Energy Citizenship and Energy Communities
for a Clean-Energy Transition

D5.3
Prototype of co-created tools

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022565

Document Description

Document Name	Prototype of co-created tool
Document ID	D5.3
Date	17. April 2023
Responsible Organisation	Uni Graz
Author(s)	Ursula Athenstaedt, Katja Corcoran, Birgitta Lurger, Celin Gutschi, Johanna Held, Markus Mogg
Co-Author(s)	
Reviewers	
Dissemination Level	Public

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101022565. Neither the European Commission nor any person acting on behalf of the Commission is responsible for how the following information is used. The views expressed in this publication are the sole responsibility of the authors and do not necessarily reflect the views of the European Commission.

Abstract	This deliverable describes the features of an already existing website, energiegemeinschaften.gv.at, hosted by the Austrian government's climate fonds to provide an information hub for interested people and energy communities alike. This website can be considered a best practice example, as it covers many of the needs and aspirations from our previous findings, complemented by the proposal of a community tool that could be integrated into such a website.

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List of Abbreviations

ZSI	Zentrum für Soziale Innovation GmbH
Uni Graz	Universität Graz
ULEI	Universität Leipzig
WUEB	Uniwersytet Ekonomiczny we Wrocławiu
UG	Rijksuniversiteit Groningen
ICLEI	ICLEI European Secretariat GmbH
GEN Europe	Global Ecovillage Network of Europe E.V.
HCWS	Spółdzielnia Mieszkaniowa Wrocław-Południe
Prusice	Gmina Prusice
Scalenghe	Commune di Scalenghe
TURE NIRVANE	Ture Nirvane Societa' Cooperativa Sociale di Comunita'
ABM	Arterra Bizimodu
Buurkracht	Buurkracht Projecten B.V.
GRO	Groningen municipality

1 Introduction

This deliverable aims to develop a prototype for a co-created tool. In a first round of co-creation workshops in four European regions (Italy, the Netherlands, Poland, and Spain) with different stakeholders within the energy sector, energy community members, and citizens, ideas for tools with the potential to overcome barriers or strengthen facilitators for energy communities and energy citizenship were developed. In deliverable 5.2 the findings of these co-creation workshops were reported and summarised. The main objectives the prototype should address were listed as follows:

a) Find your neighbours, share a vision: how should your community look like?
   The feature to connect with (certain members of) your community based on a shared vision (or elements thereof), inspired by speed-dating ideas.
b) Envision your energy community project
   The feature to concretise the respective community in terms of energy solutions, including the feature to upload pictures of your community to photoshop the respective project, the deliberation on options and specific restrictions and the specification of user's roles in contributing to the project.
   I. What kinds of energy solutions do you see?
   II. What options do you (realistically) have?
   III. What would you like to contribute?
c) Step-by-step: What to do?
   The feature to conduct a demonstration of the respective project step by step. What is it that you need to do to realise your ideas?
d) How to start?
   The feature to receive local and context-specific information, including legal conditions and potential finance plans, e.g. through a finance calculator.
e) See your benefit
   The feature to compare the final project to the status-quo via realistic calculations in terms of CO2 reduction, costs etc., and to engage with your neighbours in (playful) competition via real-context games.
f) Get inspired and find synergies through exchange with peer energy communities
g) Connected to municipal decision makers, get information on strategies and policies that are linked to energy communities (sustainability strategies)

1.1 Ideal scope of the tool

When looking at these different items, it is important to note that some were mentioned more often than others. Those featured most often in the discussions were the need for comprehensible information and opportunities to network.

A tool aimed to address those two central objectives mentioned in the Co-Creation workshops should therefore provide

- easily accessible, up-to-date information that guides aspiring practitioners, e.g. founders of new energy communities or interested parties wishing to join a REC towards their desired outcome. E.g. guidance for the founding process, from the necessary technical and grid-related steps to model contracts to set up a REC, or tools that allow practitioners to operate an energy community without much effort.
- Opportunities to network and connect with likeminded individuals, from finding new practice partners or neighbouring RECs to join, to create a base of citizen knowledge and to discuss different topics.

Comparing the desired qualities of the tool we then turned towards our research. In deliverable 5.1, we gave an overview of already existing tools, which now allowed us to compare whether any of the already available tools fulfil the needs raised in the co-creation workshops. We found that the website by the Austrian coordination office for energy communities (Österreichische Koordinationsstelle für Energiegemeinschaften) already integrates a lot of the features the participants of the co-creation workshops asked for. Comparing the commonalities of the tools proposed during the regional workshops, our partners at the ZSI noted Community building, organising information flows between individual members and the necessity to visualise benefits as the most important topics. The latter two are rather well laid out on the energiegemeinschaften.gv.at webpage, covering both crucial topics.

First and most importantly, this website provides what has been the most often requested. central objective from the co-creation workshops, namely the need for comprehensive information.

This website provides, among other things, general information on energy communities, a step-by-step guide to setting up an energy community, model contracts, a comprehensive FAQ as well as a list of service providers in Austria. The Austrian website puts an emphasis on highlighting the energy communities' benefits for interested parties and thus eases their way into the topic, and introduces the technical and legal know step by step.

