



## T3 FOSTERING THE CO-CREATION OF LOCAL ENERGY COOPERATIVES AND IMPLEMENTATION OF CITIZEN BASED PILOT ACTIONS

A.T3.13 IMPLEMENTATION OF PILOT ACTIONS IN PFAFFENHOFEN OF PP08&PP09 (GER)

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**D.T3.13.2 - Report on pilot projects  
implementation in Pfaffenhofen**

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## 1. Introduction

The Report on pilot project implementation in Pfaffenhofen is developed for providing main lessons learned from implementing the pilot actions and using participative tools for citizen engagement during the implementation of project activities in Pfaffenhofen. The document highlights and clearly describes counter actions and solutions adopted by responsible project partner in real case scenario.

Through the first chapter of the document the implemented pilot action was specified by means of its experimental nature and demonstration character, expected impact and benefits of its implementation for the concerned territory and target groups and leverage of additional funds if applicable, sustainability of the pilot action results and transferability to other territories and stakeholders. After specifying the pilot actions in Pfaffenhofen, the lessons learned and added value of the action to transnational cooperation were elaborated as well as its contribution to relevant regulatory requirements, sustainable development (including possible environmental effects) and horizontal principles including equal opportunities and non-discrimination. In order to prove the realization of the implemented pilot actions, additional documentation including pictures and photos and other relevant project deliverables, web-links were also provided. Within the first part of the document the relevance of using the tool D.T2.2.2 Community energy investment guidelines - technical, business and legal aspects for identifying and final selection of mentioned pilot action was also elaborated.

Since citizen energy cooperative the Bürger-Energiegenossenschaft Pfaffenhofen (BEG) was founded in 2012 there were no related activities with establishment of a new citizen energy group in Pfaffenhofen as the case was with other included regions within the ENES-CE project. This citizen energy cooperative which was established prior to this project, i.e., BEG has supported the project partners in close cooperation with the municipal utility (SWP). While working with established citizen energy group they also used the participative tools for citizen engagement (D.T2.2.1 Co-design workshop methods for engaging participants into local energy planning and D.T2.2.3 Communication methods for local energy plans and creating an atmosphere of acceptance). All the information and experiences made available in the course of the using mentioned participative tools are deposited in the documents developed within ENES-CE project.

All the lessons learned within the implementation of pilot project actions are considered to be key (both positive and negative) experiences collected throughout their lifecycle and are reflecting the knowledge and understanding of relevant partner, which can be convert into actions aiming at fostering the implementation of energy projects important for the community in the future. In addition, all the lessons learned while implementing the pilot action and using participative tools for citizen engagement during the mentioned activities in Pfaffenhofen are compiled with main lessons learned in other project partner regions in one common document D.T3.14.3 Lessons from developing citizen energy in Central and Eastern Europe.



## 2. Implemented pilot action in Pfaffenhofen (PP08 & PP09)

### 2.1. Specification of implemented pilot action

*Table 1 - General information on implemented pilot project action*

Project deliverable and title of the pilot action	D.T.3.12.3 Battery swarm storage system (PP08) and CO2 Climate Clock (PP09)
The main goal of pilot action	Pilot project of PP8: the system will be an innovative approach to power grid stability and citizen involvement. Pilot project of PP9: The CO2 Climate Clock supports the the SEAP/SECAPs direct and indirect.
Start and end date of the pilot actions	Start CO2 Climate Clock pilot project: Jan. 2021; Ende: July 2021, at the Climate protection day in the Bürgerpark (citizen park) of Pfaffenhofen Start Battery swarm storage system pilot project: Juni 2021; End: Feb. 2022.
Technical information on the implemented pilot action (break down of investment costs)	A rough break down of the investment costs you can find in the annex 1 to this document.

