DISCOVER

# D.3.4 Specific Guidebook

**Co-funded by the European Union**

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# History of changes

| Version | Date | Comments | Main author(s) |
|---|---|---|---|
| **1** | **07/04/2025** | | **Koberg F.** |
| **2** | | | |
| **3** | | | |
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# Deliverable Information Sheet

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|---|---|
| **Grant Agreement Number** | 101120622 |
| **Project Acronym** | DISCOVER |
| **Project Title** | Developing Integrated Services for COmmunity energy to accelerate Valid Energy Transition |
| **Project Call** | LIFE-2022-CET |
| **Project Duration** | 36 months |
| **Deliverable Number** | D3.4 |
| **Deliverable Title** | Specific Guidebook (for each pilot region) |
| **Deliverable Dissemination Level** | Public |
| **Work Package** | WP3 |
| **Lead Partner** | APC |
| **Authors** | Franz KOBERG |
| **Contributing Partners** | Charles LEMONNIER, Claudia MAGRI, Cveta DIMITROVA, Dani KONOVA, Danilo DI PIETRO, Denitsa DIMITROVA, Damir MEDVED, Davorka MEDVED, Lubaniki FOROVA, Marina VARVESI, Nesrine MEZGHRANI, Stefan ABADJIEV |
| **Delivery Date** | 7th April 2025 |

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# List of Abbreviation and Acronym

| Abbreviation | Meaning |
|---|---|
| **CEP** | Community Energy Projects |
| **PV** | Photovoltaic |
| **EC** | Energy Community |
| **REC** | Renewable Energy Community |
| **CEC** | Citizen Energy Community |
| **OSS** | One-Stop-Shop |

# 1 Introduction: DISCOVER Project

## 1.1 Overview

DISCOVER is an innovative LIFE project with the strategic aim to support the transition to a renewable energy-driven society. By fostering Community Energy Projects (CEPs), DISCOVER will empower stakeholders and citizens and mobilize significant investments in renewable energy generation in pilot regions across Europe. DISCOVER will catalyse the launch of CEPs in 5 diverse European regions respectively in Austria, Bulgaria, Croatia, France and Italy. Local hubs will be set up to pilot innovative support mechanisms for CEPs. The hubs will deliver guidance and practical services on the technical, economic, financial and legal aspects and will help connecting CEPs to local service and technology providers. The services will cover all developmental stages of CEPs, accompanying them throughout their entire lifecycle.

Taking into account the diverse socio-geographical-legislative and market maturity levels across these 5 pilot regions, DISCOVER will follow a regionally specific approach with four local service hubs. On top of that, an interactive online tool will be designed to provide extensive support to local communities embarking on Renewable Energy Projects.

DISCOVER aims to simplify decision-making processes and reduce operational barriers by connecting projects with local service/technology providers and relevant authorities.

During the 3-year timeframe (2023 – 2026), DISCOVER is expected to reach more than 20,000 citizens, support 20 new initiatives (focusing on community PV installation), and trigger a total investment of more than 7.7 million of euros. The project will promote and facilitate the recreation of future service hubs in other regions to ensure replication across other European regions.

The DISCOVER consortium stands as a collaborative force spanning over five European countries, each committed to driving the vision of CEPs within their respective region. The consortium comprises active national / regional leaders in the CEP initiatives, well-connected to citizens, local authorities, and stakeholders.

## 1.2 WP3 activities

Work Package 3 centers on developing a specific guidebook based on the insights gained from WP2, particularly regarding existing support initiatives, services, schemes, and the general guidebook. The specific guidebooks will be utilized by the service hubs in each pilot region and structure all DISCOVER support services.

This work package initiates DISCOVER's stakeholder engagement activities (T3.1), guided by the stakeholder engagement strategy document (D3.1), which provides a tailored methodology for engaging each actor. Although stakeholder engagement extends across multiple work packages, WP3's initial efforts are dedicated to identifying and connecting with local stakeholders in each DISCOVER pilot region to understand the practical challenges they encounter in launching CEPs (D3.2).

Understanding these challenges is essential to effectively develop the DISCOVER support services portfolio, which aims to match such challenges with existing services. Where gaps are found, new or advanced services will be developed.

The creation of the specific guidebook for each pilot region (D3.4) involves aligning suitable services with the individual steps of the CEP lifecycle as called out in the general guidebook. Connecting a service to a specific step requires clear structuring. Services should be self-contained and encapsulated to integrate seamlessly into the guidebook. Each service must have clearly defined requirements that outline its purpose. To successfully connect the service to a step, it's also essential to specify the service's interface. This process includes defining the interconnections between stakeholders and the flow of information between them (D3.3), which also supports the initial development of new services by outlining their requirements (D3.5).

# 2 Structure of this document

Chapter 3 will provide some Background information about the specific guidebook and the methodology for developing it. It aims to clarify how the DISCOVER general guidebook is a precursor for the specific guidebook.

Chapter 4 will provide insights to the four Specific Guidebooks, one for each DISCOVER pilot region. Each pilot region is further divided into subchapters, representing the steps of the specific guidebook.

# 3 Background

## 3.1 Guidebook Family

The DISCOVER project aims to develop services to support community energy projects (CEPs). These services are offered through One-Stop Shops (OSS) to project initiators, and they are consolidated in the DISCOVER guidebooks. The guidebook family is categorized into three documents: the general guidebook, the specific guidebook, and the interactive guidebook.

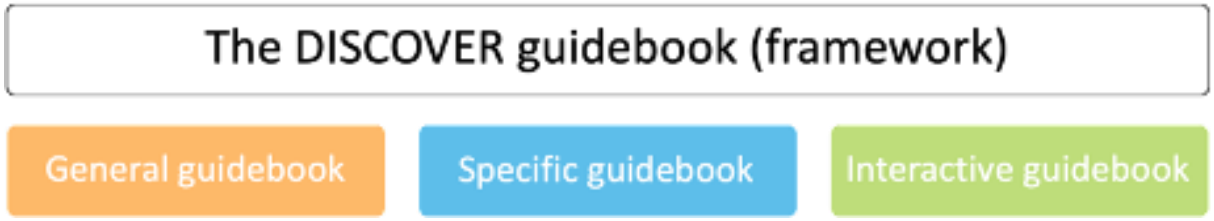


*Figure 1: The DISCOVER Guidebook family*

- The general guidebook is “generally applicable” to all pilot regions. It is a list of general steps.
- The specific guidebook is “specific to one pilot region”. It is the build-out of each step with local content.
- The “interactive guidebook” is the web version of the specific guidebook, which will make it accessible to an even wider audience than regular visitors of DISCOVER one-stop-shops.

## 3.2 General vs Specific Guidebook

This report, focuses on the Specific Guidebook, which builds upon the general guidebook[1].

*The general guidebook is a list of steps a CEP initiator must follow, when launching a project.*

[1] Please visit the download section at https://projectdiscover.eu/

The **general guidebook** provides a list of high-level, generic steps that a CEP initiator must take when implementing their project. It is broadly applicable to all pilot regions. These steps are grouped into three categories:

- **Social**: everything related to establishing a strong community that supports the energy project,
- **PV Plant:** steps related to establishing a photovoltaic plant, and
- **REC**: everything associated with creating a renewable energy community.

The **specific guidebook** is a localized version of the general guidebook, meaning that its content is tailored to a DISCOVER pilot region.

*The specific guidebook is a list of services, provided by the OSS to support the CEP initiator. It adapts the general guidebook's individual steps to reflect the local context.*

In the **specific guidebook**, each step from the general guidebook is elaborated with local context, including relevant stakeholders and resources. The goal is to tailor each step to the specific country or region.

**A** **B** **C**

*Figure 2: Metaphor for the development of the DISCOVER guidebook.*

The analogy for describing the relationship between the general and specific guidebook is a tree. The skeletal structure of the tree represents (Figure 2A) the **general guidebook**, providing the foundational framework. The thick branches symbolize the generic steps outlined in the general guidebook.

The **specific guidebook** builds upon this foundation by enhancing the thick branches with smaller branches (Figure 2B) that are tailored to a specific pilot region. Additionally, the specific

guidebook adds leaves to the branches (Figure 2C), representing the **services** offered in the OSS to facilitate each step.

## 3.3 Role of the specific Guidebook

The specific guidebook represents the service portfolio of an OSS. It encapsulates all expertise of an OSS in CEP development. It is the foundation of the DISCOVER support activities in the coming months, as it will be used by the staff working in the OSS. It serves as the basis for the interactive guidebook.

Using the specific guidebook, the OSS can provide support in the following ways:

- Direct assistance by OSS staff (e.g., financial evaluation of the project and expected revenue).
- Guidance on how to proceed (e.g., advising on selecting the appropriate legal entity for the REC).
- Providing contextualized information (e.g., offering contractual templates to establish the legal entity for an energy community).
- Referrals to relevant external professionals (e.g., a list of certified structural engineers to assess roof suitability for PV installation).
- Enhanced interconnectivity (e.g., offering predefined forms to streamline communication with external stakeholders, ensuring they receive the necessary information and minimizing back-and-forth).

## 3.4 Methodology

The specific guidebook has evolved from previous DISCOVER findings. During the initial months of the project, the DISCOVER team focused on identifying existing support services and schemes relevant to CEPs. Additionally, the lifecycle of CEPs was analyzed and structured into general steps. This was followed by an examination of the hurdles faced by CEP initiators. The specific guidebook consolidates these findings into a single document, providing a comprehensive and structured list of support services. Developing the guidebook involved expanding on the general steps with local content, linking relevant services to each step, and identifying local stakeholders essential for their successful completion.

Each pilot region was responsible for developing its own specific guidebook. To ensure coordination among all pilot regions and alignment with the general guidebook, SharePoint lists were used. The lookup features of these lists allow to reference steps from the general guidebook. This is crucial to build up on previous work done within the DISCOVER project, such as the stakeholder list. Additionally, the input masks in SharePoint lists provide a convenient way to collect data.

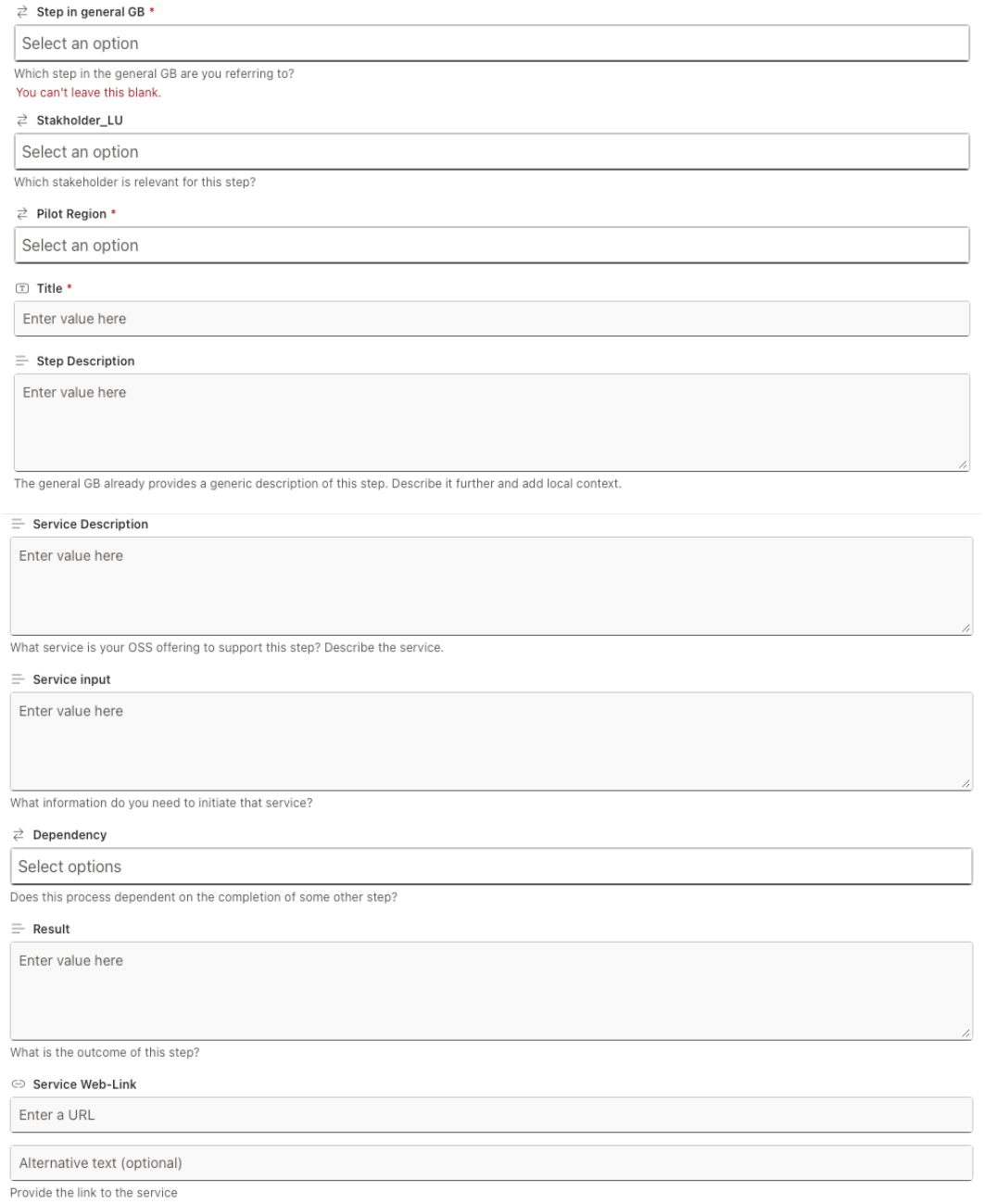


*Figure 3: Input Mask for developing the specific guidebook*

# 4 Specific Guidebook

The specific guidebooks for each pilot region are detailed in the following chapters. They outline the portfolio of support services that an OSS will offer to CEP initiators. The services are listed sequentially in chronological order, following this structural pattern:

- Reference to a step from the general guidebook. It should be noted that a step from the general guidebook may be referenced multiple times in a specific guidebook, effectively breaking it down into sub-steps, while others are only applicable to certain pilot regions and may not be mentioned at all.
- Detailed description of the step, integrating the local context (e.g., stakeholders, resources, and regional specifics).
- Outline of OSS support services, specifying how the OSS assists the CEP initiator during this step and the expected outcome. If applicable, a web link to the online service is provided.
- If the service is dependent on the completion and outcome of a prior service, this is indicated as a dependency.

## 4.1 Austria

### AT: Analysis - Structural

**Reference:** Analysis - Structural: Investigate the structural prerequisites for your PV installation.
**Step Description:** If a structural analysis is required, then it must include the following: For a new building: - Proof of the load-bearing capacity, usability, and durability of the load-bearing structure in accordance with OIB-RL 1. For the subsequent installation of a PV system: - Survey of the existing structure, at least to Level 1, in accordance with the guidelines of OIB-RL 1 - Proof of the minimal impact of the measure (load increase ≤ 3%) OR - Proof of the load-bearing capacity, usability, and durability of the load-bearing structure in accordance with OIB-RL 1

**Service Description:** Provide a referral for a civil engineer

**Result:** Structural analysis approved

## AT: Permit - Building Code

**Reference:** Permit - Building Regulations: Apply for permit.
**Step Description:** Some PV installations need building notification (Bausanzeige), some need building permit (Baubewilligung) some need none. In any case, compliance with fire protection, glare, and structural integrity is required.
**Service Description:** Guidance
**Service Web-Link:** Vienna Instructions
**Result:** Permit granted

## AT: Analysis - Max Feed-In Steiermark

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.
**Step Description:** For systems up to 250 kW, the feed-in capacity can be temporarily or generally reduced to an agreed maximum value to guarantee safe and efficient operation of the grid. The limitation may not exceed 1% of the maximum capacity at the grid connection point (§ 54 Abs 5 ElWOG) According to § 3 of the Electricity Network Services Regulation 2012 (END-VO), the distribution network operator must provide network users who are to be connected at network level 7 with a written cost estimate for the network provision fee and the network access fee within 14 days of receiving a complete written request for the defined scope of services. For network users who are to be connected at network levels 1 to 6, this deadline is extended to one month.

**Service Description:** Find how much feed-in the grid can handle. If the grid infrastructure is limited, your feed-in power may be restricted.
**Service Web-Link:** Online Capacity Query
**Dependency:** AT: Analysis - Solar Radiation and Electricity yield
**Result:** Max available feed in power
**Stakeholder:** Energy Netze Steiermark

## AT: Analysis - Free capacity per substation

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.
**Step Description:** Understand if the substation still has free capacity Available or booked capacities per substation (network level 4) are published quarterly.
**Service Description:** EbUtilities provides an online service with a map plus contacting details.
**Service Web-Link:** ebUtilities Map
**Result:** Knowledge about the Free Capacity
**Stakeholder:** ebUtilities

## AT: Permit - Grid Connection

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.
**Step Description:** Grid operators cannot deny Systems <= 20 kW from being connected to the grid (§ 17a Abs 1 ElWOG). A feed-in capacity is guaranteed up to the extent of the already agreed consumption capacity. The typical consumption capacity is usually 4 kW or 8 kW in residential areas. The permission remains valid for at least 12 months. An extension of the validity period is possible if the construction or completion of the system is not possible.
**Service Description:** Request an approval from power grid operator for your PV plant.
**Result:** Grid access contract

## AT: Analysis - Grid Connection Costs

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.
**Step** Description: Pay grid provision fee (Netzbereitstellung) and the grid access fee (Netzzutrittsentgelt). Netzbereitsstellung is paid for the use of an existing network system Netzzutrittsentgelt is to be paid for the initial establishment of the grid connection or for modifications to a connection due to an increase in the connection capacity. It is calculated as a flat rate based on the bottleneck capacity of the system. Additional costs for the grid

connection can be billed separately to grid users with >20 kWp. The distribution system operator has 2 weeks (network level 7) or 1 month (network levels 1 to 6) from the receipt of a request to provide a cost estimate.
**Service Description:** Request cost estimate.
**Service Web-Link:** E-control guide
**Result:** Cost estimate

## AT: Analysis - Consumption

**Reference:** Analysis- Consumption: Understand your electricity demand
**Step Description:** Your annual electricity demand is stated on your utility bill. You also find it on the web portal of your electricity provider and/or grid operator.
**Service Description:** Determine the annual consumption
**Result:** Total annual consumption in kWh

## AT: Analysis Consumption

**Reference:** Analysis- Consumption: Understand your electricity demand
**Step Description:** Electricity consumption can be estimated based on old electricity bills. Alternatively, smart meters can be read via the service portal of the grid operator. These time series provide insight into the dynamics of electricity consumption.
**Service Description:** Interpretation of time series.
**Service Web-Link:** Serviceportal Grid Operator
**Result:** Average consumption and peak consumption

## AT: Analysis - Feed-in tariffs

Reference: Uptake Agreement: Find someone who will buy your excess electricity. (Grid)
Step Description: Compare various prices for excess solar electricity,
Service Description: Guidance on selecting a company
Service Web-Link: Comparison Table
Result: Feed in tariff - ct/kWh
**Stakeholder:** Bundesverband Photovoltaic Austria

## AT: Analysis - Solar Radiation and Electricity yield

**Reference:** Analysis - Yield: What is the size and outcome of my PV plant?
**Step Description:**
1) Determine the Annual Solar Radiation for your address (in kWh/m2/a)
2) Multiply with your plant size (in m2) and efficiency (kWelectric / kWradiation)
**Service Description:** Determining Radiation and calculating yield
**Service Web-Link:** Solarpotential Kataster Wien
**Result:** kWh per year

## AT: Analysis Economical

**Reference:** Analysis - Economics: Calculate the expenses and earnings for your PV.
**Step Description:** Use the calculation tool
**Service Description:** Suggest the tool
**Service Web-Link:** SonnenKlar PV-Rechner
**Dependency:** AT: Analysis - Consumption;#35
**Result:** Break even point, annual revenue

## AT: Analysis - Tax

**Reference:** Analysis – Economics: Calculate the expenses and earnings for your PV.
**Step Description:** Anyone who operates a photovoltaic system and uses the electricity themselves (self-consumption) or sells it must also consider Austrian tax law. The revenue from electricity sales and/or the use of self-generated electricity for private purposes creates an income tax obligation. Additionally, the question of VAT liability must be clarified. Furthermore, potential social security obligations must be taken into account.
**Service Description:** Calculate the estimated annual tax on revenue generated from selling electricity.
**Service Web-Link:** Tax Guide
**Dependency:** AT: Analysis - Consumption;#35
**Result:** Estimate for the annual tax obligations

## AT: Insurance

**Reference:** Insurance: Find an insurance provider.
**Step Description:** Find insurance that covers damage from hail, storms, lightning strikes, and fire. Many building insurances already include coverage. Consider separate insurance for off roof installations. Typical costs: 2 EUR per kWp
**Service Description:** Providing a list of reference insurance products for price comparison.
**Result:** Insurance Policy
**Stakeholder:** 123Versichert

## AT: Financing - Crowd Financing

**Reference:** Financing - Private Capital: Ensure financing and source external capital.
**Step Description:** Apply for a crowd financing scheme.
**Service Description:** Provide a referral to financing institution
**Result:** PV installation financing secured. Shares available for purchase.