In deliverable 3.3 we also identified that a central point/website for information is particularly important for the creation of energy communities. Many people interested in energy communities are simply overwhelmed by the task of setting up an energy community. At the beginning, it is important to obtain information about the various aspects (permits needed, the installation of the generation plant, establishment of the community, legal issues), which can be obtained from various sources. Obtaining this information is often time-consuming and (in the case of legal advice) also costly.

It must also be considered that too little information is a problem, but on the other hand, an overabundance of information can also lead to consumers feeling overwhelmed.

On the present website, easily understandable information is provided in text and video form.

There is also a step-by-step guide on how to set up an energy community. It provides answers to the question of how to found an REC, and also lets you calculate benefits which both have been requested by the co-creation participants.

Second, while it does not feature a communication tool that allows direct contact between practitioners, the website also provides a map of Austria where energy communities can enter their location. With the wish for such a communication tool ranking highly, in this deliverable we propose the introduction of a forum as a tool for exchange and community between communities.

We have therefore chosen to focus on this website and to create a template based on it, providing a thorough overview of the website that can be translated and adapted for different countries. This template aims to provide a starting point for developing similar webpages or to update the layout and content of existing webpages, so it can serve either as a set-up guide or as a toolbox to draw new input and ideas from. In the following chapter, we will describe all the aspects of the website.

Such a website would be ideally hosted by a well-supported NGO or NPO, interest group or government agency to provide the necessary information and thus also a stable basis and initial contact point both for interested practitioners and those interested in or curious about what energy communities can offer them. Ideally, such a website can offer support to already active people and inspire newcomers to become a part of the energy transition.

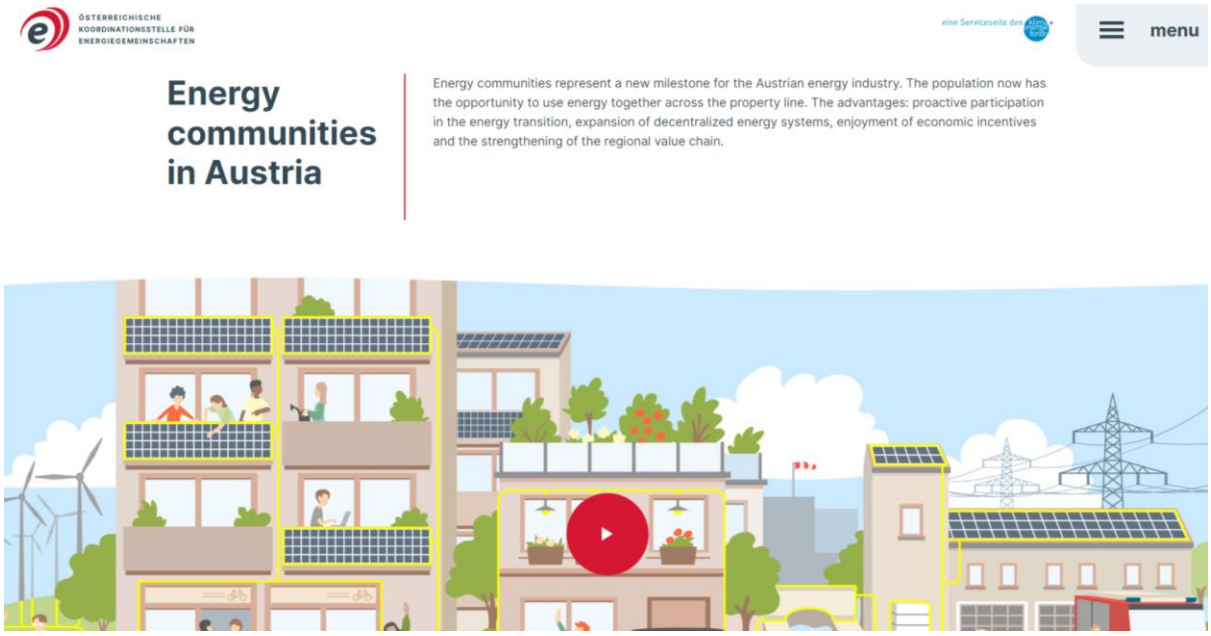

Figure 1 Top of the start page of the Austrian Website

2 Features of the Website

In this chapter we explain the layout of the website and why it can serve rather well as a template – or handbook – how to provide prospective founders of RECs or members of existing RECs with all the necessary and concise information for the tasks ahead.

The start page of the website www.energiegemeinschaften.gv.at is a well-structured welcome page, easing interested readers into the content and explaining the purpose of RECS. Thus, it begins with a short text which gives a concise overview about what energy communities are and their advantages. It then continues with an animated hand-drawn video which explains what energy communities are. Specifically, it gives examples of the two different kinds of energy communities that are currently possible in Austria, and such information would be necessarily tailored the respective country's or region's needs and legal options.

