

Overview of existing tools and platforms for supporting collective energy actions

Report D4.1 (Update)

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Abstract

Energy communities offer the unique opportunity for consumers to form a critical mass, become renewable energy producers, and provide their demand flexibility to the market. However, there is still a clear need to support local heroes, those who are setting the ground and leading the action within their community, establishing their energy community, and enabling them to motivate and target consumers directly.

The concept of SHAREs is simple and straightforward: create a SHAREs Gateway for local heroes to help them initiate action and grow, which consists of:

- A country-specific implementation toolkit to equip local heroes with the technical and logistic capacity to set up their energy community (legal framework, such as master contracts, technical and internet-based solutions, business models, etc.);
- ▶ The building blocks of a tailored "pick-and-mix" communication campaign to enable local heroes to effectively promote their idea to their most relevant consumer groups.

One of the necessary first steps in elaborating the Gateway was to identify the most effective platforms and tools supporting energy communities available and provide a detailed inventory of those relevant platforms and tools.

This report gives an overview of international tools and platforms, as well as on existing national ones in the pilot countries of SHAREs – Austria, Bulgaria, Croatia, Germany, Georgia, and Hungary.

The described characteristics of the provided tools and platforms within this report are:

- Applicability
- Brief description
- Type of tool
- Regional applicability
- Complexity
- Project phase
- Necessary data for use
- Costs/registration
- Access

Update 2024:

The original report was finalised in June 2022. An update was carried out in April 2024 to refine the tool collection. During the initial compilation of the tool inventory, the process of transposing European legislation into national laws had either just begun or was ongoing in most partner countries. It was expected that additional tools and/or platforms would be developed at the national level. International tools, both supportive and informative, had already been identified in the first iteration of the deliverable. As this initial tool identification process was intense and time-consuming, the emphasis of the update was placed on national tools. Moreover, due to the specificity of national legislation and regulations, tools created and available at the national level are recognised as more appealing to local stakeholders in each pilot country. Over the past two years, a total of 20 new tools and/or platforms have become available in the SHAREs pilot countries, which are further described in each pilot country chapter below.

All tools are available either on the national gateways or as examples for other countries on the SHAREs blueprint:

- Blueprint: <u>https://sharerenewables.eu/international-tools/</u>
- Austria: <u>https://energie-teilen.at/tools/</u>
- Bulgaria: <u>https://sharerenewables.bg/calculation-tool/</u>
- Croatia: <u>https://energetske-zajednice.hr/alati-za-proracun/</u>
- Georgia: <u>https://energy4all.ge/calculation-tool/</u>



Germany:

https://erneuerbare-energie-gemeinschaften.de/tools/

Hungary: <u>https://tudaster.kozenergia.hu/nemzkoz-segedeszkozok/;</u> <u>https://tudaster.kozenergia.hu/hazai-segedeszkozok/</u>



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1 | Introduction

1.1 About the SHAREs project

The SHAREs objective is to cover a great diversity of collective actions, contributing towards increased energy efficiency and/or optimised energy management and/or integrate a higher share of renewables. Thus, the term energy communities in SHAREs refers to all forms of collective actions by and for consumers, such as cooperatives, collective purchase groups or other consumer-driven actions. In countries that have already transposed EU acquis regarding energy communities, the focus lies on renewable energy communities (REC) and citizen energy communities (CEC).

Through a mentoring scheme, pioneers pass on their first-hand experiences to aspiring energy communities. This ensures that a strong network is built. In addition, pilots and pioneers are supported by the materials developed within the project. At least 20 emerging energy communities (pilots) will be directly supported in the six partner countries in setting up their energy community/collective action. Through their feedback, the materials developed in the project will be tested and improved. The pilots cover various forms of energy communities in a broader sense.

One of the project's key outputs is the development of the SHAREs Gateway, which will be an all-encompassing online platform for energy communities. The aim of the SHAREs Gateway is to provide solutions to identified gaps in each target country and to provide easy access to all the needed know-how on how to establish, run or expand various forms of collective energy actions. Potential communities are essential to make SHAREs successful and are approached through different multipliers in partner countries and at the EU level.

SHAREs has maximized the utilization of existing initiatives, project results, open-source solutions, existing data standards, and both national as well as European tools by compiling them into a single gateway. Thus, this deliverable initially presented the first step needed – a detailed assessment of existing tools and platforms per country to build upon them, where possible, to avoid duplication and generate new added value.

1.2 Scope of inventory of tools and platforms

Work Package 4 (WP4) identified the most effective platforms and tools for supporting energy communities which are already available (primarily online) and accessible to an interested public. The aim of WP4 was to ensure that the development of the SHAREs Gateway takes into consideration already pre-made tools and platforms, thus ensuring that the Gateway brings something new to the energy communities' scene.

Within the research phase, existing tools and platforms were identified and assessed, covering, but not limited to the following characteristics:

- Technical and organisational
- Economic and business model
- Consumer behaviour and engagement

Upon finalising the inventory, missing tools and knowledge gaps were identified and presented within the deliverable D4.2 "Report on defined gaps in the inventory on relevant tools and platforms". Hereafter, a detailed overview of available international tools and platforms, and those available per partner country, is provided.





Figure 1 Overview of the existing tools and platforms on the EU level, June 2022 (Source: AEA)

Update 2024:

To maximise the impact of SHAREs and the gateway in each pilot country and to equip local heroes with the know-how to build their energy community, an update of this deliverable was made in April 2024. This update includes 20 new tools identified in the SHAREs pilot countries.

The collected tools have been integrated into the SHAREs Gateway blueprint and/or into the national SHAREs Gateways to support energy communities and other collective actions. The national gateways have been developed, adapted, and adjusted to local needs in the frame of the project. They provide tools, step-by-step guides (How to get started: <u>https://sharerenewables.eu/how-to-get-started/</u> or, Define your project: <u>https://sharerenewables.eu/define-your-project/</u>), legal and financial information, handbooks and other materials.

During the course of the project, the Austrian SHAREs team took an additional step by developing a decision matrix for selecting the most appropriate community energy model. The decision matrix was integrated into the Austrian Gateway in February 2024, and was later included in the Blueprint and is therefore available for other partners to integrate into their respective gateways.

All tools are available either on the national gateways or as examples for other countries on the blueprint:

- Blueprint: <u>https://sharerenewables.eu/international-tools/</u>
- Austria: <u>https://energie-teilen.at/tools/</u>
- Bulgaria: <u>https://sharerenewables.bg/calculation-tool/</u>
- Croatia: <u>https://energetske-zajednice.hr/alati-za-proracun/</u>
- Georgia: <u>https://energy4all.ge/calculation-tool/</u>
- Germany: <u>https://erneuerbare-energie-gemeinschaften.de/tools/</u>
- Hungary: <u>https://tudaster.kozenergia.hu/nemzkoz-segedeszkozok/;</u> <u>https://tudaster.kozenergia.hu/hazai-segedeszkozok/</u>



2 | International tools and platforms overview

2.1 Overview

In total, 113 international tools were collected in 2022. 11 were sorted out at the beginning as they were not considered relevant due to their lack of direct connection to collective actions. Out of the 102 remaining tools, 55% were classified as supportive tools, while 45% were informative tools. The basis for selecting the tools was local heroes as the primary target group, along with those who want to support/advise local heroes on a national level but are reaching out for information. The thematic targets were focused on energy communities/collective actions.



Figure 2 Selection process, June 2022 (Source: AEA)

The final inventory of relevant tools and platforms, including detailed information on each, is listed below in Table 1.



Table 1 List of international tools

Name of the tool	Tool type (as per Excel sheet)	Link				
DECIDE Tool Cards 1-4	Short tool	https://decide4energy.eu/resource?uid=1115				
	presentation in card	https://decide4energy.eu/resource?uid=1116				
		https://decide4energy.eu/resource?uid=1117				
		https://decide4energy.eu/resource?uid=1118				
DECIDE Training material for knowledge Hub	Report	https://decide4energy.eu/resource?uid=1119				
Structured overview of existing and emerging business models, related contractual conditions and recommendations	Report	https://decide4energy.eu/resource?uid=1093				
Guidelines to optimize energy- efficiency information campaigns and citizen participation for collective action and energy communities	Guidelines	https://decide4energy.eu/resource?uid=1010				
Structured overview on optimized energy-efficiency interventions for EC and CA	Report	https://decide4energy.eu/resource?uid=1011				
The Power of Community game	Board-game	https://thepowerofcommunity.space/				
The Energy Game	Online tool	https://decide4energy.eu/energy-game				
Guidelines for characterization, segmentation, and group dynamics of collective energy actions	Report	https://decide4energy.eu/resource?uid=916				
High-level description of use cases and business models	Report	https://project-clue.eu/wp- content/uploads/2021/04/D3.1_High-Level-Description- of-Use-Cases-and-Business-Models_v1.0.pdf				
Local Energy Community architecture description	Report	https://project-clue.eu/wp- content/uploads/2021/06/D3.2-Local-Energy- Community-Architecture-Description.pdf				
Self-Assessment Tool	Excel tool	https://r-aces.eu/tools/self-assessment-tool/				
Legal Decision Support Tool	Contract template	https://r-aces.eu/tools/legal-decision-support-tool/				
Energy Management Platform	Online Platform	https://r-aces.eu/tools/energy-management-platform/				
Use Cases	Online overview	https://r-aces.eu/use_case/				
Serious Board Game	Board game	https://r-aces.eu/training/serious-board-game/				
COOLKIT	Knowledge Repository	https://main.compile-project.eu/products/coolkit/				
HomeRule	Home energy management tool	https://main.compile-project.eu/products/homerule/				
GridRule	EC management tool	https://main.compile-project.eu/products/gridrule/				
ComPilot	EC management tool	https://main.compile-project.eu/products/compilot/				



Name of the tool	Tool type (as per Excel sheet)	Link
ValueTool	-	https://value-tool.compile-project.eu
EVRule	-	https://main.compile-project.eu/products/
ECCO-Financing Best Practices Guide	Report	http://www.ecco-oss.eu/phocadownload/ECCO- Financing%20Best%20Practices%20Guide_2.pdf
Timeline Tool	Infosheet	https://www.ecco-oss.eu/timeline/awareness
Greenhouse Gas Calculator- ECCO One stop shop	-	-
Technology Decision Plan	Questionnaire	https://www.ecco-oss.eu/tech-decision-plan
Progress Tool- ECCO One stop shop	Questionnaire	-
NREL's PVWatts [®] Calculator	Calculator	https://pvwatts.nrel.gov/index.php
Prosumer Inspiration Book	Report	https://proseu.eu/resource/prosumer-inspiration-book
A multi-dimensional typology of collective RES prosumers across Europe	Report	https://proseu.eu/resource/key-technical-findings-and- recommendations-prosumer-communities
Business models for prosumers in Europe	Report	https://proseu.eu/resource/business-models- prosumers-europe
PowerTarget tool	Survey	http://powerpoor.epu.ntua.gr/powerpoor- toolkit/target/
PowerAct tool	Survey	http://powerpoor.epu.ntua.gr/powerpoor-toolkit/act/
PowerFund tool	Platform	https://www.powerfund.eu/

2.2 Project DECIDE

2.2.1 DECIDE Tool Cards 1-4

Applicability: EC/ collective actions in general

<u>Brief description</u>: The DECIDE tool cards provide practical inputs that can improve the development of an energyrelated community initiative. They are accessible to abroad audience, do not require knowledge background on the topic and in a catchy format present the tools and methodologies investigated by the project. Each card is a stand-alone piece of information related to energy communities in Europe.

Type of tool: Short tool presentation in card format

Regional applicability: No restriction

Complexity: Does not require specific knowledge, simple PDF tool short description

Project phase: The Tool Cards can be used for the planning phase

Necessary data for use: The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://decide4energy.eu/resource?uid=1115

https://decide4energy.eu/resource?uid=1116

https://decide4energy.eu/resource?uid=1117



https://decide4energy.eu/resource?uid=1118

2.2.2 DECIDE Training material for knowledge Hub

Applicability: EC/ collective actions in general

<u>Brief description</u>: The document provides an overview of the knowledge products created by DECIDE to foster the development and enhancement of energy communities and collective actions. It relates to the general training material offered by DECIDE and includes an overview of all selected materials and a short description of each one, describes the objectives, targets and format of the knowledge material, as well as the methodology on how to use them most effectively.

Type of tool: Report

Regional applicability: No restriction

Complexity: Does not require specific knowledge

Project phase: The report can be used for the planning phase as well as for the expansion phase

Necessary data for use: The tool does not need any data input and can be used directly

<u>Costs/registration</u>: The tool is available free of charge and without a prior registration

Access: https://decide4energy.eu/resource?uid=1119

2.2.3 <u>Structured overview of existing and emerging business models, related</u> <u>contractual conditions, and recommendations</u>

Applicability: EC/ collective actions in general

<u>Brief description</u>: The report gives insights into different existing and emerging approaches for business models for energy communities and collective actions, how to group them and provides specific examples. Also, it includes the analyses of existing and emerging contractual conditions and to what extent they could impact the development of energy communities, increase investments into renewables and offer a fair arrangement between all involved parties.

Type of tool: Report

Regional applicability: No restriction

<u>Complexity:</u> Expert level - comprehensive report for people who are more concretely interested in the topic

Project phase: The report can be used in the planning phase

<u>Necessary data for use:</u> The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without need for a prior registration

Access: https://decide4energy.eu/resource?uid=1093

2.2.4 <u>Guidelines to optimize energy-efficiency information campaigns and citizen</u> participation for collective action and energy communities

Applicability: EC/ collective actions in general

<u>Brief description</u>: The Guidelines provide a coherent summary of communication/information approaches and intervention campaigns for establishing and shaping energy communities, with a strong focus on the behavioural science perspective. It offers recommendations for a structured stakeholder engagement, provides concrete tools and information on how to classify them from a psychological perspective and recommendations tailored for DECIDE's pilots.

Type of tool: Guidelines



Regional applicability: No restriction

<u>Complexity:</u> Expert level- comprehensive report for people who are more concretely interested in the topic

Project phase: The guidelines can be used for the planning phase, as well as for the expansion phase

Necessary data for use: The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://decide4energy.eu/resource?uid=1010

2.2.5 <u>Structured overview on optimized energy-efficiency interventions for EC and</u> <u>CA</u>

Applicability: EC/ collective actions in general

<u>Brief description</u>: This document represents an overview of the recommendations to optimise energy-efficiency intervention and information campaigns for energy communities and collective energy actions in the framework of the DECIDE project and beyond, with a strong focus on the social science perspective. A general overview of potential tools for information and intervention campaigns within engagement and communication strategies is given, which serves as a "toolbox" to provide the broadest possible impression of potential tools. Also, specific recommendations for optimising intervention and information campaigns, tailored to the respective pilots in DECIDE are provided.

Type of tool: Report

Regional applicability: No restriction

Complexity: Short Report for people who are more concretely interested in the topic

Project phase: The report can be used for the planning phase, as well as for the expansion phase

Necessary data for use: The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://decide4energy.eu/resource?uid=1011

2.2.6 <u>The Power of Community game</u>

Applicability: EC/ collective actions in general

<u>Brief description</u>: The Power of Community is an educational board game that uses kids' creativity to explore the functioning of the energy system and renewable energy sources, learn more about the barriers and the benefits of pursuing energy transition and discover the role that each one can play in it. The kit is available in different languages, and a copy (educational and not for commercial use) can be requested online.

