LIFE CIRCULENERGIES

WP2 – Innovative packages development and financing solutions

Updated research on EU best practices

Version: 1

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DISCLAIMER

The information, opinions and views expressed herein do not constitute legal advice or opinions, particularly with respect to the analysis of legal and regulatory frameworks. The following document is intended solely as an orientation tool to provide insights into local projects, regulations, constraints and opportunities. It is not intended to serve as a stand-alone decision support tool.

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LIFE CirculEnergies project

LIFE CirculEnergies (LCE) brings together **4 multi-expertise partners** in the **low-carbon transition of territories** (GreenFlex, Tecsol, Valoen, and LLC & Associates), to engage **economic activity zones** (EAZ) in a **low-carbon** and **resilient ecological transition**.

As one of the **main economic activity hubs in territories**, EAZ need to reinvent their model, inherited from urban planning forms that no longer correspond to the challenges of tomorrow.

LCE aims to make those territories **attractive**, and **resilient** by developing "**turnkey**" **solution** packages that facilitate their **energy transition**. The solutions include support in all stages of a project (**study**, **design**, **financing**, **implementation**, and **monitoring**) and address key energy challenges of future activity zones: **energy sobriety, energy efficiency, renewable energy production,** and the development of **low-carbon energy** services such as **electric mobility**.

LCE presents an **innovative** approach by addressing the issues of EAZ comprehensively to offer relevant and environmentally **virtuous local energy loops**, while ensuring a **relevant** and **competitive** economic model. Beneficial new models of **local governance**, such as **energy communities**, are also integrated.

LCE primarily targets EAZ's **small** and **medium-sized** enterprises to support them in their **ecological transition**, although all actors are welcome to join the project.

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The partners

GreenFlex

GreenFlex is a company that helps its clients thinking and deploying their ecological & energetic transition, through support & consulting services, data intelligence & financing solutions. Since its creation in 2009, GreenFlex has been to accelerate the energy and strategic transition of companies. GreenFlex helps them to be more competitive by reducing their costs or by growing their turnover by adding value. GreenFlex has developed a unique model which connects an eco-friendly approach with the economic reality of companies by bringing together three very different activities: Consulting; Project development and data intelligence; Financing.

Tecsol

TECSOL is an Engineering and design office (OPQIBI 2011 certification) with 40 years' experience in solar thermal and photovoltaic systems and is also a certified training organisation. TECSOL carries out feasibility studies and project management for local authorities and businesses on roof-integrated projects for industrial or commercial buildings, as well as ground-mounted projects and agrivoltaic greenhouses. The company's head office is in Perpignan, with branches in France in: Toulouse, Lyon, Bordeaux, Angers, Strasbourg, Perpignan, Orange and Ile-de-France.

Valoen

Valoen is a consulting firm located in Rennes (Brittany region). Valoen has been formed by two partners with 10+ years of joint work experience. The fields of expertise are the following: (1) land planning and use in business parks, (2) solar photovoltaics massification, (3) collective self-consumption and energy communities. Valoen has a sound experience in both business parks strategies and transactive energy models, fitting the objectives and issues addressed in LCE project.

LLC & Associates

LLC is a several times rewarded full-service law firm dedicated to providing legal services to public and private companies, local governments, and civil society stakeholders. LLC' scope of action covers the whole French territory (continental and overseas), both from the Paris office and through its local partners. The range of activities provided by the Energy and Business department based in Paris encompasses the whole legal playing field, such as contractual, corporate, tax, financing, regulation and public law and procurement.

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I.Objectives of the benchmark

A. Objectives of the benchmark

In the framework of this benchmark, several European projects focusing on the energy transition of enterprises were examined. The aim of energy transition for businesses is to provide them with the means to reduce their environmental impact by promoting a more sustainable energy model, in particular through energy efficiency measures, the installation of photovoltaic panels and the installation of charging stations. The following issues have been analysed:

- Governance structure
- Proposed offers (technical, economic, legal and organisational components)
- Financing methods
- Communication around the project
- Communication and link between the consortium and the business parks and companies targeted by the project
- Strengths/best practices of other projects for inspiration
- Weaknesses and solutions found to overcome them in order to avoid the pitfalls

The main objective was to gather information from several projects that have gone through the same stages and experienced similar challenges, in order to better anticipate the next steps of LIFE CirculEnergies. The current context in France is favourable to the installation of photovoltaic panels, energy efficiency measures and electric vehicles. This context explains the number of national or European projects carried out on these topics. More details on these topics are given below.