*Please describe the implemented two pilot actions in Pfaffenhofen in accordance with the following aspects:*

Experimental nature and demonstration character of the pilot action:
<i>In Pfaffenhofen were two pilot projects planned. Firstly, one of them is a visualization tool for the public in Pfaffenhofen. It is called the CO2-climate clock. It calculates the time left, when emitting CO2 in different scenarios, and gives a visual and easy-to-understand output. This will further educate the public in the field of climate protection and raise awareness for the individual influence. The battery swarm storage system is made as a pilot for a bigger experiment. In the future, many little storage units will be connected, so that they are able to communicate with each other and help to stabilize the grid. In the future we want to demonstrate relevant CO2 savings by installing up to 1.000 units. We expect a saving of ~ 35t CO2/a (with 1.000 installed units).</i> <i>The Pfaffenhofen pilot projects are also experimental in nature, both technically and organizationally in terms of citizen involvement in both projects.</i>
Expected socio-economic impacts <sup>1</sup> and benefits of its implementation for the concerned territory and target groups and leverage of additional funds if applicable:
<i>Before both pilots have been implemented, a lot of steps have been planned in before. We practically always emphasized that citizens were involved in every step of the whole process. Most important have been the workshops and meetings, where the public, experts and the relevant stakeholders met and exchanged different ideas.</i>

<sup>1</sup> Such as new knowledge and improved skills, stronger community engagement, integration of socially excluded, target groups, etc.



*Within those workshops (especially small workshops and discussion), the two implemented pilot project ideas have been formed.*

*After finding those ideas - which are also widely accepted within the community - the technical planning process just started. Different scenarios, possibilities, locations and designs have been thought out. After several meetings, the best plans were substantiated and discussed even further. We think that socio-economic impacts are big compared to a simple top-down process.*

Sustainability of the pilot action results in the future after the project end and transferability to other territories and stakeholders:

*Battery swarm storage: For the future we plan to install 1.000 units. By reaching the target, the expected t(CO<sub>2</sub>) savings through the pilot projects implementation is approximately 35/a (with 1.000 installed units).*

*CO<sub>2</sub> Climate Clock: The CO<sub>2</sub> Climate Clock is a demonstration instrument and also it supports the visibility of our SEAP/SECAPs in the public.*

Please shortly describe if your pilot action has had any relevant impact on the attitude of stakeholders towards similar projects in your region. Existence of increased interest or dialogue, changes in relations while implementing pilot action:

*CO<sub>2</sub> climate clock: We see that the pilot project is, has been and will continue to be a crystallisation and communication element in the discussion of our SEAPs/SECAPs, in which the relevant stakeholders are heavily involved. The public perception of the CO<sub>2</sub> watch is particularly strong among schools and young people in the region. This all leads to an intensification of the dialogue and the joint search for new projects.*

*Battery swarm storage: Each system allows to store and release electricity. But what makes it special, is its possibility to communicate with other storage units, producers and consumers. Hence, it will help to manage grid stability and generate added value to the grid, but also to the community. The idea is, to scale this approach even further, especially, when regulatory obstacles are removed.*

Main problems/milestones/challenges/risks connected to the pilot action which influence its successful implementation and the solutions for overcoming them:

*For the CO<sub>2</sub> Climate clock, the biggest challenge was working with the artists, partly because they worked on a voluntary basis. Normal project management does not apply in such a collaboration. The solution was to "build one fitting face to the artist" into the communication and project work. This was successful, otherwise the pilot project would have been difficult to implement.*

*With the Battery swarm storage system, the challenge was to keep the hardware, software and service costs under control. This pilot project could only be successfully implemented thanks to an enormous amount of in-house work and a very good network in PAF.*

Contribution of pilot action to relevant regulatory requirements, sustainable development (including possible environmental effects) and horizontal principles including equal opportunities and non-discrimination in targeted region:

*In fact, we believe that our battery swarm storage system approach has pushed the legal boundaries. In this context, there are also still open questions. Conversely, however, this means that we will certainly contribute to the relevant legal requirements with the*



*aforementioned pilot action. With regard to sustainable development (including possible environmental impacts), we want to clearly formulate our goal of achieving 1000 units here once again. This has relevant positive effects on the environment and with our development we make a sustainable economic contribution for and in the target region.*

*The horizontal principles such as equal opportunities and non-discrimination in the target region were respected by the mere fact that citizens and stakeholders were involved in the planning and construction in a "public process".*

*Before both pilots have been implemented, a lot of steps have been planned in before. Most important have been the workshops and meetings, where the public and experts met and exchanged different ideas. Within those workshops, also the two implemented ideas have been formed.*