## AT: Financing - Grant

**Reference:** Financing - Public Funding: Ensure financing and source external capital.
**Step Description:** The EAG grants investment subsidies, for which project proposals must be submitted to ongoing funding programs. The planned project costs are used to calculate the maximum funding amount. The amount of the investment subsidy is limited to a maximum of 30% of the investment volume directly required for the construction of the system. Systems that have already been benefited by the zero tax rate for PV systems can no longer be subsidized through the investment grant.
**Service Description:** Online application
**Service Web-Link:** EAG Abwicklungsstelle
**Dependency:** AT: Analysis Economical;#150
**Result:** Grant
**Stakeholder:** EAG Abwicklungsstelle

## AT: Metering Device

**Reference:** Commissioning - Plant: Get the permission to start operation
**Step Description:** Request installation of a meter. The installation of a meter must take place within 3 working days (standard load profile) or 8 working days (load profile meter) after the completion of the registration.
**Service Description:** Guidance
**Result:** Smart Meter Installed

## AT: Legal Entity

**Reference:** Establish Legal Entity: Create your REC by establishing a legal entity.
**Step Description:** An energy community needs to become a legal entity. The cheapest option is to establish a society "Verein" at the local authority: District Commission (Bezirkshauptmannschaft) or Regional Police Directorate (Landespolizeidirektion)
**Service Description:** Provide contractual templates
**Service Web-Link:** Online Application
**Result:** Approval to commence association activities Registration Number (Vereinsnummer)
**Stakeholder:** Bezirks Hauptmannschaft

## AT: Registration - Market Participant

**Reference:** Registration - Market: Register your REC to be involved in the electricity market processes.
**Step Description:** ebUtilities.at provides the market partner directory which includes registered market partners. Operators of (future) energy communities need to register on the platform. Registered members can apply their energy community. They will receive a unique Market Partner ID after ~ 2 days.
**Service Description:** Register online
**Service Web-Link:** EbUtilities Registration
**Result:** Market Partner ID
**Stakeholder:** ebUtilities

## AT: Registration - Grid Operator

**Reference:** Registration - Market: Register your REC to be involved in the electricity market processes.
**Step Description:** Energy communities need to sign a contract with the grid operator.
**Service Description:** Fill out online mask
**Service Web-Link:** Grid Operator Registration
**Dependency:** AT: Legal Entity;#153;#AT: Registration - Market Participant;#154
**Result:** Community (“Gemeinschafts”) ID
**Stakeholder:** Salzburg Netze

## AT: Registration - EDA Portal

**Reference:** Registration - Market: Register your REC to be involved in the electricity market processes.
**Step Description:** The EDA Portal is a web platform for energy service providers and energy communities. It provides easy access to energy industry data.
**Service Description:** Fill out online form
**Service Web-Link:** EDA Registration
**Dependency:** AT: Registration - Grid Operator;#155
**Result:** EDA account and access to eda portal
**Stakeholder:** EDA Portal

## AT: Registration - EC members

**Reference:** Registration - Market: Register your REC to be involved in the electricity market processes.
**Step Description:** With your eda access, you can create a new energy community in your eda portal. Afterwards you can invite others to join your community.
**Service Description:** Setup your eda portal
**Service Web-Link:** EDA login
**Dependency:** AT: Registration - EDA Portal;#156
**Result:** Energy data for your community members will be aggregated and saved on your

portal
**Stakeholder:** EDA Portal

## AT: Registration - Tax

**Reference:** Registration - Tax: Register your REC at the tax authority.
**Step Description:** You will receive mail from the tax authority. Notify them about the commencement of association activities and provide a signature sample.
**Service Description:** Send the required documents: „Verf 15a“ and „Verf 26“
**Stakeholder:** Finanzamt

## AT: Registration - VAT Number

**Reference:** Registration - Tax: Register your REC at the tax authority.
**Step Description:** For energy communities whose turnover does not exceed 55,000 euros p.a., the tax exemption for small businesses (§ 6 para. 1 no. 27 of the VAT Act 1994) applies. These entrepreneurs do not need to pay VAT to the tax office; however, they are not allowed to show VAT on invoices they issue. Furthermore, the input tax deduction is not allowed for these entrepreneurs. However, the energy community may, declare in writing to the tax office that they waive the tax exemption and will tax their turnover.
**Service Description:** Support the decision process: Should the community waive the tax exemption in order to show VAT on invoices?
**Result:** Receive a VAT ID number
**Stakeholder:** Finanzamt

## AT: Billing - Monthly invoicing

**Reference:** Billing: Periodic settlement of electricity consumption and feed-in.
**Step Description:** Energy community operators have access to energy consumption (and feed-in) data of each member. This data needs to be transposed into an invoice. Invoices need to be send out periodically. Payment accounts need to be updated.
**Service Description:** Referral to company that offers invoicing service

**Dependency:** AT: Registration - EDA Portal;#156
**Result:** Invoices send out to members

### AT: Billing - Price Sheet

**Reference:** Billing: Periodic settlement of electricity consumption and feed-in.
**Step Description:** Costs for electricity consumption from the energy community (and compensation for feed-in to the community) need to be adjusted and communicated frequently.
**Service Description:** Referral to company that offers rate sheet services
**Result:** Price sheets sent out to community members periodically.

## 4.2 Bulgaria

### BG 01: Community building

**Reference:** Community Building: Establish the foundation of your community
**Step Description:** Create an initiative committee by experienced individuals. Organize a steering committee with a project coordinator. Engage local individuals interested in PV and CEPs. Introduce and promote the CEP to local authorities.
**Service Description:** We will facilitate the discussions between the initiators of CEP and advise on the procedural steps to create the Community. Form the Steering committee and other structures based on the investment concept. Plan discussions with other stakeholders, such as local SMEs, NGOs and citizens. Organize presentations for the local authorities to promote the CEP and ensure support from them.
**Result:** Protocols of meetings for the establishment of Energy community with identification of the Steering committee members and a project coordinator. Presentation document (PPT) of the investment concept to be presented to the local authorities.
**Stakeholder:** Chamber of Energy communities in Bulgaria

## BG 02: Community assessment

**Reference:** Community Assessment: Get to know your community.
**Step Description:** Evaluate the purpose of the E.C. and its size to measure its potential impact. Identify the members of the community to understand its composition. Potential future members must be considered as well. Explore the needs and motivations of the EC members to align community initiatives with community objectives. Find out what members are willing to share within the community in order to define the level of collaboration and resource exchange.
**Service Description:** Decide on the size of the CEP in order to develop your business model; Understand the motivation and resources of your members - individuals, SMEs, NGOs, or public authorities in order to reach your objectives. Define short, mid-term and long-term goals following the three phases of the EC operation. Consider a strategy of attracting future members, if appropriate..
**Result:** REC business concept elaborated. Internal and external management procedures outlined.
**Stakeholder:** Chamber of Energy communities in Bulgaria

## BG 03: CEP Purpose and Vision Proposition

**Reference:** Value Proposition: Define the purpose and the vision for forming a community.
**Step Description:** Definition of the purpose and vision of the CEP, including the outcomes, the overall benefit, and how the members will benefit from it, discuss the overarching goals of the EC. This very initial step makes sure that all participants share the same values and are on one page regarding the project concept, its implementation and their roles in the process (responsibilities and potential benefits). Furthermore, it is important to demonstrate the economic and social innovation to the overall community and potentially to the region, where the EC is established in order to make sure that the general public is supportive of the project and will not create potential disruptions in the implementation phase.
**Service Description:** Formulate correctly the economic and technical objectives of your REC and its tasks on a conceptual stage. Next, build a step-by-step action plan and different versions of the business plan. Those have to correspond to the different initial visions, allowing to evaluate the benefits for the participants and assess the pros and cons of the

initiative as a whole.

**Dependency:** BG 02: Community assessment;#66;#BG 01: Community building;#170

**Result:** Economic, social and environmental plan of the EC that has been consensually agreed on by all local stakeholders and members/potential members of the EC. Presentation (PPT) of the project vision/purpose that has been agreed on to facilitate outreach to potential partners and authorities and enhance broader local/regional support for the project.

## BG 04: Environmental impact assessment

**Reference:** Permit - Environmental: Apply for an environmental permit.

**Step Description:** Check with normative base and local environmental institution (RIEW) whether the implementation of roof-top and stand-alone PV installation up to a certain plant size require an environmental impact assessment or any other environmental permit prerequisites for being granted a building permit.

**Service Description:** Study the normative prerequisites for environmental permits based on your specific technical project concepts. The assessment is necessary if your plant size exceeds 30 MW or if PV plant is freestanding object. The environmental assessment can vary widely depending on the project's scale, location, and complexity. Note that the time required to complete the assessment can last from several weeks to several months. Understanding these factors is essential for ensuring compliance with environmental regulations.

**Dependency:** BG 12-2: Analysis - Size of PV installations, electricity storages, direct power lines and power grid connections;#117

**Result:** Clear understanding of environmental permitting procedure for the EC projects.

## BG 05: Preliminary building permit for PV plants and direct power lines in urban environments

**Reference:** Permit - Building Regulations: Apply for permit.

**Step Description:** Obtain authorization by local authorities in order to construct PV plant and direct power lines. Restrictions on sites for cultural and historical heritage have to be

respected.

**Service Description:** Submit the legally required set of technical drawings and provide the investment concept and circumstances while applying for permit for integrated PV plant in buildings, power storages and direct power lines in urban environments.

**Service Web-Link:** https://nag.sofia.bg/RegisterBuildingPermitsPortal/Index

**Dependency:** BG 04: Environmental feasibility check;#130

**Result:** Submission of all applications for PV installations and direct power lines.

**Stakeholder:** Sofia municipality

## BG 06: Documentation and Approval - Technical projects

**Reference:** Permit - Spatial planning legislation: Apply for permit.

**Step Description:** Prepare technical documentation for the PV plant/EC to apply for different permits, including building permit, grid connection permit, etc.

**Service Description:** Find an engineering company to prepare full technical project sets, incl. technical designs and graphic presentations. These shall include:

- structural analysis of rooftop structures
- architectural design
- drawings of the electrical design
- drawings of the construction projects
- other, required by Ordinance No. 4 of 2001 on the scope and content of investment projects. **Dependency:** BG 09-3: Obtaining a Permit for connection to the grid;#113;#BG 09-1 : Analysis - Additional grid connections;#79;#BG 08-2: Analysis - Power distribution cabinets;#76;#BG 12-2: Analysis - Size of PV installations, electricity storages, direct power lines and power grid connections;#117;#BG 05: Preliminary building permit for PV plants and direct power lines in urban environments;#72

**Result:** Technical projects, drawn by certified engineers and approved by the chief architect of the municipality and by the utility companies.

## BG 07: Analysis - Load bearing capacity for installation of PV systems

**Reference:** Analysis - Structural: Investigate the structural prerequisites for your PV installation.
**Step Description:** Determine whether the roof structure can bear additional load of PV installation and how big the load can be.
**Service Description:** Determine the general condition of the building and its roof structures. Obtain confirmation of the load-bearing capacity (required by law) of the structures from a certified engineer as well as any necessary repairs and/or reinforcements. The analysis shall include: - Description of the existing condition of the building from the aspect of construction (the calculated total vertical load); - Description of all roof elements and structures; - Calculation required by law: of the load-bearing capacity for the additional load from the PV installations of the resistance of the existing structure to destruction and lifting by wind due to the new PV installations to be constructed Certified constructor's expert assertion that the existing structure of the building can bear the additional loads by the PV installations Certified constructor's design drawings of the PV installation's construction elements, made in accordance with the legal requirements by applicable regulations
**Result:** Set of certified constructor's technical drawings, with indication of load-bearing capacity on the roof and other indications required by law

## BG 08-1: Analysis - Connection to the power grid for self-consumption and connection between CEP/EC participants by direct power lines

**Reference:** Analysis - Wiring: Investigate existing wiring within property.
**Step Description:** Identify the nearest connection point to the grid with the DSO and check whether there are possibilities for augmentation of the feed in power. Check if there are any limitations on feed-in power, as well as the hardware requirements for connecting the PV system to the grid.
**Service Description:** Explore with DSO the available on-site options for connecting the PV plant, energy storage and direct power lines for self-consumption by CEP/EC participants.

Make the set of technical drawings and documents required by law and submit them to the DSO.

**Service Web-Link:** https://ermzapad.bg/bg/za-klienta/uslugi/prisedinyavaniya/

**Dependency:** BG 07: Analysis - Load bearing capacity for installation of PV systems;#73

**Result:** Wiring schemes (internal and external) for all buildings and direct power lines within the scope of the CEP/EC approved by the DSO.

**Stakeholder:** Electricity System Operator Bulgaria (ESO)

## BG 08-2: Analysis - Power distribution cabinets

**Reference:** Analysis - Wiring: Investigate existing wiring within property.

**Step Description:** Assessment of whether the existing power cabinets that service the building are sufficient to handle the current of the PV plant. Determine the ownership of power cabinets. Alternatively, check whether all connected consumers are part of the same private grid, which can impact the integration and efficiency of the PV installation.

**Service Description:** Determine the possible capacity of the PV installation with regard to the capacity of the existing power cabinets connecting to the grid. Determine the possible augmentation of the capacity of the existing power cabinets based on the preliminary opinion of the grid operator. Determine the amount, type and composition of power distribution cabinets.

**Result:** Block diagram and single pole diagrams of all required distribution cabinets.

**Stakeholder:** Electricity System Operator Bulgaria (ESO)

## BG 09-2: Analysis - Free capacity of the feeder/low voltage grid connection line and of the local transformer unit or substation

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.

**Step Description:** Obtain information of the DSO free grid capacity to assess whether it will be possible to sell surplus energy to the electricity market.

**Service Description: S**ubmit an application to the DSO to find the free capacity of the grid connection line and of the local transformer unit or substation. You may receive a

confirmation by the DSO that the grid connection has enough free capacity. We will assist you in booking the available grid capacity.
**Service Web-Link:** https://ermzapad.bg/bg/za-klienta/uslugi/prisedinyavaniya/prisedinyavane-na-prozivoditel-nad-30-kw/
**Dependency:** BG 12-2: Analysis - Size of PV installations, electricity storages, direct power lines and power grid connections;#117
**Result:** Detailed load diagrams and confirmation/approval by the DSO for sufficient free grid capacity.
**Stakeholder:** Electricity System Operator Bulgaria (ESO)

## BG 09-1: Analysis - Additional grid connections

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.
**Step Description:** For a CEP/EC with several buildings included and several direct power lines between the participants more than one grid connections with different characteristics maybe explored.
**Service Description: F**ind out the limitations of grid connections and direct power lines between participants that will limit the composition of the CEP/EC. Prepare the applications to the DSO.
**Dependency:** BG 12-1: Analysis - Roof areas, solar radiation and electricity yield profile;#116
**Result:** Provisional structure of the multiple connections of the energy community to the local grid.

## BG 09-3: Obtaining a Permit for connection to the grid

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.
**Step Description:** To build a PV plant first of all is necessary to obtain a preliminary permit by the DSO, stating that connection to the grid in the area is possible and is generally available.
**Service Description:** Apply to the grid operator for feed-in power for the PV installation. For

systems up to 30 kWp the grid operator is obliged to connect the PV plant to the grid and a feed-in capacity is guaranteed up to the extent of the already agreed consumption capacity. For bigger systems the feed-in capacity can be reduced to a value, determined by the grid operator. The power grid operator must reply to an application for a connection within one month. The application must be completed by a number of prior coordinations with the municipality leading to a construction permit and the application process is generally slow (from 8 to 18 months) and with an uncertain end result, even if preceded by a prior analysis of the free capacity of the power grid.

**Dependency:** BG 09-2: Analysis - Free capacity of the feeder/low voltage grid connection line and of the local transformer unit or substation; #77

**Result:** Approval for connecting to the power grid in the form of operation contract and power-in permit.

**Stakeholder:** Electricity System Operator Bulgaria (ESO)

## BG 10: Analysis - Consumption Profile

**Reference:** Analysis- Consumption: Understand your electricity demand

**Step Description:** Find the consumption profile of the daily/monthly/annual routine of the EC buildings for the last three years.

**Service Description:** Find the annual consumption in kWh per day/hour and the consumption profile of every one of the CEP/EC participants based on input data from the last 3 years, or from a shorter period. Such information is available at the local DSO and from smart grid metering devices in case such exist in the building.  Apply before the DSO to receive his consumption profile.

**Service Web-Link:** https://electrohold.bg/bg/

**Result:** Profile of electricity demand per day of the year and per hour of the day. Total annual consumption in kWh; total consumption and total energy consumption per time bands: peak, off-peak and night. Choice of standardized consumption profiles, if an individualized consumption profile cannot be defined / is not predictable.

## BG 11: Contract - Sale of excess electric energy to the market

**Reference:** Uptake Agreement: Find someone who will buy your excess electricity. (Grid)
**Step Description:** Identifying, contacting and negotiating favorable off-take terms with consumers in the vicinity of the EC. Provide expert knowledge to EC for understanding and finding a suitable contractual partner that has a consumption profile similar to the profile of the extra electricity volumes in the EC (complementary profile will maximize the potential sales price and income for the EC).
**Service Description:** To secure favorable off-take agreements for surplus electricity from the Energy Community based on PPA you need to:
- Identify suitable off-takers – look for consumers with a demand profile that complements the EC's surplus production (e.g., industrial plants, commercial buildings, agriculture, or public sector).
- Engage & contact potential buyers – use market research, direct outreach, and networking to present the business case for purchasing surplus electricity.
- Negotiate favorable terms – focus on pricing models, contract duration, volume commitments, grid fees, and flexibility to maximize revenue and stability.
- Provide expert advisory support – help the EC with technical analysis, regulatory compliance, financial modeling, and risk management to secure the best deal.
**Dependency:** BG 09-3: Obtaining a Permit for connection to the grid;#113
**Result:** Offtake agreement (PPA)
**Stakeholder:** ESCO Bulgaria

## BG 12-1: Analysis - Roof areas, solar radiation and electricity yield profile

**Reference:** Analysis - Yield: What is the size and outcome of my PV plant?
**Step Description:** Evaluate the available area for panel placement, determine how much photovoltaic capacity can be accommodated, assess the possible solar yield at the EC location. Recommend high efficiency PV panels. and estimate the total energy output of the system.
**Service Description:** Obtain solar audit report. Determine the annual solar production of

each of the PV installations in the CEP/EC using the EU Photovoltaic Geographical Information System (PVGIS) and specialized software, recognized by the national authorities.