Type of tool: Board-game

<u>Regional applicability</u>: No regional restriction - illustrated playing cards; instructions only online in DE, EE, NL, FR, GR, PL, ESCL, IT

Complexity: Does not require specific knowledge and was developed especially for children

Project phase: The game can be used for awareness-raising in schools or similar organisations

Necessary data for use: The use requires a free order

Costs/registration: Copies of the game (max 10) can be ordered free of charge

Access: https://thepowerofcommunity.space/



2.2.7 <u>The Energy Game</u>

Applicability: EC/ collective actions in general

<u>Brief description</u>: The game helps explore the elements considered most relevant for individuals when thinking about their ideal energy collective action. The participants can choose among a set of items and place them in the target at the centre of the screen. The relevance depends on the closeness to the centre- the closer to the centre, the most relevant that specific element is to the respondent.

Type of tool: Online tool

Regional applicability: No regional restriction

Complexity: Does not require specific knowledge and can be used by anyone

Project phase: The game can be used for the planning phase as well as for the expansion phase

Necessary data for use: The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://decide4energy.eu/energy-game

2.2.8 <u>Guidelines for characterization, segmentation, and group dynamics of</u> collective energy actions

Applicability: EC/ collective actions in general

<u>Brief description</u>: The report aims to foster a shared understanding of collective energy actions and review the evidence on how to promote them. It should help to get concrete definitions for collective energy actions and is based on an extensive review of scientific literature, publications from previous projects, original stakeholder interviews and the legislative framework for energy communities, including empirical as well as conceptual considerations.

Type of tool: Report

Regional applicability: No regional restriction

<u>Complexity:</u> A report for experts who want to deal with the topic in-depth

Project phase: The report can be used for the planning phase

<u>Necessary data for use:</u> The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://decide4energy.eu/resource?uid=916

2.3 Project CLUE

2.3.1 High-level description of use cases and business models

Applicability: EC/ collective actions in general

<u>Brief description</u>: The focus of the report is to provide a detailed overview of the different use cases and business models with the characterization of the demo sites in the project CLUE. Specifically, it includes a description of parent-use cases (Energy Trading, Control-Based Demand Response, Customer-based demand response, Incentive-based demand response, Capacity Sharing etc.) and country-specific use-cases in Austria, Germany, Scotland and Sweden.

Type of tool: Report

Regional applicability: No regional restriction



Complexity: Expert level- comprehensive report for experts

Project phase: The report can be used for the planning phase

Necessary data for use: The tool does not need any data input and can be used directly

<u>Costs/registration</u>: The tool is available free of charge and without a prior registration

Access: https://project-clue.eu/wp-content/uploads/2021/04/D3.1_High-Level-Description-of-Use-Cases-and-Business-Models_v1.0.pdf

2.3.2 Local Energy Community architecture description

Applicability: EC/ collective actions in general

<u>Brief description</u>: This report addresses the areas of developing a reference ICT architecture and understanding the roles of stakeholders within local energy communities. A reference architecture based on international standards is established to provide a common foundation for the CLUE use cases throughout the project's involved countries and regions, while the stakeholder mapping was included as an effective approach to reveal the positions, roles, and relationships between relevant stakeholders.

Type of tool: Report

Regional applicability: No regional restriction

<u>Complexity:</u> Expert level- comprehensive report for experts

Project phase: The report can be used for the planning phase

Necessary data for use: The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://project-clue.eu/wp-content/uploads/2021/06/D3.2-Local-Energy-Community-Architecture-Description.pdf

2.4 <u>Project R-Aces</u>

2.4.1 Self-Assessment Tool

Applicability: No specific EC type (focused more on businesses and industry)

<u>Brief description</u>: The R-ACES assessment tool helps collect data about the energy demand, energy supply, stakeholders and existing infrastructure in the ecoregion and assess the quality and completeness of the data. The assessment questions and region description categories have been carefully selected based on past experiences recorded throughout various energy cooperation projects in Europe.

Type of tool: Excel tool

Regional applicability: No regional restriction

<u>Complexity:</u> Expert level- Comprehensive report for experts

Project phase: The report can be used for the planning phase

Necessary data for use: Data on regional energy production and consumption

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://r-aces.eu/tools/self-assessment-tool/

2.4.2 Legal Decision Support Tool

Applicability: No specific EC type, but the focus is more on businesses and industry



<u>Brief description</u>: The tool is designed to lower the legal barriers and help develop energy cooperation projects between potential suppliers and customers in industrial clusters. It includes an easy-to-use fill-in contract template, with explanatory notes on the side. It helps with focusing and agreeing on the fundamentals of an energy exchange project (sales and delivery) and generates a ready-to-use (simple) contract in one go.

Type of tool: Contract template

Regional applicability: No regional restriction

Complexity: It can be used by anyone and is easy to use, but legal knowledge would be helpful

Project phase: The template can be used for the planning phase as well as for the expansion phase

Necessary data for use: The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://r-aces.eu/tools/legal-decision-support-tool/

2.4.3 Energy Management Platform

Applicability: EC/collective actions in general

<u>Brief description</u>: A tool is designed to enable the exchange of energy between partners. The dashboard displays energy consumption and generation overlaps in surpluses, deficits, and energy flows between partners. A practical user guide, with all steps clearly described, is available for the users to help them to use the Platform.

Type of tool: Online Platform

Regional applicability: Unclear

Complexity: Expert level

Project phase: The tool can be used for the planning phase as well as for the expansion phase

Necessary data for use: Data on regional energy production and consumption

Costs/registration: Registration necessary, fees unclear

Access: https://r-aces.eu/tools/energy-management-platform/

2.4.4 <u>Use Cases</u>

Applicability: Specific to DH & DC projects

<u>Brief description</u>: Description of ~ 70 examples of various energy collaborations on District Heating & Cooling from different countries. You can filter by energy source, geographical level and type of area (industrial/residential) or use cases (energy planning, projects etc.).

Type of tool: Online overview

Regional applicability: No regional restriction

Complexity: Requires no specific knowledge

Project phase: The tool can be used for the planning phase

Necessary data for use: Requires no specific knowledge

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://r-aces.eu/use_case/

2.4.5 <u>Serious Board Game</u>

Applicability: EC/collective actions in general



<u>Brief description</u>: Board game about regional energy management and development of the sustainable area around R-ACEDONIA, an important European industrial hub surrounded by nature and rivers. The players must look for innovative ideas to tackle the issue of rising carbon footprint and energy bill.

<u>Type of tool:</u> Board game <u>Regional applicability:</u> No regional restriction <u>Complexity:</u> Requires no specific knowledge <u>Project phase:</u> N/A <u>Necessary data for use:</u> The tool does not need any data input and can be used directly <u>Costs/registration:</u> The game must be ordered <u>Access: https://r-aces.eu/training/serious-board-game/</u>

2.5 Project COMPILE

2.5.1 COOLKIT

Applicability: EC/collective actions in general

<u>Brief description</u>: The COOLKIT is a repository of reports and dashboards on how to build an energy community. The Best Practice guide provides examples for all types of activity, energy services and citizen-led partnerships. The Stakeholder Engagement guide provides tools and techniques to build community groups and organizations. The Financing guide explains how to finance your projects and structure your ownership. The Technical Tools guide describes the technical tools developed by the COMPILE project.

Type of tool: Knowledge Repository (available online and as reports)

Regional applicability: No regional restriction

Complexity: Requires no specific knowledge.

Project phase: The COOLKIT can be used for the planning and starting phase

Necessary data for use: The tool does not need any data input and can be used directly

<u>Costs/registration</u>: The tool is available free of charge and without a prior registration

Access: https://main.compile-project.eu/products/coolkit/

2.5.2 HomeRule

Applicability: EC/collective actions in general

<u>Brief description</u>: HomeRule helps operate energy communities, focusing on managing one building/home energy needs. The tool encompasses different features which bring new possibilities of management and control of various tech, resulting in added value for end-users. It also supports the connection to other COMPILE tools, which enable community-oriented management of flexibility.

Type of tool: Home energy management tool

Regional applicability: No regional restriction

Complexity: N/A.

Project phase: The tool can be used for the starting and expansion phase

Necessary data for use: N/A

Costs/registration: Unclear

Access: https://main.compile-project.eu/products/homerule/



2.5.3 <u>GridRule</u>

Applicability: EC/collective actions in general

<u>Brief description</u>: GridRule enables the community managers (aggregators, micro-grid operators, etc.) to operate and manage the local grid within network limits. It sets up the coordination of individual community members and optimizes the whole community energy needs. It enables data collection and presentation in a user-friendly manner and also features various control strategies that optimize all the available flexibility in the network. These features include community battery management and community self-consumption optimization.

Type of tool: EC management tool

Regional applicability: No regional restriction

Complexity: N/A

Project phase: The tool can be used for the starting and expansion phase

Necessary data for use: N/A

Costs/registration: Unclear

Access: https://main.compile-project.eu/products/gridrule/

2.5.4 ComPilot

Applicability: EC/collective actions in general

<u>Brief description:</u> ComPilot is designed as a digital platform that allows virtual energy communities to be created and helps them manage their operation. The tool strives to activate more energy community members since it is formed as a socio-technological platform with various functionalities. It manages the demand response procedures, and by using it, network operators or community leaders can monitor and manage contracts of the community in a user-friendly way

Type of tool: EC management tool

Regional applicability: No regional restriction

Complexity: N/A

Project phase: The tool can be used for the starting and expansion phase

Necessary data for use: N/A

Costs/registration: Unclear

Access: https://main.compile-project.eu/products/compilot/

2.5.5 <u>ValueTool</u>

Applicability: EC/collective actions in general

<u>Brief description</u>: A decision support tool for consumers and communities to explore profitability, carbon emission savings, and optimal configurations for PV tools. ValueTool helps consumers obtain the costs and benefits of installing PV panels in their building and simulate the investments. The investment return period and needed information can be obtained in just a few steps, and with the data provided on the latest electricity bill.

Type of tool: -Calculator

Regional applicability: -Available in 5 European countries: Croatia, Greece, Portugal, Slovenia, Spain

<u>Complexity:</u> -Does not require specific knowledge. Meant for house owners or EC members.

<u>Project phase:</u> -The tool can be used for the planning phase.



<u>Necessary data for use:</u> -The tool does require the technical data input (power connection, electricity consumption, roof orientation...) and other parameters which the user can customise

Costs/registration: -

Access: https://value-tool.compile-project.eu

2.5.6 <u>EVRule</u>

Applicability: EC/collective actions in general

<u>Brief description:</u> EVrule is an EV management platform that will be enhanced with the algorithms for predicting EV user behaviour and household consumption and upgraded to enable communication with GridRule. The development of charging algorithms for EnC will include fair redistribution of power available for charging to all EV users and other different charging options.

Early stage of development, no details yet.

<u>Type of tool:</u> -<u>Regional applicability:</u> -<u>Complexity:</u> -<u>Project phase:</u> -<u>Necessary data for use:</u> -<u>Costs/registration:</u> -

Access: https://main.compile-project.eu/products/

2.6 ECCO One Stop Shop

2.6.1 ECCO-Financing Best Practices Guide

Applicability: EC/collective actions in general

<u>Brief description:</u> The Guide informs (future) ECCOs and policy makers on what financial supporting schemes already exist and do function well for realizing local energy cooperatives. It summarizes common, as well as activity-specific financing problems, encountered in the development, construction, and operation phase of community-centred energy cooperatives. Additionally, it gives an overview of commonly used financing instruments, provides some specific funding solutions that some ECCOs applied detailed insights into the funding schemes of three energy cooperatives of the ECCO-Programme.

Type of tool: Report

Regional applicability: No regional restriction

Complexity: Expert level - comprehensive report for people who are more concretely interested in the topic

Project phase: The report can be used for the planning phase

<u>Necessary data for use:</u> The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: http://www.ecco-oss.eu/phocadownload/ECCO-Financing%20Best%20Practices%20Guide 2.pdf, Update April 2024: unfortunately not accessible anymore

2.6.2 Timeline Tool

Applicability: EC/collective actions in general



<u>Brief description:</u> A graphical overview of the development phases of an energy community project, showing the different relevant activities divided into technical, financial and group activities. The overview can help get an impression of the whole development process and gain insight into what needs to be considered.

Type of tool: Info sheet

Regional applicability: No regional restriction

Complexity: Does not require specific knowledge, simple descriptions

Project phase: The tool can be used for the planning phase

Necessary data for use: The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://www.ecco-oss.eu/timeline/awareness

2.6.3 Greenhouse Gas Calculator

Applicability: EC/collective actions in general

<u>Brief description:</u> The calculator is a simple and easy-to-use calculator that will show the amount of CO2 sequestered from various forms of renewable energy.

Type of tool: Calculator

Regional applicability: No regional restriction

Complexity: N/A

Project phase: N/A

Necessary data for use: N/A

Costs/registration: N/A

Access: The link on the calculator is currently unavailable, with the possibility of becoming active in the future

2.6.4 Technology Decision Plan

Applicability: EC/collective actions in general

<u>Brief description</u>: A short online questionnaire that gives you recommendations based on your answers on the best renewable energy option for a user based on the resources available in their local community.

Type of tool: Questionnaire

Regional applicability: No regional restriction

Complexity: Does not require specific knowledge, simple descriptions

Project phase: The tool can be used for the planning phase

Necessary data for use: The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://www.ecco-oss.eu/tech-decision-plan

2.6.5 <u>Progress Tool</u>

Applicability: EC/collective actions in general

<u>Brief description</u>: The tool consists of a survey for Community Energy groups to understand what stage of development their projects are and assist them in understanding what next steps to take. The answers from the



survey are used to measure the project's progress, while the results are shown on a spider diagram along with a checklist of tasks.

Type of tool: Questionnaire

Regional applicability: No regional restriction

<u>Complexity:</u> Does not require specific knowledge, simple descriptions

Project phase: The tool can be used for the planning phase.

Necessary data for use: The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: N/A

2.7 National Renewable Energy Laboratory (US)

2.7.1 NREL's PVWatts[®] Calculator

Applicability: EC/collective actions in general

<u>Brief description:</u> The calculator estimates the energy production and energy cost of grid-connected photovoltaic (PV) energy systems worldwide. It allows homeowners, small building owners, installers, and manufacturers to easily develop estimations of the performance of potential PV installations.

Type of tool: Calculator

Regional applicability: No regional restriction

Complexity: Amateur and expert level (advanced settings)- Comprehensive report for experts

Project phase: The tool can be used for the planning phase

Necessary data for use: The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://pvwatts.nrel.gov/index.php

2.8 PROSEU

2.8.1 Prosumer Inspiration Book

Applicability: EC/collective actions in general

<u>Brief description</u>: The Handbook provides examples from the project's Living Labs on how to overcome regulatory barriers, bring people together and potential business and funding models, as well as identify appropriate technologies. It is intended to motivate and inspire people interested in energy communities to become active and develop their projects.

