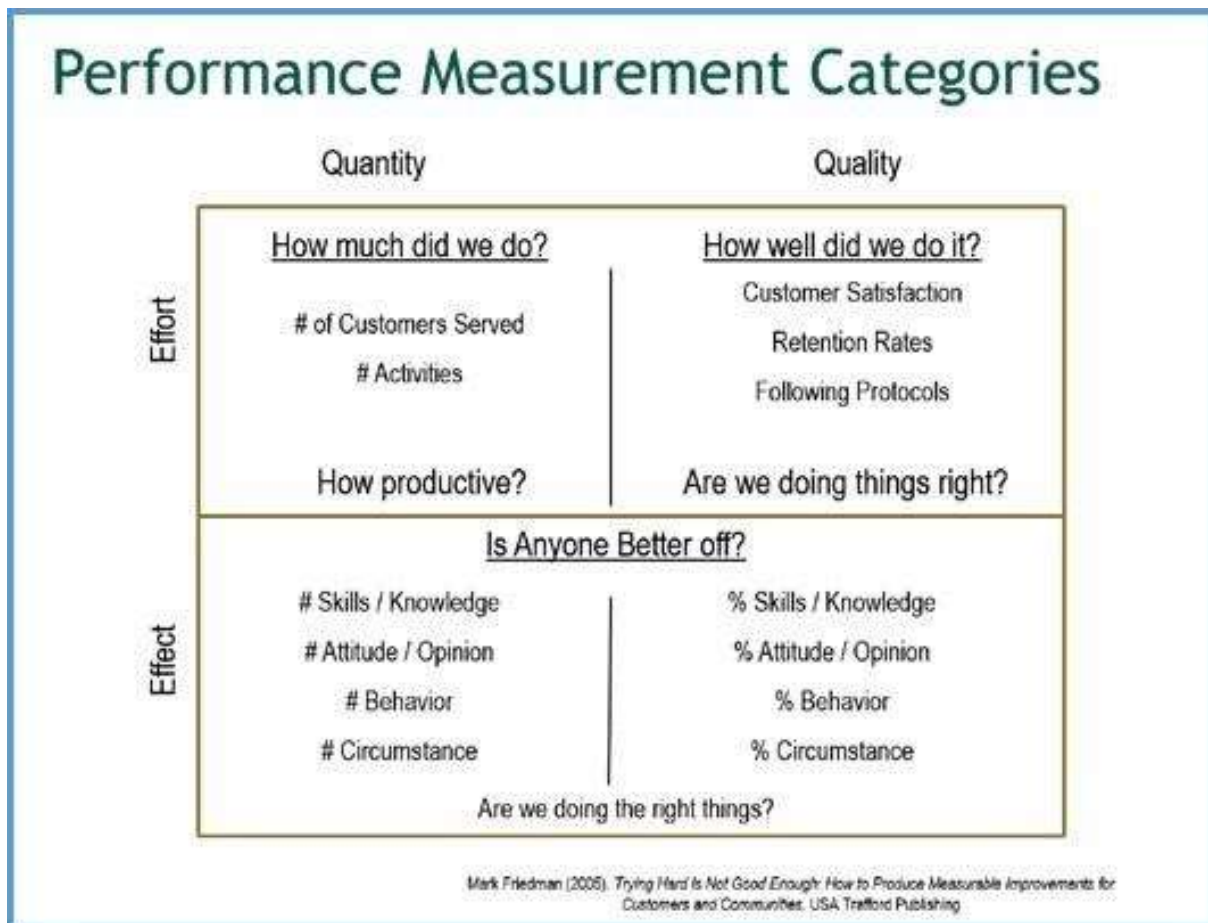
- reporting protocol which contains the form used when making the assessment form, who is supposed to realize it and to whom it is supposed to be submitted.

It is important to consider that also the abovementioned indicators might need to be updated and reviewed; indeed, if one of the factors taken into account is drastically changed or if the context is significantly modified, the meter that is used to measure the factors and the context might not be more appropriate.