**Service Web-Link:** https://re.jrc.ec.europa.eu/pvg_tools/en/#api_5.1

**Result:** Yearly electricity production profile per day/hour in kWh.

## BG 12-2: Analysis - Size of PV installations, electricity storages, direct power lines and power grid connections

**Reference:** Analysis - Yield: What is the size and outcome of my PV plant?

**Step Description:** This step provides the initial project information about the size of the required energy equipment, i.e. PV installations, electricity storage, direct power lines and power grid connections.

**Service Description:** ind out 1) how much kWp the PV installations in the CEP/EC should have in accordance with the consumption profiles and available rooftop/adjacent territory areas. 2) what should be the capacity of the electricity storages 3) what should be the length and the capacity of the direct power lines and the grid connection lines

**Dependency:** BG 12-1: Analysis - Roof areas, solar radiation and electricity yield profile;#116;#BG 09-1 : Analysis - Additional grid connections;#79

**Result:** PV installations sizes in kWp, m2 and types of modules Electricity storages' sizes in kWh Direct power lines and power grid connections sizes in m and kWh

## BG 14-1: Analysis - Self energy consumption by CEP/EC participants

**Reference:** Analysis - Economics: Calculate the expenses and earnings for your PV.

**Step Description:** Use real and prognosis data for the last 3 years to match the electricity yield with the consumption profile of each of the CEP/EC participants. Determine how much electricity will be consumed directly or by direct power lines within the CEP/EC, instead of feeding it into the power grid for sale on the market.

**Service Description:** Find the necessary economic data about the own consumption and the yield of the PV installations in order to be able to make the basic profit and loss

calculations for the project.
**Dependency:** BG 10: Analysis - Consumption Profile;#114;#BG 12-1: Analysis - Roof areas, solar radiation and electricity yield profile;#116
**Result:** Daily profile on annual basis for the level of self energy consumption within the CEP/EC and PPA provisions of each day per year.

## BG 14-2: Key elements of economic and financial analysis and business plan

**Reference:** Analysis - Economics: Calculate the expenses and earnings for your PV.
**Step Description:** Evaluate the PV system to determine how much of the generated electricity can be used by the members of the EC and how much can be sold. It includes financial analysis and developing the business plan, considering 1) the savings from reduced electricity bills, 2) the revenue from selling excess power and 3) costs associated to maintenance and repair. Evaluating the overall economic feasibility of the project to ensure that the PV system is a sound financial investment.
**Service Description:** Develop a business plan and a cash-flow analysis, including CBA for the construction of the PV installations, electricity storages, direct power lines between the participants of the CEP/EC, SMART GRID management systems.
**Dependency:** BG 08-1: Analysis - Connection to the power grid for self-consumption and connection between CEP/EC participants by direct power lines;#75;#BG 10: Analysis - Consumption Profile;#114;#BG 14-1: Analysis - Self energy consumption by CEP/EC participants;#118;#BG 09-1 : Analysis - Additional grid connections;#79;#BG 18: Public co-financing for ECs;#34
**Result:** Business plan, including step-by-step plan and cash flow analysis.

## BG 14-3: Estimate - Costs

**Reference:** Analysis - Economics: Calculate the expenses and earnings for your PV.
**Step Description:** Estimate the costs related to the building of the PV installation, electricity battery storages, direct power lines between installations of participants in the CEPs/ECs and SMART GRID management systems

**Service Description:** Build purchase/cost lists for the equipment, needed to construct the E.C. energy installations.
**Dependency:** BG 09-1 : Analysis - Additional grid connections;#79;#BG 08-2: Analysis - Power distribution cabinets;#76;#BG 12-2: Analysis - Size of PV installations, electricity storages, direct power lines and power grid connections;#117;#BG 05: Preliminary building permit for PV plants and direct power lines in urban environments;#72;#BG 09-3: Obtaining a Permit for connection to the grid;#113
**Result:** Labor and material costs in the form of bill of quantities and values

## BG 13: Financial concept

**Reference:** Preassessment - Financing: Make an initial assessment about financing possibilities
**Step Description:** The feasibility of the technical solution (PV installation/electricity battery storages) is very much dependent on the possibility to finance the endeavor. After having gone through the previous steps, initiators should have an estimate about the investment volume required by the EC for project implementation. In this step, financial possibilities shall be assessed, consisting of own funding (equity), public funding and subsidies, as well as third party funding like bank loans, leasing and other instruments such as ESCOs. At this stage initial discussions with financial institutions (banks, specialized financing vehicles) as well as ESCOs should be conducted.
**Service Description:** Make an initial assessment about financing possibilities After having estimates of the project investment (CAPEX), the EC shall understand all costs for establishing and operating the EC (OPEX): - administrative costs, - employee costs for reporting and coordination services (depending on size of the EC), - electricity exchange costs (bank guarantees for market participation), - costs for other services. Understand the need for external financing and propose a basic financing model.
**Dependency:** BG 10: Analysis - Consumption Profile;#114;#BG 12-2: Analysis - Size of PV installations, electricity storages, direct power lines and power grid connections;#117
**Result:** Concept and structure for financing the EC (CAPEX and OPEX) from different applicable financing sources

## BG 15: Insurance

**Reference:** Insurance: Find an insurance provider.
**Step Description:** The planning of the PV system and battery storage solution (technical solution) requires understanding all risks and costs associated with insurance. It is crucial to be adequately covered for potential issues such as equipment damage, theft, or liability. Compare different insurance offers to find the best coverage and rates. Additionally, some insurance companies offer insurance products on the productivity (estimated annual yield) of the installation. Evaluating these factors will help safeguard the investment of the EC and ensure comprehensive protection of your technical equipment for the estimated lifetime of the project (not less than 25 years).
**Service Description:** Contact specialized solar insurance provider (Renewable Energy Insurance Broker) and discuss/come out with a designated insurance product for PV systems/entire technical solutions for ECs in Bulgaria.
**Service Web-Link:** https://reib-us.com/en/
**Dependency:** BG 12-2: Analysis - Size of PV installations, electricity storages, direct power lines and power grid connections;#117;#BG 13: Financial concept;#167;#BG 21-1: Commissioning - PV systems, direct connection lines, battery storage devices and SMART GRID automatic control system ;#125
**Result:** Create standardized insurance product for PV plants/technological solutions in ECs

## BG 16: Consulting EC roles

**Reference:** Community Roles: Define the core team and their responsibilities.
**Step Description:** General consulting depending on the objectives of the CEP/EC, including organizational structure, workload and responsibility distribution and management structures.
**Service Description:** Define the various structures depending on the founding members and objectives of the CEP/EC. Design a lean and functional organisational structure, consisting of a General Assembly, Executive Board and Supervisory Board. Distribute the roles based on competences, democratic principles and phases of operation.
**Result:** CEP/EC structure defined, GA, ExB and SB established and roles assigned to relevant members.

## BG 17: Co-financing mechanisms with ESCOs/Private Banks/Crowdfunding

**Reference:** Financing - Private Capital: Ensure financing and source external capital.
**Step Description:** There are three potential ways to privately co-fund an EC project - getting a loan from a private bank, gathering resources from different rather small-scale investors in the form of crowdfunding and/or attracting one bigger investor in the form of an ESCO that is specialized in financing and implementing EE and RES projects by taking over the risk of the EC participants.
**Service Description:** You will be provided with a techno-economic advice (based on the specific needs of the EC) and contacts to pre-selected private banks and ESCOs that have already stated their willingness to participate in the financing and/or implementation process of EC projects. Furthermore, you will be introduced to crowdfunding mechanisms that will support the financing structure of the project and allow the EC participants to keep a majority share in the ownership of the EC projects and thus the potential incomes.
**Dependency:** BG 14-3: Estimate - Costs;#121;#BG 18: Public co-financing for ECs;#34;#BG 10: Analysis - Consumption Profile;#114;#BG 12-2: Analysis - Size of PV installations, electricity storages, direct power lines and power grid connections;#117;#BG 11: Contract - Sale of excess electric energy to the market;#115;#BG 14-2: Key elements of economic and financial analysis and business plan;#119
**Result:** The result is a complete realistic financing structure of the projects.
**Stakeholder:** ESCO Bulgaria

## BG 18: Public co-financing for ECs

**Reference:** Financing - Public Funding: Ensure financing and source external capital.
**Step Description:** The public financing will guarantee the overall economic feasibility of the projects and thus support the involvement of private fund in the co-financing structure (private bank/ESCOs). Even the crowdfunding mechanism (the involvement of the project owners in the financing of their projects) will be strongly enhanced once a public entity is backing the entire financing mechanism.
**Service Description:** You will be assisted in applying for a targeted loan with below-market

financing parameters, guaranteed by GEF for 50% of the EC project budget.
**Dependency:** BG 14-2: Key elements of economic and financial analysis and business plan;#119
**Result:** Covering of 50% of financing and risk by EERSF
**Stakeholder:** ENERGY EFFICIENCY AND RENEWABLE SOURCES FUND

## BG 19: Construction - Installing PV System, direct connection lines, battery storage devices and SMART GRID automatic control system

**Reference:** Sourcing - Equipment: Initiate bidding process and buy equipment
**Step Description:** Specify requirements for the PV installation/battery storage solutions detailing the technical and functional needs of the desired equipment, including any performance criteria or standards. Compare prices from different suppliers with the aim to have the best investment value, including warranty and support.
**Service Description:** Collect information from the market suppliers of PV equipment, battery storage equipment, cabling and smart metering devices, based on the technical requirements of the EC. Get price offers and make a comparative analysis with a final selection and present it to the client. Alternatively, provide the latter with a list of suppliers and advise on potential best value for money offers.
**Service Web-Link:** https://www.solartim.eu; https://bulgarterm.bg/product-category/fotovoltaichni-sistemi/fotovoltaicni-sistemi/ https://www.solartim.eu; https://bulgarterm.bg/product-category/fotovoltaichni-sistemi/fotovoltaicni-sistemi/
**Dependency:** BG 06: Documentation and Approval - Technical projects;#122;#BG 14-3: Estimate - Costs;#121;#BG 09-1 : Analysis - Additional grid connections;#79
**Result:** A list of suppliers, price lists for equipment based on specific technical specifications; comparative analysis.

## BG 20: Professional expertise

**Reference:** Sourcing - Professionals: Find and hire Service Providers and Technicians for the installation of your PV plant
**Step Description:** This step consists in finding engineers and technicians for the installation of the PV plant. It involves the evaluation of qualified and recommended professionals and their expert fees, using competitive approach and value for money, while emphasizing on quality standards and respecting timelines.
**Service Description:** Communicate the characteristics of the CEP/EC project to potential professionals and companies. Provide detailed information about the project's scope, requirements, and goals. Approach and evaluate qualified professionals with the expertise needed. Compare prices and value propositions from different providers to ensure the best rates. Prepare contractual agreements to outline the terms of work, including deliverables, timelines, and payment conditions.
**Dependency:** BG 06: Documentation and Approval - Technical projects;#122
**Result:** External service providers/experts identified, approached and hired through framework contractual agreements.

## BG 21-1: Commissioning - PV systems, direct connection lines, battery storage devices and SMART GRID automatic control system

**Reference:** Commissioning - Plant: Get permission to start operation
**Step Description:** Conduct a thorough inspection to ensure that all components of the PV plant are properly installed, and it operates safely. Confirm that all safety protocols are in place. Accept the take-over certificate from the engineer. Ensure that the installation meets all regulatory requirements, including local codes and standards, to guarantee compliance and avoid any legal or operational issues.
**Service Description:** After equipping the existing connection and building direct connection lines, electricity battery storage devices and SMART GRID automatic control system, the CEP/EC energy installations are put into permanent operation

**Result:** Grid connection, direct connection lines, electricity storage devices and SMART GRID automatic control system within the CEP/EC completed and operational.

## BG 21-2: Construction - SMART GRID automatic management system

**Reference:** Commissioning - Plant: Get the permission to start operation
**Step Description:** Identifying an AI enabled SMART GRID system for fully automated control of all energy installations within the CEP/EC, capable of automatic generation of primary taxation reports and clearing operations between the participants in the CEP/EC, and between the participants and energy traders.
**Service Description:** Approach suppliers of SMART GRID solutions, suitable for the specific tasks and composition of the CEP/EC installations.
**Result:** Contract with a SMART GRID provider for the installation and tuning of an AI enabled system, capable of monitoring, controlling and building reports for all energy installations of the CEP/EC.

## BG 22: Legal entity consulting

**Reference:** Establish Legal Entity: Create your REC by establishing a legal entity.
**Step Description:** Review of national regulations for the establishment of a legal entity to set up the REC or operate a CEP, including rules of procedures, limitations and possible (dis)advantages with regards to structure (public-private), participation in energy markets and taxation.
**Service Description:** Analyse existing legal forms that facilitate the operation of a REC (CEP) and alleviate bureaucracy and administrative burden. Discuss with the Initiative (management) Committee the possible legal form according to the newly amended RE Act. Present to the core team the legal documentation required. Engage with legal advisors, accountants, and regulatory bodies, to ensure that all aspects of the establishment are handled correctly and efficiently. Prepare legal forms or approach external legal consultant to proceed with the documentation and registration in the Trade Register.
**Service Web-Link:** https://kadastra.bg/services/registar-bulstat/druzhestvo-po-zzd.html

**Dependency:** BG 16: Consulting EC roles;#67
**Result:** Legal documents prepared, including Articles of Association, Protocol for a General Assembly, Management contracts, Certificate for registration in the Trade Register of Bulgaria, others, as appropriate.

## BG 23: Registration as market participant (ESO and SEDA)

**Reference:** Registration - Market: Register your REC to be involved in the electricity market processes.
**Step Description:** To actively participate in electricity market processes, you must register the REC with the electricity system operator (ESO) and the sustainable energy development agency (SEDA) for reporting purposes. Since the REC will have an uptake agreement via a licensed electricity trader, the experience of this counterparty will be utilized to support the REC for the necessary electricity market registrations.
**Service Description:** Register the REC to be involved in the electricity market processes and reporting purposes.
**Dependency:** BG 11: Contract - Sale of excess electric energy to the market;#115;#BG 09-3: Obtaining a Permit for connection to the grid;#113;#BG 21-1: Commissioning - PV systems, direct connection lines, battery storage devices and SMART GRID automatic control system ;#125
**Result:** All necessary market participation and reporting registrations
**Stakeholder:** Electricity System Operator Bulgaria (ESO)

## BG 24: Registration with the National Revenue Agency

**Reference:** Registration - Tax: Register your REC at the tax authority.
**Step Description:** Registration of the legal entity of the REC with the National Revenue Agency of Bulgaria for tax purposes. The required information might include an economic outlook of the project showing an estimation of expected revenues. Once registered, you will receive a tax verification number, which is essential for fulfilling tax obligations. This number will facilitate accurate reporting and financial transactions related to the REC.
**Service Description:** Register the legal entity of the REC with the National Revenue Agency and receive a VAT number.

**Dependency:** BG 13: Financial concept;#167;#BG 22: Legal entity consulting;#33;#BG 23: Registration as market participant (ESO and SEDA);#171
**Result:** Receive VAT number by National Revenue Agency

## BG 25: Maintenance of HW

**Reference:** Maintenance - HW: Perform regular maintenance and repairs to the PV plant.
**Step Description:** Ensure the regular maintenance and repairs of the PV plant and other energy installations of the CEP/EC.
**Service Description:** Contact local maintenance and repair companies as well as alternative choice of such companies in order to switch providers and choose the best quality provider.
**Dependency:** BG 06: Documentation and Approval - Technical projects;#122;#BG 19: Construction - Installing PV System, direct connection lines, battery storage devices and SMART GRID automatic control system;#123
**Result:** List of recommended local service providers for maintenance and repair of PV installations and other energy equipment of the E.C.

## BG 26: Membership changes

**Reference:** Membership - Administration: On/Off boarding of REC members.
**Step Description:** In order to manage the CEP/EC effectively, report any membership changes to the power grid operator to ensure accurate records. Register new participants in the REC and update the member list to reflect current information.
**Service Description:** Prepare to report membership changes to the DSO. Register new participants of REC and update the list in the National Registration Information System.
**Dependency:** BG 29: Membership engagement;#178
**Result:** Updated records of the EC members in DSO/NRIS.
**Stakeholder:** Elektrohold

## BG 27: Billing

**Reference:** Billing: Periodic settlement of electricity consumption and feed-in.
**Step Description:** Ensure provision of SMART GRID solutions for metering in real time of

energies delivered within the CEP/EC and to/from the grid; clearance of mutual deliveries between the participants and traders, and billing of energy.
**Service Description:** Draft a list of available SMART GRID billing and clearance solutions for energy communities.
**Dependency:** BG 11: Contract - Sale of excess electric energy to the market;#115;#BG 23: Registration as market participant (ESO and SEDA);#171
**Result:** List of available SMART GRID providers offering billing and clearance solutions.
**Stakeholder:** T&D ENGINEERING

## BG 28: Accounting

**Reference:** Accounting: Bookkeeping and reporting towards tax authorities
**Step Description:** Prepare financial statements with the specific requirements for tax reporting of the CEP/E.C.
**Service Description:** Analyse and instruct your accounting expert for the specific requirements for the tax reporting of the energy community.

**Result:** Guidance document on rules and legal requirements for tax reporting of the CEP/E.C.

## BG 29: Membership engagement

**Reference:** Membership - Engagement: Member services and continuous engagement.
**Step Description:** In order to ensure transparency and accountable management of the CEP/EC their members should be regularly update with updated with current development, problems and achievements. If an extension of the project is foreseen, recruiting new members should be envisaged. Communicating the success stories of the CEP entail organizing informational and social events and campaigns.
**Service Description:** Design a communication strategy, media campaigns and grass-roots events. Review and update your policies on attracting new members, raising the capacity for energy projects management.

**Dependency:** BG 02: Community assessment;#66

**Result:** Management and communication strategies designed/updated and implemented.
**Stakeholder:** Chamber of Energy communities in Bulgaria

## 4.3 Croatia

### HR-01-Community Building

**Reference:** Community Building: Establish the foundation of your community
**Step Description:** Gather motivated individuals who want to participate in the community. Find among them members of the steering committee who will make decisions during the planning process. The committee should include a person who will coordinate the other members as well as a person who will take care of communication within the group and externally. These key members will foster group dynamics, build mutual trust and ensure that everyone has a voice. Involve local individuals interested in photovoltaic and community projects. In addition, seek support from external sources or, at the very least, secure a favorable attitude towards your project. Contact elected representatives and officials to present your community project to local authorities.
**Service Description:** Helping the initiators in laying the foundations of the future community: - notifications to future members via phone calls, social networks and/or local media about the initiative - first gathering of future members - decision: members of steering committee - decision: gathering information - duties of members and deadlines
**Result:** - Strong team of motivated people - Key members identified - Strong relationships nurtured and effective team dynamics established - Support provided

### HR-02-Community Assessment

**Reference:** Community Assessment: Get to know your community.
**Step Description:** Understanding the dynamics of your community involves assessing several key aspects. First, evaluate the purpose of your community, and its size to gauge its overall reach and potential impact. Next, identify the members of your community to understand its composition. Consider potential future members if you aim to expand. Explore the needs and motivations of your members, and potential members, to better align

community initiatives with their interests and objectives. Finally, consider what members are willing to share within the community, as this will shape the level of collaboration and resource exchange. By addressing these elements, you can develop a more effective strategy for engaging and supporting your community.

**Service Description:** Get to know your community 1. Determine what the community will be doing. 2. For each current and future member, find out: - whether it is a natural or legal person - whether he or she has or intends to build a photovoltaic power plant or will be involved in the community only as a consumer - what is his (her) average consumption - what are its production surpluses (for prosumers) 3. Defining potential new projects - which and what kind of projects will be built (new power plants or batteries) - possible locations and capacity - whether they will be financed by individual members or whether they will be financed by the community - determine the possibilities of new energy production or storage and how these capacities will affect the community

**Dependency:** HR-01-Community Building;#82

**Result:** - Community goal defined - Determined community size, number of members and composition - The needs and motivations of members - The amount of energy that will be shared within the community - Future projects - Potential candidates for future membership

## HR-03-Value Proposition

**Reference:** Value Proposition : Define the purpose and the vision for forming a community.

**Step Description:** The initial vision of your project should clearly outline its overarching goals and aspirations. Consider the potential outcomes of the project to define its success criteria and impact. Reflect on how the members will benefit from the project—whether through receiving cheaper electricity, a revenue for their investment, income from renting out roof top space, or other valuable gains. Additionally, assess how the community at large will benefit from the project, such as through strengthened networks, improved resources, or broader social impact. Draft an initial presentation of your community to facilitate outreach to potential partners and authorities. By articulating these aspects, you can align the project's objectives with the needs of both individual members and the community as a whole.