Type of tool: Report

Regional applicability: No regional restriction

Complexity: Does not require specific knowledge

Project phase: The tool can be used for the planning phase

Necessary data for use: The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://proseu.eu/resource/prosumer-inspiration-book



2.8.2 <u>A multi-dimensional typology of collective RES prosumers across Europe</u>

Applicability: EC/collective actions in general

<u>Brief description</u>: The document presents conclusions and recommendations based on the technical findings of the PROSEU project to assist prosumers in choosing their suitable renewable prosumer technology depending on their needs, demands, size and location. It also provides recommendations that can support the implementation and mainstream of prosumer technologies and gives its overview and their technical, economic, ecological, and social parameters, as well as some best practice examples.

Type of tool: Report

Regional applicability: No regional restriction

Complexity: Expert level

Project phase: The tool can be used for the planning phase

Necessary data for use: The tool does not need any data input and can be used directly

<u>Costs/registration</u>: The tool is available free of charge and without a prior registration

Access: https://proseu.eu/resource/key-technical-findings-and-recommendations-prosumer-communities

2.8.3 Business models for prosumers in Europe

Applicability: EC/collective actions in general

<u>Brief description:</u> The report explores the different business models being adopted to enable renewable energy generation and self-consumption in the European Union and explains why energy communities are necessary, what kind of value they bring in the framework of the energy transition, and how they can be empowered through EU member states' energy policy and regulation.

Type of tool: Report

Regional applicability: No regional restriction

Complexity: Expert level - comprehensive report for people who are more concretely interested in the topic

Project phase: The tool can be used for the planning phase

Necessary data for use: The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://proseu.eu/resource/business-models-prosumers-europe

2.9 <u>Project POWERPOOR</u>

2.9.1 PowerTarget tool

Applicability: Not related to collective actions

<u>Brief description</u>: The tool consists of a survey which helps in the assessment of energy expenses. After it is complete, users can receive recommendations on how to reduce their energy costs.

Type of tool: Survey

Regional applicability: No regional restriction

<u>Complexity:</u> Does not require specific knowledge. Meant for households.

Project phase: N/A

Necessary data for use: The tool is a survey which needs data on energy costs



Costs/registration: The tool is available free of charge and without a prior registration

Access: http://powerpoor.epu.ntua.gr/powerpoor-toolkit/target/

2.9.2 PowerAct tool

Applicability: Not related to collective actions

<u>Brief description:</u> The tool consists of a survey which helps in the assessment of energy consumption. After it is completed, users can receive personalized suggestions for single behaviour changes to reduce their consumption. In the last step, users can participate in funding programs for efficiency improvements.

Type of tool: Survey

Regional applicability: No regional restriction

<u>Complexity:</u> Does not require specific knowledge. Meant for households.

Project phase: N/A

Necessary data for use: The tool is a survey which needs data on energy consumption

Costs/registration: The tool is available free of charge and without a prior registration

Access: http://powerpoor.epu.ntua.gr/powerpoor-toolkit/act/

2.9.3 <u>PowerFund tool</u>

Applicability: Collective actions in general

<u>Brief description:</u> A web-based tool which helps energy poor citizens across Europe to identify and learn about Collective Innovative Actions. The tool provides the users with an online marketplace for collective energy initiatives, such as energy communities and cooperatives, as well as an open space to learn about innovative financial instruments like crowdfunding, and how to use the potential of collective finance to overcome the economic and financial barriers.

Type of tool: Platform

<u>Regional applicability:</u> Officially not? Not quite clear.

Complexity: Easy to use, but possibly more suitable for more dedicated consumers

Project phase: The tool can be used for the planning phase

Necessary data for use: The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge but requires registration for certain functionalities

Access: https://www.powerfund.eu/

2.10 **Project REPLACE**

2.10.1 REPLACE Heating Matrix

Applicability: collective actions in general/individual measures

<u>Brief description</u>: The REPLACE Heating Matrices provides an initial overview on replacing inefficient heating systems. It shows which type of heating system based on renewable energy sources or a connection to district heat is most suitable for your single or double family houses or for your larger volume building.

Type of tool: Matrix



<u>Regional applicability:</u> versions for the following countries available: Austria, Bosnia, Bulgaria, Croatia, Germany, Macedonia, Serbia, Slovenia, Spain

Complexity: Does not require specific knowledge. Meant for consumers.

Project phase: available

Necessary data for use: The tool does not require data

Costs/registration: The tool is available free of charge and without a prior registration

Access: http://replace-project.eu/replace-heating-matrix/

2.10.2 REPLACE Heating Matrix

<u>Applicability:</u> collective actions in general/individual measures

<u>Brief description</u>: With the "REPLACE your Heating System Calculator" you can find the best future-proof, resilient and climate-friendly alternative to your old heating system in just three steps. Individually for renovating or replacing your boilers or ovens, tailored to your home and your situation in 10 European target regions. The calculator works in 8 languages (BiH, DE, BG, ES, HR, MK, RS, SL) almost like an energy consultation.

Type of tool: Calculator

<u>Regional applicability:</u> versions for the following countries available: Austria, Bosnia, Bulgaria, Croatia, Germany, Macedonia, Serbia, Slovenia, Spain

<u>Complexity:</u> Does not require specific knowledge. Meant for consumers and experts.

Project phase: available

Necessary data for use: The tool does require data on buildings and heat consumption

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://replace-project.eu/decision-support-tool/

2.11 Project CoolHeating

2.11.1 CoolHeating calculator

Applicability: collective actions in general

<u>Brief description</u>: In order to prepare the implementation of small modular renewable energy district heating and cooling systems in the target countries up to the investment stage economic figures are essential for the success of the project. The Economic calculation tool was developed in order to calculate the economic performance of district heating projects that will be initiated within the CoolHeating project. The tool is open source and will be available for the public and be introduced to the target country partners, so that they are able to further adjust and modify it during the project development.

Type of tool: Economic calculation tool and manual

Regional applicability: English

<u>Complexity:</u> for persons interested to set-up small scale district heating systems

Project phase: available

Necessary data for use: Data on the foreseen district heating project

Costs/registration: The tool is available free of charge and without a prior registration



Access: https://www.coolheating.eu/images/downloads/D5.2_CoolHeating_Economic-tool.xlsm

2.11.2 CoolHeating Handbook

Applicability: collective actions in general

<u>Brief description:</u> Handbook on small modular ren4ewable district heating and cooling grids. The handbook provides an overview of both, technical and non-technical (planning) aspects. The main characteristics of different heat sources from solar, biomass, geothermal and excess heat are described and the opportunities of their combination in small modular RE district heating and cooling system are presented. Seasonal and diurnal storage systems are included, as well as the use of heat pumps. Specific aspects of heating and cooling in small grids are shown.

Type of tool: Handbook

Regional applicability: English, Bosnian, Slovenian, Macedonian, Serbian, German, Croatian

<u>Complexity:</u> for persons interested to set-up small scale district heating systems

Project phase: available

Necessary data for use: Data on the foreseen district heating project

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://www.coolheating.eu/en/publications.html

2.11.3 Guideline on drafting heat/cold supply contracts for small DHC systems

Applicability: collective actions in general

<u>Brief description:</u> The main goal of this report is to support different actors in preparation of heat/cold supply contracts. Emphasis is placed on the support of actors and target groups with low awareness and limited knowledge about DHC supply, who intend to develop projects and to invest in or to finance DHC projects.

Type of tool: Guideline

Regional applicability: English

Complexity: for persons interested to set-up small scale district heating systems

Project phase: available

Necessary data for use: not applicable

<u>Costs/registration</u>: The guideline is available free of charge and without a prior registration

Access: https://www.coolheating.eu/en/publications.html



3 | Austria

3.1 Overview

Status June 2022:

The implementation of RED II in national law has already been carried out in Austria. In general, there are many efforts to promote energy communities, which is also reflected in the scope of the available tools. Compared to other countries, Austria already has a relatively extensive range of useful tools, from calculators to guidelines and information. There is also a broad interest in energy communities among the population.

To streamline activities to support the implementation of renewable energy communities in Austria, the Austrian Coordination Office for Energy Communities has been established. The Coordination Offices' main goal is to offer information and help with the planning, establishing and implementation of energy communities.

In addition to serving as a focal information point for energy communities, the Coordination Office also has the task of observing the market and development of energy communities in Austria and providing feedback to the policy to evaluate and adapt the legal framework for energy communities.

Update April 2024:

In total, 15 relevant tools were identified in the first overview of existing tools and platforms (June 2022). These were provided by public authorities (e.g. coordination offices for energy communities), operators of energy communities, energy suppliers, and interest groups. The information offered ranges from general guidance (e.g. how to establish an energy community) and model contracts for energy communities to various calculators.

Deliverable 4.2 identified gaps in the inventory of relevant tools. In Austria, initiators of collective actions were often overwhelmed or confused by the complexity of the regulations and did not know where to start. Therefore, there was a need for a tool to help potential founders of energy communities gain orientation on energy community models suited to their situation and understand why. The creation of a decision matrix, similar to the heating matrix of the Austrian climate protection initiative klimaaktiv (www.enova.ba/matrixweb-Au/index.html), was proposed.

This decision matrix was then developed within the SHAREs project. It was implemented for Austria first (by mid-February 2024) and shortly thereafter, an exemplary version was added to the blueprint, with the technical requirements made available to all national Gateways. Other partner countries are expected to implement the matrix by the end of the project.

The decision matrix quickly became one of the most viewed pages on the Austrian Gateway, reaching 775 different viewers by 2 April 2024, highlighting its usefulness and necessity.

During the project, the Austrian SHAREs team gathered further national tools and placed them, along with a selection of German tools, online in the national Gateway. The Austria SHAREs Gateway offers an overview of national tools for energy communities, which can be sorted using a filter: <u>https://energie-teilen.at/tools/</u>



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	Toolsammlu	ng				
	Seit 2021 ist es in Osterreich m	stich. Enersiesemeinschaften zu aründe	n Seitdem wurden zahlreiche kosten	ose Tools entwickell, die		
	Gründsr.innen von Energiogen	einschaften bei der Planung und Abwick	ung ihrer Projekte unterstützen. Das i	st orfrouilch und zoigt don		
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Figure 3 Tool section in the Austrian Gateway

Informationsplattform Energie teilen in Österreich						Entscheidungsmatrix	Kommanikationskampagne	Toobarrmiung	q
Startanke Comensian Freege nutrion - das passente Modell für Ihr Projekt									
	Gemeinsam Energie	nutzen -	das pa	assende	9				
	Modell für Ihr Projek	t							
		Beta-Version							
	++ sehrempfehlenowert + empfehlenowert	🛩 weniger empfehler	swert -	nicht möglich					
	Dieses Modell passt zu uns								
		CEA	FFG lokal	FFG regional	REG				
	lin meliner Ortschuft Headhalta, Gamelnda, Versilne, KMUs, klaine Landwirtz, ()	- 0	++ 0	e + c	~	0			
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	Österreidtwelt Haushalte, Geneinde, Vereine, KMUs, Kleine Landwinte, ()	- 0	- 6		++	0			
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	in meiner Großstadt (3)	- 0	- 0		++	0			
	Einzeines Gemeindegebäudemit Mieterinnen 🛞	++	+ a	o ~ (~ 0	0			
	Mohrono Gemeindegebäude is einer Ortschuft 🛈	- 0	++ 0	+ (o ~	0			
	Zusammenschluss von Nachbargemeinden 🛞	- 6		++ ,	+	0			
	Generoloopark KNRAL GD	++ ©	+ 0	~ (o ~	0			

Figure 4 The SHAREs decision matrix

Table 2 List of tools In Austria

Name of the tool	Tool type (as per Excel sheet)	Link		
SHAREs decision matrix	Orientation tool	https://energie-teilen.at/entscheidungsmatrix/		
SUSI	Calculator	https://www.energieinstitut.at/tools/susi/index.html		
Six steps towards an energy community (REC)	Information tool	https://energiegemeinschaften.gv.at/in-sechs-schritten- zur-energiegemeinschaft/		
Model contracts for REC	Template	https://energiegemeinschaften.gv.at/download-bereid		
Benefit tools for REC	Calculator	https://www.energieinstitut.at/tools/benefit/		
REC Guide Communities	Guideline	https://www.energieinstitut.at/pdfviewer/EEG- Ratgeber-Gemeinden-2021/		
e-community.at, savings calculator	Calculator	https://e-gemeinschaft.at/ersparnis.php?b=w		
7energy.at	Supporting organisation	https://7energy.at/		



Name of the tool	Tool type (as per Excel sheet)	Link
Sample contracts ebUtilities	Template	https://www.ebutilities.at/mustervertraege.html
Information distribution grid area – Energie Klagenfurt	Information tool	https://gis-stw- at.maps.arcgis.com/apps/instant/lookup/index.html?ap pid=8bc6e3dbaa784646a7d4ecbe6daa5b68
Quick Check for short range query – Netz NÖ	Information tool	https://www.netz- noe.at/SpecialPages/EEGBeauskunftung.aspx
e-community.at distribution tool	Calculator	https://e-gemeinschaft.at/verteilung.php
Photovoltaic calculator	Calculator	https://www.klimaaktiv.at/service/tools/erneuerbare/p v_rechner.html
Photovoltaic self-consumption calculator	Calculator	https://pvaustria.at/sonnenklar_rechner/
CO2 Indicator Calculator	Calculator	https://www.dachgold.at/co2-kennzahlenrechner/
Grid connection tool of Netz Oberösterreich GmbH	Information tool	https://netto.netzooe.at/netto/connectClient
Quick Check Linz Netz	Information tool	https://services.linznetz.at/energiegemeinschaften/?nav =%2Fde%2Flinz_netz_website%2Fstrom%2Fmein_strom anschluss%2Ferzeugungsanlage_anschliessen%2Fauskun ft_zum_versorgungsbereich%2Fauskunft_zum_versorgu ngsbereich.xhtml
Quick Check Vorarlberger Energienetze GmbH	Information tool	https://energiegemeinschaften.vorarlbergnetz.at/eeg_a uskunft/
Energieteiler	Information tool	https://www.imgraetzl.at/region/energieteiler
Quick Check Energienetze Steiermark	Information tool	https://portal.e-netze.at/nahbereich
Check Kärnten Netz	Information tool	https://kaerntennetz.at/erneuerbare- energiegemeinschaften-eeg.htm
Billling-Calculator Energieagentur Tirol	Calculator	https://www.energieagentur.tirol/wissen/ja-zur- sonne/energiegemeinschaften/
Solar.Dach Rechner	Calculator	<u>https://www.salzburg-</u> ag.at/photovoltaik/privat/photovoltaik/solar-dach-pv- potenzial.html
Quick Check Salzburg Netz	Information tool	https://www.salzburgnetz.at/stromnetz/energiegemeins chaften/erneuerbare-energie-gemeinschaften.html
Quick Check Netz Burgenland	Information tool	https://analytics.netzburgenland.at/eeg- nahbereichsabfrage2
Quick Check Tinetz	Information tool	https://www.tinetz.at/infobereich/energiegemeinschaft en/auskunft-nahbereich/

3.2 Decision matrix

Specific for renewable energy communities: Yes



<u>Brief Description:</u> The decision matrix provides an initial orientation as to which energy community model is <u>suitable for which initial situation</u>.