To include follow-up activities within the guidelines to create a collective action plan, could increase the chance of success of the plan because it will allow to modify the phases and the actions that so far have not reached the expected results. For the success of the plan, if necessary, it could be also fundamental to change the stakeholders’ engagement strategies. In fact, it is important that stakeholders know why they are engaged as well as why they should stay engaged over the time: the members need to be told which the benefits are deriving from their ongoing participation within the project. With this goal the Egyptian Junior Business Association Integrity Network Initiative has suggested that, after an initial period, stakeholders’ activities and objectives should be modified in order to reflect the progressive change of interests. Moreover, it has been proposed to monitor carefully internal dynamics group to detect, as soon as possible, if some interpersonal relationship within the group is causing some problem to the functioning of the group (Egyptian Junior Business Association Integrity Network Initiative, 2018).

To stimulate stakeholders’ engagement during time, it could be also useful to make them know about the successful stories and achievements of the project and to ask them what they would do to improve the project. Therefore, it is important to fix short-medium term goal rather than just long-term ones and, in order to avoid bias in the judgment, it could be helpful to involve external evaluators to measure the impact that collective actions are having on the project.

The following table propose a schematic overview of how the “Result Based Accountability” process works. This method of evaluation could be used to measure the effects of collective impact initiatives and it could be used to assess both very specific projects, such as creating an energy community, and projects that have a very broad goal, such as fighting racial and gender inequalities (Ducan D., 2020).



4.6 Using mobile APPS

According to a study conducted by the analysis company App Annie, in 2021, the economy is based on applications, so much so that it can establish itself as the world's largest economy¹⁰. (Gabanelli, 2021) Consequently, the App economy becomes a decisive factor for the implementation of a Collective Action strategy.

As a consequence, closely connected with Task 3.1, the development of the App for the eCrew project is one of the fundamental elements for the implementation of the collective perspective.

As better explained in details in deliverable D3.1 – eCREW monitor, the App functionalities identified to develop the Collective Action within the Crew, are the following:

- **eCrewer Profile**
it is necessary to give eCrewers their own identity in order to create relationships between them;
- **Complete list of eCrewers**
the scope is to create a list, in which all members can see other members' profile and know them;
- **Survey**
is an important tool to understand and know the objectives that each individual wants to achieve within the community;

- **Information and education**
to educate people to energy communities, it is a good idea to create a space, in which eCrewers can find more information about events. Administrators can create some kind of lessons to educate members on issues related to community and sustainability;
- **Overall consumption**
to access the consumptions of all eCrewers, it is important to implement a section in which eCrewers can view a comparison table and also, combine datasets;
- **Forum**
to reach goal of interaction among participants, it is relevant to create a part where people can interplay with each other in real time;
- **Gamification**
the factor of play is a central element in inducing people to act collectively and promoting the achievement of common goals;
- **eCrew Strategy**
allows to implement a bottom-up decision-making process in which individuals actively participate in the life of the Crew.

Given these eight features that we would like to implement in the current version of PeakApp, it is possible to identify four essential characteristics of the development of the App for the eCrew project to expand the collective perspective:

- **The Application helps the eCrewers**
This tool facilitates navigation and access to content; members can access their profile at any time of the day, where they can monitor both their personal consumption and those of the Crew. Furthermore, the functionalities that are implemented represent the implementation of the collective perspective. Thanks to the App, members are encouraged and persuaded to act together towards common goals.
The achievement of the common objectives takes place mainly according to three perspectives: economic, social and environmental. The economic reason is related to the discount on the bill, the social one is connected to the creation of the community and the environmental one is linked to the use of renewable sources to take part in the energy transition.
- **The application has the characteristic of “immediacy”**
Apps are much faster than websites or mainstream social channels, such as newsletters. Enjoying the convenience of an application, for the end user, is equivalent to saving time. In addition, the sending of push notifications allows a more immediate display of news and a way to always stay in touch with other eCrewers and with real-time news coming from the Crew.

With faster and instant communication, members can interact with each other, exchanging opinions, experiences, advices and doubts on the issues of each Crew. Furthermore, the creation of a Forum, in which all individuals can participate in the discussions, allows the App to be a tool that binds eCrewers, thanks to the active involvement in a collective perspective.

- **The application and interaction tools**

Interaction features are the most important tools if you want to develop a collective perspective.