**Service Description:** Help initiators to better define: - purpose and vision of the community - main goals and outcomes - possible benefits for members and the community

**Dependency:** HR-01-Community Building;#82;#HR-02-Community Assessment;#83
**Result:** First draft of CEC (or REC) business development plan

## HR-04-2-Apply for Permit - Environmental

**Reference:** Permit - Environmental: Apply for an environmental permit.
**Step Description:** Determining whether an environmental assessment is required depends on the specifics of your project. An assessment is necessary if the plant size exceeds 10 MW and if PV plant is freestanding object. The cost of an environmental assessment can vary widely based on factors such as the project's scale, location, and complexity. Similarly, the time required to complete the assessment can range from several weeks to several months, depending on the depth of the study and the efficiency of the review process. Understanding these factors is essential for ensuring compliance with environmental regulations.
**Service Description:** Authorized person/company should: - prepare an environmental impact assessment and - apply for environmental permit.
**Dependency:** HR-04-1-Permit - Environmental;#169
**Result:** A contractor has prepared Environmental Impact Assessment and submitted application for the Environmental Permit

## HR-04-1-Permit - Environmental

**Reference:** Permit - Environmental: Apply for an environmental permit.
**Step Description:** Determining whether an environmental assessment is required depends on the specifics of your project. Generally, an assessment is necessary if the plant size exceeds 10 MW and if PV plant is freestanding object. The cost of an environmental assessment can vary widely based on factors such as the project's scale, location, and complexity. Similarly, the time required to complete the assessment can range from several weeks to several months, depending on the depth of the study and the efficiency of the review process. Understanding these factors is essential for ensuring compliance with environmental regulations.
**Service Description:** Find out if an environmental assessment is required in this area. Find out if PV plant exceeds 10 MW and if it is freestanding object. If it is, help initiators to find authorized person or company for assessment and applying for environmental permit.

**Service Web-Link:** https://bioportal.hr/gis/

**Result:** 1. Information on the possibility of building a PV plant at a specific location in relation to regulations on the protection of environment 2. Specialist's bid for preparation of assessment and applying for permit

## HR-05-2-Apply for Permit - Spatial Planning Legislation

**Reference:** Permit - Spatial planning legislation: Apply for permit.

**Step Description:** When planning a PV installation, it’s important to consider any limitations regarding the appearance of the building. Some areas have aesthetic guidelines or building codes that restrict changes to a building's exterior, which could affect or even forbid the installation of PV panels. Additionally, review the zoning plan for any restrictions that may impact your project. Your building may be subject to heritage protection regulations, which could impose specific design constraints and require consultation with the relevant authorities. Zoning regulations can impose constraints on the type of structures allowed, their height, and other factors that might influence the feasibility and design of the PV system. Understanding these limitations and restrictions is essential for ensuring compliance and avoiding potential issues with your installation.

**Service Description:** Apply for an approval from the cultural heritage protection agency or the conservation department. Include an architectural project/map - Involve a licensed architect if the installation of a PV system significantly affects the appearance and design of the building - In the case of individually protected cultural goods and buildings in protected cultural and historical units, include an architectural design made by a licensed architect with a permit to perform work on the protection and preservation of cultural property (in accordance with Narodne Novine No. 98/18). The architect can request special protection conditions.

**Service Web-Link:** https://min-kulture.gov.hr/kontakt-103/konzervatorski-odjeli-16811/16811

**Result:** Considering the limitations, the architect can propose a design that meets the required conditions.

**Stakeholder:** Adriaprojekt d.o.o. Rijeka

## HR-05-1-Permit - Spatial Planning Legislation

**Reference:** Permit - Spatial planning legislation: Apply for permit.
**Step Description:** When planning a PV installation, it’s important to consider any limitations regarding the appearance of the building. Some areas have aesthetic guidelines or building codes that restrict changes to a building's exterior, which could affect or even forbid the installation of PV panels. Additionally, review the zoning plan for any restrictions that may impact your project. Your building may be subject to heritage protection regulations, which could impose specific design constraints and require consultation with the relevant authorities. Zoning regulations can impose constraints on the type of structures allowed, their height, and other factors that might influence the feasibility and design of the PV system. Understanding these limitations and restrictions is essential for ensuring compliance and avoiding potential issues with your installation.
**Service Description:** 1.Find out if the area where the PV plant will be built is a protected area or if the building itself is a cultural property. 2.If so, help the initiators find a licensed architect who will work with conservationists to create the project and apply for a permit.
**Service Web-Link:** https://geoportal.kulturnadobra.hr/geoportal.html#/
**Result:** 1. Information on the possibility of building a PV plant at a specific location in relation to regulations on the protection of cultural and historical sites and the protection of cultural heritage 2. Architect's bid for preparation of documents and applying for permit

## HR-06-Analysis - Structural

**Reference:** Analysis - Structural: Investigate the structural prerequisites for your PV installation.
**Step Description:** Before installing a PV system, it’s crucial to assess the quality, structure, and condition of your roof to ensure it can support the installation. Evaluating the roof’s structural integrity will determine if it can handle the weight and load of the PV panels. Assess whether any repairs, reinforcements, or even a complete rebuild are needed in the short or long term. Additionally, understanding how to access the roof is important to identify any potential constraints for installation and maintenance. In some cases, a metal framework may be necessary to properly align the panels towards the sun. For ground-mounted systems, as well as for auxilary components of your PV system, a concrete base might be

required. You should also consider factors such as ventilation and fire protection.
**Service Description:** Determine the general condition of the roof. Request a calculation of the load-bearing capacity of the structure from a professional. Define required repairs and/or reinforcements. Analysis shall include: - Description of the existing condition of the building from the aspect of construction (the calculated total vertical load), - Description of the roof covering and waterproofing, - Calculation of the load-bearing capacity for the additional load from the photovoltaic power plant, - Calculation of the resistance of the existing structure to lifting due to the installation of the photovoltaic system, - Opinion on whether or not the existing structure of the facility satisfies or does not satisfy the additional load on the photovoltaic system (i.e. the Construction Design proves the fulfilment of the basic requirement of mechanical resistance and stability for measures applied in accordance with applicable regulations).
**Service Web-Link:** https://www.hkig.hr/Imenici-i-upisnici/Imenici/Razred-revidenata/Razred-revidenata/
**Result:** Load-bearing Capacity on the roof in kg/m2 Opinion of Certified Civil Engineer about additional load of PV plant on existing roof.

## HR-07-Permit Building Regulations

**Reference:** Permit - Building Regulations: Apply for permit.
**Step Description:** In order to even begin construction of a solar power plant, all construction and ownership documents must be up-to-date and in accordance with the law. Also, ownership of the building must be precisely determined and cannot be burdened by any dispute.
**Service Description:** The first step in process of collecting data and documents is to determine the legal status of the building - whether it was built in accordance with the permit and whether there are any disputes related to the ownership of the building and the land. On the websites of the Ministry of Justice of the Republic of Croatia and the Geodetic Administration of the Republic of Croatia, you can check whether a building is legally constructed and has a usage permit. It is also possible to see who ownership of the building (and land) and whether there are any existing disputes related to ownership of the building.
**Service Web-Link:** https://oss.uredjenazemlja.hr/

**Result:** Information about legality of the existing facility and about ownership of land and building.

## HR-08-2-Analysis - Meters and Distribution Cabinets

**Reference:** Analysis - Wiring: Investigate existing wiring within property.
**Step Description:** Many households in Croatia have old electricity meters. New meters can be read remotely. In many houses meters and distribution cabinets are located inside the apartment. Now, in line with new legislation it is necessary to provide access to the distribution cabinets to authorized persons and put cabinets on the outside wall of the house.
**Service Description:** In order to have PV plant and to be member of CEP, HEP ODS has to provide new meters and distribution cabinets, but client has to provide access and electrical wires to connect the cabinet to the exterior wall of the house. Work on preparing electrical installation for a new distribution cabinet has to be carried out by an electrician authorized by HEP ODS.
**Result:** New cabinets on the exterior of the house
**Stakeholder:** HEP ODS

## HR-08-1-Analysis - Wiring

**Reference:** Analysis - Wiring: Investigate existing wiring within property.
**Step Description:** Before proceeding with a PV installation, it's essential to evaluate whether the power rating of the existing wiring in your building is sufficient to handle the current of your PV plant. Check if wiring schemes are available to understand the current electrical setup and ensure compatibility with the planned system. Determine the ownership of wiring, wire conduits and wiring paths to identify any potential issues related to access or modifications, particularly for condominium buildings. Additionally, assess whether all connected consumers are part of the same private grid, as this can impact the integration and efficiency of the PV installation. Addressing these factors will help to identify the proper type of energy community.
**Service Description:** Investigate existing wiring within property. Understand how to connect a PV plant for direct (or self) consumption. There might be multiple options. This service will be provided by Certificated Electrical Engineer.

**Dependency:** HR-08-2-Analysis - Meters and Distribution Cabinets;#7
**Result:** Electrical installation project for PV plant Sufficiency of the power rating of existing wires in building to add a PV plant Availability of wiring schemes Ownership of wiring and wiring paths Are consumers connected within the same grid
**Stakeholder:** Elkin Inženjering j.d.o.o.

## HR-09-Analysis - Power Grid

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.
**Step Description:** When planning a PV installation, it's important to identify the nearest connection point to the grid to determine how the system will integrate with the existing infrastructure. Check if there are any limitations on feed-in power, as some utilities impose restrictions on the amount of electricity that can be fed back into the grid. Additionally, review the hardware requirements for connecting your PV system to the grid, including inverters, switches, interrupters and other connection equipment. Similarly, ensure you understand the hardware requirements for metering energy, which may involve specific meters or monitoring equipment to accurately track energy production and consumption.
**Service Description:** Obtaining Special Conditions Verification of the Possibility of Connecting a Household with its own Production requires: - preparation and collection of documentation and - completion of application for the issuance of electricity approval from HEP ODS This service is usually provided by companies that prepare the main project.
**Dependency:** HR-08-2-Analysis - Meters and Distribution Cabinets;#7;#HR-08-1-Analysis - Wiring;#89
**Result:** - Special Conditions Verification of the Possibility of Connecting a Household with its own Production obtained from HEP ODS - Offer for equipment for billing metering point from HEP ODS
**Stakeholder:** HEP ODS

## HR-10-Analysis - Construction Synergies and Fire protection

**Reference:** Analysis - Construction Synergies: Think about construction work that can be done in parallel while installing a PV plant.

**Step Description:** When installing a PV plant, it's beneficial to consider construction work that can be done concurrently to maximize efficiency and minimize disruptions. For example, roof work such as refurbishing the roof, or adding insulation, or installing new shingles can be completed alongside the PV installation, ensuring that synergies are benefited from. In some cases, roof work may be required, such as when insurance policies mandate it. Similarly, any facade work can be undertaken simultaneously while only paying for scaffolding once. Additionally, plan for infrastructure improvements such as installing new wire channels or piping, which can be integrated into the overall project to streamline both the PV system setup and other necessary upgrades, e.g. lightning rods. Coordinating these parallel tasks can enhance project efficiency and reduce overall costs.
**Service Description:** Compare existing and required roof layers For buildings for which special fire protection conditions are determined, it is necessary to prepare an Overview of all applied fire protection measures by an authorized person, which, among other things, must contain the conclusion that the basic requirement of fire safety has been proven in all parts of the main project. In addition to the above, if prescribed by special regulations, the necessary studies are made (conservation, fire protection, etc.)
**Dependency:** HR-06-Analysis - Structural;#87
**Result:** Fire protection study Additional measures for fire protection in building and on the roof: - roof: refurbishment, insulation, new shingles, water proofing, fire protection... - infrastructure: new wires channels, new piping

## HR-11-Analysis - Consumption

**Reference:** Analysis- Consumption: Understand your electricity demand
**Step Description:** Understanding your energy needs is crucial for optimizing a PV installation. Start by assessing your daily, monthly, and annual consumption to determine the system size required to meet your energy demands. Analyze your consumption profile, including expected peaks, to understand when your energy use is highest and ensure the PV system can accommodate these fluctuations. Additionally, consider how consumption patterns might change over the coming years, such as through the adoption of a new heating system or other significant changes. Consumption analysis might also be extended to potential community members that you expect to profit from the PV installation.
**Service Description:** Preliminary Feasibility Analysis of the Construction of an Integrated

Photovoltaic System - Analysis of electricity consumption profile in the reference year and changes of profile due to expected changes in consumption
**Dependency:** HR-03-Value Proposition;#84
**Result:** Understanding your: - daily/monthly/annual electricity demand - consumption profile and expected peaks - changes of consumption over the next years.

## HR-12-Uptake Agreement

**Reference:** Uptake Agreement: Find someone who will buy your excess electricity. (Grid)
**Step Description:** Before integrating a PV system, verify if you qualify as an electricity vendor, as this status will determine your ability to sell excess energy back to the grid or to other members of CEP. Note that selling electricity within an energy community will result in higher compensation compared to selling electricity back to grid (HEP Elektra) It is also essential to understand any contractual constraints, including obligations and limitations, to ensure compliance and avoid potential issues.
**Service Description:** Find out conditions for selling your excess electricity. (Back to grid or in energy community) Covering own consumption from the energy produced by the photovoltaic system and transferring the surplus produced energy to the power grid or in CEP. Preparation of the necessary documentation collected in previous steps Completing the application for verification of connection possibilities (or the Application for the issuance of electricity approval); Determination of the possibility of connection (ODS) and notification of the possibility of connection including the offer of OMM equipment (Within 15 days); In the event that an existing building is in the status of cultural heritage protection (individually or part of a protected unit), it is necessary to obtain the opinion of the competent conservation department.
**Service Web-Link:** https://www.hep.hr/elektra/
**Dependency:** HR-11-Analysis - Consumption;#92
**Result:** Status - an electricity vendor Differences between potential off-takers
**Stakeholder:** HEP Elektra d.o.o.

## HR-13-Analysis - Yield

**Reference:** Analysis - Yield: What is the size and outcome of my PV plant?
**Step Description:** When planning a PV installation, start by evaluating the available area for panel placement to determine how much photovoltaic capacity can be accommodated. This may require a prior analysis of other roof usage concepts that could compete with the installation of PV panels. Complementary uses of the available space of your roof may include usage of solar thermal panels, greenery, etc. Assess the solar radiation at your location, as this will influence the system's performance and energy production. Consider the efficiency of the PV panels you plan to use, as higher efficiency panels will produce more energy from the same amount of sunlight. Calculate the annual solar yield based on these factors to estimate the total energy output of your system. Additionally, consider the expected load dynamics, including fluctuations in energy demand, to ensure the PV system is adequately sized to meet your needs throughout the year. Once you have determined the maximum size of PV plant you can install, assess whether it is beneficial to stay at the maximum size and whether additional capacity needs to be purchased for connection. This is important if you want to become a CEP member. It is possible to reduce the size of PV plant due to the high cost of meeting regulatory requirements or grid connection restrictions.
**Service Description:** Find plans or architectural data to estimate the available roof area Find satellite photos from roof top areas with a SW called Solarna karta and/or Google Maps Determine the amount of electricity produced with the photovoltaic system
**Service Web-Link:** https://solarnakarta.hr/
**Dependency:** HR-06-Analysis - Structural;#87;#HR-12-Uptake Agreement;#93
**Result:** - area in square meters available - how much PV does fit in that area - solar radiation in that position - efficiency of the panels - annual solar yield in KW - generation profile and the expected peaks - maximum size of the PV system regarding regulatory requirements, grid connection limits, or other constraints

## HR-14-Analysis - Economics

**Reference:** Analysis - Economics: Calculate the expenses and earnings for your PV.
**Step Description:** When evaluating a PV system, determine how much of the generated electricity you can use personally versus how much can be sold or donated to others. Assess

the cash flow generated by the system, considering 1) the savings from reduced electricity bills, 2) the revenue from selling excess power and 3) costs of investment in PV plant and its maintenance and repair. Calculate the break-even point to understand how long it will take for the initial investment to be recouped through these savings and revenues. Finally, evaluate the overall economic feasibility of the project by comparing the costs, financial returns, and potential risks. This comprehensive analysis will help ensure that the PV system is a sound financial investment.

**Service Description:** Determine: - expected years of operation for a PV plant - expected costs of buying and installing a PV plant - are there incentives for PV plants - the amount of electricity for self-consumption and for exchange (sale) within the CEP Calculate the savings by self-consuming electricity (vs buying from grid) Calculate the income generated by selling excess electricity Calculate PV plant maintenance and insurance costs Calculate interest costs if PV plant is built with a loan Compare the electricity yield with the consumption profile for the reference year

**Dependency:** HR-11-Analysis - Consumption;#92;#HR-12-Uptake Agreement;#93;#HR-13-Analysis - Yield;#94

**Result:** Break-even point

## HR-15-Preassessment - Financing

**Reference:** Preassessment - Financing: Make an initial assessment about financing possibilities

**Step Description:** The feasibility of a PV installation is very much dependent on the possibility to finance the endeavor. After having gone through the previous steps, initiators should have an estimate about the investment volume of the CEP that needs to be financed. In this step, financial possibilities shall be assessed, consisting of own funding (equity), public funding and subsidies, as well as third party funding like bank loans, leasing and other instruments. If some of the financial instruments used require approval of third parties like banks, it is useful to conduct initial discussions with those parties during this step. Alternatively, consider 'PV as a Service,' a subscription model that allows customers to avoid large upfront investments.

**Service Description:** Make an initial assessment about financing possibilities After having estimates for investment in PV, members of CEP shall understand costs for establishing and

operating CEP: - administrative costs, - employee costs, - app for electricity exchange costs - costs for other services In relation to costs and gains, determine membership fees. Understand the need for external financing and propose a financing model.
**Dependency:** HR-14-Analysis - Economics;#95
**Result:** Proposal of a membership fee and/or other financing models: - How much financing is available from community internal sources? - How much financing can be raised through subsidies? - How much financing has to come from externally (e.g. banks)? - Can 'PV as a Service' be considered as an alternative?