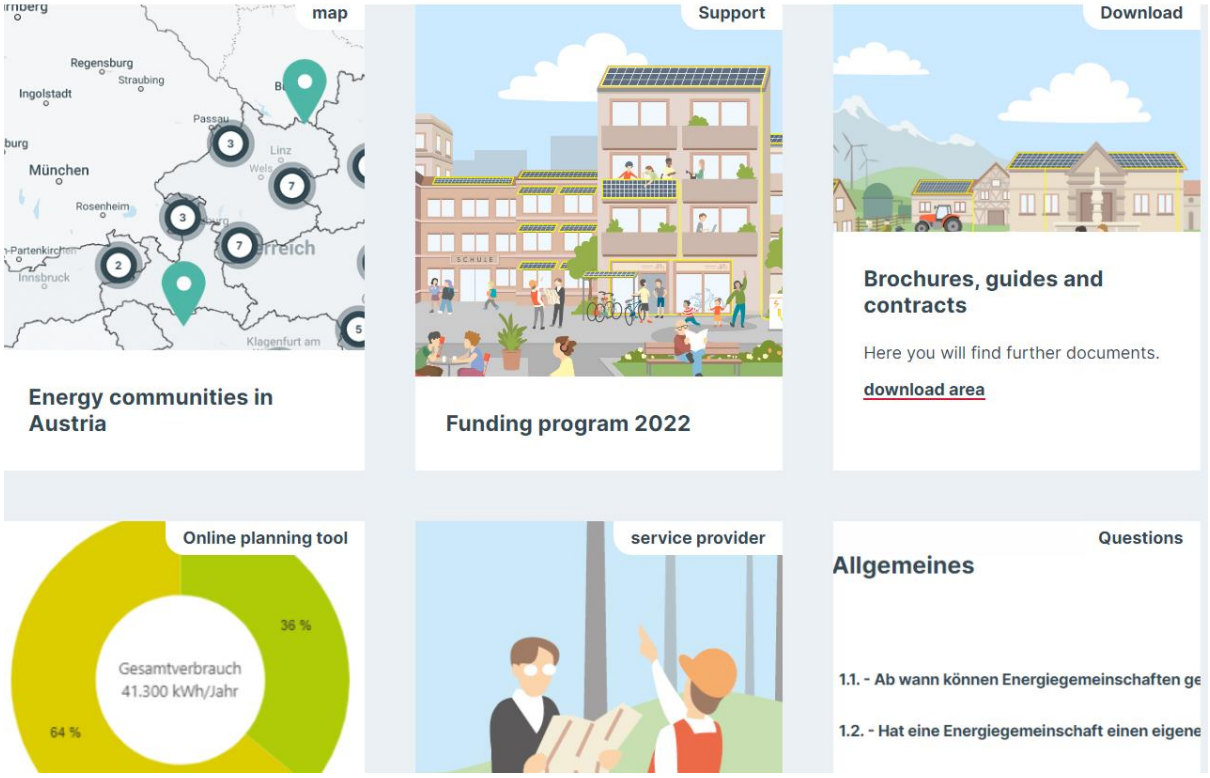

Figure 2 Start page middle section

When a video might not be always available, graphic elements like illustrations or photos can serve the same purpose, also throughout the website. Below the video, there is space for current news or events related to energy communities is followed by to re-direct links that lead to pages on what energy communities are and how to start an energy community. At the bottom of the start page there are links to other information that can be found on this website and information on how to contact the website's hosts or owners (in Austria: the coordination office for energy communities).

The menu

The menu of the website has six categories which in turn have further points grouped into each category. The six categories on the menu are “fundamentals”, “structure and organisation”, “energy grid”, “consultation and contact”, “download area” and “about us”.

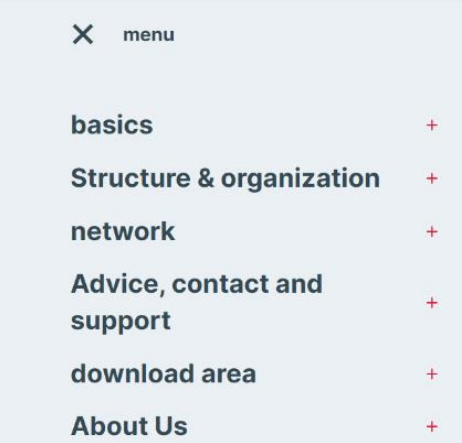

Figure 3 Menu structure

2.1 Basics

The Menu tab of Basics has six sub-categories which are grouped under this point. The six sub-categories are “types of energy communities”, “advantages”, “participants and glossary”, “legal basis”, “FAQs” and “research on the topic”.

2.1.1 Types of energy communities

If there are different types of renewable energy communities available to choose from, as is the case in Austria, or different ways for setting up or running a REC, this page is mainly dedicated to provide users with an overview on them. The Austrian webpage also includes a short explanation what energy communities are. Therefore, short texts on the background of energy communities as well as an overview what kind of possibilities energy communities open up can be included here as well, in addition to infographics on how a green energy future could look like thanks to energy communities. At the bottom of the page, links to more information, including e.g. a Webinars on energy communities or more information can be found.