<u>Type of Tool:</u> Orientation tool

Regional applicability: No limitation

Complexity: Applicable with little prior knowledge

Project phase: Idea generation, planning

Necessary data for use: None

<u>Costs/registration</u>: The website is available free of charge and can be used without prior registration.

Access: https://energie-teilen.at/entscheidungsmatrix/

3.3 SUSI - Strom-Unabhängigkeits-Simulation

Specific for renewable energy communities: Yes

<u>Brief Description</u>: The electricity independence simulation can be used to optimise the degree of self-sufficiency and self-consumption of homes. The photovoltaic system can be combined as desired with a battery storage system, household electricity consumption, electricity-based building heating, cooling and hot water preparation as well as with electric cars. The configurator serves as a decision-making aid when planning photovoltaic systems.

Type of Tool: Simulation tool

Regional applicability: national

<u>Complexity:</u> Requires energy knowledge to fill in the required information

Project phase: Can be used in the planning phase or optimisation phase.

Necessary data for use: detailed information on personal energy production and consumption

<u>Costs/registration</u>: The website is available free of charge and can be used without prior registration.

Access: https://www.energieinstitut.at/tools/susi/index.html

3.4 Six steps towards an energy community (REC)

Specific for renewable energy communities: Yes

<u>Brief Description</u>: This website briefly describes the important steps to implement a renewable energy community. The steps here go from the idea phase to start-up through to the connection to the network. They represent only a brief initial orientation. Further information can then be obtained from energy advice centres.

Type of Tool: Basic information

Regional applicability: No limitation

Complexity: Information on the basics of the process

Project phase: Idea generation, planning

Necessary data for use: None

<u>Costs/registration</u>: The website is available free of charge and can be used without prior registration.

Access: https://energiegemeinschaften.gv.at/in-sechs-schritten-zur-energiegemeinschaft/



3.5 Model contracts for REC

Specific for renewable energy communities: Yes

<u>Short description</u>: The Austrian Coordination Office for Energy Communities website provides sample statutes for associations, a supply agreement, and agreements for full and surplus feeding. These materials can be used as a starting point for design in concrete renewable energy communities.

Type of tool: Planning, organisation

Regional applicability: All of Austria

<u>Complexity:</u> Applicable without special prior knowledge; sample contracts

Project phase: The sample contracts can be used in the planning and foundation phase.

Necessary data for use: None

<u>Costs/registration</u>: The model contracts are available free of charge and can be used without prior registration.

Access: https://energiegemeinschaften.gv.at/download-bereich/

3.6 Benefit tools for REC

Specific for renewable energy communities: Yes

<u>Short description</u>: The Benefit Tool can be used to estimate the economic viability of a renewable energy community with photovoltaic systems (with and without storage) for projects planned in Austria. The tool distinguishes between "conventional" (without energy community) and "energy community" and compares the respective electricity prices. Economic advantages through participation in an energy community (e.g., reducing grid fees) are estimated in this way. It works for both local and regional energy communities.

Type of tool: Calculation tool, economic calculation

Regional applicability: All of Austria differentiates between grid areas

<u>Complexity</u>: Applicable without special prior knowledge; simple Excel tool plus pdf instructions; numerous predefined values

<u>Project phase</u>: The benefit tool can be used for the planning phase as well as for the expansion phase (new customers)

<u>Necessary data for use</u>: Energy purchase price with and without energy community, feed-in tariff without energy community, energy sales price in the energy community

<u>Costs/registration</u>: The tool is available free of charge and can be used without prior registration.

Access: https://energiegemeinschaften.gv.at/benefit-tool/

3.7 REC Guide Communities

Specific for renewable energy communities: Yes

<u>Brief description</u>: The REC Guidebook for Communities concisely summarises the most important info on topic of renewable energy communities (REC) for the target group of communities. It explains what a REC is, what the benefits of founding a REC are, and describes the path to a REC. The brochure thus provides basic information for decision-makers in municipalities.

Type of tool: Basic information

Regional applicability: No limitation

Complexity: Basic information brochure, focus on municipalities

Project phase: Idea generation, planning



Necessary data for use: None

<u>Cost/registration</u>: The brochure is available free of charge and can be used without prior registration.

Access: https://www.energieinstitut.at/pdfviewer/EEG-Ratgeber-Gemeinden-2021/

3.8 e-community.at, savings calculator

Specific for renewable energy communities: Yes

<u>Brief description</u>: e-community.at offers an online calculator that households can use to estimate the total savings in their electricity costs in a renewable energy community compared to a 100% electricity supply from the public grid.

Type of tool: Calculation tool, economic efficiency calculation

Regional applicability: All of Austria; differentiated by federal states

<u>Complexity:</u> Applicable without special prior knowledge, multiple predefined calculation values. Project-specific values increase the accuracy of estimation.

Project phase: Planning and extension phase

Necessary data for use: None

Costs/registration: The tool is available free of charge and can be used without prior registration.

Access: https://e-gemeinschaft.at/ersparnis.php?b=w

3.9 7energy.at

Specific for renewable energy communities: Yes

<u>Brief description</u>: 7energy.at supports initiatives that are interested in establishing a renewable energy community. In addition to free basic information, services for planning and implementing renewable energy communities are offered.

Type of tool: Foundation, organisation, accounting

Regional applicability: No restriction

Complexity: Applicable without special previous knowledge; support offer

Project phase: Planning, implementation, and expansion phase

Necessary data for use: None

Costs/registration: Basic information free of charge; support subject to a charge

Access: https://7energy.at/

3.10 Sample contracts ebUtilities

Specific for renewable energy communities: Yes

<u>Brief description</u>: This website provides, among other things, sample contracts between grid operators and the energy community for operation and grid access of community generation installations, citizen energy communities and renewable energy communities. Furthermore, a guide and checklist for energy communities are available online.

Type of tool: Planning, organisation

Regional applicability: All of Austria

Complexity: Applicable without special prior knowledge; sample contracts



<u>Project phase</u>: The sample contracts can be used in the planning and foundation phase.

Necessary data for use: The energy community must already be established.

<u>Costs/registration</u>: The sample contracts are available free of charge and can be used without prior registration.

Access: https://www.ebutilities.at/mustervertraege.html

3.11 Information distribution grid area - Energie Klagenfurt

Specific for renewable energy communities: Yes

<u>Brief description</u>: After entering their address on this website, interested persons receive the information to which distribution grid level their consumption metering point or installation is connected. This gives basic information about possibilities for a renewable energy community. From the information obtained, it can be concluded whether the "local" tariff (within the same transformer station area in the same substation area) or the "regional" tariff (within the same substation area) is applied.

Type of tool: Information about network area

Regional applicability: Limited to the grid area of Energie Klagenfurt GmbH

Complexity: Applicable without special prior knowledge

Project phase: The tool can be used for the idea generation and planning phase

Necessary data for use: Address of the installation

<u>Costs/registration</u>: The tool is available free of charge and can be used without prior registration.

<u>Access:</u> https://gis-stwat.maps.arcgis.com/apps/instant/lookup/index.html?appid=8bc6e3dbaa784646a7d4ecbe6daa5b68

3.12 Quick Check for short range query – Netz NÖ

Specific for renewable energy communities: Yes

<u>Brief description</u>: After entering their metering point number, this website provides consumers with information on the transformer station or substation from which they are supplied. Based on this information, it can be checked whether the "local" tariff (within the same transformer station area in the same substation area) or the "regional" tariff (within the same substation area) is applied to the planned energy community.

Type of tool: Info about network area

Regional applicability: Limited to the grid area of Netz Niederösterreich

<u>Complexity</u>: Usable without special prior knowledge

<u>Project phase:</u> The tool can be used for the idea generation and planning phase.

Necessary data for use: Metering point number

Costs/registration: The tool is available free of charge and can be used without prior registration.

Access: https://www.netz-noe.at/SpecialPages/EEGBeauskunftung.aspx

3.13 e-community.at distribution tool

Specific for renewable energy communities: Yes

<u>Brief description:</u> e-community.at offers a source code to clearly allocate generation and consumption in the energy community. The option "dynamic distribution" (proportional to consumption or generation) and the option "static distribution" (equal share for each participant) are available.



Type of tool: Calculation tool

Regional applicability: No limitation

Complexity: Source code for implementation in Excel; basic programming knowledge required

Project phase: Planning, extension, and implementation phase

<u>Necessary data for use</u>: Consumption and/or electricity generation of all participants of the renewable energy community

<u>Costs/registration</u>: The tool is available free of charge and can be used without prior registration.

Access: https://e-gemeinschaft.at/verteilung.php

3.14 Photovoltaic calculator

Specific for renewable energy communities: No

<u>Brief description</u>: The photovoltaic calculator helps to economically evaluate a planned photovoltaic system, thus enabling a quick estimation of the economic viability of photovoltaic systems in new construction and renovation of buildings. It can be used to evaluate the economics of a photovoltaic system without participating in a renewable energy community.

Type of tool: Calculation tool, economic calculation

Regional applicability: All of Austria, differentiates between federal states

Complexity: Not usable without basic technical knowledge

<u>Project phase:</u> The calculator can be used for the planning phase, as well as for the expansion phase (new customers)

<u>Necessary data for use:</u> All data is pre-filled. The more project-specific data is entered (location, technical parameters, and costs of the PV system), the more accurate the economic calculation will be.

<u>Costs/registration</u>: The tool is available free of charge and can be used without prior registration.

Access: https://www.klimaaktiv.at/service/tools/erneuerbare/pv_rechner.html

3.15 Photovoltaic self-consumption calculator

Specific for renewable energy communities: No

<u>Brief description</u>: The photovoltaic self-consumption calculator provides information for a planned photovoltaic system on how and to what extent the self-consumption share of the on-site produced PV electricity can be increased. It can be used to evaluate the case of a photovoltaic system without participation in a renewable energy community. The tool can also help to calculate the increase of the self-consumption share of a system with a maximum of 10 kWp or of a household with a maximum of 10,000 kWh of annual electricity consumption through electric load management, storage, and electric water heating. The use of a heat pump and an electric car are only described qualitatively in the tool and are not included in the calculation.

Type of tool: Calculation tool

<u>Regional applicability:</u> Only Vienna and surroundings; the results can also be used for a rough estimation for other regions.

<u>Complexity:</u> Applicable without special prior knowledge; a simple online tool

Project phase: The tool can be used for the planning phase, as well as for the expansion phase (new customers)

<u>Necessary data for use:</u> Location of the installation, size and electricity consumption of the household, inclination, orientation, and power of the planned photovoltaic installation.

<u>Costs/registration</u>: The tool is available free of charge and can be used without prior registration.



Access: https://pvaustria.at/sonnenklar_rechner/

3.16 CO2 Indicator Calculator

Specific for renewable energy communities: No

<u>Brief description</u>: The CO2 indicator calculator can be used to estimate the amount of CO2 that can be reduced by installing a photovoltaic system. Furthermore, it shows how many kilometres driven in an electric car correspond to the system's annual production.

Type of tool: Calculation tool, awareness-raising

Regional applicability: No restriction

Complexity: Applicable without special prior knowledge

Project phase: Can be used for the planning phase, as well as for the expansion phase (new customers)

Necessary data for use: Power of the planned photovoltaic system

<u>Costs/registration</u>: The tool is available free of charge and can be used without prior registration.

Access: https://www.dachgold.at/co2-kennzahlenrechner/

3.17 Grid connection tool of Netz Oberösterreich GmbH

Specific for renewable energy communities: Yes

<u>Brief description</u>: This tool uses an interactive map to visualise the possible implementation area of a local or regional energy community in Netz Oberösterreich's supply area.

Type of tool: Information tool, quick check

Regional applicability: Netz Oberösterreich supply area

Complexity: Applicable without special prior knowledge

<u>Project phase</u>: The CO2 indicator calculator can be used for the planning phase, as well as for the expansion phase (new customers)

Necessary data for use: Metering point identification

<u>Costs/registration</u>: The tool is free to use but requires prior registration.

Access: https://netto.netzooe.at/netto/connectClient

3.18 Quick Check Linz Netz

Specific for renewable energy communities: Yes

<u>Brief description</u>: This service provides information about the possible implementation area of a local or regional energy community in the Linz Netz supply area.

Type of tool: Information tool, quick check

Regional applicability: Linz Netz supply area

Complexity: Applicable without special prior knowledge

Project phase: Can be used for the planning phase, as well as for the expansion phase (new customers)

Necessary data for use: Metering point identification

<u>Costs/registration</u>: The tool is free to use and requires no prior registration.



Access:

https://services.linznetz.at/energiegemeinschaften/?nav=%2Fde%2Flinz_netz_website%2Fstrom%2Fmein_stromanschluss %2Ferzeugungsanlage_anschliessen%2Fauskunft_zum_versorgungsbereich%2Fauskunft_zum_versorgungsbereich.xhtml

3.19 Quick Check Vorarlberger Energienetze GmbH

Specific for renewable energy communities: Yes

<u>Brief description</u>: This tool uses an interactive map to visualise the possible implementation area of a local or regional energy community in the Vorarlberg Netz supply area.

Type of tool: Information tool, quick check

Regional applicability: Vorarlberg Netz supply area

Complexity: Applicable without special prior knowledge

Project phase: Can be used for the planning phase, as well as for the expansion phase (new customers)

Necessary data for use: address of the potential REC participant(s)

<u>Costs/registration</u>: The tool is free to use but requires prior registration.

Access: https://energiegemeinschaften.vorarlbergnetz.at/eeg_auskunft/

3.20 Energieteiler

Specific for renewable energy communities: No

<u>Brief description</u>: The Energieteiler provides a hub for information and networking in the field of energy communities for the districts of Vienna. The platform contains surveys, event invitations and other information on the topic of energy. In particular, visitors can offer and find energy communities to join.

Type of tool: Information hub

Regional applicability: Vienna

Complexity: Applicable without special prior knowledge

Project phase: Can be used in any phase

Necessary data for use: no data needed

Costs/registration: The tool is free to use.

Access: https://www.imgraetzl.at/region/energieteiler

3.21 Quick Check Energienetze Steiermark

Specific for renewable energy communities: Yes

<u>Brief description</u>: This service provides information about the possible implementation area of a local or regional energy community in the supply area of Energie Netze Steiermark.

Type of tool: Information tool, quick check

Regional applicability: Energie Netze Steiermark supply area

Complexity: Applicable without special prior knowledge

Project phase: Can be used for the planning phase, as well as for the expansion phase (new customers)

Necessary data for use: metering point identification

<u>Costs/registration</u>: The tool is free to use and requires no prior registration.


Access: https://portal.e-netze.at/nahbereich

3.22 Quick Check Kärnten Netz

Specific for renewable energy communities: Yes

<u>Brief description</u>: This tool uses an interactive map to visualise the possible implementation area of a local or regional energy community in the supply area of Kärnten Netz.

Type of tool: Information tool, quick check

Regional applicability: Kärnten Netz supply area

Complexity: Applicable without special prior knowledge

Project phase: Can be used for the planning phase, as well as for the expansion phase (new customers)

Necessary data for use: metering point identification

<u>Costs/registration</u>: The tool is free to use but requires to log in to the grid providers online portal.