## HR-16-Analysis - PV System - Documentation and Approval - Main Project

**Reference:** Analysis - PV System: Understand all components of your PV plant
**Step Description:** Generate a description or a graphic presentation or a conceptual design Document shall include: - a map of the electrical design - a map of the construction project - the structural analysis of the roof - architectural design Performance representations necessary for the implementation of works are required, in accordance with the Ordinance on the Mandatory Content and Equipment of Construction Projects (Narodne novine No. 118/19, 65/20)
**Service Description:** The main project precisely defines the necessary interventions. As a rule, the project documentation in question also fulfils the function of detailed documentation, so all performance representations necessary for the implementation of works are required, all in accordance with the Ordinance on the Mandatory Content and Equipment of Construction Projects (Narodne novine No. 118/19, 65/20). In addition to the map of the electrical design in which the solar system is processed, the Main Design must also contain a map of the construction project. The construction project is primarily necessary in order to make an analysis of the load-bearing capacity of the structure after the construction of the photovoltaic system, which should include a description of the existing condition of the building from the aspect of construction, the calculated total vertical load, etc., a description of the existing condition of the final roof covering and waterproofing, the calculation of the load-bearing capacity for the additional load from the photovoltaic power plant, the calculation of the resistance of the existing structure to lifting due to the installation of the

photovoltaic system, and an opinion on whether or not the existing structure of the facility satisfies or does not satisfy the additional load on the photovoltaic system, i.e. the Construction Design proves the fulfillment of the basic requirement of mechanical resistance and stability for measures applied in accordance with applicable regulations. It is necessary to involve a licensed architect, i.e. the main project should also contain an architectural project/map if the installation of a photovoltaic system significantly affects the appearance and design of the building, affects the layers of insulation, e.g. thermal insulation, waterproofing, etc., in order to solve details, possible breakthroughs, etc. In the case of individually protected cultural goods and buildings in protected cultural and historical units, the main design for the installation of photovoltaic system, the main design should always include an architectural design made by a licensed architect with a permit to perform work on the protection and preservation of cultural property, in accordance with the Ordinance on the conditions for obtaining permission to perform work on the protection and preservation of cultural property (Narodne novine No. 98/18). Based on the description and graphic representation/conceptual design, the architect can request special protection conditions and come to the results of where and how the photovoltaic system could be installed. For buildings for which special fire protection conditions are determined, it is necessary to prepare an Overview of all applied fire protection measures by an authorized person, which, among other things, must contain the conclusion that the basic requirement of fire safety has been proven in all parts of the main project. In addition to the above, if prescribed by special regulations, the necessary studies are made (conservation, fire protection, etc.).
**Dependency:** HR-06-Analysis - Structural;#87;#HR-13-Analysis - Yield;#94;#HR-12-Uptake Agreement;#93
**Result:** Main Project Approved Project contains: - components for PV plant (panels, inverter, battery) - requirements for interconnections, - requirements for location (footprint, ventilation, fire protection) - technical documentation (block diagram, conceptual design, graphic presentation) - compliance with technical standards and norms
**Stakeholder:** NETeko d.o.o.

## HR-17-Insurance

**Reference:** Insurance: Find an insurance provider.
**Step Description:** When planning your PV system, it’s important to understand the risks and

costs associated with insurance. Ensure that you are adequately covered for potential issues such as equipment damage, theft, or liability. Compare different insurance offers to find the best coverage and rates. Additionally, explore bundling options, which may include combining insurance with maintenance services or other related coverage, to potentially reduce costs and simplify management. Evaluating these factors will help safeguard your investment and ensure comprehensive protection for your PV system.
**Service Description:** Find an insurance provider and sign a policy for your PV system The insurance policy is 0.5% of the total amount of the investment per year
**Dependency:** HR-16-Analysis - PV System - Documentation and Approval - Main Project;#97;#HR-23-Commissioning - Plant;#104
**Result:** - Understand the risks and costs of insurance - Compare offers - Understand bundling options

## HR-18-Community Roles

**Reference:** Community Roles: Define the core team and their responsibilities.
**Step Description:** While key members were assigned during the development phase, these roles need to be reviewed in the realization phase and considered for additional roles. Begin by identifying key roles within the core team, such as project spokesperson and coordinator, and outline their responsibilities using a RASI (Responsible, Accountable, Supporting, Informed) matrix. Clearly define who is responsible for each task, who must approve decisions, who will support the activities, and who needs to be kept informed. Establish a plan for allocating tasks among community members to ensure an even distribution of workload, considering each member's expertise and capacity.
**Service Description:** Help to core team to redefine their responsibilities and responsibilities for other roles in community in accordance with growing number of tasks.
**Dependency:** HR-02-Community Assessment;#83;#HR-03-Value Proposition;#84
**Result:** - How to share workload and responsibilities - Promote positive community dynamics

## HR-19-Financing - Private Capital

**Reference:** Financing - Private Capital: Ensure financing and source external capital.
**Step Description:** To finance your project, consider three primary options: applying for a

bank loan, finding investors, and crowdfunding. A bank loan can provide a significant amount of capital based on your credit profile. Investors may be interested in funding your project in exchange for equity or a share of the profits. Crowdfunding is another effective strategy, allowing you to raise smaller amounts of money from a large number of people.
**Service Description:** Ensure financing and source external capital.
**Dependency:** HR-14-Analysis - Economics;#95;#HR-15-Preassessment - Financing;#96
**Result:** - Apply for a bank loan - Find investors - Crowdfunding

## HR-20-Financing - Public Funding

**Reference:** Financing - Public Funding: Ensure financing and source external captial.
**Step Description:** To secure additional funding for your project, consider applying for grants and state loans. Grants can provide financial support without the need for repayment, though they often require meeting specific criteria and a competitive application process. State loans, on the other hand, may offer favorable terms such as lower interest rates or extended repayment periods compared to conventional bank loans.
**Service Description:** Find out if there are grants or loans for financing your projects. If process of applying is to complex, find external help.
**Dependency:** HR-14-Analysis - Economics;#95;#HR-15-Preassessment - Financing;#96
**Result:** - Apply for grants - Apply for state loans

## HR-21-Sourcing - Equipment

**Reference:** Sourcing - Equipment: Initiate bidding process and buy equipment
**Step Description:** To ensure a successful procurement process, start by clearly specifying your requirements. This involves detailing the technical and functional needs of the desired equipment, including any performance criteria or standards. Once you have a comprehensive list of requirements, compare prices from different suppliers or vendors. Evaluating various price options helps you identify the best value for your investment, taking into account factors such as quality, warranty, and support.
**Service Description:** Certified PV plant installers often offer a package of services that includes a range of services from obtaining all permits and necessary documentation, to purchasing and installing equipment (in Croatia it is called “Turnkey" system). It is important

to emphasize that they also offer a more favorable purchase of complete equipment because they have contracts with equipment suppliers and obtain larger discounts for larger quantities. Considering your possibilities and needs, a quality supplier will offer you several options when purchasing equipment. Also, you can directly contact the manufacturers and distributors of the equipment and check whether the prices correspond to the offer given to you by your "Turnkey" supplier. It is very important to pay attention to the quality of the equipment offered and to get information about it from few sources.

**Dependency:** HR-16-Analysis - PV System - Documentation and Approval - Main Project;#97

**Result:** Comprehensive decision and contract with PV equipment supplier.

**Stakeholder:** Solvis d.o.o.

## HR-22-Sourcing - Professionals

**Reference:** Sourcing - Professionals: Find and hire Service Providers and Technicians for the installation of your PV plant

**Step Description:** To effectively realize your project, start by clearly communicating its characteristics to potential professionals. This involves providing detailed information about the project's scope, requirements, and goals. Next, seek out and evaluate qualified professionals who have the expertise needed for your project. Compare prices and value propositions from different providers to ensure you are getting competitive rates. Once you have identified suitable candidates, negotiate contractual agreements to outline the terms of work, including deliverables, timelines, and payment conditions.

**Service Description:** Certified installers are registered and published on the official website of the MPGI - in accordance with the Ordinance on the conditions and criteria for determining the quality system of services and works for the certification of installers of renewable energy sources - photovoltaic systems (Narodne novine No. 56/15)

**Service Web-**

**Link:** https://einstalaterioie.mpgi.hr/api/reports/instalateri/izvadakIzRegistraCertificiranihInstalatera

**Result:** Execution of works on the photovoltaic system by certified installers - register published on the official website of the MPGI in accordance with the Ordinance on the conditions and criteria for determining the quality system of services and works for the

certification of installers of renewable energy sources - photovoltaic systems (Narodne novine No. 56/15). Execution of works on the existing connection to the power grid. Professional supervision of the execution of works. Often, a range of steps in this Guidebook (from 4 to 22) is offered as a complete service on the market. After equipping the existing connection and building a photovoltaic system in accordance with the Rules on connection to the distribution network, the system is put into permanent operation.
**Stakeholder:** 3tCable d.o.o.

## HR-23-Commissioning - Plant

**Reference:** Commissioning - Plant: Get the permission to start operation
**Step Description:** Once the plant is installed, it is crucial to verify that it has been installed correctly. Assess whether the plant operates safely by checking for any signs of malfunction or potential hazards and confirm that all safety protocols are in place. Accept and take-over the plan from the provider. Additionally, ensure that the installation meets all regulatory requirements, including local codes and standards, to guarantee compliance and avoid any legal or operational issues.
**Service Description:** Find professional supervision for the construction of the PV plant Costs are estimated at 1,5% of the total investment. Get the permission to start operation.
**Dependency:** HR-16-Analysis - PV System - Documentation and Approval - Main Project;#97;#HR-22-Sourcing - Professionals;#103
**Result:** PV plant operating permit. The plant is correctly installed, operates safely and meets all legal requirements.
**Stakeholder:** HEP Elektra d.o.o.

## HR-24-Establish Legal Entity

**Reference:** Establish Legal Entity: Create your REC by establishing a legal entity.
**Step Description:** When setting up a Renewable Energy Community (REC) or Citizen Energy Community (CEC) in Croatia, you have to establish non-profit association. Identify the legal documentation required, which may include formation documents and contractual agreements with members. Engage with relevant authorities and professionals, including legal advisors, accountants, and regulatory bodies, to ensure that all aspects of the

establishment are handled correctly and efficiently.

**Service Description:** Establishment of an association: -A list of members - founders with personal data is prepared (min. 3 persons) -Members are invited to the founding assembly - The association founding assembly adopts the Statute as the fundamental act of the association, which, among other things, determines the purpose and goals of the association, activities and rules of governing the work of the association and its bodies -The assembly elects the president, vice president and members of other bodies of the association -After the elections, the assembly makes decisions on appointments -Entry is made in the register of associations, which acquires legal personality -The association account is opened in a commercial bank Additional steps: -Certification of documents by a public notary -Certificates and statements of no criminal record for president and other appointed members -Harmonization of documents with the Public Administration Office during process of registration of association

**Service Web-Link:** https://udruge.gov.hr/najcesca-pitanja/124

**Result:** REC or CEC Established

## HR-25-Registration - Market

**Reference:** Registration - Market: Register your REC to be involved in the electricity market processes.

**Step Description:** To actively participate in electricity market processes, you must register your License to perform energy activities issued by HERA. Begin by registering as a market participant, which involves completing the necessary applications and meeting the requirements set by market regulators. Next, HERA will announce your Licence on their portal and your REC/CEC will be integrated part in the electricity market processes.

**Service Description:** In order to register your energy community to be involved in the electricity market processes, apply documentation to HERA (Croatian Energy Regulatory Agency): -evidence of professional capacity (including evidence that CEC/REC employed 1 person), -three-year development and investment plan, -organizational chart of energy community, -evidence of technical capacity (including evidence of ownership or rental agreement for business premises), -evidence of financial capacity (including proof that at least 2.655 euro was on your account for last 30 days) and -evidence that duty for issuing Licence is paid to Agency (995,42 euro) -and other evidence (Narodne novine No 44/2022)

**Service Web-Link:** https://www.hera.hr/hr/html/registar_dozvola.html
**Dependency:** HR-24-Establish Legal Entity;#105
**Result:** Licence for performing energy activity issued by Croatian Energy Regulatory Agency HERA
**Stakeholder:** HERA - Croatian Energy Regulatory Agency

## HR-26-Registration - Tax

**Reference:** Registration - Tax: Register your REC at the tax authority.
**Step Description:** In Croatia, it is only possible to register REC or CEC as association - nonprofit organization. Once registered, you will receive a tax verification number, which is essential for fulfilling tax obligations. This number will facilitate accurate reporting and financial transactions related to your association.
**Service Description:** In the process of registration of association, tax authority will give you VAT number - OIB. Once association is established, apply for entry in Register of nonprofit organizations (Ministry of Finance).
**Service Web-Link:** https://mfin.gov.hr/istaknute-teme/neprofitne-organizacije/registar-neprofitnih-organizacija/118
**Dependency:** HR-24-Establish Legal Entity;#105
**Result:** -Tax number - OIB -Entry in the Register of Non-Profit Organizations

## HR-27-Maintenance - HW

**Reference:** Maintenance - HW: Perform regular maintenance and repairs to the PV plant.
**Step Description:** Regular maintenance and repairs are crucial for ensuring the efficiency and longevity of your PV plant. This includes inspecting and cleaning panels, checking electrical connections, and monitoring system performance. Costs vary based on the system's size and complexity, covering routine maintenance and potential repairs for parts and labor. Be aware that maintenance might cause some downtime, though it is usually minimal compared to the benefits of maintaining optimal system performance.
**Service Description:** Advice on how to properly maintain and repair the PV plant. The cost of maintenance is about 0.3% of the investment per year.
**Dependency:** HR-16-Analysis - PV System - Documentation and Approval - Main

Project;#97;#HR-23-Commissioning - Plant;#104
**Result:** Covering own consumption from the energy produced by the photovoltaic system and transferring the surplus produced energy to the power grid. Maintenance of the photovoltaic system.

## HR-28-Membership - Administration

**Reference:** Membership - Administration: On/Off boarding of REC members.
**Step Description:** To manage your CEP effectively, report any membership changes to the power grid operator to ensure accurate records. Register new participants in the CEP and update the member list to reflect current information.
**Service Description:** On/Off boarding of CEP members. Defining a Sharing Key
**Result:** - Report membership changes to the power grid operator - Register new participants of REC - Maintain and update member list

## HR-29-Billing

**Reference:** Billing: Periodic settlement of electricity consumption and feed-in.
**Step Description:** For effective billing and periodic settlement of electricity consumption and feed-in, start by collecting accurate energy data . If not provided by the grid operator, consider purchasing metering instruments. Apply and update applicable rates to ensure correct pricing. Generate invoices based on this data or by using a dedicated billing/invoicing platforms and monitor and process payments to ensure timely transactions. Finally, maintain detailed records of all billing activities to support accurate financial management and regulatory compliance.
**Service Description:** Periodic settlement of electricity consumption and feed-in. HEP ODS Sharing Key Delivery
**Dependency:** HR-28-Membership - Administration;#109
**Result:** - Collecting energy data - Rate Application & Updates - Invoice Generation - Payment monitoring and processing - Record keeping

## HR-30-Accounting

**Reference:** Accounting: Book keeping and reporting towards tax authorities
**Step Description:** Effective accounting and bookkeeping involve preparing financial statements to provide a clear overview of the project's financial health. Ensure compliance with all legal and regulatory requirements to avoid any legal issues. Regularly balance accounts to maintain accuracy and integrity in financial records. Additionally, report to tax authorities as required to ensure proper tax filings and adherence to financial regulations.
**Service Description:** Find professional service. Bookkeeping and reporting towards: -Members of community -Tax authorities
**Dependency:** HR-28-Membership - Administration;#109;#HR-29-Billing;#110
**Result:** - Prepared financial statements - Ensured compliance with legal and regulatory requirements - Balancing accounts

## HR-31-Membership - Engagement

**Reference:** Membership - Engagement: Member services and continuous engagement.
**Step Description:** To maintain CEP member services and continuous engagement, keep members updated with the latest information and developments. Actively recruit new members to expand the community and enhance its impact. Organize informational and social events to foster a sense of community and provide valuable insights. Additionally, offer assistance to members to address their needs and ensure they are well-supported throughout their involvement in the REC.
**Service Description:** Member services and continuous engagement.
**Dependency:** HR-28-Membership - Administration;#109
**Result:** - Keeping members updated - Recruiting new members - Organizing informational and social events - Offering assistance

# 4.4 France

## FR - 01 - Forming a pilot group

**Reference:** Community Building: Establish the foundation of your community
**Step Description:** Launching a photovoltaic community energy project is complex and requires good information at the very start. It is better to form a small team of motivated people. You will act as a pilot group that other people will join during the project. The website photovoltaique.info is the reference source of information, with a page dedicated to condominium. Your first step is then to state your vision and objectives.
**Service Description:** The OSS helps you navigate the existing resources to get enough information on photovoltaics and energy communities, public aids, etc.
**Service Web-Link:** https://www.photovoltaique.info/fr/
**Result:** Information on PV and energy community. Advice on how to state your vision and objectives.

## FR - 03 - Getting approval to launch the project

**Reference:** Community Building: Establish the foundation of your community
**Step Description:** To launch a photovoltaic community energy project within a condominium, you are advised to get approval by other people in your community, such as the council board of your condominium or the General Assembly. Approval may be formal, or informal. The importance of getting approval is to give your pilot group legitimacy, and capacity to pay for Professionals (feasibility study). To get approval and launch the project, you need to know about: - the opportunity of installing PV on your roof - the main steps of a project and how to build a community.
**Service Description:** The OSS provides tailored advisory as long as your condominium is registered on Coach Copro platform. You get advisory through email or online meeting. If necessary for you, the OSS helps you analyse the opportunity for PV on your roof. Free and neutral analysis of production, consumption and economic models are offered by the OSS. The objective is to help you, as an individual or a pilot group, to formulate your needs and feel comfortable to talk about your project and get approval to launch it formally.

**Dependency:** FR - 02 - Analysing opportunity - 1-Production;#133;#FR - 02 - Analysing opportunity - 2-Consumption;#135;#FR - 02 - Analysing opportunity - 3-Economics;#137
**Result:** Decision to launch the project within the condominium or the community.

## FR - 04 - Defining your value proposition

**Reference:** Value Proposition : Define the purpose and the vision for forming a community.
**Step Description:** Once your building potential for photovoltaics has been studied, you have to choose how you wish to value your electricity, and you have to plan the works to make your roof PV-ready (accessibility, water-proofing, insulation, load-bearing capacity, electric infrastructures...) and how to install photovoltaic systems. Regarding condominium communities, several models of energy may take place in Paris. 1) If you get to install PV on your building roof, you can either - sell in full your electricity to an obliged buyer - more interestingly, self-consume the most of your electricity and sell or give away the surplus to neighbours within a collective self-consumption operation, or sell the surplus to an obliged buyer to collect money for the condominium needs; 2) Beside production value, you can : - join an existing energy communities as consumer; - invest in an existing energy community with your own finance or time resources; - decide to create any other kind of energy community.
**Service Description:** The OSS advises the community in the statement of its vision. It gives an insight into the existing models for energy communities in the context of Paris It helps understanding the technical documents of the work plan.
**Dependency:** FR - 03 - Getting approval to launch the project;#134;#FR - 04 - Studying the feasibility of the project ;#184
**Result:** Choice of model Precise description of work plans

## FR - 08 - Getting permit - Urbanism and heritage protection

**Reference:** Permit - Spatial planning legislation: Apply for permit.
**Step Description:** A permit is needed from the local authority, Paris City administration, according to urbanism and heritage protection rules. Your PV plant will be located on rooftops in most cases and may cause changes in the aspect of your building and its landscape. Paris City provides a webpage to get to know the local regulations (Plan Local

d'Urbanisme), and the necessary steps for getting a permit. - Getting a permit is usually the responsibility of your Professional (architect or engineer). - Paris City, Directorate for Urbanism is responsible for granting the building permit according to urbanism rules; - Decentralized State administration, Paris Department Unit for Architecture and Heritage (UDAP 75), is consulted in State heritage protection zones. Its strict approval is required in a limited number of cases within these zones. - The installation of PV plant on rooftops are not subject to environmental evaluation, whatever their size (Article R 122-2 of Environmental Code). More information here: https://www.photovoltaique.info/fr/realiser-une-installation/demarches-administratives/autorisations-durbanisme/demarches-et-delais/

**Service Description:** The OSS helps you decipher what are the applicable urbanism and heritage protection rules, restrictions and incitations, and their implication in terms of volume, architecture and landscape. This service is a first approach to be detailed later on by a Professional.

**Service Web-Link:** https://www.paris.fr/autorisations-d-urbanisme

**Dependency:** FR - 03 - Getting approval to launch the project;#134;#FR - 02 - Analysing opportunity - 1-Production;#133

**Result:** Authorized volume. List of restrictions and incitations.

**Stakeholder:** Paris City

## FR - 08 - Getting permit - Focus on heritage protection

**Reference:** Permit - Spatial planning legislation: Apply for permit.

**Step Description:** PV plant in Paris will be located on rooftops in most cases. Such PV plant changes the aspect of a building. It has to be authorized according to urbanism and heritage protection rules. Paris City provides a webpage to get to know the local regulations (Plan Local d'Urbanisme), and the necessary steps for getting a permit. - Getting a permit is usually the responsibility of your Professional (architect or engineer). - Paris City, Directorate for Urbanism is responsible for granting the building permit according to urbanism rules; - Decentralized State administration, Paris Department Unit for Architecture and Heritage (UDAP 75), is consulted in State heritage protection zones. Its strict approval is required in a limited number of cases within these zones. - The installation of PV plant on rooftops are not subject to environmental evaluation, whatever their size (Article R 122-2 of Environmental Code).