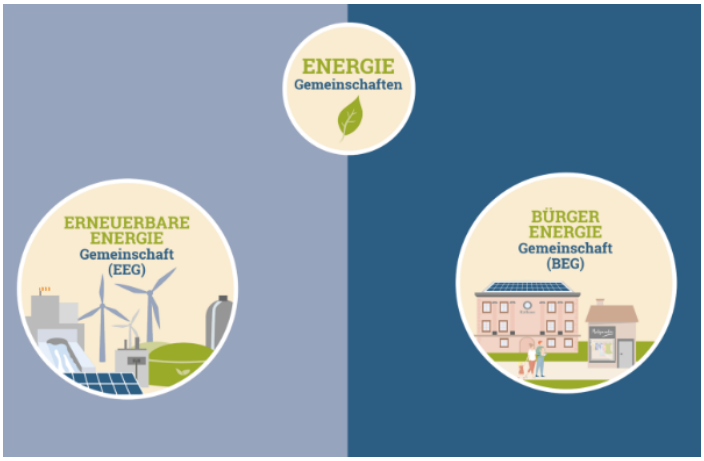

Figure 4 Types of RECs in Austria

In deliverable 3.3, we identified that not all Member States have transposed Directives (EU) 2018/2001 and (EU 2019/944, which contain regulations on the Renewable Energy Community and the Citizens' Energy Community, in the same way. In the Netherlands there was a proposal not to tie certain legal consequences to certain legal forms of energy communities. Instead, regulations are made for small installations and small energy

producers. The legal consequences therefore depend on the capacity of the installations and not on the legal form. The advantages that an energy community brings do not depend on its character as an energy community, but they do depend on the actions carried out. The focus on actions leads to a simplification of the general legal situation. It does not matter whether a particular installation is used for self-consumption, collective self-consumption or energy exchange within an energy community. It is therefore particularly important to give interested citizens an overview of the forms of energy communities that exist in their country.

2.1.2 Benefits

Figure 5 Illustration of individual aspects combined

This page focuses on presenting the advantages of energy communities for the individual participants. Ecological, economic, social and power supply benefits are described and supported by small graphics.

Presenting the benefits of participating in a REC in an easily accessible manner can be considered a necessary feature of this webpage.

2.1.3 Participants and glossary

The page “participants and glossary” provides a country- or region-specific list with all the different actors and participants that can be involved in an energy community with small explanations of their different roles in an energy community.

Also included here can be the communal and economic fields where RECs can be implemented. E.g. if municipalities can act as initiators of energy communities in a region, or how energy communities can benefit the local tourism sector and an explanation for energy communities in private households. Finally, there a glossary with all important terminology related to energy communities, alphabetically sorted, c

With the energy sector being a complex field, and the implementation of RECs being a rather recent development, the accompanying technical and legal terms such as aggregators, energy service providers, etc. can be rather daunting for interested people.

In deliverable 3.3 we identified that the exclusion of large companies and electricity companies, could become a major problem because these participants do not bring their knowledge and organisational skills, which are urgently needed in energy communities, to energy communities or bring them inadequately.

Social Community Benefits

Energy communities raise awareness of climate and energy issues and anchor the value of a secure and sustainable energy supply in the population. The diverse opportunities for the participation of communities, public institutions, SMEs and private individuals strengthen exchange and **social cohesion** . In addition to generating electricity, other community activities can be launched, ranging from mobility **sharing concepts** to initiatives that counteract the **energy poverty** of individual members.

Sector coupling and emergency power supply

With regard to energy communities, **sector coupling** , which enables the connection of the electricity, heat and mobility sectors, can be rethought. For example, the use of a district storage facility within an energy community can help to significantly increase the degree of self-sufficiency and allow e-cars to be charged with self-generated electricity at a later time. As a result, renewable energy sources make an even greater contribution to decarbonization in the individual sectors and the establishment of new usage models is promoted.

In addition, battery storage systems offer the possibility, in the event of a blackout, to upgrade, for example, the event halls of municipalities or the club house to an **emergency power island** .

Figure 6 Benefits' descriptions

2.1.4 Legal basis

On this page, the European policies pertaining to energy communities are first described and links to the relevant directives are provided. This is followed by a section on the most important local legal texts for energy communities, which are also explained and linked in the text. At the end of the page, a list is provided with all important legal texts for energy communities and a download for comparison of the European Directives and the national legislative amendments is available. On the Austrian webpage, these links are connected to the online legal repositories.

While such an overview might require attention to details, a knowledge of legal matters, and in case of maintenance, more or less frequent updates to include the latest information, it is nonetheless a necessity for transparency and benefitting the information flow.

At the moment - as deliverable 3.3 shows - the status of implementation varies widely across different countries or regions. For example, some lack information on the legal form of the Energy Community or administrative rules differ not only between countries but also within (federally) organised countries. Where citizens are called to become active, they have to know about the situation in their respective regions. Since founding an energy community is a complex process entailing many aspects, different rules for energy communities in each region as well as different rules regarding spatial planning laws and e.g. plants can make it more difficult for citizens to get active.

2.1.5 FAQ's

On the FAQ's page, people can find answers to frequently asked questions. This list of the most frequently asked questions and their respective answers, is grouped into different categories. On the Austrian page, there are eight different categories: "general questions", "organisation", "cooperatives", "participation in energy communities", "municipalities", "Grid connection, metering and billing", "finance" and "Energy communities and third parties".

In addition, the Austrian webpage features a video on the top part of the page, in which the head of the Austrian coordination office for energy communities answers the 10 most frequently asked questions.

FAQs can cover several topics that allow participants to find the answer they need more easily, therefore, they benefit the flow of information and accessibility.