The interaction both internal, among members and external, with the administrators, is relevant to create cohesion within the Crew. In this way, eCrewers can feel part of a community and create a point of reference both among peers and administrators. A forum can be a space in which members exchange thoughts and opinions, but also an arena for mutual exchange, support and help. These characteristics can increase individuals' awareness of being part of a community and further motivation to act together towards common goals.

- **The application and game**

Gamification takes advantage of the interactivity granted by modern means and the principles underlying the concept of fun; this represents an extremely effective tool capable of conveying various types of messages, depending on the needs, and induces active behaviors on the part of Crew members. This allows them to achieve specific goals, individual or collective. Obviously, the user and its active involvement must always be placed at the center of this approach. Gamification is a set of rules borrowed from the world of videogames, which aim to apply playful mechanics to activities that do not directly have to do with the game; in this way it is possible to influence and modify the behavior of people, favoring the active interest on the part of the users involved in the message they have chosen to communicate. This purpose can be related to the increase in individual or group performance.

Following this track, gamification takes on a fundamental importance in the eCrew project. This functionality is the common thread that binds all the other seven; this happens because, for each Collective Action of the members towards the community, a score is established. With the score obtained by each individual, a ranking will also be implemented to create healthy competition and entice people to act more towards a collective perspective. By realizing reward systems, such as discounts on energy costs, eCrewers will feel more motivated to do better and, consequently, to contribute to the creation of the community.

5 Towards an Action Plan for e-Crew Lighthouse Communities

In deliverable D2.3 several interviews were held with key representatives of the Community Administrative Entities (CAE) responsible for the three LC of the eCREW project. The outcome of these discussions ended up in a comprehensive set of service offerings that aim at attracting and retaining a large number of engaged potential CREW members at each community. The set of services proposed in D2.3 is similar but different at each country due to cultural and regulatory variances and it is dynamic, since they should be adapted to real CREW members' preferences, obtained by surveys addressed to the new members. In this sense, tailoring the CREW services is a continuous process to be done regularly by each CAE.

In this chapter, the most relevant service selection for each community (rated as high or medium importance in the interviews) are revised and classified into the four collective action categories, presented in chapter 4, namely:

- **Stakeholder engagement**
Strategies to map and engage stakeholders. These actions relate to the activities meant to identify and attract new members. They include information sharing, collaborative activities, either remotely or presently, stakeholder support and empowerment, ...). Examples are App usage, energy savings, energy self-consumption optimization, ...
- **P2P activities**
Peer-to-peer activities include those activities that are carried out among CREW members themselves like fora participation, privately initiated activities, collective projects started by CREW members, etc. Examples are benchmarking, collective activities, community event participation, ...
- **External subject activities**
These activities involve CREW members but are deployed by external actors and companies, such as technical partners, ESCOs, etc. Examples are the provision of expert advice, efficiency recommendations, PV assessment and contracting, ...
- **Monitoring the community**
These activities are carried out by the CAE to provide the individual and collective information and data for a proper energy management at both levels. Examples are app data visualization, KPI gathering, notifications and alarms, ... Monitoring also includes the feedback gathering by CREW members about their preferences and satisfaction level to adapt the service offering to the actual member choices.

Clearly, by achieving a good balance of activities in the four categories the success of the collective actions will be enhanced. The CREW service offering proposed in D2.3 has activities in the four categories for each LC. A specific insight at each LC has been made and summarized in the following paragraphs.

5.1 Germany

The German LC is situated in Hassfurt, Germany, a city of 13,500 inhabitants. The community administrative entity is the company SHW which operates as an energy and water distributor and supplier, and a retailer in the energy market both for gas and electricity. The engagement activities for the German LC, which were jointly defined with SWH to attract potential users are classified, in order of importance, within the CA categories described in the previous section.

Strategies to map and to engage stakeholders.

To achieve the engagement of stakeholders the free rights to use the e-CREW app are considered very important.

Make the best use of exceeding RES avoiding wastes is another key message in Hassfurt. To this end, the CAE will directly manage this surplus energy within the community in administrative terms (settlement and remuneration) and the benefits in terms of bonus will be extended to all community members, prosumers and consumers of surplus energy.

The economic savings expected seem significant for most CREW members. Although savings depend on the individual behavior and usage of the app information, some savings can be made through the split incentive programme for self-consumption within the CREW.