**Service Description:** The OSS utilizes the State tools and advises on heritage protection and guidelines: - Is the project situated in an heritage protection zone ? - what are the technical guidelines to follow - what is the best strategy to gain acceptance from authorities It is a first approach to be detailed by a Professional.
**Service Web-Link:** http://atlas.patrimoines.culture.fr/atlas/trunk/
**Dependency:** FR - 03 - Getting approval to launch the project;#134;#FR - 02 - Analysing opportunity - 1-Production;#133
**Result:** Qualification of heritage protection and guidelines.
**Stakeholder:** UDAP 75

## FR - 04 - Studying the feasibility of the project - Roof structure

**Reference:** Analysis - Structural: Investigate the structural prerequisites for your PV installation.
**Step Description:** The load bearing capacity of your building roof is an important factor. If necessary, structural reinforcement must be integrated in your economic model. It is advised to study the structural capacity of your roof by a Professional. Structural feasibility study can either be ordered within the larger feasibility study of PV plant (see step FR - 04 - Studying the feasibility of the project), or it can be made specifically.
**Service Description:** The OSS will advise you to formulate your need to Professionals of building structure.
**Dependency:** FR - 02 - Analysing opportunity - 1-Production;#133;#FR - 03 - Getting approval to launch the project;#134
**Result:** Advice on how to order a structural feasibility study

## FR - 02 - Analysing opportunity - 4-Wiring

**Reference:** Analysis - Wiring: Investigate existing wiring within property.
**Step Description:** The goal of this step is to anticipate possible works of adaptation of your building wiring infrastructure to a future PV plant (can it support the current your plant will generate ?). The wiring infrastructure in your building connects the public grid to each of the private apartment and each of the collective equipments (lifts, lightings...). Its power capacity and characteristics will have to be assessed by Enedis before connecting to the grid your

future PV plant. Enedis owns it, except if your condominium formulated an opposition to it. This way of ownership was decided by the Law ELAN of 20 november 2020. At this stage, it is advised to prepare for the procedure with Enedis: - what is the electric scheme of the building? - how many meters does the building count? - where are they located? - are they smart meters or traditional meters? - what are their caracteristics?

**Service Description:** The OSS helps you understand your wiring infrastructure and advise you how to get in touch with Enedis to assess its capacity to support the electric current of your future plant.

**Service Web-Link:** https://www.enedis.fr/loi-elan-colonnes-montantes-electriques

**Dependency:** FR - 01 - Forming a pilot group;#132;#FR - 02 - Analysing opportunity - 1-Production;#133

**Result:** Knowledge of the current capacity of your wiring infrastructure Anticipation of necessary works to adapt it to a future PV plant

## FR - 09 - Requiring connection to the grid

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.

**Step Description:** Connection to the grid is required for any PV plant. You have to go through a standard procedure with your DSO, Enedis in Paris (ENEDIS PRO-RAC 20E). More information here: https://www.photovoltaique.info/fr/realiser-une-installation/raccordement/demarches-de-raccordement/demandes-de-raccordement-pour-les-installations-36-kva/injection-de-la-totalite-ou-du-surplus/

**Service Description:** The OSS helps the community navigate through the administrative process.

**Service Web-Link:** https://connect-racco.enedis.fr/prac-internet/custom/C5E/accueil

**Dependency:** FR - 05 - Choosing an installer;#187;#FR - 08 - Getting permit - Urbanism and heritage protection;#138

**Result:** Complete Connection Requirement ("Demande Complète de Raccordement" DCR)

**Stakeholder:** ENEDIS

## FR - 09 - Simulating connection to the grid

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.
**Step Description:** Connecting to the grid is obviously a key step. Enedis is responsible for the balance and good functioning of the local and national network of electricty. You will have to go through a standard process aimed at securing your connection. It is important to simulate and anticipate before you actually demand connection. What you have to pay attention to: - assessing the need for renovation of your building electric wiring and meters; - choosing the right power for your PV installation (different thresholds); - choosing the type of injection of electricity into the grid and the type of value of electricity (sale in full, surplus sale, no injection). Hence the importance of a feasibility study before this step that will have answered theses questions. Simulating the cost and complexity of connecting wires to the public grid can be helpful at this stage. Enedis provides a free simulator (requiring to create an account).
**Service Description:** The OSS will help you understand what is at stake at the key step.
**Service Web-Link:** https://mon-compte-particulier.enedis.fr/raccorder
**Dependency:** FR - 04 - Studying the feasibility of the project ;#184
**Result:** Better understanding. Cost and complexity of connecting to the public grid. Anticipating the standard procedure.
**Stakeholder:** ENEDIS

## FR - 09 - Getting a Proposition for grid connection

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.
**Step Description:** Once you have completed your demand for grid connection (Demande Complète de Raccordement, DCR), you will receive within a defined timeframe a Proposition with a price to pay for connecting to the grid (Proposition Technique et Financière, PTF or PDR) that you will have to accept to launch construction work.
**Dependency:** FR - 09 - Requiring connection to the grid;#145
**Result:** getting and accepting the financial and technical Proposition (PTF or PDR)
**Stakeholder:** ENEDIS

## FR - 02 - Analysing opportunity - 2-Consumption

**Reference:** Analysis- Consumption: Understand your electricity demand
**Step Description:** The analysis of several aspects is advised to know what kind of opportunity of project and challenges you have within your condominium or your community. Once you have estimated your potential for production, you have to question which use you will make of the electricity generated. Knowing your building or community consumption will give you an insight into the share of electricity generated that may be consumed by your building or your community. It is called self-consumption. An alternative to self-consumption is the selling of electricity to the market or to neighbours.
**Service Description:** The analysis of opportunity is a comprehensive analysis provided by the OSS. It provides an insight into the potential for self-consumption. It uses licensed Autocalsol software based on simulated consumption profiles, or actual consumption profiles.
**Service Web-Link:** https://autocalsol.ines-solaire.org/
**Dependency:** FR - 02 - Analysing opportunity - 1-Production;#133
**Result:** Estimate of self-consumption rates

## FR - 02 - Analysing opportunity - 2-Getting consumption data

**Reference:** Analysis- Consumption: Understand your electricity demand
**Step Description:** In order to analyse precisely the potential for self-consumption, it is useful to get first the actual consumption data of the buildings within the community over a period of at least one year. Your DSO Enedis provides a free service to that purpose. The service is limited to buildings equipped with smart meters though. The service is called dataconsoelec.
**Service Description:** The OSS offers you to act as an authorized third-party to collect your data through dataconsoelec service.
**Service Web-Link:** https://datahub-enedis.fr/fournisseurs-de-services/dataconsoelec/
**Dependency:** FR - 02 - Analysing opportunity - 1-Production;#133
**Result:** Excel sheets with consumption data over a long period of time (at least 1 year) and a reduced timeframe (at least 1 hour).
**Stakeholder:** ENEDIS

## FR - 11 - Contracting purchase contract

**Reference:** Uptake Agreement: Find someone who will buy your excess electricity. (Grid)
**Step Description:** You can contract a purchase contract if you choose to sell part or totality of your electricity. Either you sell it or give it away to members of a collective self-consumption operation (CSC) or to an independent buyer (PPA), or to an obliged buyer to benefit from fixed feed-in tariff for 20 years. To access feed-in tariff, a purchase contract is to be made according to a standard procedure with an obliged buyer. The tariff you get depend on your installation attributes and the type of injection. Tariff are set each trimester by the Energy Regulation Commission (CRE). This is done according to the tariff order of 6 October 2021. The main obliged buyer in France is EDF Obligation d'Achat (EDF OA). Other electricity provider are also obliged buyer. You can start the procedure once you have a complete demand for grid connection (DCR), and the procedure will finish when you have a Certificate of conformity of your plant (Consuel) and once your plant has been put into service by Enedis.
**Service Description:** The OSS helps you through the process.
**Service Web-Link:** https://www.edf-oa.fr/content/preparer-un-projet-photovoltaique
**Dependency:** FR - 10 - Putting the plant into service;#190
**Result:** Obligated Purchase Contract for 20 years if you choose so.

## FR - 02 - Analysing opportunity - 1-Production

**Reference:** Analysis - Yield: What is the size and outcome of my PV plant?
**Step Description:** The analysis of several aspects are advised to know what kind of opportunity of project and challenges you have within your condominium or your community. Estimating the production available on your building roof is probably the first step. It depends on many factors such as, the surface of the roof available for PV panels, the energy it receives from the sun, its flatness of inclination and orientation, the need for refurbishment, new water-proofing or new thermal insulation of the roof. Other issues are relevant, such as the load capacity of the roof. Inquiry on these more complex issues can be studied later on.
**Service Description:** The analysis of opportunity is a comprehensive analysis provided by the OSS. The first brick of analysis is an estimation of production potential. It relies on a public website for satellite views (geoportail.gouv.fr) and integrates the use of the licensed

software Autocalsol (developed by the national institute for solar energy, INES).
**Service Web-Link:** https://autocalsol.ines-solaire.org/
**Dependency:** FR - 03 - Getting approval to launch the project;#134
**Result:** Estimate of production indicators : surface of the roof covered with PV panels ($m^2$) and number of panels, quantity of electricity generated annually (kWh/y).

## FR - 04 - Studying the feasibility of the project

**Reference:** Analysis - Yield: What is the size and outcome of my PV plant?
**Step Description:** Once your project is launched and approved by people that are ready to pay for Professionals, it is necessary to have Professionals study the feasibility of your project. Feasibility study will give you a more precise simulation of production potential, self-consumption potential, costs and benefits. Also, the necessary works on your rooftop and building to make it PV-ready should be assessed and budgeted at this stage (see in particular step FR - 04 - Studying the feasibility of the project Roof structure)
**Service Description:** The OSS provides a list of chartered professionals.
**Dependency:** FR - 03 - Getting approval to launch the project;#134
**Result:** Reliable simulation of production, consumption, costs and benefits.

## FR - 02 - Analyzing opportunity - 3-Economics

**Reference:** Analysis - Economics: Calculate the expenses and earnings for your PV.
**Step Description:** The analysis of several aspects are advised to know what kind of opportunity of project and challenges you have within your condominium or your community. Once you have estimated potential for production and self-consumption of electricity, you have to know how much it should cost and how much you should benefit from it. The preassessment of economic balance gives you an estimation of the return on investment.
**Service Description:** The OSS uses the licensed Autocalsol software and estimations of cash flows.
**Service Web-Link:** https://autocalsol.ines-solaire.org/
**Dependency:** FR - 02 - Analysing opportunity - 1-Production;#133
**Result:** Preassessment of economic balance with estimation of the return on investment.

## FR - 06 - Getting insurance

**Reference:** Insurance: Find an insurance provider.
**Step Description:** Once you have validated quotes for installation works, you need to check three types of insurance. Two are mandatory and one is optional. / Mandatory: - first, the installation enterprise must be insured for the systems it will install; - second, as an electricity producer, you must contract a liability insurance; / Optional: - third, you can contract an insurance against damage during the construction period which avoids delay in case of damage. Information can be found here: https://www.photovoltaique.info/fr/preparer-un-projet/quelles-demarches-realiser/sassurer/sassurer-copy-2/
**Service Description:** 0
**Dependency:** FR - 05 - Choosing an installer;#187
**Result:** Insurance contract.

## FR - 07 - Getting a collective loan

**Reference:** Financing - Private Capital: Ensure financing and source external capital.
**Step Description:** Financing a PV installation in a condominium or community may require to contract a loan. Certain banks offer collective loans with low or zero rates, such as Eco Prêts à Taux Zéro (EcoPTZ) for collective housing.
**Service Description:** The OSS can help you get in touch with the bank. In France two banks offer collective ECPTZ, Domofinance and Caisse d'Epargne.
**Dependency:** FR - 03 - Getting approval to launch the project;#134;#FR - 04 - Defining your value proposition;#141
**Result:** Loan contract

## FR - 07 - Accessing public aids

**Reference:** Financing - Public Funding: Ensure financing and source external captial.
**Step Description:** Access to finance is a challenge. Collective decision within condominium councils is generally facilitated if return on investment is made after less than 10 years, and all the more if the initial investment is lowered thanks to public aids. Depending on the economic model of your future PV plant and community, public aids vary. Public aids are (as

of february 2025): // for PV (Tariff order of 6 October 2021) : / National : - feed-in tariff for sale in full - investment prime for self-consumption, and feed-in tariff for surplus - VAT is lowered to 10% for PV plant of less than 3 kWp per household / local : - Paris City Eco-Rénovons Paris + scheme offers up to 1000 euros investment prime per household for PV plant investment of condominiums engaged in a package of energy renovation works. This aid is exclusive to the feed-in tariff aid. // for REC and CEC : - Community Energy Financing Scheme (CEFS) provided by Energie Partagée can be applied for by project of more than 1 MW and less than 50 MW and that abide by energie Partagée citizen charter. Information on national aids is available: https://www.photovoltaique.info/fr/tarifs-dachat-et-autoconsommation/tarifs-dachat/arrete-tarifaire-en-vigueur/conditions-dapplication/

**Service Description:** The OSS informs the community about existing public aids and helps chossing their energy model.

**Dependency:** FR - 04 - Defining your value proposition;#141

**Result:** Starting demand for public aids.

## FR - 05 - Choosing an installer

**Reference:** Sourcing - Professionals: Find and hire Service Providers and Technicians for the installation of your PV plant

**Step Description:** An installer must be certified by the State as RGE (Reconnu Garant de l'Environnement). Certification is mandatory to access public aids. An installer must be qualified for the right category of work for your installation to be connected to the grid. Several qualification firms exist such as Qualit'ENR, Qualibat or Qualifelec. The professional that made your feasibility study may have integrated or be associated to an installer. To help you find installers and choose among them and their quotes, you can find information and a quote evaluator here: - https://france-renov.gouv.fr/annuaires-professionnels/artisan-rge-architecte - https://www.photovoltaique.info/fr/preparer-un-projet/quelles-demarches-realiser/choisir-son-installateur/sinformer-pour-comparer/ - https://evaluer-mon-devis.photovoltaique.info/

**Service Description:** 0

**Dependency:** FR - 04 - Studying the feasibility of the project ;#184;#FR - 04 - Defining your value proposition;#141

**Result:** Contract with an installer

## FR - 10 - Putting the plant into service

**Reference:** Commissioning - Plant: Get the permission to start operation
**Step Description:** Once you have accepted the Proposition (PTF or PDR), you can proceed to the building of the plant. Then you will have to commission the plant to ensure it is perfectly secure. Consuel is the mandated organism for commissioning. Finally, you will be able to demand service activation and sign a Contract for exploitation (Contrat d'Acces et d'Exploitation CAE). Your plant will then be put into service! You have until 36 months (extendable once) after the date of Permit to start the building works. You have until 24 months after the date of demand for grid connection (DCR) for commissioning the plant. You have until 2 years after starting the building works to make the demand for service activation.
**Service Web-Link:** https://www.consuel.com/
**Dependency:** FR - 09 - Getting a Proposition for grid connection;#188
**Result:** Certificate of conformity Contract for exploitation (Contrat d'Acces et d'Exploitation CAE)
**Stakeholder:** ENEDIS

## FR - 11 - Establishing legal entity for collective self-consumption (CSC)

**Reference:** Establish Legal Entity: Create your REC by establishing a legal entity.
**Step Description:** A legal entity gathering producers and consumers that will exchange energy among themselves is mandatory in the French law (Article L.315-2 of Energy Code). It is called a Moral Organizing Persona ("PMO" in French). The PMO has several roles - serve as an interface with the DSO Enedis; - define the allocation rule for electricity between members; - define the perimeter of the operation; - administrate newcomers and leavers. French law leaves certain freedom in the form and actual roles of a PMO. A PMO may be an already existing structure whose purpose is modified, or a new one created on purpose. More information here: Resource: https://adherents.energie-partagee.org/wp-content/uploads/2024/02/guide-acc-citoyenne-fevrier-2024-1.pdf
**Service Description:** The OSS advises the community in the legal aspects of a PMO, and the process of establishing it. The OSS advises each member in order to check the feasibility

of its share in the project. The OSS support the community leaders in the actual establishment process.
**Dependency:** FR - 03 - Getting approval to launch the project;#134;#FR - 04 - Defining your value proposition;#141
**Result:** Legal entity PMO established.

## FR - 12 - Maintenance of your PV plant

**Reference:** Maintenance - HW: Perform regular maintenance and repairs to the PV plant.
**Step Description:** Maintenance is necessary to ensure correct functioning. Maintenance can be made by yourself as a producer, by professionals. It is advised to have an annual visual check of your plant and you may have to clean panels at that moment. For professional maintenance, you can contract. More information here: https://www.photovoltaique.info/fr/exploiter-une-installation/exploitation-technique/entretien-et-maintenance/operations-a-effectuer-par-le-producteur/
**Dependency:** FR - 10 - Putting the plant into service;#190
**Result:** Correctly functioning plant

## FR - 12 - Recruiting members, consumers and producers

**Reference:** Membership - Administration: On/Off boarding of REC members.
**Step Description:** Throughout the lifecycle of your project, you may wish to recruit new members. You may wish to recruit consumers and producers to optimize self-consumption rates and inject to the grid the least of surplus possible. Once you have created a legal entity, new members will have to formally register.
**Service Description:** The OSS helps you to aggregate new members, by centralizing information about Community energy projects in Paris.
**Dependency:** FR - 01 - Forming a pilot group;#132
**Result:** New members engaged.

### FR - 12 - Exploitation of a self-consumption operation (CSC)

**Reference:** Accounting: Book keeping and reporting towards tax authorities
**Step Description:** A collective self-consumption operation is heavier to exploit than a mere PV plant. Your implication as a person or community can be more or less important depending on your wishes, availabilities and competencies. Companies offer integral exploitation support.
**Service Description:** The OSS helps the community decide which model of exploitation to choose.
**Dependency:** FR - 11 - Establishing legal entity for collective self-consumption (CSC);#142
**Result:** Contracting tailored service. Learning how to manage on yourself.

## 4.5 Italy

### IT - Expression of interest in joining a REC and application form

**Reference:** Community Building: Establish the foundation of your community
**Step Description:** Inform the community about the creation of the REC in the municipality by publishing the notice of expression of interest and collecting memberships.
**Service Description:** Guidance and community engagement
**Service Web-Link:** https://www.gse.it/servizi-per-te/autoconsumo/crea-o-partecipa-a-una-cer
**Result:** Notice of expression of interest adapted to municipality peculiarities

### IT - Find REC initiators

**Reference:** Community Building: Establish the foundation of your community
**Step Description:** Gather motivated individuals/PMI/ local authorities who want to participate in a REC.
**Service Description:** It provides a google form to be filled by a pioneer that wants to join a

REC as a consumer, or a producer or a prosumer. AGENA will collect the forms and support the aggregation of members.
**Dependency:** IT - Analysis - Consumption;#45
**Result:** List of persons/ PMI/ local authorities who wants to create a REC

## IT - Assessment of REC's members

**Reference:** Community Assessment: Get to know your community.
**Step Description:** To start your own REC, it is important to begin with a project idea, identifying a first group of promoters, the operational perimeter of the REC, the renewable sources to be used, the production plants that can be made available to the REC and their technical parameters, the areas already available for the construction of renewable production plants, and the general consumption/production profile of the promoters of the initiative and the plants.
**Service Description:** It provides the list of members that can be part of a REC.
**Dependency:** IT - Expression of interest in joining a REC and application form;#51
**Result:** List of potential members
**Stakeholder:** GSE

## IT - Value proposition

**Reference:** Value Proposition : Define the purpose and the vision for forming a community.
**Step Description:** The initial vision of your project should clearly outline its overarching goals and aspirations. Consider the potential outcomes of the project to define its success criteria and impact. Reflect on how the members will benefit from the project—whether through receiving cheaper electricity, a revenue for their investment, income from renting out roof top space, or other valuable gains. Additionally, assess how the community at large will benefit from the project, such as through strengthened networks, improved resources, or broader social impact. Draft an initial presentation of your community to facilitate outreach to potential partners and authorities. By articulating these aspects, you can align the project's objectives with the needs of both individual members and the community as a whole.
**Service Description:** It helps initiators to better define: - purpose and vision of the community - main goals and outcomes - benefits for members and the community

**Dependency:** IT - Assessment of REC's members;#53
**Result:** First draft of business development plan, which outlines the objectives that the promoters aim to achieve with the establishment of the REC, the general functioning, and the minimum conditions for the initiation of the project.