2.1.6 Research on the topic

On this page, research on the topic of energy communities is collected and different research projects are shortly described and linked.

This feature provides further information and up-to-date information on developments in the field of renewable energy in the country or region.

2.2 Structure and organisation

The next point, called structure and organisation, again features six sub categories, namely “steps toward founding”, “organisational forms”, “structure”, “energy communities in Austria”, “Benefit & Calculation Tool” and “service providers in Austria”.

This feature is a rather crucial fixture of the webpage, as it addresses many of the questions raised, and aims to guide newcomers through the process of founding an energy community. Some subpages may provide additional information or help explain some details – e.g. storing unused energy – to run a REC efficiently or help find like-minded partners.

2.2.1 Steps towards founding

The page titled “steps towards founding” details the necessary measures for founding an energy community. The page should contain a step-by-step guide on how to found an energy community. Six steps are identified and described, namely initial questions, contact with the grid operator, concept development, establish legal entity and register as market partner, contract with the grid operator and finally, market communication and commissioning. There is also a video illustrating these six steps.

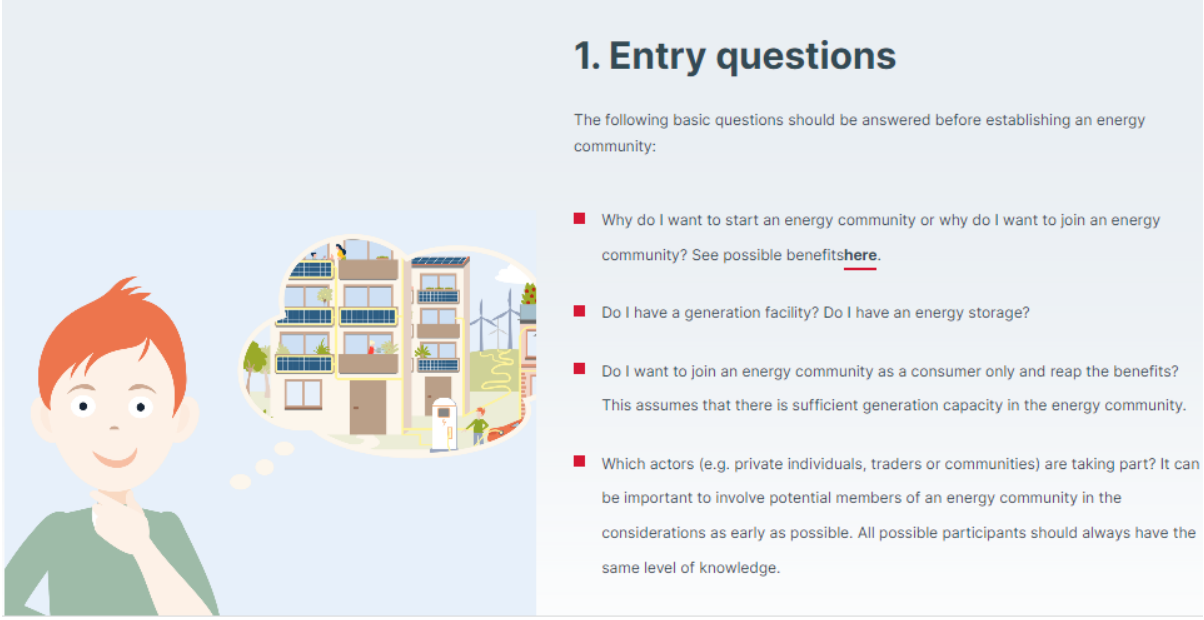

Figure 7 Entry questions

The necessary steps will of course depend on the different national or regional legal framework for founding and running a REC, and may coincide with similar information found on the website, but condensing this in one guide provides a sound foundation for prospective new RECs.

2.2.2 Organisational forms.

On this page, one can find out which forms of energy communities are suitable for which model, from small energy communities between private individuals to large energy communities with businesses and municipalities. These, of course, will vary nationally according the legal status and the implementation of EU directives.

2.2.3 Structure of an energy community

Since energy needs are different on a personal level – e.g. the typical private household requiring more energy early in the mornings and in the evenings, whereas an office would need more energy during the working hours, this page describes how an efficient structure for an energy community can be implemented with both text and an infographic. Should participants have similar needs outside the production hours (e.g. families working away from home during the day, with a photovoltaic plant), this page also explains why a storage unit is a good addition in such cases.