B. Context of energy efficiency

Historically, the issue of energy efficiency first appeared as a means to economic ends, in particular economic independence, an objective that became a priority after the first oil crisis in 1973. From the 1990s, the fight against greenhouse gas emissions responsible for climate change took over. Energy efficiency is based on optimising consumption, but also aims to reduce the environmental, economic and social costs of producing, transporting and consuming energy. This applies to the building, transport and industrial sectors.

There are two types of energy efficiency:

- Passive energy efficiency relates to building insulation, ventilation, lighting, air conditioning and heating systems.
- Active energy efficiency, which relates to regulation, energy management, home automation and Building Management Systems (BMS).

The combination of these two efficiencies gives the overall energy performance of a building. Energy efficiency refers to the lowest energy demand for a service.

To encourage building owners to take action, a number of regulations in France now set targets for reducing consumption or implementing energy efficiency measures in the building sector:

- the Grenelle Laws (the RT thermal regulation and the RE environmental regulation)
- the Tertiary Decree and the BACS (Building Automation & Control Systems) Decree of the ELAN Law
- the SLR (Single Lighting Regulation) and RoHS (Reduction of Hazardous Substances) directives
- etc.

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Since 2006, the Energy Saving Certificates (CEE) scheme has been one of the main financial levers for carrying out energy efficiency work in France.

C. Solar photovoltaic context

Solar photovoltaics is experiencing significant growth around the world, as evidenced by the global solar PV market, which will cross the threshold of 1+ TWp installed in 2021 [2]. Its production represents 6.2% of the world's electricity production.

In Europe, a 20% increase in installed capacity is forecast for the second year (+8% in 2018, +16% in 2019 and 2020) to 2022, with leading countries such as Germany, Poland, the Netherlands, Spain, Italy and France[1]. This market growth will be driven by several (interrelated) factors:

- Although the COVID-19 crisis led to an increase in module prices (between +4% and +7%) due to supply chain disruptions, initial findings for 2023 show a return to previous price decrease trends [3].
- The reduction in total installed costs between 2016 and 2022 is mainly (almost two thirds) induced by the balance of the system [3], limiting the impact of raw material price inflation.
- Several projects for the creation or expansion of PV component factories have been announced in Europe [1].
- The war in Ukraine was followed by drastic political decisions against Russia, leading to a global increase in wholesale electricity prices, exacerbated in France by speculation about the availability of nuclear power [4]. PV then reached grid parity (i.e. the cost of PV electricity is less than the wholesale price of electricity) faster than expected.
- The REPowerEU plan paved the way for the massive adoption of ambitious roadmaps for the development of renewable energies, in which PV played an important role. Its rapid deployment and positive global perception have contributed to the development of favourable public policies. In France, for example, the national roadmap is for 48.1 GWp in 2030 (18 GWp in mid-2023), and the government plans to reach 140 GWp in 2050.

D. Context of electric vehicle supply equipment

The development of electric vehicle supply equipment (EVSE) follows the trend of electric car sales.

In 2022, 10 million light electric vehicles will be sold worldwide, representing 14% of car sales: this is more than the number of cars sold in Europe (9.5 million) and almost half the number sold in China. There are around 26 million electric cars in the world, 30% of which are in Europe. In France, 21% of car sales are EVs.

Most of the demand for charging stations is for private use, but the growth of public infrastructure offers interesting prospects. In 2022, 2.7 million public charging points will be installed worldwide, half of them in China. In Europe, 13% of public EVSE are fast chargers (70,000), the rest are slow chargers (460,000).

LIFE CirculEnergies therefore intends to offer a turnkey solution that brings together all these issues for business parks. The idea is to simplify access to these solutions for companies interested in implementing them.

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II. Methodology

A. Interviews

In order to obtain information on best practices of other European projects, several interviews were conducted with projects similar to LIFE CirculEnergies. The aim was to learn from them and benefit from their experience.