Energy performance personal advising and get your energy related questions solved by professional and

experts, seem important for some consumers, but not for the majority. In this sense, SWH has a customer service or call center, as well as e-mail consultation channels. They also offer a personalized advice for design and installation of PV facilities that could be carried out via the app.

Peer to peer activities

The possibility of benchmarking energy consumption with the app, even if data is not in real-time but day-before, is still interesting for consumers. Energy performance comparisons are always useful means to boost people to save energy and gamification is a good tool to achieve this end.

Activities realized by subjects external to the community.

The calculation of the payback of a photovoltaic self-consumption installation could be interesting for consumers who are considering the possibility of becoming prosumers, so this functionality will be developed in the app.

Monitoring the community

The monitoring of energy consumptions with the app is interesting for consumers and will show data not only on the individual level but also on the functioning of the community. The comparison with other energy communities is expected to stimulate participation. The evaluation of new and existing members' changing preferences through surveys is also an important monitoring strategy for the community activities.

5.2 Spain

The Spanish LC is placed in Alginet, a medium-size town of 13,100 inhabitants in the South of Valencia. ADEE is made up by an energy cooperative and the energy retail company. The cooperative owns, maintains and exploits the distribution grid in the city, whereas the retail company sells the electricity (purchased on the Spanish wholesale market) to domestic consumers and some local small and medium companies.

The cooperative has 5.800 associates, about 1.000 are easily accessible and they would be the target group of the enrollment strategies. The following activities were selected in the interview with the cooperative:

Strategies to map and to engage stakeholders.

To know the benefit of individual and collective energy savings, especially individual, is a main target for new members, so the free use of the app's functionalities is attractive and is key for users to learn about their electricity usage and to trigger behavioural changes for more efficient use. The obtention of economic and energy savings derived from the use of the App information is a key engagement strategy as well.

Peer to peer activities

Benchmarking may be relevant for some users as a reference of energy performance, so gamification and competitions are also attractive to drive energy efficiency and get people involved.

Concern for the environment and participation in collective activities is increasingly important for many people, but not for most, and is therefore seen as a complementary message.

Activities realized by subjects external to the community.

Energy performance personal advising and general hints of best practices for optimal energy usage at home, are considered very interesting. Providing expert advice to get your energy related questions solved, is out of the scope of the cooperative but the service could be provided by external technical partners (CIRCE).

The simulation tool of PV self-consumption facility payback calculation is also considered a good option for users who wish to generate their own PV energy. This information aims at attracting the users' interest towards the future installation of a PV facility but the final assessment and subcontracting should be done to an external ESCO or installer.

Monitoring the community

The first step to start saving energy is to be aware of energy consumption patterns and energy performance, for this reason easy monitoring of your energy consumptions and alarm and warnings with the app are considered very relevant within the monitoring activities. In the same way, the continuous monitoring of members' satisfaction levels is deemed important to adapt the CREW services to the needs and interests of the engaged users.

5.3 Turkey

The Community in Turkey comprises several block buildings in the city of Bursa. This community is being managed by an energy service company that ensures direct onsite contact with the eCREWers while taking care of maintenance and energy management tasks in the involved buildings. The activities selected in D2.3 and deemed as relevant for this community are the following:

Stakeholder engagement

The access to the different App features is one of the major arguments for stakeholder engagement in Turkey. These functionalities provide the necessary updated information for users to benefit of individual and collective energy savings, since economic benefits is a key engagement factor in all communities. In this sense, the possibility of seeking energy performance personal advising could be relevant to some users.

P2P activities

This community is culturally more open to participatory events and community meetings, whether formal or informal, as all members are in the neighborhood. Among the most preferred activities involving CREW members we find the Benchmarking of energy performance (it is also a monitoring activity, but the aim is to highlight the individual consumptions in comparison to the community averages), the meetings with other community members to discuss about environmental and energy issues affecting the neighborhood, and the participation in community events such as workshops, debates and fora.

external subject activities

These activities include technical advice from experts (IUE experts) and recommendations for the optimal energy usage at home. Although deemed relevant, these activities do not seem crucial for the success of the community. However, it may be for some users that face specific energy performance problems in their dwellings.