## IT - Application for environmental permit

**Reference:** Permit - Environmental: Apply for an environmental permit.
**Step Description:** Determining whether an environmental assessment is required depends on the specifics of your project. Generally, an assessment is necessary if the plant size exceeds certain thresholds set by regulatory agencies. The cost of an environmental assessment can vary widely based on factors such as the project's scale, location, and complexity. Similarly, the time required to complete the assessment can range from several weeks to several months, depending on the depth of the study and the efficiency of the review process. Understanding these factors is essential for ensuring compliance with environmental regulations.
**Service Description:** Guidance to understand if an environmental assessment is required and help to apply for environmental permit. The feasibility analysis of an energy community cannot disregard the analysis of urban planning characteristics and regulatory constraints, which, by governing feasibility, timelines, and authorization procedures, can be decisive for the installation of production systems. The first useful check is to verify the potential presence of constraints that limit, through prohibitions or requirements, the construction of renewable energy production systems in specific areas, such as, for example, areas subject to landscape protection.
**Service Web-Link:** https://nameofthe municipality.geoportal.it. https://nameofthe municipality.geoportal.it.
**Dependency:** IT - Analysis of heritage and environmental restrictions according to Dlgs 42/2004;#56
**Result:** Apply for environmental permit.

## IT - Analysis of heritage and environmental restrictions according to Dlgs 42/2004

**Reference:** Permit - Spatial planning legislation: Apply for permit.
**Step Description:** When planning a PV installation, it's important to consider any limitations regarding the appearance of the building. Some areas have aesthetic guidelines or building codes that restrict changes to a building's exterior, which could affect or even forbid the installation of PV panels. Additionally, review the zoning plan for any restrictions that may impact your project. Your building may be subject to heritage protection regulations, which could impose specific design constraints and require consultation with the relevant authorities. Zoning regulations can impose constraints on the type of structures allowed, their height, and other factors that might influence the feasibility and design of the PV system. Understanding these limitations and restrictions is essential for ensuring compliance and avoiding potential issues with your installation.
**Service Description:** Guidance through the use of SITAP platform. The SITAP is the web-GIS system of the Directorate General for Landscape, Fine Arts, Architecture, and Contemporary Art, aimed at the management, consultation, and sharing of information related to areas protected under the current regulations on landscape protection.
**Service Web-Link:** https://sitap.cultura.gov.it/
**Result:** Preliminary information on the existence of environmental restrictions.

## IT - Analysis roof area

**Reference:** Analysis - Structural: Investigate the structural prerequisites for your PV installation.
**Step Description:** Before installing a PV system, it's crucial to assess the quality, structure, and condition of your roof to ensure it can support the installation. Evaluating the roof's structural integrity will determine if it can handle the weight and load of the PV panels. Assess whether any repairs, reinforcements, or even a complete rebuild are needed in the short or long term. Additionally, understanding how to access the roof is important to identify any potential constraints for installation and maintenance. In some cases, a metal framework may be necessary to properly align the panels towards the sun. For ground-mounted

systems, as well as for auxilary components of your PV system, a concrete base might be required. You should also consider factors such as ventilation and fire protection.
**Service Description:** Preliminary analysis of the roof surface available for photovoltaic installation and verification of coverage in terms of solar exposure. Referral for a list of professionals to assess the quality of the roof (load-bearing capacity, usability, and durability of the load-bearing structure in accordance with NTC 2018 (Norme Tecniche per le Costruzioni) and technical fire prevention standards.
**Result:** Preliminary estimation of the available area in square meters. Structural analysis approved by a hired professional.

## IT - Authorisation for PV plants in existing buildings and on the ground after the SUER platform set up

**Reference:** Permit - Building Regulations: Apply for permit.
**Step Description:** The service supports the user to join the SUER Platform (helpdesk for renewable energies) and provides the single model for permit for integrated PV plants systems in existing buildings with a capacity up to 12 MW or up to 1 MW for ground mounted installations.
**Service Description:** Guidance to access to SUER Platform.
**Service Web-Link:** https://www.gazzettaufficiale.it/eli/id/2024/12/12/24G00205/sg
**Result:** Submission of all applications for new renewable installations (except in presence of landscape constraints)
**Stakeholder:** GSE

## IT - Establish PV wires connections

**Reference:** Analysis - Wiring: Investigate existing wiring within property.
**Step Description:** Before proceeding with a PV installation, it’s essential to evaluate whether the power rating of the existing wiring in your building is sufficient to handle the current of your PV plant. Check if wiring schemes are available to understand the current electrical setup and ensure compatibility with the planned system. Determine the ownership of wiring, wire conduits and wiring paths to identify any potential issues related to access or

modifications, particularly for condominium buildings. Additionally, assess whether all connected consumers are part of the same private grid, as this can impact the integration and efficiency of the PV installation. Addressing these factors will help to identify the proper type of energy community.
**Service Description:** Referral for a professional (i.e. engineer)
**Result:** Wiring schematic and description of the planned connections,

## IT - Find the power meter ID

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.
**Dependency:** IT - Analysis - Consumption;#45;#IT - Assessment of REC's members;#53
**Result:** ID number with 9 numbers

## IT - Map of primary subcabins

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.
**Step Description:** The interactive map of the primary substations helps developers of energy communities to identify grid connection area of the same primary electrical substation. The service is provided thanks to the collaboration with the Distribution System Operators (DSO) and it's updated every 2 years.
**Service Description:** Guidance to use the tool and allow users to geolocalize connection points for energy communities.
**Service Web-**
**Link:** https://mappe.gse.it/portal/apps/experiencebuilder/experience/?id=7cdfc4cfb0bb4beead292e9290fdeebd
**Dependency:** IT - Assessment of REC's members;#53;#IT - Membership engagement;#198
**Result:** The tool allows users to geolocalize connection points for energy communities, as required by Italian legislation
**Stakeholder:** GSE

## IT - Critical areas map

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.
**Step Description:** It is necessary to assess the capacity of the local electrical grid to accommodate the power generated and fed into the grid. This aspect represents a determining factor that could hinder the actual connection of new production systems to the grid. To facilitate the identification of critical connection points for renewable electricity systems, DSOs have prepared maps of critical areas. The maps define the criticality of each area based on color (Red for high criticality, Orange for medium criticality, Yellow for low criticality, White for very low criticality).
**Service Description:** Support for the identification of critical areas. The Critical Areas map is a tool available to all customers who wish to connect production plants to the distribution network. Through the map, it is possible to obtain interactive and immediate qualitative information regarding the availability of network capacity, through a classification of territorial areas by level of criticality. Consult the interactive map to discover the network's saturation level, critical points, and the areas most suitable for connection. Understand if the substation still has free capacity
**Service Web-Link:** https://www.e-distribuzione.it/a-chi-ci-rivolgiamo/produttori/aree-critiche.html
**Result:** The areas will be colored as follows: 1- White to represent very low criticality; 2- Yellow to indicate low criticality; 3- Orange to highlight an area with medium criticality; 4 - Red to include areas with high criticality. For the selected province, you will also be able to consult: - A list of critical municipalities; - A list of non-concessionaire municipalities; - A list of AT/MT sections with energy flow reversal; - A list of municipalities covered by the selected area, along with their saturation level.
**Stakeholder:** E- distribuzione

## IT - Permit: grid connection

**Reference:** Analysis - Power Grid: Investigate the prerequisites for connecting your PV to the grid.
**Step Description:** When planning a PV installation, it’s important to identify the nearest

connection point to the grid to determine how the system will integrate with the existing infrastructure. Check if there are any limitations on feed-in power, as some utilities impose restrictions on the amount of electricity that can be fed back into the grid. Additionally, review the hardware requirements for connecting your PV system to the grid, including inverters, switches, interrupters and other connection equipment. Similarly, ensure you understand the hardware requirements for metering energy, which may involve specific meters or monitoring equipment to accurately track energy production and consumption.

**Service Description:** Support to request an approval from power grid operator for your PV plant. The fee for obtaining the estimate varies based on the system's power capacity and is as follows: Requested input power up to 6 kW: €30 + 22% VAT Requested input power exceeding 6 kW and up to 10 kW: €50 + 22% VAT Requested input power exceeding 10 kW and up to 50 kW: €100 + 22% VAT Requested input power exceeding 50 kW and up to 100 kW: €200 + 22% VAT Requested input power exceeding 100 kW and up to 500 kW: €500 + 22% VAT Requested input power exceeding 500 kW and up to 1,000 kW: €1,500 + 22% VAT Requested input power exceeding 1,000 kW: €2,500 + 22% VAT As a preliminary step, you can use the "Producer Connection Simulator" to receive an estimate of the time and costs for connecting your system through E-distribuzione's dedicated simulator.

**Service Web-Link:** https://private.e-distribuzione.it/PortaleClienti/s/registrationpage

**Dependency:** IT - Commissioning PV system;#74;#IT - Critical areas map;#50

**Result:** After submitting the connection request to the grid, you will receive the corresponding quote. The timeframes prescribed by ARERA (the Regulatory Authority for Energy, Networks, and Environment) are as follows: 20 working days for requested input power up to 100 kW; 45 working days if the requested input power exceeds 100 kW and is up to 1,000 kW; 60 working days for all requests exceeding 1,000 kW. Following the acceptance of the quote, it is necessary to report the progress of the authorizations and works and proceed with the signing of the Operation Regulation. It is important that the information provided is consistent with the actual implementation of the system, as it will be verified during the activation phase. After the installation of the system and the completion of all activities required by the applicant as part of the preparatory steps for activation, and after the completion of any works carried out by e-distribuzione, you can select the activation date. The timeframes established by TICA (Resolution 99/08 and subsequent amendments) are 10 working days. When you request the grid connection, don't forget to register your system in the GAUDI platform, managed by TERNA. The connection cost depends on the distance

from the MV/LV substation and the power of the system. The connection fee is paid by the applicant to the network operator: a) 30% upon acceptance of the quote b) 70% upon notification of completion of the works strictly necessary for the physical creation of the connection.
**Stakeholder:** E- distribuzione

## IT - Analysis - Consumption

**Reference:** Analysis- Consumption: Understand your electricity demand
**Step Description:** Understanding your energy needs is crucial for optimizing a PV installation. Start by assessing your daily, monthly, and annual consumption to determine the system size required to meet your energy demands. Analyze your consumption profile, including expected peaks, to understand when your energy use is highest and ensure the PV system can accommodate these fluctuations. Consumption analysis might also be extended to potential community members that you expect to profit from the PV installation.
**Service Description:** Guidance for the collection of these data: ● Supply voltage ● Committed power ● Available power ● Customer type (residential, other uses) ● Annual consumption
**Service Web-Link:** https://www.acquirenteunico.it/portale-consumi
**Dependency:** IT - Assessment of REC's members;#53
**Result:** Total annual consumption in kWh and total consumption and total energy consumption per timeband F1, F2, F3

## IT - Contract - sale of excess electricity to GSE

**Reference:** Uptake Agreement: Find someone who will buy your excess electricity. (Grid)
**Step Description:** The "Ritiro Dedicato" consists of the transfer to GSE of the electricity fed into the grid from photovoltaic systems. The GSE pays the producer a specific price for each kWh injected into the grid. The revenues obtained by producers from selling electricity to GSE are added to those generated by any incentive mechanisms (except all - inclusive tariff and net metering).
**Service Description:** Support to fill in the request to sale the excess electricity to GSE
**Service Web-Link:** https://www.gse.it/servizi-per-te/fotovoltaico/ritiro-dedicato

**Dependency:** IT - Permit: grid connection;#60
**Result:** Agreement with GSE
**Stakeholder:** GSE

## IT - Contract for sale of excess of electricity to the market

**Reference:** Uptake Agreement: Find someone who will buy your excess electricity. (Grid)
**Step Description:** It consists of selling the excess of electricity fed into the grid from PV systems on the market.
**Service Description:** Support REC to find off takers and agree on tariff model.
**Dependency:** IT - Permit: grid connection;#60
**Result:** Agreement with utilities or businesses.

## IT - Analysis - Solar Radiation and Electricity yield

**Reference:** Analysis - Yield: What is the size and outcome of my PV plant?
**Step Description:** 1) Determine the Annual Solar Radiation for your address (in kWh/m2/a) 2) Multiply with your plant size (in m2) and efficiency (kWelectric / kWradiation)
**Service Description:** Support and guidance finding radiation and calculating yield
**Service Web-Link:** https://joint-research-centre.ec.europa.eu/photovoltaic-geographical-information-system-pvgis_en
**Result:** The system will provide accurate data on the annual energy production (kWh per year), also showing the periods of the year with maximum efficiency and identifying any losses caused by shading.

## IT - Economic and Financial assessment

**Reference:** Analysis - Economics: Calculate the expenses and earnings for your PV.
**Step Description:** Use the calculation tool for economic and financial assessment. GSE simulator is a web application to support preliminary energy, economic and financial assessments for the creation of RECs and collective self-consumption. The tool calculates the production of PV system, the aggregate monthly consumption, collective self-consumption and shared energy and performs economic-financial analysis. RECON 2.0

simulator It's a web application that performs preliminary energy, economic and financial assessments with the goal to promote the creation of renewable energy communities (REC) and jointly acting renewables self-consumers . RECON 2.0 gives the possibility to analyse REC and CSC composed of an indefinite number of consumers, prosumers, and producers and can simulate different consumption profiles (i.e., residential, condominium, office, school, commercial, industrial). Electricity withdrawals can be provided on a monthly or annual basis, depending on data availability, and consumption of individual prosumers is calculated by the simulator basing on the contribution of onsite self-consumption. The economic and financial analyses are carried out at the level of the individual production plant, considering different forms of financing: operating rental, leasing, purchase with equity and/or debt capital, capital grants (including the NRRP grant dedicated to REC and CSS with RES power plants in small municipalities) and tax deductions. RECON calculates physical and widespread self-consumption, energy self-sufficiency, environmental benefits in terms of reduction of CO2 emissions, savings linked to onsite self-consumption, revenues from energy sales, the incentive, and the Authority ARERA contribution that valorises widespread self-consumption, O&M costs, discounted cash flows and the main financial indicators (NPV, IRR, WACC, payback time).

**Service Description:** Suggest the tool (RECON or GSE simulator), support for the collection of data and fill in the simulator. Support for the analysis of the simulation.

**Service Web-Link:** https://recon.smartenergycommunity.enea.it/

**Dependency:** IT - Analysis - Consumption;#45;#IT - Analysis - Solar Radiation and Electricity yield;#46;#IT - Analysis - Size of PV installations and electricity storages;#181

**Result:** The tool finds out the power of the plant according to the energy consumption profile and roof area. It finds out the electricity will be consumed directly and the amount will be fed into the power grid. It estimates the money saved by self consumprtion, the shared energy and calculates the cashflow generated by selling excess electricity and by incentives.

**Stakeholder:** GSE

## IT - Preliminary costs and revenues assessment

**Reference:** Preassessment - Financing: Make an initial assessment about financing possibilities

**Step Description:** This step delves into the cost components, both investment and

operational, estimated for the renewable energy community, in order to draft a preliminary economic framework for the project. In addition to the one-time costs incurred for the construction of the production infrastructure, investment costs include all consultancy, advertising, and notary fees that the promoters of the REC, before its establishment, or the REC itself, must face for the community's launch. Operational costs are the expenses that are continuously required throughout the useful life of the production systems and for the operation of the energy community, concerning activities related to local energy sharing.
**Service Description:** Provide preliminary information about the main costs (Investment costs in technology and technical services, Investment costs for establishing the REC, Plant management and maintenance costs, Costs for managing the legal entity, Costs for managing the configuration, GSE administrative costs) and revenues (Revenues from grid sales, Revenues from CACER incentives and ARERA compensation, Revenues from other activities, Savings on electricity supply costs, Revenues from other incentives and financing options) are provided.
**Dependency:** IT - Analysis - Size of PV installations and electricity storages;#181;#IT - Registration of REC on GSE portal;#182;#IT - Access to the capital contribution - NRRP measure (National Recovery and Resilience Plan) for municipalities <5000 inhabitants;#57;#IT - Access to financial contributions;#180;#IT - Financing - Access to private capital;#58
**Result:** Provide a purely indicative costs and revenues pre-assessment, as the definition of actual costs will need to be confirmed by the competent figures.

## IT - Analysis - Size of PV installations and electricity storages

**Reference:** Analysis - PV System: Understand all components of your PV plant
**Step Description:** This step provides the initial project information about the size of the required energy equipment, i.e. PV installations, electricity storages. Preliminarily, and based on current technologies, some parametric references can be used to size a photovoltaic system: 1- Estimation of the achievable power based on the available surface area. 2- Estimation of the achievable power of the system based on consumption. 3- Estimation of the achievable power based on the available investment.
**Service Description:** Assist the initiator to find out 1)how much kWp the PV installations in the CEP/EC should have in accordance with the consumption profiles, available

rooftop/adjacent territory areas, available investment. 2) what should be the capacity of the electricity storages

**Dependency:** IT - Analysis - Consumption;#45;#IT - Analysis roof area;#78

**Result:** PV installations sizes in kWp, m2 and types of modules Electricity storages' sizes in kWh

## IT - Insurance

**Reference:** Insurance: Find an insurance provider.

**Step Description:** Find insurance to cover material and personal damages for which the Energy Community (CER) is responsible. If the energy community provides consultancy, for which members or third parties could hold them accountable, it is recommended that CERs also consider professional liability insurance. When planning your PV system, it's important to understand the risks and costs associated with insurance. Ensure that you are adequately covered for potential issues such as equipment damage, theft, or liability. Compare different insurance offers to find the best coverage and rates. Additionally, explore bundling options, which may include combining insurance with maintenance services or other related coverage, to potentially reduce costs and simplify management. Evaluating these factors will help safeguard your investment and ensure comprehensive protection for your PV system.

**Service Description:** No support provided for this step. Referral for an insurance provider.

**Result:** - Understand the risks and costs of insurance - Compare offers - Understand bundling options

## IT - Mandate of the contact person (soggetto referente) for REC

**Reference:** Community Roles: Define the core team and their responsibilities.

**Step Description:** The assignment of functional roles to the parties involved in the project helps define the REC model and the cost and revenue items that contribute to the cash flows. The foreseeable functional roles are: ● Plant owner/Producer ● Prosumer/owner of the consumption account connected to the plant ● Consumer/owner of the consumption account The involved actors are: ● Legal entity of the REC ● REC member ● Third parties (e.g., consultant, entrepreneur, etc.)