Access: https://kaerntennetz.at/erneuerbare-energiegemeinschaften-eeg.htm

3.23 Billing-tool Energieagentur Tirol

Specific for renewable energy communities: Yes

<u>Brief description</u>: The billing tool for energy communities from the Energieagentur Tirol can be used to create ready-made bills for energy sharing within an energy community using the energy data from the EDA database.

Type of tool: Calculator

Regional applicability: national

Complexity: Applicable without special prior knowledge

Project phase: Can be used in the implementation phase

Necessary data for use: energy data from EDA database

<u>Costs/registration</u>: The tool is free to use but requires prior registration.

Access: https://www.energieagentur.tirol/wissen/ja-zur-sonne/energiegemeinschaften/

3.24 Solar.Dach Rechner

Specific for renewable energy communities: No

<u>Brief description</u>: The Solar.Dach Rechner calculates the generation of a photovoltaic system for a period of 25 years based on the specific location. This is done based on local energy prices, solar irradiation data and a typical electricity consumption profile. The results can be used as a basis for decision-making when planning photovoltaic systems.

Type of tool: Calculator

Regional applicability: regional - Salzburg

Complexity: Applicable without special prior knowledge

Project phase: Can be used in the planning phase.

Necessary data for use: Adress of the house, where the photovoltaic system should be installed.

<u>Costs/registration</u>: The tool is free to use and requires no prior registration.

Access: https://www.salzburg-ag.at/photovoltaik/privat/photovoltaik/solar-dach-pv-potenzial.html



3.25 Quick Check Salzburg Netz

Specific for renewable energy communities: Yes

<u>Brief description</u>: This tool uses an interactive map to visualise the possible implementation area of a local or regional energy community in the Salzburg Netz supply area.

Type of tool: Information tool, quick check

Regional applicability: Salzburg Netz supply area

Complexity: Applicable without special prior knowledge

Project phase: Can be used for the planning phase, as well as for the expansion phase (new customers)

Necessary data for use: addresses of the potential REC participant(s)

Costs/registration: The tool is free to use and requires no prior registration.

Access: https://www.salzburgnetz.at/stromnetz/energiegemeinschaften/erneuerbare-energiegemeinschaften.html

3.26 Quick Check Netz Burgenland

Specific for renewable energy communities: Yes

<u>Brief description</u>: This service provides information about the possible implementation area of a local or regional energy community in Netz Burgenland's supply area.

Type of tool: Information tool, quick check

Regional applicability: Netz Burgenland supply area

Complexity: Applicable without special prior knowledge

Project phase: Can be used for the planning phase, as well as for the expansion phase (new customers)

Necessary data for use: metering point identificiation(s)

<u>Costs/registration</u>: The tool is free to use and requires no prior registration.

Access: https://analytics.netzburgenland.at/eeg-nahbereichsabfrage2

3.27 Quick Check Tinetz

Specific for renewable energy communities: Yes

<u>Brief description</u>: This service provides information about the possible implementation area of a local or regional energy community in the Tinetz supply area.

Type of tool: Information tool, quick check

Regional applicability: Tinetz supply area

Complexity: Applicable without special prior knowledge

Project phase: Can be used for the planning phase, as well as for the expansion phase (new customers)

Necessary data for use: metering point identificiation

<u>Costs/registration</u>: The tool is free to use and requires no prior registration.

Access: https://www.tinetz.at/infobereich/energiegemeinschaften/auskunft-nahbereich/



4 | Bulgaria

4.1 Overview

Status June 2022:

Due to the delay in transposing the RED II directive into the national legislation and the existence of various barriers hindering the replication of models of energy communities and collective action, in June 2022 Bulgarian citizens still showed little interest in the use and development of REC/CEC-related tools and platforms. The several existing tools were primarily created as deliverables of EU-funded projects as part of EU-wide project portfolios (Act4Eco, Solar Estates and Solar Cities).

Update April 2024:

The legal approval of energy communities in the Bulgarian legislation was achieved on October 13th, 2023, through amendments to the national Energy from Renewable Sources Act, which incorporated the main legal texts of Directive (EU) 2018/2001. Since then, neither online nor physical one-stop shops have been established in Bulgaria, particularly on a national level, to provide a broad spectrum of comprehensive information and guidelines dedicated to energy communities. Therefore, the SHAREs Gateway serves a pivotable role in making the model of energy communities more familiar to the Bulgarian citizens and SMEs. Simultaneously, several other initiatives have emerged, including practical tools and handbooks aimed at supporting the emergence of energy communities in the country. The national SHAREs Gateway stands out by aggregating these initiatives and support materials in one accessible location by providing concrete information about these resources and direct references, simplifying access for interested parties. Moreover, the Gateway includes information about the existing national best practices (https://sharerenewables.bg/best-practices/), step-by-step guides (https://sharerenewables.bg/concepts/), frequently asked questions about the current legislation (https://sharerenewables.bg/legislation/), the white-label materials and communication campaign guidelines developed by the SHAREs partners and adapted to the Bulgarian content (https://sharerenewables.bg/targetgroup-profiles/), and others. The way the tools and handbooks are presented on the platform are described below.

In the summer of 2023, Greenpeace, along with Friends of the Earth Europe, REScoop, and Energy Cities, took a significant step by collaborating on the creation of the first Handbook for establishing energy communities in Bulgaria. This handbook serves as a comprehensive guide to inspire and assist individuals in embarking on the journey of establishing their own energy communities. While it may not cover every aspect of initiating an energy project, the handbook provides a wealth of information and practical advice to navigate the field. Moreover, it offers valuable links to supplementary resources. Designed to be as helpful as possible for people and communities across Europe, the guide provides specific answers to common questions that arise during the process, tailored to various European countries. Parts of the handbook have been integrated into the national Gateway as interactive reference to chapters selected the by SHAREs team:





Figure 5 Integration of Handbook on energy communities as interactive thematic chapters into the Bulgarian Gateway (Source: BSERC)

Furthermore, a reference to a newly developed calculator for energy savings has also been published for households or other types of energy consumers utilizing solar energy generation facilities. However, despite the regular updates of the catalogue of calculators and handbooks published on the national Gateway, it has been identified that more practice-oriented, detailed tools are needed to guide citizens through potential projects step by step, providing sample documents and knowledge about regulations and legal requirements. To address this gap, a step-by-step guidance tool for realizing collective action initiatives for energy efficiency measures in multi-household buildings has been developed by the SHAREs team and integrated into the Bulgarian Gateway. The tool mirrors the project development process analysed in the pilot collective action projects which were supported by the national SHAREs experts. It includes links to sample documents such as internal agreements, etc.





Furthermore, a <u>Q&A session covering hot topics and legal issues related to energy communities</u> and the recent regulations established with the transposition of the RED II directive into national legislation in October 2023 has been included. As part of this new regulation, the Bulgarian Sustainable Energy Agency has developed a guidance handbook for procedures in the construction or reconstruction of energy facilities and installations for energy production from renewable sources, which has also been integrated into the national Gateway. The final list with external tools and support materials published on the national Gateway is presented below:

Name of the tool	Tool type (as per Excel sheet)	Link
Act4ECO	Platform	https://act4eco.eu/?lang=bg
Solar Estates	Platform	https://vei-imot.bg/
Solar Cities	Online map	https://sofia.solarcities.bg; https://burgas.solarcities.bg

Table 3 List of tools in Bulgaria



Calculator – How Much Can You Save If You Have Solar Panels?	Calculator	https://join.greenpeace.bg/calculator-energiyni- obshtnosti/?utm_source=website&utm_medium=take-action- page&utm_campaign=calculator-energiyni-obshtnosti
Community Energy: A Practical Guide to Reclaiming Power	Handbook	https://www.rescoop.eu/toolbox/енергийни-общности- практически-наръчник-за-създаване-на-общностна-енергийна- система
HandbookforProceduresintheConstructionorReconstructionofEnergyFacilitiesandInstallations for EnergyProductionfromRenewableSources	Handbook	https://seea.government.bg/documents/Handbook_first_draft_2024- 02-21%20clear.docx.pdf

4.2 Act4ECO

Applicability: Other

<u>Brief description</u>: ACT4ECO is a dynamic knowledge-sharing platform facilitating knowledge for consumers on how to use energy efficiently. The platform guides users to act on five important themes:

- limiting the house's carbon footprint by improving its energy performance and investing in highly efficient technology options and appliances.
- familiarising users with options for controlling their energy consumption by correctly using and understanding ICT energy equipment.
- helping users draw links between their daily routine activities and their energy consumption, e.g. by adopting small changes in behaviour that can bring significant improvements.
- avoiding the return to bad energy consumption habits.
- guiding consumers in evaluating if it is worth investing in small-scale energy generation, e.g. by providing information on the necessary technical requirements.

Type of tool: Online-based interactive platform

Regional applicability: The content is available in 11 languages, incl. in Bulgarian

Complexity: Applicable without special prior knowledge

Project phase: The tool can be used for the idea generation and planning phase

Necessary data for use: n/a

Costs/registration: Registration is required but free of charge

Access: https://act4eco.eu/?lang=bg

4.3 Solar Estates

Solar Estates is the first specialised platform for investments in the RES parks and purchasing of suitable properties. It connects property owners/sellers and investors in RES and assists in finding selected contractors.

Type of tool: Online-based platform for selling/renting properties suitable for RES development

Regional applicability: Operational only in Bulgaria

Complexity: Applicable without special prior knowledge

Project phase: The platform can be used for the initial phase of planning and implementation

Necessary data for use: Depends on the investor's plans



<u>Costs/registration</u>: Registration is required. Currently free of charge with the option to turn into paid service in the future

Access: https://vei-imot.bg/

4.4 Solar Cities

Applicability: RECs and citizen-led collective actions

<u>Brief description</u>: The platform, developed under the "Solar Cities" project, features two interactive maps for the Municipality of Sofia and the Municipality of Burgas. These maps estimate the annual energy generation potential from photovoltaic systems installed on selected building rooftops. Additionally, the tool evaluates the suitability of rooftop locations for solar energy generation and provides detailed project plans.

This platform aims to facilitate the utilization of rooftop spaces in urban areas for electricity production through photovoltaic installations. It seeks to encourage and streamline investments in solar energy by residents, businesses, and public institutions.

Funded by the European Climate Initiative (EUKI), the Solar Cities project involves collaboration between the Municipality of Sofia, the Municipality of Burgas, and the Bulgarian Solar Association.

Type of tool: Online maps

Regional applicability: Suitable only for citizens and businesses from Sofia and Burgas Municipalities

Complexity: Applicable without special prior knowledge

<u>Project phase</u>: The platform can be used for the initial phase of planning and implementation.

<u>Necessary data for use</u>: In general, no additional data is required, however, for more precise project plans, such can be added.

Costs/registration: The tool does not require prior registration and is free of charge.

Access: Municipality of Sofia Map: <u>https://sofia.solarcities.bg</u>; Municipality of Burgas Map: <u>https://burgas.solarcities.bg</u>

4.5 Calculator – How Much Can You Save If You Have Solar Panels?

Applicability: RECs and citizen-led collective actions

<u>Brief description</u>: Greenpeace Bulgaria's calculator helps in estimating potential electricity savings achievable through solar panel usage. Designed for both residential and commercial users, the tool requires input regarding the desired percentage of annual electricity consumption savings and approximate annual electricity expenses in BGN. Subsequently, it computes the investment cost, payback period, and monthly bills with and without solar panels.

Furthermore, there is guidance on additional steps to achieve greater savings by establishing or joining an energy community, provided on the same page below calculations.

Type of tool: Online calculator

Regional applicability: Operational only in Bulgarian

Complexity: Applicable without special prior knowledge

<u>Project phase</u>: The platform can be used for the initial phase of planning and implementation.

Necessary data for use: It is necessary to provide an estimate of the annual electricity bill.

<u>Costs/registration</u>: The tool does not require prior registration and is free of charge.

Access: <u>https://join.greenpeace.bg/calculator-energiyni-obshtnosti/?utm_source=website&utm_medium=take-action-page&utm_campaign=calculator-energiyni-obshtnosti</u>



4.6 Community Energy: A Practical Guide to Reclaiming Power

Applicability: RECs

<u>Brief description</u>: The guide provides detailed instructions, practical advice, inspiring success stories, and valuable resources, delineating the step-by-step process required to launch a citizen energy community. Tailored for inquisitive individuals, proactive citizens, local government representatives, active energy community members, or anyone interested in venturing into renewable energy, the handbook serves as a comprehensive resource.

Drawing expertise from Friends of the Earth Europe, REScoop.eu, Energy Cities, and 27 other projects across Europe, the handbook was translated into Bulgarian by the Greenpeace Bulgaria team and is available in 26 other languages.

Type of tool: Handbook

<u>Regional applicability:</u> The handbook is available in 27 languages, including in Bulgarian.

Complexity: Applicable without special prior knowledge

Project phase: The handbook can be used for the entire project cycle.

Necessary data for use: No additional data is required.

Costs/registration: The tool does not require prior registration and is free of charge.

<u>Access: https://www.rescoop.eu/toolbox/енергийни-общности-практически-наръчник-за-създаване-на-общностна-енергийна-система</u>

4.7 Handbook for Procedures in the Construction or Reconstruction of Energy Facilities and Installations for Energy Production from Renewable Sources

Applicability: Municipal administration and any type of collective actions

<u>Brief description</u>: This manual has been developed in accordance with the requirements of Article 7, paragraph 2, item 16 of the Law on Renewable Energy Sources and is intended for Bulgarian municipalities. Its purpose is to provide practical guidance and clarification regarding the procedures for constructing or reconstructing energy facilities and installations for renewable energy production. The manual aims to assist municipalities in carrying out the administrative service related to the investment process for renewable energy production facilities. It has been created by a team of experts from various administrations, distribution system operators (DSOs), ministries, and other governmental institutions.

Type of tool: Handbook

<u>Regional applicability:</u> The handbook is available only in Bulgarian.

Complexity: Prior knowledge is required.

<u>Project phase:</u> The handbook can be used at the planning stage.

Necessary data for use: No additional data is required.

<u>Costs/registration</u>: The tool does not require prior registration and is free of charge.

Access: https://seea.government.bg/documents/Handbook_first_draft_2024-02-21%20clear.docx.pdf



5 | Croatia

5.1 Overview

Status June 2022:

The term "energy communities" was recognised by Croatian law at the end of 2021. Although they are mentioned in two new laws, the Law on the Electricity Market (Official Gazette nr 111/21) and the Law on Renewable Energy Sources and High-Efficiency Cogeneration (Official Gazette nr 138/21), there is still a need for additional regulations, as the bylaws are still missing. These two documents only address the basics of energy communities and their functions.

Considering the above, it can be concluded that there are not many available tools regarding energy communities, and there is a strong need for tools and guidelines on how to establish them and implement projects through this type of citizen engagement activities and initiatives.

Update April 2024:

Although Croatia has adopted and, in July 2023, adjusted provisions on RECs and CECs in its two laws, the Law on Electricity Market (Official Gazette no. 111/21, 83/23) and the Law on Renewable Energy Sources and High-Efficiency Cogeneration (Official Gazette no. 138/21, 83/23), some provisions still present significant barriers to the establishment of energy communities, and parts of the bylaws are still missing. Furthermore, a dedicated support mechanism, including both financial and technical aspects that can help energy communities to emerge, is still lacking.