Monitoring

The most important monitoring activity in all communities is the energy consumption monitoring through the app. In Turkey, there is initially no RES distributed generation sources to share with the community members, but it might be the case in a close future. The rollout of regular surveys is also very important for members to have their voices heard.

6 Conclusion

For a successful energy transition, active citizen engagement is crucial. By 'active' we refer to the role that citizens must play along the energy chain from the production (by being part of the exploitation of RES) to the consumption side (by adopting more responsible habits and behaviors). Adopting a Collective Action perspective might be a key strategy to trigger citizens active engagement and to spread the adoption of RES technologies for energy production. Collective Action is a social phenomenon that stands at the core of the organization of human societies and when it comes to the energy field it has been gaining relevance for the past decades with the flourishing of many different forms of Collective Action Initiatives (CAIs, mostly cooperatives) also known as Energy Communities. But a proper formal recognition of Energy Communities came only recently through the innovation of the European regulatory energy framework triggered by the two directives 2018/2001 and 2019/944 that are currently in the process of being transposed at national level.

The Collective Action perspective therefore gains even more relevance for designing and implementing effective paths towards the transition to more sustainable energy systems. The ambition of this deliverable therefore was to provide a few conceptual and operational elements able to frame and steer proper strategies to foster the collective engagement of citizens in general and to help eCREW in building strong and durable virtual energy communities. In other words, to provide some foundations for designing and implementing a proper Collective Action Plan

From the conceptual side, an overview of the main concepts related to Collective Action as an engine of Social Innovation (in and beyond the energy field) is provided in chapter 2 and the most relevant effects that a proper collective action strategy might trigger in the energy field are discussed, in particular: decentralization of power, sense of community, awareness and behavioral change.

Moving towards the operational side, in chapter 3 an overview of the above mentioned EU regulation and a few case studies of CAIs actual implementation are presented. Their development trajectories are analyzed with respect to three main dimensions: the engagement of people (in terms of enrollment and maintenance), the Governance and Organizations and the future perspective and scaling-up. Given the ambition and focus of eCREW, among these dimensions the first is of particular interest for eCREW

On the basis of these evidences the factors that might affect ECs development are identified in section 4 and refer to four categories: (1) the proper setting of a goal to be achieved that should consider many diverse aspects, including the social, economic and environmental; (2) the identification of the size of the community to be established in strong relation with the type of community itself; (3) to a careful analysis of the actors to be involved that might come from three stakeholder groups: public sector, business sector and civil society; (4) to the availability of the economic resources that is the biggest challenge for collective actions to survive over time as it might drive participants to drop out of the initiative due to frustrations over slow progress.

In order to address these factors some strategies are then proposed that deal with four layers of activities an effective Collective Action Plan should rely on: strategies to map and engage stakeholders able to provide the initiative with all the support it might need from the relevant actors; strategies to foster peer-to-peer activities able to strengthen the feeling of participants to be part of a community and their action and interaction; strategies for promoting the CA building from the top, with attention paid to the facilitating role that might be played by external (public and private) relevant actors; strategies and tools for an effective monitoring of the Collective Action Plan itself performance able to revise periodically the different elements that compose the overall strategy (results of the activities implemented; to which extent the stakeholders have been contributing; which strategies to engage have been working and which do not; how much the plan has been respected; which group of stakeholders is not satisfied about its role within the implementation of the plan and why; the suggestions coming from public authorities, citizens, stakeholders, energy companies to improve the engagement strategies). Finally attention has been paid to the role that might be played by the use of mobile apps such as in the case of ECREW.

These strategies have been then contrasted in section 5 with the engagement strategies developed in Deliverable 2.3 to roll out the three Lighthouse Communities in Spain, Turkey and Germany in order to assess the extent to which it has been possible to implement a proper CA approach so far and to provide inputs for future refinements within and beyond ECREW time horizon and scope. The results showed that the collective approach has been already considered as a crucial leverage to support the effective implementation of engagement strategies as in all the three LCs to some extent the four main strategies have been implemented and, if not in view of the actual feasibility within the three LCs, are still considered for future improvement. It deserves to be mentioned that a relevant role is assigned to the use of the mobile app and devices and to the role that they might play in facilitating the emerging of the collective action factors and dynamics that we recognize as crucial to foster the active engagement of citizens in the Energy Transition,

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