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Table 1: Synthesis of European projects surveyed

Project names	**Eaas**	**ESI Europe**	**Gear@SME**	**Leap4SME**	**Sant Luis Clean Energy Community**	**TranZAE**
Contacts	Chris Rynikiewicz	Livia Miethke	Vincent Kamphuis Karina Veum	Ana Cardoso Enrico Biele Claudia Toro Chiara Martini	Rebecca Morris	Lydie LAIGLE Paul HAMONIAU
Project overview	Unlocking investment in energy efficiency through servitisation solutions in europe	ESI Europe project offers a turnkey solution for SMEs that are reluctant to invest in energy efficiency	GEAR@SME aims to promote and disseminate energy efficiency efforts in SMEs. The project develops a local collective approach to energy efficiency in SMEs.	LEAP4SME aims to support Member States in establishing or improving effective measures for small and medium-sized enterprises (SMEs) to carry out energy audits	The Sant Luis Clean Energy community aims at promote the installation of solar energy production capacity at local level. The project brings together more than 13 companies in a single community.	Analysis of barriers and successes in implementing solar panel solutions in business parks.
Partners	BASE, Inno Energy, Agoria, Anese	ESE, Doors, Kress	Synyo, CertiMac, CSA, BEA, XXX, CCS, VNO-NCW, Servelect, TUCN, CIT	10 partners	15 partners	CSTB and Ecole des Ponts
Countries	Spain, Netherlands, and Belgium	Phase 1: Italy, Portugal, Spain; Phase 2: Slovakia, Greece, Croatia	Netherlands, Romania, Italy, Germany	Italy, Portugal, Austria, Greece, Slovakia, Croatia, Malta, Poland, United Kingdom, Belgium	Spain	France
Period	2020 - 2023	2018 - 2022	2020 - 2023	2020 - 2023	2022-	2022 -
Website	EaaS	ESI Europe	Gear@SME	Leap4SME	Sant LLuis	/

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B. Regulatory framework review

The review of the regulatory framework aims to provide the reader with a synthetic view of the key aspects of national and/or sub-national legislation and regulations that may be of interest for the establishment of Energy Community projects in the territory of the European Union.

As an exhaustive review of each and every national framework would require a lengthy, in-depth and expert legal analysis of each and every one of them, the following sections focus on providing synthesised information on comparable issues that project leaders would necessarily face when setting up activities similar to the Life LIFE CirculEnergies project.

It is therefore proposed to provide answers to key questions in each national regulatory framework considered, with the intention of providing comparable answers.

The Member States where similar projects have been encountered have been reviewed by systematically analysing the same issues. The regulatory aspects examined include (i) the ability to exchange energy between several actors in a bilateral and multilateral way, (ii) the constraints (technical, geographical, subjective), (iii) the scope and structure of energy communities.

The aim is to highlight the evolution of the regulatory framework in each of the countries studied and to provide an insight into the solutions and regulatory systems developed in neighbouring jurisdictions.

It has been decided to limit the analysis to a certain number of countries that meet certain criteria: the information must be easily accessible, in a language that can be understood by the members of the consortium, and with a relatively homogeneous economic environment, which is why only France's immediate neighbours have been selected.

Finally, the framework also focuses on energy production and exchanges, leaving aside energy efficiency. The reason for this is that, unlike energy production and exchange, energy efficiency is always considered to be permissible. Therefore, comparing energy efficiency frameworks would have been tantamount to comparing energy efficiency incentives.

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III. Overview of the regulatory framework

A. Austria

(i) Does the local legal/regulatory framework allow for local energy exchanges?

The Electricity Industry and Organisation Act 2010 (ElWOG 2010 §16a) allows the use of joint generation facilities (GEA) within the same building. This allows several "authorised participants" (e.g. residents) to use the electricity generated in the building (e.g. tenants or owners in apartment buildings, but also in office buildings or shopping centres). It is necessary to connect this common generating plant to a common line system (main line). It is not possible to distribute the electricity generated by the community through the public electricity grid.

It is also possible to establish citizens' energy communities (ElWOG 2010 §16b). In addition, the Renewable Energy Sources Expansion Act (EEG), which will come into force in 2021, aims to promote the expansion of renewable energy production (Part 1 §4). The establishment of energy communities will become possible when the legal basis (EAG, ElWOG 2010) comes into force on 28.07.2021.

(ii) If so, what energy can be exchanged?

All electricity generation technologies are eligible for Community power plants. This includes, for example, wind turbines or combined heat and power plants.