*After finding those ideas - which are also widely accepted within the community - the technical planning process just started. Different scenarios, possibilities, locations and designs have been thought out. After several meetings, the best plans were substantiated and discussed even further.*

*A high level of transparency is provided by such processes. We were only limited by the pandemic.*

Pilot action documentation of corresponding activities while planning and implementing the pilot action including pictures and photos and other relevant project deliverables, web-links, etc. proving the implementation of the pilot action:

*E.g., in the Video with the title "On the way to a sustainable society: the example of Pfaffenhofen an der Ilm" the CO2-climate clock is introduced the public. Start with the sequence of the CO2-climate clock at 6 min. 30 sek.=> <https://www.youtube.com/watch?v=UMmaQNfAIYg> after*

*In ENES-CE (short and long) you can see the two pilot projects again.*

*The Municipal Utilities and the Energy Citizen Cooperative, the community is always looking for new opportunities and challenges for a more climate-friendly approach. Hence, the participation in ENES-CE was very good fit. The two pilot projects were planned in the spirit of this and reflect this mindset.*

*A number of photos were sent to our EU communication experts at ezavod (SLO) following the opening of the CO2-climate clock and Climate Day 2021.*

## 2.2. Lessons learned while planning and implementing the pilot action

*Elaborate the lessons learned while planning and implementing pilot action and description of added value of the implemented pilot action to transnational cooperation and knowledge transfer within the partnership.*



*Citizens, leaders or institutions need a common vision, goals and a long-term set of values that are cultivated and developed together. This also applies to smaller projects, which is why we have placed greater emphasis on this in the pilot projects and their planning.*

*From our point of view, this means that the processes of involvement in the pilot projects have succeeded relatively well, despite the pandemics. The CO2 Climate clock has attracted a lot of attention, especially from students, younger citizens and older citizens, to the cause, the ongoing EU project and the activities to revise the SECAP. An excellent technical solution was found for the battery swarm storage system with a relatively small budget. The technical, organisational and regulatory results are currently being incorporated into the SWP's tenant electricity activities. Both pilot projects were proposed by individual citizens in workshops on or around citizen involvement in the revision of the SECAP for PAF and implemented with citizens. The engagement of the citizens and stakeholders involved has increased considerably as a result. The broad publicity of the pilot projects has generated a good response from the citizens. That mean*

*An important lesson learned was that it was important to "keep on board" our citizen idea generators for the pilot projects during the course of the project. The original idea generator(s) of the pilot action were on board for the entire duration of the pilot action. Naturally, the commitment of the idea generators varied over the course of the projects. It was always important that our mentors and LPP regularly approached the idea providers and invited them to a personal exchange.*

*The most important activities for the successful implementation of the investment in the pilot project were the meetings. These have taken place as needed, but also on a regular basis.*

*Reasonable project planning always pays off. In this case, too, we accompanied both pilot projects by means of GANTT planning and the other usual project management methods.*

*The results of the SWP pilot project, especially regarding future tenant electricity models, we will try to incorporate into the further SECAP development. We believe this can have a greater impact.*

### 2.3. Lessons learned while using the tool Community energy investment guidelines for defining technical, legal and economic aspects of selected pilot action

*Describe how the tool was used while planning the pilot action in the region and elaborate the lessons learned while using mentioned tool in aspect of identifying and selecting the implemented pilot action (D.T2.2.2 Community energy investment guidelines - technical, business and legal aspects).*





*The tools played a certain role in the planning at the beginning. In the middle and at the end of the pilot projects, a lot of conventional project management was needed and especially a very high flexibility in dealing with people. The very low investment budgets could only be compensated by constantly looking for ideas to save costs or make the approaches even simpler - without compromising security, consistency and operation later on. The involvement of experts with extremely high technical and project management experience was crucial for success.*



### 3. Established consumer energy group in Pfaffenhofen (PP08 & PP09)

#### 3.1. Specification of established consumer energy group

*Table 2 - General information on established consumer energy group*

Project deliverable	The Bürger-Energiegenossenschaft Pfaffenhofen (BEG) was founded in 2012. In the current project, the BEG has supported the project partners in close cooperation with the municipal utility (SWP).
Name of consumer energy group	
Establishment date of consumer energy group	
Legal status/form of established consumer energy group and connection to relevant regulatory framework if applicable	
Number of members	