Considering the gaps identified in Deliverable 4.2, mostly related to the lack of legislation and insufficient knowledge on the establishment and operation of energy communities, the best possible solution for the Croatian context was to develop the national Gateway within the SHAREs project. The Croatian SHAREs Gateway provides all interested parties with the necessary information regarding energy communities, how to establish them, and how to ensure proper operation. Since there are no similar platforms in Croatia, especially at the national level, the platform has great potential to serve as an important one-stop-shop for those who either want to gain information and develop collective energy actions, or those who already have a successfully running energy community and wish to expand and stay up to date with the latest information available on energy communities in Croatia.

The Croatian Gateway offers relevant information, of which good practice examples (<u>https://energetske-zajednice.hr/best-practices/</u>), a step-by-step guide (<u>https://energetske-zajednice.hr/kako-zapoceti/</u>), viable business models and financial sources (<u>https://energetske-zajednice.hr/concepts/</u>), as well as up to date information on the legislative framework related to the establishment of energy communities in Croatia, are of note.

Moreover, the national Gateway offers an overview of nationally available and relevant tools for energy communities on the following link: <u>https://energetske-zajednice.hr/alati-za-proracun/</u>.



Energetske zajednice u Hrvatskoj	O energetskim zajednicama	Osnivanje energetske zajednice	Korisne stranice	Inspirirajte se	۹
Naslovnica Alati za proračun					
Alati za proračun Pronađite alate relevantne za provedbu svojih p	rojekata građanske energije.				
Energetski atlas Grada Zagreba Energetski atlas Grada Zagreba je web aplikacija za prikaz potrošnje energenata u gradu tijekom godina. Besplatno i	Platforma Na sunčanoj stran Platforma nudi rješenja po principu ruke za implementaciju fotonaponsk postrojenja - od pristupa svim releva	ključ u Kalkulator donosi in uštedjeti postavljanj ntnim svoj krov. Nakon uno podataka	or Energia naturalis formaciju koliko možete em solarne elektrane na ssa svih traženih		
Serious Board Game Društvena igra o regionalnom gospodarenju energijom i razvoju održivog područja oko R- ACEDONIA, važnog europskog industrijskog središta okruženog	REPLACE Kalkulator grijanja Uz "REPLACE kalkulator" možete pro najbolju, otpornu i klimatski prihvati alternativu za vaš stari sustav grijanj	REPLACE Matrica gri pregled dostupnih o neučinkovitih sustav je tip	a grijanja ianja pruža početni pcija za zamjenu a grijanja. Pokazuje koji		

Figure 7 Tool section in the Croatian Gateway

Table 4 List of tools in Croatia

Name of the tool	Tool type (as per Excel sheet)	Link
On the sunny side platform	Platform	https://www.nasuncanojstrani.hr/
Solar club FB group	Social network group	https://www.facebook.com/groups/solarniklub
My energy, my freedom	Handbook	https://bit.ly/brochurePV
E.on solar calculator	Calculator	https://www.eon.hr/hr/kucanstva/solarni-kalkulator.html
Energia naturalis solar calculator	Calculator	https://www.energianaturalis.hr/kalkulator
Energy communities- where to start?	Webinar	https://www.youtube.com/watch?v=PDrcFk4z6ho
Zagreb Energy Atlas	Tool	https://www.arcgis.com/apps/dashboards/9d76fb8ccbd54ff6a6dd831cac791cab



5.2 On the sunny side platform

Applicability: REC

<u>Brief description</u>: The platform offers turn-key solutions for the implementation of PV plants- from access to all relevant information, preparation of documentation, use of co-financing opportunities and design, to procurement and installation.

Type of tool: Platform, a simple calculation tool

Regional applicability: No restriction

Complexity: Applicable without special prior knowledge

Project phase: The whole project cycle

Necessary data for use: Location, monthly electricity bill

<u>Costs/registration</u>: The simple tool is available free of charge and can be used without prior registration. After the inquiry has been made and a positive response from the team, more detailed cost-effectiveness assessment when designing a project, given the characteristics of facility and consumption has to be made which is not free of charge later on

Access: https://www.nasuncanojstrani.hr/

5.3 Solar club Facebook group

Applicability: REC

<u>Brief description</u>: A public Facebook group for all solar enthusiasts, owners of solar power plants and those who want to become one. The group is very active, and it has more than 15 000 members.

Type of tool: Social network group

Regional applicability: No restriction

Complexity: Applicable without special prior knowledge

Project phase: The whole project cycle

Necessary data for use: None

Costs/registration: No

Access: https://www.facebook.com/groups/solarniklub

5.4 My energy, my freedom

Applicability: REC

<u>Brief description</u>: The handbook for installation of small PV plants on private houses provides information on 10 steps on how to implement a PV plant on a house, a detailed description of the technical aspects of the implementation of such project and answers to common questions regarding PV plants installations.

Type of tool: Handbook

<u>Regional applicability:</u> No restriction <u>Complexity:</u> Applicable without special prior knowledge <u>Project phase:</u> The whole project cycle <u>Necessary data for use:</u> None <u>Costs/registration:</u> No



Access: https://bit.ly/brochurePV

5.5 E.on solar calculator

Applicability: REC

<u>Brief description</u>: The calculator for calculating the service of setting up a home solar power plant that estimates solar potential. After all requested data is entered (see below), a non-binding offer with all the details arrives at provided e-mail address.

Type of tool: Calculator

Regional applicability: No restriction

Complexity: Applicable without special prior knowledge

Project phase: The beginning of the project

<u>Necessary data for use</u>: Location, type of roof, roof area, type of roof covering, how many meters in total are on the building, average annual consumption etc

Costs/registration: No

Access: https://www.eon.hr/hr/kucanstva/solarni-kalkulator.html

5.6 Energia naturalis solar calculator

Applicability: REC

<u>Brief description</u>: The calculator provides information on how much you can save by installing a solar power plant on your roof. After all requested data is entered (see below), a non-binding offer with all the details arrives at provided e-mail address. Also, in cooperation with a bank, they provide special credit terms to their solar power plant customers.

Type of tool: Calculator

Regional applicability: No restriction

Complexity: Applicable without special prior knowledge

Project phase: The beginning of the project

Necessary data for use: Location, average annual consumption etc

Costs/registration: No

Access: https://www.energianaturalis.hr/kalkulator

5.7 Energy communities- where to start?

Applicability: REC/EC

<u>Brief description</u>: Webinar held by a representative of Green Energy Cooperative where all the important steps and barriers were presented on implementation and establishment of energy communities, along with the new legislative framework and benefits of joining such kind of collective actions.

Type of tool: Webinar

Regional applicability: No restriction

Complexity: Applicable without special prior knowledge

Project phase: The whole project cycle

Necessary data for use: None



Costs/registration: No

Access: https://www.youtube.com/watch?v=PDrcFk4z6ho

5.8 Zagreb Energy Atlas

Applicability: REC/EC

<u>Brief description:</u> The IT tool which includes data on energy consumption for all buildings (public, residential, commercial) in the City of Zagreb and affords citizens the visualisation and analysis of aggregated data.

Type of tool:IT toolRegional applicability:City of ZagrebComplexity:Applicable without special prior knowledgeProject phase:The beginning of the projectNecessary data for use:NoneCosts/registration:NoAccess:https://www.arcgis.com/apps/dashboards/9d76fb8ccbd54ff6a6dd831cac791cab



6 | Germany

6.1 Overview

Status June 2022:

Due to the delay in transposing the RED II directive into the national legislation, there is no tool on energy sharing or energy communities in existence. Tools and related topics like CO2 emissions may, however, be useful for interested citizens and institutions. A possible structure to present the tools would be:

- 1. entry-level tools (3_ConsumerEngagement&Behaviour): CO2 calculator, value added calculator, information on participation/establishment in/from RE communities -> target group: consumers.
- 2. planner tools (1_technical_organisationalTools): Energy plan (incl. electricity/heat/transport), information about participation/establishment in/of RE communities -> target group: municipalities.
- business model tools (2_Economic&BusinessModels): Business model planner (solar/wind/bioenergy/heat grid/efficiency/mobility), information about activation of new members and networking with strong partners -> target group: EE communities (energy cooperatives).

Update April 2024:

In April 2024, the German Government passed legislation on the so-called "solar package." These measures accelerate the expansion of photovoltaics and other renewable energies in light of the ambitious PV expansion targets for 2030. The accelerated expansion of renewable energies, already embedded in the Renewable Energy Sources Act at the beginning of the current legislative period, is crucial for achieving climate targets and ensuring competitive prices in a climate-neutral electricity system.

The solar package implements a large part of the ministry's solar strategy. This strategy and the solar package were meticulously prepared with relevant stakeholders at two photovoltaic summits to ensure smooth implementation without friction losses. The solar package includes measures for commercial use, residential buildings (including tenant participation), balcony photovoltaics, and ground-mounted systems. In many areas, the regulations will be considerably simplified in favour of plant operators. Additionally, parts of the solar package also encompass measures for the faster expansion of other renewable energy sources, grids, and storage facilities.

The change in legislation is seen as a boost for renewable energies, thereby providing opportunities for energy communities. Although no specific tools are being developed in relation to this legislation, tools are generally being developed by various stakeholder groups in a continuous process. The table below provides an overview of tools in Germany.

Name of the tool	Tool type (as per Excel sheet)	Link
CO2online StromCheck	Calculation tool	https://www.co2online.de/service/energiesparchecks/stromcheck/
Klimaschutz-Planer	Calculation tool	https://www.klimaschutz-planer.de/
CO2-Rechner des Umweltbundesamtes	Calculation tool	https://uba.co2-rechner.de/de_DE/
WWF-Klimarechner	Calculation tool	https://www.wwf.de/themen-projekte/klima-energie/wwf- klimarechner
Online Wertschöpfungsrechner	Calculation tool	https://www.unendlich-viel-energie.de/wertschoepfungsrechner

Table 5 List of tools in Germany



Solarrechner	Calculation tool	https://www.sma.de/solarrechner.html
PV-Ertragsrechner	Calculation tool	https://www.solarserver.de/pv-anlage-online-berechnen/
Genossenschaftstet	Check tool	https://www.genossenschaften.de/
GenoCanvas	Check tool	https://genossenschaften.de/de/genocanvas-alt/
GenoPlan	Check tool	https://genossenschaften.de/de/genoplan-alt/
Satzungsgenerator	Check tool	https://genossenschaften.de/de/satzungsgenerator- ankuendigung/
CO2Online HeizCheck	Calculation tool	https://www.co2online.de/service/energiesparchecks/heizcheck/

Besides these tools, there are furthermore **guidelines**, **handbooks**, **etc**. On the German Gateway under "Leitfäden". A screenshot is shown below.

ften	Inspirieren lasse	n Information finden	Werkzeug
oitfäden			
ier finden Sie die wichtigsten Leitfäden für die D	Durchführung Ihrer Bürgerenergieproiekte.		
WÄRMENETZE CoolHeating Handbuch Handbuch über kleine modulare erneuerbare Wärme- und Kältenetze. Das Handbuch bietet einen Überblick sowohl über technische als	ENERGIEGENOSSENSCHAFT Leitfaden "Von der Energie- zur Klimaschutzgenossenschaft" Der Leitfaden fasst ausgewählte Projektergebnisse zusammen, um so einen Überblick über wirkungsvolle und inspirierende Aktivitäten einzelner Energiegenossenschaften	CONTRACTING Leitfaden Energiespar- (Energieliefercontractin) Das Geschäftsmodell "Contra Solches ist keine neue Erfindt seit mehreren Jahrzenten exi nachhaltige Contractingmode	und g cting" als ung. Schon stieren elle (z
MIETERSTROM Ratgeber Mieterstrom Aktuelle Studien belegen ein enormes Potenzial für Mieterstrom-Modelle im Deutschen Wohnungsmarkt. Von bis zu 4,9 Millionen Wohnungen	KURZUMTRIEBSPLANTAGEN Handbuch: Nachhaltige Kurzumtriebsplantagen Das Handbuch stellt wichtige Informationen über KUPs für Landwirte, öffentliche Landbesitzer, Betreiber kleinerer Anlagen mit Kraft-Wärme- Kopplung, Hackschnitzelhändler	WÄRMEWENDE Planung und Organisati Wärmewende Anleitung zur planung und Or der kommunalen Wärmewen Informationsportal ist kosten Zugang zum Handbuch	on - ganisation de. Das los verfügbar.
BIOGAS Leitfaden Biogas Der Leitfaden Biogas stellt die	BIOENERGIE Geschäftsmodelle für Bioenergieprojekte - Leitfaden für die Projektentwicklung	BIOENERGIEDÖRFER Bioenergiedörfer - Leitf eine praxisnahe Umsetz	aden für ung

Figure 8 Guidlines and handbooks in the German Gateway



Furthermore, the German Gateway includes a selection of energy-related information maps ("Karten und Informationen in den Bundesländern"). This collection features the most important energy atlases, maps, and portals for your citizen energy projects. The energy atlases of the federal states provide information on renewable energies, offering data and maps on the plant stock and the potential of renewable energies. This information is crucial for the planning and implementation of citizen energy projects.

Currently, there is no Germany-wide solar cadastre; however, most federal states offer their own solar registers, which are listed below. The Agency for Onshore Wind Energy provides country-specific information on wind energy, and relevant links are listed below. Additionally, some federal states have a heat atlas or maps of geothermal energy. A screenshot is shown below.

chaften	Inspirieren lassen	Information finden	Werkzeuge nutz
Karten und Information i	n den Rundesl	ändern	
	in den Bundesi	andern	
Hier finden Sie die wichtigsten Energieatlanten , Karten und Portale informieren über das Thema erneuerbare Energien . Sie bietet Date Für die Planung und Umsetzung von Bürgerenergieprojekten liefer	e für Ihre Bürgerenergieprojekte. Die en und Karten zum Anlagenbestand un n sie wichtige Informationen.	Energieatlanten der Bund nd dem Potenzial erneuerb	esländer arer Energien.
Es gibt derzeit kein deutschlandweites Solarkataster . Allerdings bie aufgeführt. Die Fachagentur Windenergie an Land bietet Länderspo Bundesländer haben auch ein Wärmeatlas oder Karten zur Geothe	eten die meisten Bundesländer eigene ezifische Information zu Windenergi e rmie .	e Solarkataster an. Diese si e. Links sind unten aufgefül	nd unten hrt. Manche
Wo die Bundesländer beim Ausbau der Erneuerbaren Energien stel Erneuerbaren Energien .	hen und welche Schwerpunkte sie set	zen, zeigt das <mark>Bundesländ</mark> e	erportal zu
Baden-Württemberg (BW)			
Energieatlas Baden Württemberg			
Solarkataster Baden-Württemberg			
Information zu Windenergie in Baden-Württemberg			
Bayern (BY)			
Energieatlas Bayern			
Information zu Windenergie in Bayern			
Figure 9 Energy related inform	mation maps in the Germa	n Gateway	
6.2 CO2online StromChec	:k		

Applicability: Citizens and REC

<u>Brief description:</u> With the tool, consumers and households can get an overview of the biggest sources and sectors of CO₂ emission. It includes three tools to calculate the personal consumption of electricity and heating



and on modernisation measures for house owners. Subsequently, users get recommendations on how to improve their CO_2 footprint.