A Citizens' energy community is only active in the electricity sector, where electricity can come from both fossil and renewable sources, whereas in Renewable energy communities it is possible to share electricity and heat, but the energy produced must come from renewable sources.

(iii) Are there technological constraints to energy exchange? (i.e., limits on installed capacity)

In principle, there is no size limit/explicit upper limit for the community generation unit (CGU), but there are indirect restrictions because the community generation unit (CGU) uses the common grid connection.

Within a renewable energy community, the consumer installations must be connected to the generation installations via the low-voltage distribution grid or via the medium-voltage grid and the medium-voltage busbar in the substation (§ 16c par. 2 ElWOG).

(iv) Are there any geographical restrictions?

The Renewable Energy Community is characterised by its regional character and a distinction is made between local and regional communities. Within a renewable energy community, the consumption installations of the members or shareholders must be connected to the generation installations via a low-voltage distribution network and the low-voltage part of the transformer station (local area) or via the medium-voltage network and the medium-voltage busbar in the substation (regional area). The transmission of energy via grid levels 1 to 4, with the exception of the medium-voltage busbar in the substation, or via the grids of other grid operators is not permitted (§ 16c par. 2 ElWOG 2010). Furthermore, the members of a renewable energy community must be connected to the concession area of a single grid operator.

Within a citizens' energy community there is no limitation to a specific geographical area. This means that citizens' energy communities can cover the whole of Austria.

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(v) Is the energy exchange limited to certain persons/entities?

Participants in Renewable Energy Communities may be natural persons, municipalities, legal entities of public authorities in relation to local authorities and other legal entities under public law, or small and medium-sized enterprises. In the case of private companies, participation must not be their main commercial or professional activity, and this is certainly the case for electricity and natural gas companies, according to the explanatory notes to the EEG. This does not apply to local or regional electricity producers that are not controlled by a supplier, distributor or electricity trader (16c par. 1 ElWOG).

In principle, all legal entities may participate in a citizens' energy community. However, only natural persons, local authorities and small enterprises that are not electricity undertakings may exercise control in a citizens' energy community (cf. § 7 par. 1 no. 11 and § 16b par. 3 ElWOG 2010).

(vi) Can participants exchange energy off-grid?

A prerequisite for a joint production plant is that the participating beneficiaries are connected to the same main line and have a joint production plant. According to § 16a par. 2 ElWOG 2010, the use of the public grid is prohibited.

(vii) If so, can there be more than two participants (one producer, one consumer)? And how is their energy exchange organised?

The law does not stipulate a minimum number of participants; as a rule, there are at least two parties who have concluded a construction and operation contract with the parties listed in § 16a par. 4 ElWOG 2010. For example, the plant may be operated by one person, who may be a natural person or a legal entity; at least one other person, who consumes the energy produced, must be assigned to the joint generation system with its consumption system.

A smart meter is necessary because, as in energy communities, the production of the plant and the consumption of the participants are measured and compared every quarter of an hour. The grid operator must measure the feed-in of the generated electricity into the main line (which supplies the participants) and the supply of the joint generation plant with a load profile meter or, in the case of installations with an annual consumption of less than 100,000 kWh or a connected load of less than 50 kW, with a smart meter. If the consumption installations are not equipped with smart meters, the grid operator shall install them within two months or, if he is unable to equip all the consumption installations with smart meters, shall, in derogation from the other provisions, offset the energy values of the joint generation installation against the respective consumption values at least once a year in accordance with a distribution key agreed between the beneficiaries concerned (cf. § 16a ElWOG).

If not, what is the role of the DSO/TSO?

Grid operators play an essential role for energy communities: both the distribution of energy from producers to consumers and the transmission of metering and billing data fall within their remit.

(viii) Do they have to own the energy production assets?

A "separate legal personality" means that an energy community must have a certain legal form, i.e. it must be a legal entity. For example, § 16b (2) ElWOG 2010 and § 79 (2) EAG provide that a citizens' energy community or a renewable energy community shall consist of two or more members or

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shareholders and shall be organised as an association, cooperative, partnership or corporation or similar association with legal personality.

(ix) Do they need to own the energy production assets?