**Service Description:** Help the REC members to define their responsibilities according to the

legal entity and, in particular, to identify the "Soggetto referente" and provide the template for the mandate and support in the compilation. The role of "Soggetto Referente" (representative) for a REC can be carried out by the Community itself, represented by the natural person who, according to the bylaws or articles of association, holds its legal representation. Alternatively, the role of the Representative can be performed by: a producer, member of the CER, a final customer, member of the CER, a "third-party" producer of a plant/UP whose generated electricity is relevant to the configuration and is a UNI 11352-certified ESCO. In these cases, the person who, according to the bylaws or articles of association, holds the legal representation of the renewable energy community grants the Representative a specific mandate without representation. This mandate has a duration of one year, is tacitly renewable, and can be revoked at any time.
**Service Web-Link:** https://www.gse.it/servizi-per-te/autoconsumo/gruppi-di-autoconsumatori-e-comunita-di-energia-rinnovabile/mandati-e-liberatoria
**Dependency:** IT - Establish legal entity ;#48
**Result:** Mandate ready to be sent to GSE for the completion of all activities aimed at submitting the application to the GSE for access to the service for collective self-consumption
**Stakeholder:** GSE

## IT - Financing - Access to private capital

**Reference:** Financing - Private Capital: Ensure financing and source external capital.
**Step Description:** This step allows for defining the financing strategies for the construction of the plants that the REC intends to implement (e.g., own resources, bank loan, ESCo, etc.).
**Service Description:** It supports municipalities that have difficulty identifying financial resources for investments in photovoltaic systems by using private financing solutions through public-private partnerships.
**Dependency:** IT - Analysis - Consumption;#45
**Result:** Call of expression of interest to collect general contractor to build PV plants

## IT - Access to the capital contribution - NRRP measure (National Recovery and Resilience Plan) for municipalities <5000 inhabitants

**Reference:** Financing - Public Funding: Ensure financing and source external captial.
**Step Description:** This step identifies some of the options available to an REC for the implementation of systems for the production of energy from renewable sources. The analysis and understanding of how these mechanisms work allow for the definition of the business model of the Community. In fact, since RECs, due to their recent spread, are currently difficult to finance through traditional banking, it is crucial for their development to combine financial instruments specifically developed by the Public Administration with bank financing or third-party funding (e.g., ESCOs).
**Service Description:** Guidance in order to provide information about the NRPP capital grant and how to apply.
**Service Web-Link:** https://areaclienti.gse.it/
**Dependency:** IT - Establish legal entity ;#48;#IT - Map of primary subcabins;#44;#IT - Commissioning PV system;#74;#IT - Registration of REC on GSE portal;#182
**Result:** Application for access to capital grant.
**Stakeholder:** GSE

## IT - Capital grant for citizens beneficiaries national energy income

**Reference:** Financing - Public Funding: Ensure financing and source external captial.
**Step Description:** This step identifies some of the options available to an REC for the implementation of systems for the production of energy from renewable sources. The analysis and understanding of how these mechanisms work allow for the definition of the business model of the Community. In fact, since RECs, due to their recent spread, are currently difficult to finance through traditional banking, it is crucial for their development to combine financial instruments specifically developed by the Public Administration with bank financing or third-party funding (e.g., ESCOs).
**Service Description:** Guidance for apply for the National Energy Income. It is a capital grant aimed at the installation of domestic PV systems (from 2 kW to 6 kW), serving residential

properties owned by households in economic hardship. It is cumulative with that provided by the CACER decree but the POD can be associated with the configuration of self-consumption only as a point of withdrawal and not of injection.
**Result:** Application for the grant submitted. The result of the request is within 60 days from the sending
**Stakeholder:** GSE

## IT - Access to financial contributions

**Reference:** Financing - Public Funding: Ensure financing and source external captial.
**Step Description:** This step identifies some of the options available to an REC for the implementation of systems for the production of energy from renewable sources. The analysis and understanding of how these mechanisms work allow for the definition of the business model of the Community. In fact, since RECs, due to their recent spread, are currently difficult to finance through traditional banking, it is crucial for their development to combine financial instruments specifically developed by the Public Administration with bank financing or third-party funding (e.g., ESCOs). The financial contributions are granted for a period of 20 years. The eligible contributions are of three types: 1- Enhancement of self-consumed electricity, through the reimbursement of the tariff components set by ARERA. 2- Incentivization (premium tariff) of shared electricity. 3- Compensation for the withdrawal of electricity fed into the grid (RID) by GSE, when requested. The fee to cover the management and operational costs owed to GSE consists of a fixed fee and a variable fee based on the power of the individual system. The fees are due on an annual basis and are recognized by GSE through the offsetting of the amounts paid. Incentivization occurs through the following mechanism: 1- The provision of a monthly advance during the year, determined based on an estimate of the shared electricity eligible for incentives and the applicable premium tariff (advance payment). 2- The recognition, also on a monthly basis and starting from the year following the reference year, of the actual economic incentive contribution due, based on the energy measurements transmitted throughout the year to GSE by the network operators (settlement).
**Service Description:** Guidance to access to incentives.
**Dependency:** IT - Commissioning PV system;#74;#IT - Establish legal entity ;#48;#IT - Registration on GAUDI portal;#61

**Result:** Access to incentives
**Stakeholder:** GSE

## IT - Support for the investments - Bonus casa for citizens

**Reference:** Financing - Public Funding: Ensure financing and source external captial.
**Step Description:** This step identifies some of the options available to an REC for the implementation of systems for the production of energy from renewable sources. The analysis and understanding of how these mechanisms work allow for the definition of the business model of the Community. In fact, since RECs, due to their recent spread, are currently difficult to finance through traditional banking, it is crucial for their development to combine financial instruments specifically developed by the Public Administration with bank financing or third-party funding (e.g., ESCOs).
**Service Description:** Guidance in order to provide information about the Bonus casa and how to apply. Ten-year tax deduction for the installation of photovoltaic systems up to 200kW and energy storage systems, equal to 50% of the expenses incurred for the primary residence, with a spending cap of €96,000 per property unit. For properties other than the primary residence, the deduction is 36% with a spending cap of €48,000. The deduction is compatible with REC incentives but not with the NRRP capital grant.
**Service Web-Link:** https://www.efficienzaenergetica.enea.it/detrazioni-fiscali/bonus-casa.html
**Result:** Information of the financing support and how to apply.
**Stakeholder:** ENEA

## IT - Procurement procedures for PV systems for public bodies

**Reference:** Sourcing - Equipment: Initiate bidding process and buy equipment
**Step Description:** 0
**Service Description:** If you are a public body, you can simplify the procedures for purchasing and installing photovoltaic systems directly on MePA (Electronic Market of Public Administration) or alternatively you can contact a technical partner operating in your territory.
**Service Web-Link:** https://www.acquistinretepa.it/opencms/opencms/
**Stakeholder:** MEPA - Mercato Elettronico (Electronic marketplace)

## IT - Companies authorized to build PV plants only for "energy income" beneficiaries

**Reference:** Sourcing - Professionals: Find and hire Service Providers and Technicians for the installation of your PV plant
**Step Description:** 0
**Service Description:** This service applies for the construction of a PV system only for "energy income" beneficiaries
**Service Web-Link:** https://www.gse.it/servizi-per-te/fotovoltaico/reddito-energetico/mappa-realizzatori-impianti-fotovoltaici
**Result:** List of companies registered on GSE portal (name, e-mail, phone number). Companies meet the requirements (mandatory training and refresher) set out in article 8 of the Ministerial Decree of 8 August 2023, the REN Decree.
**Stakeholder:** GSE

## IT - Registration on GAUDI portal

**Reference:** Commissioning - Plant: Get the permission to start operation
**Step Description:** The registration of a photovoltaic system on Gaudì Terna is a fundamental and binding step for connecting the photovoltaic system to the national electricity grid. Without a valid registration on the Gaudì portal, in fact, it is not possible to connect your photovoltaic system to the national electricity grid.
**Service Description:** It supports the registration of the PV plant on the GAUDI platform, managed by TERNA. It is a foundamental step , because without the registration it's impossible to connect the plant to the national grid.
**Service Web-Link:** https://www.terna.it/it/sistema-elettrico/gaudi
**Dependency:** IT - Permit: grid connection;#60
**Result:** Attribution of CENSIMP code. The plant can be connected to the national grid.
**Stakeholder:** TERNA

## IT - Commissioning PV system

**Reference:** Commissioning - Plant: Get the permission to start operation
**Step Description:** After getting the permission to start operation, the installer has to install the plant correctly, check if it operates safely and meets all regulatory requirements. The general and specific requirements that PV systems must meet in order to access the distributed self-consumption service and incentives are detailed in the GSE Operational Rules (art. 1.2.1.2-1.2.1.3). Currently, the costs of turnkey photovoltaic systems for a private client can range between €1,000/kW and €2,000/kW, depending on the power of the system.
**Service Description:** Provide contact with CNA to have the list of PV installers in the Province of Teramo.
**Dependency:** IT - Analysis - Size of PV installations and electricity storages;#181;#IT - Permit: grid connection;#60
**Result:** Construction of PV System completed. The plant is correctly installed, operates safely and meets all legal requirements.
**Stakeholder:** CNA - National Confederation of Crafts and Small and Medium Enterprises (local Association of Teramo)

## IT - Norms and Standards

**Reference:** Commissioning - Plant: Get the permission to start operation
**Step Description:** Ensure that the system complies with the norms and standards
**Service Description:** A list of norms applicable to PV installations is attached

## IT - Main Legal Models for the Establishment of Renewable Energy Communities

**Reference:** Establish Legal Entity: Create your REC by establishing a legal entity.
**Step Description:** 0
**Service Description:** Guidance. It describes the general characteristics of the main models currently recognized by the Italian legal system for establishing a REC. These models (cooperative, foundation, association, consortium) are analyzed in their essential elements, highlighting their strengths and weaknesses. The choice of the REC's legal form is left to the

community's initiative. However, this choice must always adhere to certain principles: autonomy, the principle of open access (allowing free entry and exit), and prioritizing environmental, economic, and social benefits over financial profits.
**Service Web-Link:** https://energia.regione.emilia-romagna.it/comunita-energetiche/old/allegati/quaderno-2_comunita-energetiche-rinnovabili.pdf/@@download/file
**Result:** Definition of the legal model
**Stakeholder:** University of Teramo - Research Center for green transition, sustainability and global challenges

## IT - Establish legal entity

**Reference:** Establish Legal Entity: Create your REC by establishing a legal entity.
**Step Description:** An energy community needs to become a legal entity. REC must assume a legal form compatible with the pursuit of an ideal or mutualistic purpose, rather than a profit-making one, such as associations, third sector entities, cooperatives, benefit cooperatives, consortia, partnerships, and non-profit organizations. Each REC is therefore characterized by a deed of incorporation and bylaws. Additionally, it is necessary to adopt an internal regulation containing the operational rules for the functioning of the CER and for the sharing of economic benefits (incentives) and a "Reference Person" must be identified.
**Service Description:** Provide templates for not recognised association, participatory foundation and consortium company with limited liability. The minimum requirements for the deed of incorporation are provided by GSE. The templates have been developed under European (Comanage) and National projects ( Sinergie by Compagnia San Paolo).
**Service Web-Link:** https://www.gse.it/servizi-per-te/autoconsumo/gruppi-di-autoconsumatori-e-comunita-di-energia-rinnovabile/comunit%C3%A0-energetiche-rinnovabili#requisiti
**Dependency:** IT - Main Legal Models for the Establishment of Renewable Energy Communities;#47
**Result:** Deed of incorporation and articles of legal entity.
**Stakeholder:** University of Teramo - Research Center for green transition, sustainability and global challenges

## IT - Registration of REC on GSE portal

**Reference:** Registration - Market: Register your REC to be involved in the electricity market processes.
**Step Description:** The GSE plays a crucial role in managing incentives and verifying compliance for CERs. To access the economic incentives outlined in the law, the CER must register with the GSE and provide documentation demonstrating adherence to the eligibility criteria, including the type of renewable energy sources used, the location of the production and consumption points, and the internal regulations of the community. The GSE will then monitor the energy production and consumption patterns to ensure continued eligibility for incentives.
**Service Description:** Guidance for REC registration on GSE portal
**Service Web-Link:** https://auth.gse.it/
**Dependency:** IT - Commissioning PV system;#74;#IT - Establish legal entity ;#48;#IT - Mandate of the contact person (soggetto referente) for REC;#52;#IT - Registration on GAUDI portal;#61;#IT - Map of primary subcabins;#44
**Result:** An identification code will be assigned by the GSE.
**Stakeholder:** GSE

## IT - Registration on the business registry

**Reference:** Registration - Tax: Register your REC at the tax authority.
**Step Description:** While not always mandatory, depending on the chosen legal form, registering with the Registro delle Imprese (Business Registry) at the local Chamber of Commerce may be necessary. This is typically required for CERs structured as commercial entities like cooperatives or limited liability companies.
**Service Description:** No service provided for this task.
**Service Web-Link:** https://www.cameragransasso.camcom.it/
**Dependency:** IT - Assessment of REC's members;#53;#IT - Establish legal entity ;#48
**Result:** Registration in the Business Registry provides public information about the REC, its purpose, directors, and financial status.
**Stakeholder:** Chamber of Commerce Gran Sasso d'Italia

## IT - Registration VAT number

**Reference:** Registration - Tax: Register your REC at the tax authority.
**Step Description:** This is the primary registration point for the legal entity itself. Whether the REC is formed as an association, cooperative, or limited liability company, it must obtain a tax identification number (VAT number) from the Revenue Agency. This registration is fundamental for conducting business and accessing tax benefits.
**Service Description:** Provide information about costs related to the registration.
**Service Web-**
**Link:** https://www.agenziaentrate.gov.it/portale/web/guest/schede/pagamenti/registrazione-atti/come-si-registra
**Dependency:** IT - Establish legal entity ;#48
**Result:** Receive a VAT ID number
**Stakeholder:** Revenue Agency

## IT - Maintenance Recommendations

**Reference:** Maintenance - HW: Perform regular maintenance and repairs to the PV plant.
**Service Description:** Advice on how to properly maintain the PV plant The cost of ordinary and extraordinary maintenance is about 0.7% of the investment per year.
**Result:** Understanding of the maintenance needs

## IT - Membership changes

**Reference:** Membership - Administration: On/Off boarding of REC members.
**Step Description:** In order to manage the REC effectively, report any membership changes to the GSE to ensure accurate records. Register new participants in the REC and update the member list to reflect current information.
**Service Description:** Assist the REC to report membership changes to GSE Register new participants of REC and update the list.
**Dependency:** IT - Assessment of REC's members;#53;#IT - Expression of interest in joining a REC and application form;#51;#IT - Registration of REC on GSE portal;#182

**Result:** Updated records of the REC members .
**Stakeholder:** GSE

## IT - Billing

**Reference:** Billing: Periodic settlement of electricity consumption and feed-in.
**Step Description:** The Billing Process includes: 1. Metering and Data Collection 2. Data Aggregation and Processing: The REC's manager (contact person) or a designated entity aggregates the metering data and processes it according to ARERA's guidelines. 3. Calculating Self-Consumption and Shared Energy: 4. Determining Energy Injected and Withdrawn: The amount of energy flowing between the REC and the national grid is calculated. 5. Applying Incentive Mechanisms. 6. Generating Member Bills: Based on the calculations above, individual bills are generated for each REC member, reflecting their self-consumption, shared energy usage, energy injected into the grid (if applicable), and energy withdrawn from the grid. 7. Settlement with GSE
**Service Description:** Guidance to data interpretation and suggestion how to maximize the shared and self consumed energy.
**Dependency:** IT - Mandate of the contact person (soggetto referente) for REC;#52;#IT - Registration of REC on GSE portal;#182;#IT - Commissioning PV system;#74
**Result:** - Hourly and monthly shared electricity amount - hourly and monthly self-consumed electricity amount; - contribution for the valorization of self-consumed electricity on a monthly basis - contribution for electricity subject to incentivization on a monthly basis, - fees covering the administrative costs of the GSE
**Stakeholder:** GSE

## IT - Accounting

**Reference:** Accounting: Book keeping and reporting towards tax authorities
**Step Description:** Effective accounting and bookkeeping involve preparing financial statements to provide a clear overview of the project’s financial health. Ensure compliance with all legal and regulatory requirements to avoid any legal issues. Regularly balance accounts to maintain accuracy and integrity in financial records. Additionally, report to tax authorities as required to ensure proper tax filings and adherence to financial regulations. A

digital platform for managing energy communities helps facilitate the management, monitoring, and optimization of energy resources within a community through various functionalities, including: - Monitoring and control (It allows real-time monitoring of energy consumption and production from renewable sources within the community); - Energy optimization (Using intelligent algorithms, the platform can optimize energy usage by efficiently balancing supply and demand to maximize self-consumption and reduce overall energy costs); - Management of distributed resources (It integrates and coordinates various distributed energy sources, such as solar panels, energy storage systems, and electric vehicles, to maximize their impact within the community). - Active participation (It enables community members to actively participate in energy management, allowing them to make informed decisions about energy use and contribute to the optimal functioning of the system).
**Service Description:** Support for the selection of software, hardware, or mixed platforms to support the operational management of RECs .
**Dependency:** IT - Registration of REC on GSE portal;#182;#IT - Billing;#199;#IT - Mandate of the contact person (soggetto referente) for REC;#52;#IT - Establish legal entity ;#48;#IT - Commissioning PV system;#74
**Result:** The data related to the PODs that are part of the energy community are monitored through meters controlled by the grid operator, who is then required to regularly send the data to the GSE. On the basis of data of energy consumption, energy sharing, energy selling to the market, GSE calculates the revenue of the REC. The revenue distribution plan should be divided according to what is defined in the REC regulation.

## IT - Membership engagement

**Reference:** Membership - Engagement: Member services and continuous engagement.
**Step Description:** To maintain CEP member services and continuous engagement, keep members updated with the latest information and developments. Actively recruit new members to expand the community and enhance its impact. Organize informational and social events to foster a sense of community and provide valuable insights. Additionally, offer assistance to members to address their needs and ensure they are well-supported throughout their involvement in the REC.
**Service Description:** Member services and continuous engagement. The modes of involvement can range from a purely informational level, to engagement through remote

surveys (e.g., questionnaires), to the organization of collective participatory events (e.g., "World Café") or smaller group sessions (e.g., focus groups), and even to the establishment of consultation tables or permanent observatories.

**Dependency:** IT - Membership changes;#197;#IT - Assessment of REC's members;#53;#IT - Expression of interest in joining a REC and application form;#51;#IT - Find REC initiators;#81

**Result:** - Keeping members updated - Recruiting new members - Organizing informational and social events - Offering assistance

# 5 Conclusion

The **DISCOVER guidebook family** includes the general, specific, and interactive guidebook. This deliverable provides a summary of the specific guidebooks for the pilot regions of Austria, Bulgaria, Croatia, France, and Italy.

The **DISCOVER specific guidebook** outlines the steps a CEP initiator must follow to implement a project. For each step, the guidebook explains the support activities offered by the OSS, as well as relevant local stakeholders. These steps and services are tailored to each pilot region, which is why the guidebooks are referred to as "specific."

The steps in the specific guidebook cover the entire lifecycle of CEPs and can be categorized by **stage within the CEP lifecycle** (e.g., planning, realization, and operation) or by **topic** (e.g., PV installation, energy community establishment, and efforts related to community engagement). All steps are indexed in chronological order to reflect their sequence of execution.

Although the DISCOVER pilot regions differ significantly in how PV installations and energy communities are established, the specific guidebooks follow a common structure. This consistency is achieved through the following development approach for the specific guidebooks:

1. The generic steps outlined in the **DISCOVER general guidebook** were expanded and enriched with local content for each region.
2. A service description is provided for each step, detailing the support the OSS can offer to CEP initiators. These support services may include contextualized information, referrals to professionals or authorities, calculations or simulations within the OSS, and outreach or networking activities.

The specific guidebook represents the OSS's **support portfolio** and is considered a living document that will continue to evolve. It plays a vital role in the daily operation of the OSS and serves as the foundation for the development of the interactive guidebook.

While this document serves as a written summary of the specific guidebooks, they are implemented as a **databank** where stakeholders, service links, and steps are referenced via lookup fields. The databank structure allows for easy adjustments, ensuring flexibility. It also features input masks for streamlined data entry, facilitating a coordinated and efficient development process across the DISCOVER pilot regions. This approach ensures content consistency while enabling easy expansion and replication for future pilot regions.

Overall, the **DISCOVER specific guidebook** provides valuable guidance for CEP initiators, offering detailed instructions to support their efforts throughout the entire lifecycle of their projects. This highlights the capability and competency of the DISCOVER team in supporting CEP initiatives in the following months and in achieving the project's KPI.


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