Type of tool: Calculation tool

Regional applicability: In all of Germany

<u>Complexity</u>: Low complexity and illustrative explanations

Project phase: Entry-level tool to get a better understanding of the personal contribution to CO2-emission

Necessary data for use: The calculator works with personal consumption estimates

Costs/registration: Free

Access: https://www.co2online.de/service/energiesparchecks/stromcheck/

6.3 Klimaschutz-Planer

Applicability: Citizens and REC

<u>Brief description</u>: Interactive tool and data collection about German municipalities' energy consumption and emission. Additional data and graphics are presented to inform the reader.

Type of tool: Calculation tool

Regional applicability: In all of Germany

Complexity: Average, as the use of the data may require some knowledge

Project phase: Entry-level tool, can be used later in the project to show the progress of the own municipality

Necessary data for use: None

Costs/registration: Free

Access: https://www.klimaschutz-planer.de/

6.4 CO2-Rechner des Umweltbundesamtes

Applicability: Citizens and REC

<u>Brief description</u>: The tool permits the user a detailed calculation of their own CO2 emission and provides other options like future scenarios and a separated display of different sources of emissions.

Type of tool: Calculation tool

Regional applicability: In all of Germany

Complexity: Low

Project phase: Entry-level tool to get a better understanding of the personal contribution to CO2-emission

Necessary data for use: The calculator works with personal consumption estimates

Costs/registration: Free

Access: https://uba.co2-rechner.de/de_DE/

6.5 WWF-Klimarechner

Applicability: Citizens and REC

Brief description: Same as the UBA-calculator, but with more detailed questions on personal consumption.

Type of tool: Calculation tool



Regional applicability: In all of Germany

Complexity: Low, but longer calculation survey compared to the UBA-calculator

Project phase: Entry-level tool to get a better understanding of the personal contribution to CO2-emission

Necessary data for use: The calculator works with personal consumption estimates

Costs/registration: Free

Access: https://www.wwf.de/themen-projekte/klima-energie/wwf-klimarechner

6.6 Online Wertschöpfungsrechner

Applicability: Citizens and REC

<u>Brief description</u>: The tool calculates the added value in a municipality or community. It focuses on renewable energy, but also on economic aspects.

Type of tool: Calculation tool

Regional applicability: In all of Germany

<u>Complexity</u>: Average but with a clear presentation to explain the process, difficult if municipality information is unknown

Project phase: Entry-level tool, can be used later in the project to show the progress of the own municipality

Necessary data for use: Data on the municipality and renewable energy production

Costs/registration: Registration is necessary to use the value-adding calculator

Access: https://www.unendlich-viel-energie.de/wertschoepfungsrechner

6.7 Solarrechner

Applicability: Citizens and REC

<u>Brief description</u>: The calculation tool helps to find out the potential for solar energy of the house. The further calculation seems necessary, but the tool helps to get a general idea. The result shows if money can be saved by installing solar panels on the roof or not.

<u>Type of tool:</u> Calculation tool <u>Regional applicability:</u> In all of Germany <u>Complexity:</u> Low <u>Project phase:</u> Entry-level tool, when planning a solar energy project <u>Necessary data for use:</u> Data on personal home <u>Costs/registration:</u> Free

Access: https://www.sma.de/solarrechner.html

6.8 PV-Ertragsrechner

Applicability: Citizens and REC



<u>Brief description</u>: The calculation tool helps to find out the potential for solar energy of the house. <The further calculation seems necessary, but the tool helps to get a general idea. The result shows the energy generation in each month.

<u>Type of tool:</u> Calculation tool <u>Regional applicability:</u> In all of Germany <u>Complexity:</u> Low, but additional knowledge is necessary to understand the results <u>Project phase:</u> Entry-level tool, when planning a solar energy project <u>Necessary data for use:</u> Data on personal home <u>Costs/registration:</u> Free

Access: https://www.solarserver.de/pv-anlage-online-berechnen/

6.9 Genossenschaften in Deutschland

Applicability: Citizens and REC

<u>Brief description</u>: The platform offers information material on cooperatives and energy cooperatives and gives detailed material on how to fund a cooperative, ideas and concepts, ongoing projects, consultation, news and more.

Type of tool: Platform

Regional applicability: In all of Germany

<u>Complexity:</u> Low, as it offers the user an easy way to get an overview of this type of legal form.

Project phase: Entry-level phase to get an overview of cooperatives and possible projects

Necessary data for use: None

Costs/registration: Free

Access: https://www.genossenschaften.de/

6.10 gemeinsam-mobil.net

Applicability: Citizens and REC

<u>Brief description</u>: The website gives all the necessary information if someone is interested in planning and implementing an electrical mobility project. It includes a tool that explains how to analyse, plan, implement and operate this type of project. Additionally, users find an overview on the concepts, existing projects, and the possibility to join the community and exchange ideas.

Type of tool: Platform

Regional applicability: In all of Germany

Complexity: Low, as it offers the user an easy way to get an overview of this type of business model

Project phase: Entry-level phase to get an overview of cooperatives and possible mobility projects

Necessary data for use: None

Costs/registration: Free



Access: https://gemeinsam-mobil.net/

6.11 Wärmewende

Applicability: Citizens and REC

<u>Brief description</u>: The website includes tools and information for people and municipalities interested in heating. Besides a calculation tool on heating consumption, it gives useful material on, technical explanations, energy efficiency measures and an overview of funding programs.

Type of tool: Platform

Regional applicability: In all of Germany

Complexity: Generally low, but the website also includes technical topics that may be difficult to understand

<u>Project phase</u>: Entry-level phase to get a better understanding of heat consumption and possibilities to lower emissions and costs

Necessary data for use: None

Costs/registration: Free

Access: https://www.waermewende.de/

6.12 Regionale Wertschöpfung aus erneuerbaren Energien

Applicability: Citizens and REC

<u>Brief description</u>: The document offers examples of regional value-added from renewable energy projects and the underlying financial and technical numbers that may be helpful to get a better understanding on the implementation of projects.

Type of tool: Information

Regional applicability: In all of Germany

Complexity: Low and with good illustrations

Project phase: Entry-level phase to get an understanding of the project process

Necessary data for use: None

Costs/registration: Free

<u>Access:</u> <u>https://www.energieagentur.rlp.de/fileadmin/user_upload/pdf/20171029_Exkursions-</u> <u>Handout_COP23_RHK_dt.pdf</u>

6.13 Kommunale Wertschöpfung durch Klimaschutz

Applicability: Citizens and REC

<u>Brief description</u>: The document offers examples of regional value-added from renewable energy projects and the underlying financial and technical numbers that may be helpful to get a better understanding of the implementation of projects.

Type of tool: Information

Regional applicability: In all of Germany



<u>Complexity:</u> Low but with some graphics that may be difficult to understand

Project phase: Entry-level phase to get an understanding of the project process

Necessary data for use: None

Costs/registration: Free

Access: <u>https://mkuem.rlp.de/fileadmin/mulewf/Service/Veranstaltungschronik/pdf-</u> Dateien/Weltklimaschutzkonferenz in Bonn -

Klimaschutz in Kommunen/Kommunale Wertschoepfung durch Klimaschutz Uhle.pdf



7 | Georgia

7.1 Overview

Status June 2022:

Even though the EMD and RED II regulations have not yet been transposed in Georgia, the national legislation generally allows the establishment of collective actions and energy communities. However, the respective legal and regulatory frameworks are not robust and do not incentivise consumers.

Georgia became a full member of the European Energy Community in 2016. As a contracting party, Georgia has committed to transposing the third energy package and respective regulations according to its accession protocol to the Energy Community. Georgia's legal and regulatory framework remains underdeveloped concerning energy communities and collective actions of self-consumers.

The Georgian primary and secondary legislation are based on the provisions of the Third Energy Package. Joint efforts of self-consumers using micro-generators up to 500 kW are feasible in Georgia, as the Law on Energy and Water Supply and GNERC regulations contain the necessary rules and regulations.

Net metering regulation is the only mechanism currently used. Although it is not the most efficient and marketoriented mechanism, it provides a basic framework for end-users to benefit monetarily from micro-generation. It should be noted that the Energy Community Ministerial Council adopted the Clean Energy for All Europeans Package in late November 2021. Hence, the transposition of EMD and RED II is envisaged in the coming years.

Considering all the above, there are currently no tools available regarding energy communities. However, there is a need for platforms, tools, and guidelines to support energy communities in establishing themselves and implementing collective actions through this type of citizen engagement and activities/initiatives.

Update April 2024:

The EMD and RED II regulations have not yet been transposed in Georgia. Moreover, the existing legal and regulatory frameworks are not robust and still present significant barriers to the establishment of energy communities and collective actions. Additionally, the tools and information platforms that would support Georgian local heroes are still missing, along with financial and technical support schemes that can help energy communities and collective actions develop on a large scale.

Considering the identified barriers within the SHAREs project, it was decided that the Georgian Gateway would present the necessary tools, information, guidelines, and other essential resources. The Georgian Gateway has great potential to serve as an important one-stop shop for those who either want to gain information and develop energy communities or collective energy actions, or for those who already have successfully running collective actions and wish to expand and stay up to date with the latest information available on energy communities and collective actions in Georgia.

Name of the tool	Tool type (as per Excel sheet)	Link
UBA CO2 calculator	Calculation tool	https://energy4all.ge/calculation-tool/uba-carbon- calculator/
Photovoltaic self-consumption calculator	Calculator	https://energy4all.ge/calculation-tool/photovoltaic- self-consumption-calculator/
CO2 Indicator Calculator	Calculatorr	https://energy4all.ge/calculation-tool/co2-indicator- calculator/
	Calculation tool	

Table 6 List of tools in Georgia



Name of the tool	Tool type (as per Excel sheet)	Link
CO2online StromCheck		<u>https://energy4all.ge/calculation-tool/CO2online-</u> <u>StromCheck/</u>
CO2online StromCheck	Calculation toolTemplate	https://energy4all.ge/calculation-tool/CO2online- StromCheck/ https://energy4all.ge/calculation- tool/ebUtilities/
Sample contracts ebUtilities	Template	https://energy4all.ge/calculation-tool/ebUtilities/
Self-Assessment Tool	Excel tool	https://energy4all.ge/calculation-tool/Self-Assessment- Tool/
Legal Decision Support Tool	Contract template	https://energy4all.ge/calculation-tool/Legal-Decision- Support-Tool/
Energy Management Platform	Online Platform	https://energy4all.ge/calculation-tool/Energy- Management-Platform/
Use Cases	Online overview	https://energy4all.ge/calculation-tool/Use-Cases/
PV-Ertragsrechner	Calculation tool	https://energy4all.ge/calculation-tool/PV- Ertragsrechner/
Model contracts for REC	Template	https://energy4all.ge/calculation-tool/Model-contracts- for-REC/

7.2 UBA CO2 calculator

Applicability: Citizens and REC

<u>Brief description</u>: The tool permits the user a detailed calculation of their own CO2 emission and provides other options like future scenarios and a separated display of different sources of emissions.

Type of tool: Calculation tool

Regional applicability: In all of Germany

Complexity: Low

Project phase: Entry-level tool to get a better understanding of the personal contribution to CO2-emission

Necessary data for use: The calculator works with personal consumption estimates

Costs/registration: Free

Access: https://energy4all.ge/calculation-tool/uba-carbon-calculator/

7.3 **Photovoltaic self-consumption calculator**

Specific for renewable energy communities: No

<u>Brief description</u>: The photovoltaic self-consumption calculator provides information for a planned photovoltaic system on how and to what extent the self-consumption share of the on-site produced PV electricity can be increased. It can be used to evaluate the case of a photovoltaic system without participation in a renewable energy community. The tool can also help to calculate the increase of the self-consumption share of a system with a maximum of 10 kWp or of a household with a maximum of 10,000 kWh of annual electricity consumption through electric load management, storage, and electric water heating. The use of a heat pump and an electric car are only described qualitatively in the tool and are not included in the calculation.



Type of tool: Calculation tool

<u>Regional applicability</u>: Only Vienna and surroundings; the results can also be used for a rough estimation for other regions.

Complexity: Applicable without special prior knowledge; a simple online tool

Project phase: The tool can be used for the planning phase, as well as for the expansion phase (new customers)

<u>Necessary data for use:</u> Location of the installation, size and electricity consumption of the household, inclination, orientation, and power of the planned photovoltaic installation.

<u>Costs/registration</u>: The tool is available free of charge and can be used without prior registration.

Access: https://energy4all.ge/calculation-tool/photovoltaic-self-consumption-calculator/

7.4 CO2 Indicator Calculator

Specific for renewable energy communities: No

<u>Brief description</u>: The CO2 indicator calculator can be used to estimate the amount of CO2 that can be reduced by installing a photovoltaic system. Furthermore, it shows how many kilometres driven in an electric car correspond to the system's annual production.

Type of tool: Calculation tool, awareness-raising

Regional applicability: No restriction

Complexity: Applicable without special prior knowledge

Project phase: Can be used for the planning phase, as well as for the expansion phase (new customers)

Necessary data for use: Power of the planned photovoltaic system

Costs/registration: The tool is available free of charge and can be used without prior registration.

Access: https://energy4all.ge/calculation-tool/co2-indicator-calculator/

7.5 Sample contracts ebUtilities

Specific for renewable energy communities: Yes

<u>Brief description</u>: This website provides, among other things, sample contracts between grid operators and the energy community for operation and grid access of community generation installations, citizen energy communities and renewable energy communities. Furthermore, a guide and checklist for energy communities are available online.

Type of tool: Planning, organisation

Regional applicability: All of Austria

Complexity: Applicable without special prior knowledge; sample contracts

<u>Project phase</u>: The sample contracts can be used in the planning and foundation phase.

<u>Necessary data for use:</u> The energy community must already be established.

<u>Costs/registration</u>: The sample contracts are available free of charge and can be used without prior registration.

Access: https://energy4all.ge/calculation-tool/ebUtilities/



7.6 Self-Assessment Tool

Applicability: No specific EC type (focused more on businesses and industry)

<u>Brief description</u>: The R-ACES assessment tool helps collect data about the energy demand, energy supply, stakeholders and existing infrastructure in the ecoregion and assess the quality and completeness of the data. The assessment questions and region description categories have been carefully selected based on past experiences recorded throughout various energy cooperation projects in Europe.

<u>Type of tool:</u> Excel tool <u>Regional applicability:</u> No regional restriction <u>Complexity:</u> Expert level- Comprehensive report for experts <u>Project phase:</u> The report can be used for the planning phase <u>Necessary data for use:</u> Data on regional energy production and consumption <u>Costs/registration:</u> The tool is available free of charge and without a prior registration Access: https://energy4all.ge/calculation-tool/Self-Assessment-Tool/

7.7 Legal Decision Support Tool

Applicability: No specific EC type, but the focus is more on businesses and industry

<u>Brief description</u>: The tool is designed to lower the legal barriers and help develop energy cooperation projects between potential suppliers and customers in industrial clusters. It includes an easy-to-use fill-in contract template, with explanatory notes on the side. It helps with focusing and agreeing on the fundamentals of an energy exchange project (sales and delivery) and generates a ready-to-use (simple) contract in one go.