*Please describe the characteristics of established consumer energy group in Municipality of Forli in accordance with the following aspects:*

Direct positive and/or negative effects of the establishment of consumer energy group in Pfaffenhofen:
Main problems/obstacles/challenges occurred during the establishment and operation of consumer energy group in Pfaffenhofen and how they were solved by responsible partner:
Please describe the differences between different stakeholder groups included in the established consumer energy group and elaborate their interest on further dialogue, cooperation and changes in existing relations:
The influence of established consumer energy group on further investments in the local energy infrastructure of Municipality of Forli and their cooperation with public authorities:



Sustainability of the consumer energy group in the future after the project end and possible actions to be taken in the future in order to maintain the active work of the established citizen energy group/cooperative in the target region:

### 3.2. Lessons learned while establishing and working with consumer energy group in Pfaffenhofen (PP08 & PP09)

*Elaborate the lessons learned while establishing and working with consumer energy group in Municipality of Forli and describe the added value of the established consumer energy group to transnational cooperation and knowledge transfer within the partnership.*

*The cooperation was founded in 2012. The information and experiences made available in the course of the ENES-CE project are deposited in the documents there.*

### 3.3. Lessons learned while using the tools for participatory energy planning in establishment and future operation of established consumer energy group in Pfaffenhofen (PP08 & PP09)

*Elaborate the lessons learned while using of mentioned tools in aspect of engaging relevant stakeholders in local energy planning and using relevant communication tools and strategies which will further engage the community, e.g., citizens in local energy planning in targeted region (D.T2.2.1 Co-design workshop methods for engaging participants into local energy planning and D.T2.2.3 Communication methods for local energy plans and creating an atmosphere of acceptance).*



*The cooperation was founded in 2012. The information and experiences made available in the course of the ENES-CE project are deposited in the documents there.*



#### 4. Policy recommendations for creating more stimulative energy focused community

*Please insert below any comments and/or propose possible policy recommendations for creating a more stimulative energy focused community that you might have in connection to the preparation or implementation of your pilot projects (implementing defined pilot action, establishing consumer energy group) or those that are reflecting the drawn lessons learned while implementing pilot projects in your region.*

*When feeding "surplus electricity" from a photovoltaic system into the public grid, grid fees are incurred immediately, even if the next neighbor or the next but one draws the electricity. Route-dependent grid fees could generate considerable potential in the local electricity grid.*

*For example, a larger electricity storage system could be operated by a cooperative during the sunny midday hours and then make it available at low cost at times when private households need more electricity (in the morning and evening). This would preferably be in the low-voltage range. The local electricity grid would then also be more evenly utilized. Industrial customers, who are usually connected to the medium-voltage grid, could benefit from the fact that the upstream electricity grid in the medium- and high-voltage grid is less peaky, especially in summer.*



## 5. Conclusion

In Pfaffenhofen were two pilot projects realized. Firstly, an CO<sub>2</sub>-climate clock. It calculates the time left, when emitting CO<sub>2</sub> in different scenarios, and gives a visual and easy-to-understand output for the public. Especially for children in kindergartens and students, the CO<sub>2</sub> clock shows very clearly what happens if you continue as in the past and continue to rely heavily on fossil energies. This will further educate the public in the field of climate protection and raise awareness for the individual influence.

Secondly, a battery swarm storage was realized. This allows to store and release electricity. But what makes it special, is its possibility to communicate with other storage units, producers and consumers. Hence, it will help to manage grid stability and generate added value to the grid, but also to the community. The idea is, to scale this approach even further, especially, when regulatory obstacles are removed.

The involvement of citizens with ideas was very important and fruitful. Solid project management right from the planning stage was valuable. The ENES tools were used especially at the beginning of the pilot projects. The well-known "Leaders, Peers and Pioneers" structure with its project development experience was particularly important during implementation. With know-how, flexibility, a good technical network and a very high level of personal commitment on the part of those involved, the problems and the very low investment budget could be compensated to some extent.