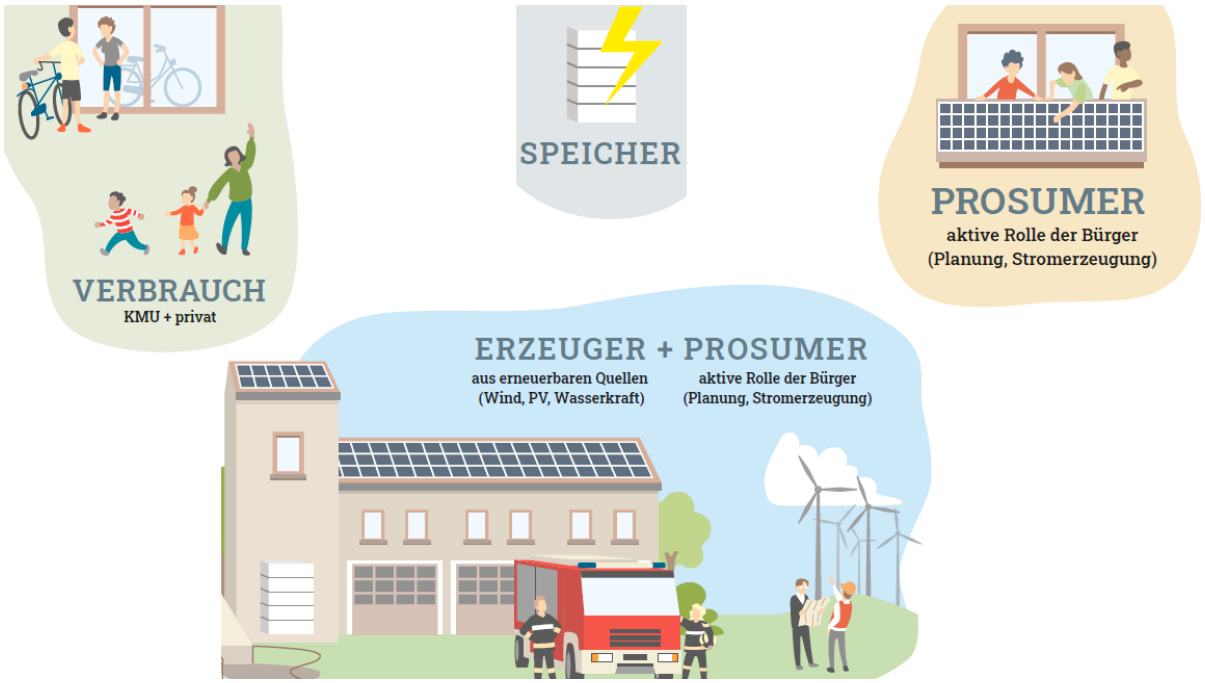

Figure 8 Illustration for the Structure Page

2.2.4 Energy communities in the region

This page aims to show what is already in place, in order to both display the emergence of RECs and also help interested parties with some orientation in their country or region. E.g., addresses, information and ideally an integrated map of the energy communities can be provided. (Contact information for each of the energy communities is provided. Also practice examples of different energy communities with short films or other media can be included here.

On the Austrian webpage, an additional feature is that users can switch overlays to show the two different kinds of energy communities in Austria. While this is merely a map, it provides an orientation for interested parties.

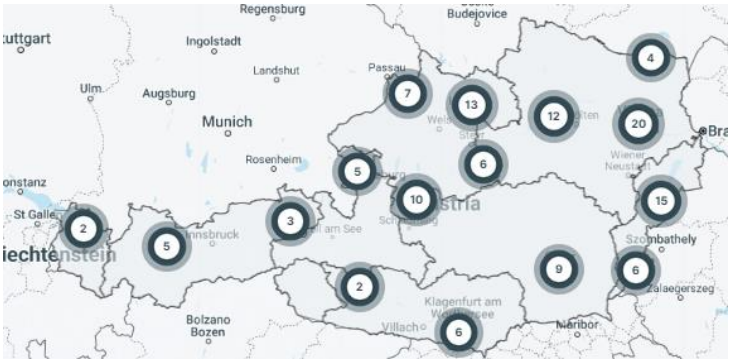

Figure 9 Map of Austrian RECs

2.2.5 Benefit- & calculation tool

Online benefit and calculation tools can be found on this page. For one, there is the benefit tool, which helps to find the optimal ratio of generation and consumption within an energy community. Second, there is the calculation tool which serves as an initial estimate of the economic profitability of a renewable energy community.

In deliverable 3.3. we have seen that in different countries different (financial) incentives are created for the establishment and joining of energy communities. Also different taxation of renewable energy installations can discourage interested persons from establishing an energy community. Often, interested persons do not know which subsidies they could receive. It is therefore particularly important to install such a Benefit calculator so that interested persons can find out what benefits are involved in founding and joining energy communities.

2.2.6 Service providers in the country or region

On this page one can find companies that offer services for energy communities. They can be filtered by region or by the service they are providing. The different categories of services are Project development & conceptualisation, Organisational consulting, Operation, Accounting, Software/Hardware & Energy Management, Financing, Legal Consultation, Planning & Construction and Other.

2.3 Energy grid

This essential section provides information on grid connection, metering and allocation of intra-community generated energy.

Prospective founders can find the needed information on many technical aspects in this section. A subsection of webpages can guide them through the process. While it is not the One-Stop-Shop envisioned by one of the Co-Creation workshops' design teams, it comes close since it compiles these questions in one easily accessible space.