Type of tool: Contract template

Regional applicability: No regional restriction

Complexity: It can be used by anyone and is easy to use, but legal knowledge would be helpful

Project phase: The template can be used for the planning phase as well as for the expansion phase

Necessary data for use: The tool does not need any data input and can be used directly

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://energy4all.ge/calculation-tool/Legal-Decision-Support-Tool/

7.8 Energy Management Platform

Applicability: EC/collective actions in general

<u>Brief description</u>: A tool is designed to enable the exchange of energy between partners. The dashboard displays energy consumption and generation overlaps in surpluses, deficits, and energy flows between partners. A practical user guide, with all steps clearly described, is available for the users to help them to use the Platform.

Type of tool: Online Platform

Regional applicability: Unclear

Complexity: Expert level



Project phase: The tool can be used for the planning phase as well as for the expansion phase

Necessary data for use: Data on regional energy production and consumption

Costs/registration: Registration necessary, fees unclear

Access: https://energy4all.ge/calculation-tool/Energy-Management-Platform/

7.9 Use Cases

Applicability: Specific to DH & DC projects

<u>Brief description</u>: Description of ~ 70 examples of various energy collaborations on District Heating & Cooling from different countries. You can filter by energy source, geographical level and type of area (industrial/residential) or use cases (energy planning, projects etc.).

Type of tool: Online overview

Regional applicability: No regional restriction

Complexity: Requires no specific knowledge

Project phase: The tool can be used for the planning phase

Necessary data for use: Requires no specific knowledge

Costs/registration: The tool is available free of charge and without a prior registration

Access: https://energy4all.ge/calculation-tool/Use-Cases/

7.10 **PV-Ertragsrechner**

Applicability: Citizens and REC

<u>Brief description</u>: The calculation tool helps to find out the potential for solar energy of the house. <The further calculation seems necessary, but the tool helps to get a general idea. The result shows the energy generation in each month.

Type of tool: Calculation tool

Regional applicability: In all of Germany

Complexity: Low, but additional knowledge is necessary to understand the results

Project phase: Entry-level tool, when planning a solar energy project

Necessary data for use: Data on personal home

Costs/registration: Free

Access: https://energy4all.ge/calculation-tool/PV-Ertragsrechner/

7.11 Model contracts for REC

Specific for renewable energy communities: Yes

<u>Short description</u>: The Austrian Coordination Office for Energy Communities website provides sample statutes for associations, a supply agreement, and agreements for full and surplus feeding. These materials can be used as a starting point for design in concrete renewable energy communities.



Type of tool: Planning, organisation

Regional applicability: All of Austria

Complexity: Applicable without special prior knowledge; sample contracts

<u>Project phase:</u> The sample contracts can be used in the planning and foundation phase.

Necessary data for use: None

<u>Costs/registration</u>: The model contracts are available free of charge and can be used without prior registration.

Access: https://energy4all.ge/calculation-tool/Model-contracts-for-REC/

7.12 CO2 online StromCheck

Applicability: Citizens and REC

<u>Brief description:</u> With the tool, consumers and households can get an overview of the biggest sources and sectors of CO₂ emission. It includes three tools to calculate the personal consumption of electricity and heating and on modernisation measures for house owners. Subsequently, users get recommendations on how to improve their CO₂ footprint.

Type of tool: Calculation tool

Regional applicability: In all of Germany

Complexity: Low complexity and illustrative explanations

Project phase: Entry-level tool to get a better understanding of the personal contribution to CO2-emission

Necessary data for use: The calculator works with personal consumption estimates

Costs/registration: Free

Access: https://energy4all.ge/calculation-tool/CO2online-StromCheck/



8 | Hungary

8.1 Overview

Status June 2022:

As the definition of energy communities is new and detailed rules of energy sharing are still missing, there are no special tools for energy communities available in Hungary as of June 2022.

Update April 2024:

Two tools' sections are available on the Hungarian Gateway, of which the <u>International tools</u> sub-menu consists of the relevant tools and platforms on the international level, and the <u>National tool</u> sub-menu consists of other tools developed by national or international projects which support energy communities and could be useful on the national level (see figures below).



Figure 10 Tool section positions in the Hungarian Gateway

The national collection contains 11 tools and useful findings from previous projects conducted by several Hungarian institutes and NGOs, of which 8 were selected to be introduced. The international tools were selected based on their relevance to the current Hungarian legal environment. However, as the regulations are changing, tools with "draft" status may be published in the future.





Figure 11 National and international tool section in the Hungarian Gateway

All provided white label materials and features of the Gateway were translated in Hungarian language and adapted to the national needs. Get active part is most of a note and the shortcuts to the two step-by-step guides is available already within the homepage content. From the point of view of future "local heroes", approaching energy communities as a solution to an issue within their energy needs or consumptions, it is necessary to provide them with guides to develop their way to solve these issues.

Regarding the previously identified two gaps, one of them, Gap No 1. (referred to in D4.2), was closed in a way where with active communication with the Hungarian DSOs they are much open now for discussion about the transformer substation areas. Info sheets about the structure of the grid system were published so every interested party can estimate the relations of their locations.

Table 6 List of tools in Hungary

Name of the tool	Tool type (as per Excel sheet)	Link
HOW TO RENOVATE PUBLIC BUILDINGS TO NEARLY-ZERO ENERGY? Step-by-step guide	PDF tool	https://www.interreg-central.eu/Content.Node/DT232- 16112020-HU.pdf
POWERFUND	Platform	https://www.powerfund.eu/hu
Renovation of buildings to near-zero energy levels with innovative financing methods - Decision support tool	Programme	<u>https://rb.gy/q84mre</u>
Energy Neighbourhoods	Programme	https://energiakozossegek.hu/



Napelem árajánlat - Solar panel price quote	Online quote request form	https://www.napelemajanlat.hu/
Árajánlatkérés napelemes rendszerekre – Quote request for PV-systems	Online quote request form	https://www.mnnsz.hu/arajanlat-keres-napelemes- rendszerek/
Budapest Szolár Térkép – Budapest Solar Map	Мар	<u>https://budapest.hu/zold-budapest/klima-es-</u> <u>kornyezetvedelem/nappal-hajtva/szolar-</u> <u>terkep</u>
Napenergiatérkép - Solar map (of Hungary)	Мар	https://napenergiaterkep.hu/

8.2 How to renovate public buildings to nearly-zero energy? Step by step guide

Applicability: Collective actions in general

<u>Brief description</u>: The guide aims to help local authorities (mainly HU, SLO, HR) understand and implement the renovation process. It describes the main stages of the implementation of renovations, from project development, design, and construction to operation.

<u>Type of tool:</u> Short PDF tool.

Regional applicability: No restriction.

<u>Complexity:</u> Does not require specific knowledge, simple PDF tool short description.

Project phase: It can be used for the planning phase.

<u>Necessary data for use:</u> The tool does not need any data input and can be used directly.

<u>Costs/registration</u>: The tool is available free of charge and without prior registration.

Access: https://www.interreg-central.eu/Content.Node/DT232-16112020-HU.pdf

8.3 PowerFund (in HU)

Applicability: Collective actions in general

<u>Brief description</u>: PowerFund is a web-based tool to help energy poor citizens across Europe identify and learn about Collective Innovative Actions to tackle energy poverty and take direct action. The tool provides the users with an online marketplace for collective energy Initiatives, such as energy communities and cooperatives, as well as an open space where to learn about innovative financial instruments like crowdfunding, and how to use the potential of collective finance to overcome the economic and financial barriers hindering energy poor citizens from taking part in the energy transition. AVAILABLE IN HUNGARIAN.

Type of tool: Platform

Regional applicability: No

Complexity: Does not require specific knowledge

Project phase: Can be used for the planning phase

Necessary data for use: Does not need any data input and can be used directly

Costs/registration: The tool is available free of charge



8.4 Renovation of buildings to near-zero energy levels with innovative financing methods - Decision support tool

Applicability: Collective actions in general

<u>Brief description:</u> It provides information on the renovation of near-zero energy buildings through innovative financing methods such as public-private partnerships (PPPs), energy performance contracts (EPCs) and Community financing (CF). Includes decision tree for innovative financing schemes and good international examples.

Type of tool: PDF tool

Regional applicability: No restriction.

<u>Complexity:</u> Does not require specific knowledge.

Project phase: It can be used for the planning phase.

Necessary data for use: The tool does not need any data input and can be used directly.

<u>Costs/registration</u>: The tool is available free of charge.

Access:

https://energiaklub.hu/files/project/DT1.5.3 D%C3%B6nt%C3%A9st%C3%A1mogat%C3%B3%20eszk%C3%B6z. pdf

8.5 Energy Neighbourhoods

Applicability: Collective actions of households

<u>Brief description:</u> The programme organised by EON and GreenDependent Institution is a community competition where communities of families/households across the country compete to see who can save more (minimum 9%) energy in their homes. The Energy Communities programme and its specific methodology are characterised by: helping to clarify the link between climate change and everyday life; helping to save energy without reducing the quality of life; helps to providing programme participants with information and guidance on what they can do in their own homes to save energy without investing; participants work with other families to support and empower each other to achieve sustainable lifestyles, with expert support and advice.

<u>Type of tool</u>: Community program (has been running for a couple of years, we don't know how long it will continue)

Regional applicability: No restrictions

Complexity: It needs engaged consumers

Project phase: Implementation phase

Necessary data for use: Data of the participating households

<u>Costs/registration</u>: The tool is available free of charge.

Access: Annually registration is needed in autumn



8.6 Napelem árajánlat - Solar panel price quote

Applicability: Collective actions in general

<u>Brief description</u>: PV installation offers easily, from all over Hungary, at the push of a button information on solar installations. It is available for companies, private persons, and public institutions, too. The tool was developed by a private company with special financing offers also available through the website.

Type of tool: Online quote request form

Regional applicability: Available in Hungary

Complexity: Simple, some technical data is needed

Project phase: Planning phase

Necessary data for use: Data of the building: orientation and shading of the roof; annual consumption

Costs/registration: Free of charge

Access: https://www.napelemajanlat.hu/

8.7 Árajánlat kérés - Quote request

Applicability: Collective actions in general

<u>Brief description:</u> Request a solar panel quote from one of the 300 member companies of MNNSZ by filling in the form. By filling in the form, the best solar quotes will be available from 300 member companies of the Hungarian PV and Solar Collector Association (MNNSZ), free of charge and without obligation. Requested quotes will be sent simultaneously to the member companies, who will send their best technical solution proposals and quotes shortly. Requests can be specified by scale and work phase.

Type of tool: Online quote request form

Regional applicability: Available in Hungary

Complexity: Simple, some technical data is needed

Project phase: Planning phase

Necessary data for use: Data of the building: orientation and shading of the roof; annual consumption

Costs/registration: Free of charge

Access: https://www.mnnsz.hu/arajanlat-keres-napelemes-rendszerek/

8.8 Budapest Szolártérkép - Budapest Solar Map

Applicability: energy communities and local offers

<u>Brief description</u>: Interactive, searchable map based upon LiDAR mapping of the available houses for PV-system in Budapest. After adding the address or searching the map, you can select the building and a pop-up window emerges with the data of the solar capacity.

Type of tool: map

Regional applicability: Available in Hungary

Complexity: easy



Project phase: Planning phase

Necessary data for use: address

Costs/registration: Free of charge

Access: https://budapest.hu/zold-budapest/klima-es-kornyezetvedelem/nappal-hajtva/szolar-terkep

8.9 Napenergiatérkép - Solar Map (of Hungary)

Applicability: (household-size) solar plant planning

<u>Brief description</u>: Interactive map based upon LiDAR mapping of the available houses for PV-system in major cities in Hungary. After selecting the city on the map of Hungary, you can zoom into the map of the city. After selecting a building, a pop-up window emerges with the data of the solar capacity.

Type of tool: mapRegional applicability: Available in HungaryComplexity: easyProject phase: Planning phaseNecessary data for use: addressCosts/registration: Free of chargeAccess: https://napenergiaterkep.hu/



9 | Conclusions

The goal of the conducted tool analysis was to obtain an overview of existing supporting instruments and identify the most effective platforms and tools available for supporting energy communities. This was one of the main prerequisites for the successful development of the SHAREs Gateways.

The process of gathering and analysing the available tools relevant to collective energy actions focused on two main target areas: international and national tools.

In the first step, information on a total of 113 **international tools** was collected. Eleven of the identified tools were rated as not relevant for Gateway development. Out of the remaining 102 tools, 55% were supportive tools, while 45% were informative tools.

It was concluded that, at the time of collection, many tools/guidelines were not suitable for local heroes: tools were too comprehensive or not user-friendly, some were only available in foreign languages, and some did not have free access. Tools were also commonly dispersed across different platforms, making them difficult for local heroes to find. Some of the tools identified were intended for commercial use only. Furthermore, consumer engagement was identified as the least targeted and most challenging segment.

Finally, after more in-depth research, 33 tools and platforms at the international level were selected as most relevant for energy communities/collective actions in development. Most of the collected tools were different reports (10), while there were smaller numbers of guidelines (1), surveys and questionnaires (4), Excel tools and calculators (2), EC management tools (2), and platforms (2).

Regarding the **national tools**, the update was made by each pilot partner, and instead of the initial 39 tools identified in June 2022, a total of 59 tools were identified by April 2024 – Austria 26, Bulgaria 6, Croatia 7, Germany 12, and Hungary 8, while no nationally developed tools were found in Georgia. In most pilot countries, the transposition of EU acquis was delayed, and there are still barriers hindering the implementation of projects related to energy communities and collective actions. This is likely the main reason why those countries do not have many tools available regarding energy communities.

Most of the tools identified at the national level were calculators (19), information tools (14), platforms (7), handbooks/guidelines (4), and other tools (15) such as programmes, webinars, templates, etc.

One conclusion was that there is a need to develop easy-to-find and easy-to-use online tools and information points to support collective energy actions. These tools should be applicable and available to both newcomers who are just starting and need step-by-step guides, as well as to those who already have a successfully running collective energy action and wish to expand.

Therefore, the development of the SHARES Gateway is designed to provide these unique and much-needed online support mechanisms tailored to specific national needs. Even though in some countries no or few tools have been recognised, their Gateways still contain other information and materials. Furthermore, a full communication campaign was developed within SHAREs, providing target group profiles, key messages, white label materials, as well as step-by-step guides for communication activities. This campaign allows local heroes to successfully target their audiences and 'pick and mix' from a wide range of different communication methods.

This extensive analysis provided inspiration for the possible development of new tools at the national level. Deliverable 4.2 "Report on defined gaps in the inventory on relevant tools and platforms" summarised these needs in July 2022. The results of the analysis showed that the gaps identified among the SHAREs target countries are mainly related to a lack of knowledge regarding CEC/REC, an undeveloped/unclear regulatory framework, and the necessity for different financing possibilities. The national SHAREs Gateways were identified as the most commonly applicable solution to all countries, and identified tools and platforms are made available through the



Gateways, along with thorough guidance for all steps and segments of community action development and implementation.

Furthermore, one of the gaps mentioned has been closed within the SHAREs project: the Austrian SHAREs team developed the decision matrix for the selection of the type of energy community model for the Austrian Gateway. It was implemented for Austria first (February 2024) and shortly after, an exemplary version was added to the blueprint, making it available for integration into all national Gateways.



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