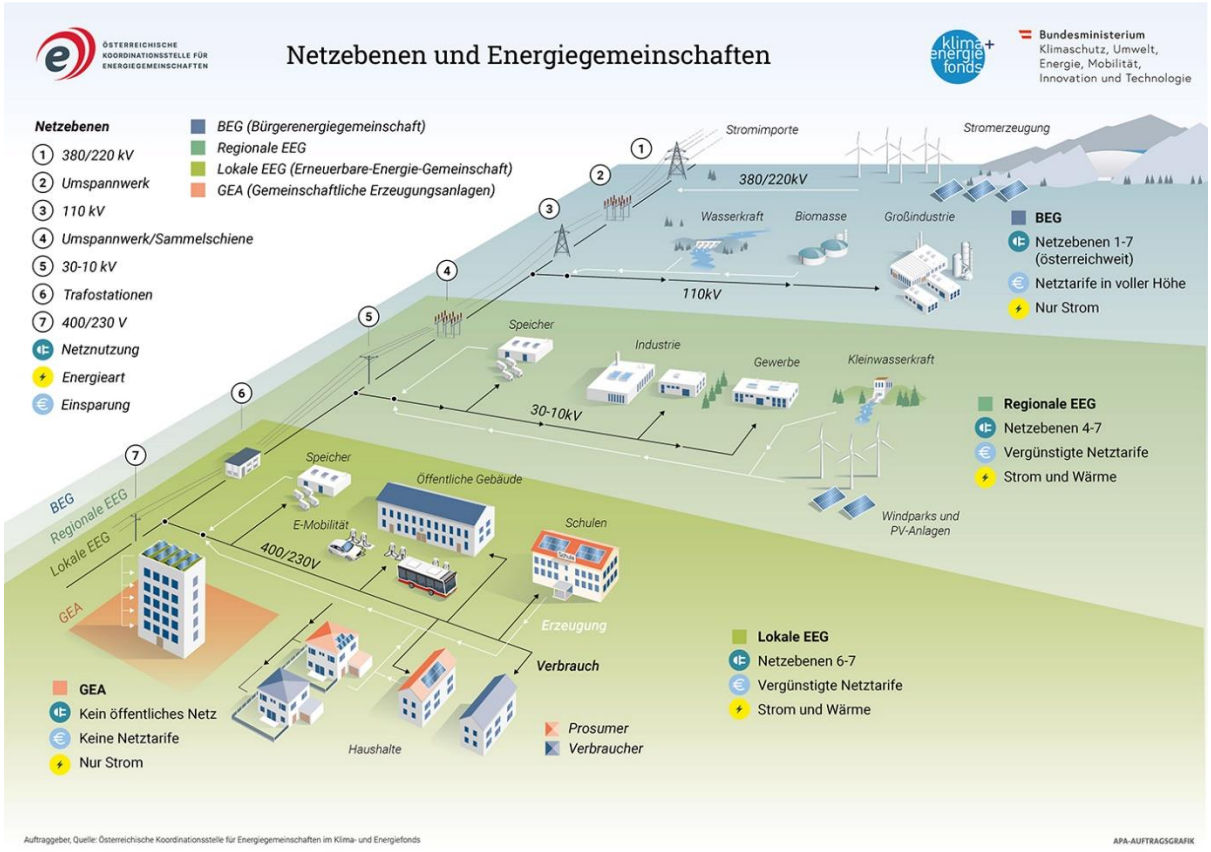

Figure 10 Grid layers & RECs

2.3.1 Contact point network

This point contains information on the legal basis of the grid connection, on the metering and billing of electricity generated within the EU and on the installation of smart meters. Furthermore, information is provided on the Austrian regulatory authority (E-Control) and its tasks, as well as on the EDA user portal, through which the electricity generation and consumption of the individual members of the Energy Community are transmitted. At the end of this point, the contact details of the various grid operators from all over Austria can also be found.

2.3.2 Grid connection

On this page, technical information on grid connection for both citizen energy associations and renewable energy associations is provided, e.g. that participants in renewable energy communities could benefit from reduced grid costs. Apart from detailed information on this

benefit, information about the tasks of the grid operator and an infographic about the different grid levels can be found here. At the end of the page, sample contracts for the operation of a renewable energy community should be provided.

Since energy communities rely on the public grid, they need to be able to connect to it. They are therefore dependent on the grid operator providing information and making access for them possible. We saw in deliverable 3.3 that in Germany, for example, it is regulated by law that network operators must provide a website that informs, among other things, about the processing of a network connection application, about the information that the applicant must provide to the network operator, and about the costs of network access. This would be an important point in other countries as well.

2.3.3 Measurement and distribution

This page explains the measurement of the participants' electricity consumption as well as on the distribution of the electricity generated within the community, ideally referring to the necessary tools like Smartmeters, supported by an infographic.

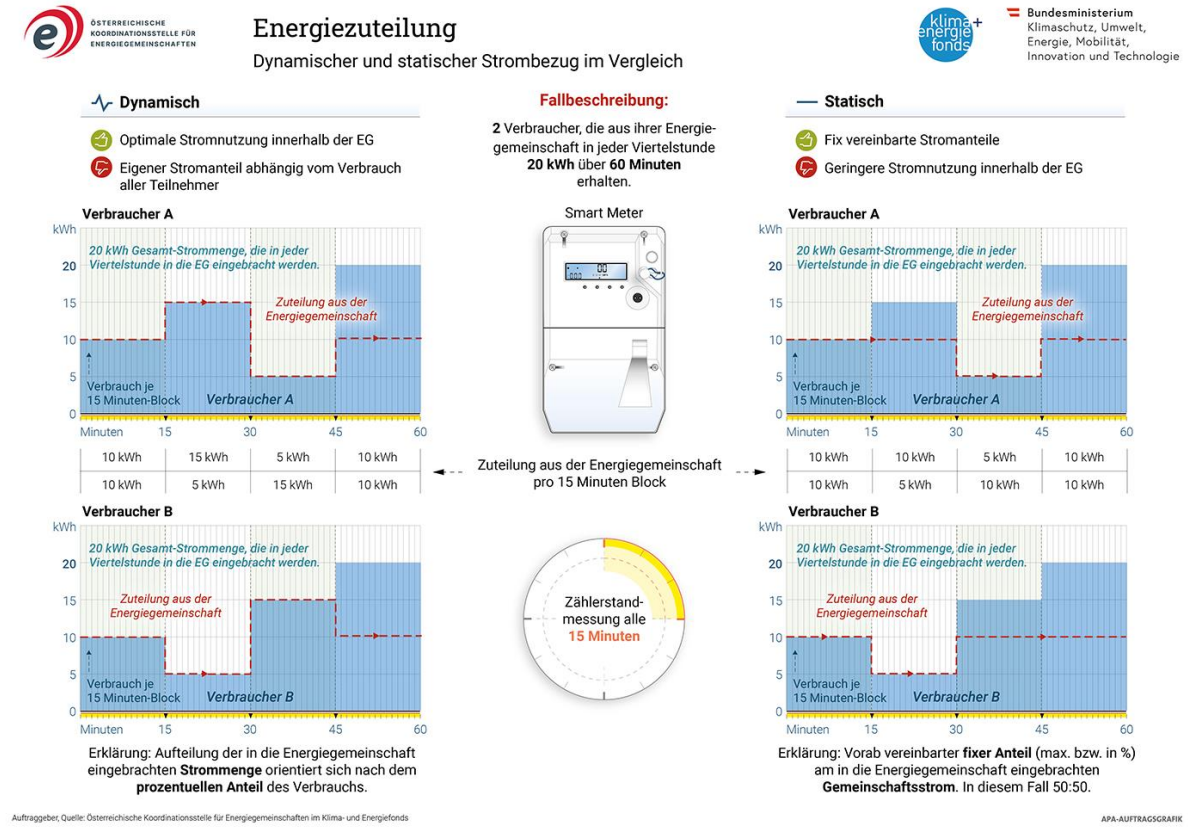

Figure 11 Infographic on measurement and distribution

2.3.4 Communication systems for energy communities

This page contains information on systems that enable the exchange between the data that must be exchanged between the participants in an energy community and the grid operator. It deals with the functioning of these systems, the communication standards and cyber security.

Providing a concise list of recommended tools is a central aspect.

2.4 Advice & Contact

Here, interested parties can find useful contact details for various organisations that can help them set up and run an energy community.

2.4.1 Submit contact details

The website aims to connect interested parties, service providers and already existing energy communities. To do so, existing energy community or service providers can register on this page in order to have their contacts listed here.

2.4.2 Federal states advice centres

Energy advice centres have been set up in the nine individual federal states of Austria, which are listed on this page with all the relevant contact details.

2.4.3 Contact details of the coordination office for energy communities

On this page one will find the e-mail address, telephone number and office hours of the coordination office for energy communities. Furthermore, one can find information about a newsletter about energy related topics and energy communities.

2.5 Download area

Relevant documents on energy communities are collected here, such as

a) sample contracts,
b) guides on various topics (financing, taxes and levies, factsheets for households, system owners, municipalities), and
c) graphics and videos.

2.6 About us

2.6.1 Work programme of the energy communities platform

The objectives, the partners and the results of the work programme of the platform for energy communities are explained here.

2.6.2 Who we are

This page contains information about the coordination office for energy communities. This includes its structure, its financing and its tasks.

2.6.3 Newsletter

This page allows users to subscribe to the newsletter, which deals with energy-related topics and energy communities. Furthermore, links to previous issues of the newsletter are provided.

2.6.4 Austrian Climate and Energy Fund support programme

This page provides information on the objectives, programme content, project selection and assessment criteria as well as the amount of funding from the Austrian Climate and Energy Fund.

2.7 Proposal for an online community building tool

Following the data and input ideas gathered in previous parts of this work package, we found that the webpage was missing one aspect that was considered important by many participants of the co-creation workshops: An application that would allow participants to communicate with each other. Its aim would not only be to aid in local community building, but also connect practitioners across regions. Ideally such a web-based tool would provide a platform to connect interested parties with each other, be they newcomers who want to start their own energy community, established communities on the lookout for new members or wishing to connect with each other to share experiences and ideas.

We have considered several options regarding such a community function and found that the most useful one would follow the setup of a typical message board or forum. Such a forum would contain the following features.

a) Registered users: Interested people would have to register and add a user status to gain access to the forum
    i. User status could be a member of an REC / representative of an REC in founding / practitioner / interested in … /
    ii. N.B.: Having to register could be considered a barrier for entry.
b) The forum would ideally be structured into subcategories for different topics and / or regions.
c) Option to upvote particularly useful, interesting topics or questions, and within the discussions: particularly helpful responses;
d) Option to downvote less helpful topics or replies within discussions
e) Option to quote a previous reply to reply to a specific question
f) Example: https://www.chefkoch.de/forum/

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