The Explanatory Notes provide that the owner of a production facility may be either the group itself or one or more of its members. It is therefore not necessary to transfer the ownership of the production assets under civil law, but the owners of the assets must agree with the community that it will operate and control the assets (should be regulated by contract).

Österreichische koordinationstelle für energiegemeinschaften (The Austrian Coordination Office for Energy Communities) provides information sheets on the subject: FAQs - Frequently Asked Questions - Energy Communities (energiegemeinschaften.gv.at)

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B. Belgium

(i) Does the local legal/regulatory framework allow for local energy exchanges? What is "local"?

The Belgian regions have recently adopted a legal framework for the local exchange of energy between producers and final customers, called "active customers". In the Brussels-Capital Region, local exchange can be carried out either by a group of active customers acting together in the same building, or by participants in an energy community (Decree on the Organisation of the Electricity Market or "OELEC"). It recognises three types of energy community: the citizen energy community (CEC) (art. 28 bis et seq.), the renewable energy community (CER) (art. 28 quater et seq.) and the local energy community (LEC) (art. 28 sexies et seq.).

Finally, in addition to the system of collective self-consumption, it allows the exchange of energy between two persons or entities ("peer-to-peer" exchange). This can take place within a local area (neighbourhood) or more widely, provided that the two entities are located in the same region (art. 1 § 68). In Wallonia, the Decree of May 2022 also allows energy sharing within the same building or energy community (Renewable Energy Community (REC) and Citizen Energy Community (CEC)). The effective implementation of this legal framework will depend on the entry into force of the Walloon Government's decree of March 2023 and the completion of the regulator's (CWAPE) work.

In Flanders, the regulatory framework is different. The Decree on the General Provisions on Energy Policy (Decreet houdende algemene bepalingen betreffende het energiebeleid or "het Energiedecreet") allows the free sharing of energy without compensation ("energiedelen") within the same building or energy community from January 2023. However, the sale of energy is only possible between two or more players or within a co-ownership community (VME) in the same building. The Flemish rules are not described in detail below.

(ii) If so, what energy can be exchanged?

Only renewable electricity is covered by peer-to-peer exchange, and by energy sharing within the same building or within renewable energy communities and local energy communities (for the Brussels-Capital Region). Energy sharing within citizens' energy communities applies only to electricity, but this can be produced from renewable energy sources or from fossil energy sources. In addition, energy communities can set up other activities such as energy storage, electric vehicle charging and flexibility services.

(iii) Are there any geographical limitations?

Collective self-consumption takes place within a single building (as defined by point 56 of the OELEC for the Brussels-Capital Region and by Article 3 §1 of the Decree of the Walloon Government of March 2023 for Wallonia).

In the Brussels-Capital Region, peer-to-peer exchanges and participation in an energy community are not geographically restricted, provided that the buildings are located in the Brussels-Capital Region. However, the effective control of the Renewable Energy Community (Art. 28 quater §2) and the Local Energy Community (Art. 28 sexies §2) must be exercised by members located in the vicinity of the the projects. The criterion of proximity is defined in the statutes of the Energy Community (Art. 28 tredecies). In Wallonia, renewable energy communities must also comply with a proximity criterion (art. 24 of the decree of March 2023). Electricity production plants and participants must be located on the territory of a single commune. In addition, the points of connection to the local distribution or transmission network of the participants in the energy sharing, as well as the point(s) of connection to the local

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distribution or transmission network, must be downstream of the same high-voltage substation of the local transmission system operator at the time of the application for authorisation.

(iv) Are energy exchanges limited to certain people/entities?

Anyone can participate in a building energy exchange, provided they are an 'active customer' with an electricity meter linked to a supply contract and the energy exchange is not their main commercial or professional activity.

For energy communities, there is a restriction on the participation of companies. Any natural person, local authority or small or medium-sized enterprise (SME) may be a member of a renewable energy community, provided that this is not its main activity (For the Brussels-Capital Region: Art. 28 quater OELEC for renewable energy communities and art. 28 sexies for local energy communities and for Wallonia: definition 2° quiquies of the decree of March 2023). The participation of public bodies is limited to the local authorities for renewable energy communities (bodies listed on the website pouvoirs-locaux.brussels and in art. 4 of the Decree of March 2023 for Wallonia). For the Brussels-Capital Region, the list of public authorities that can participate in local energy communities includes : federal, regional and community authorities, local authorities and public interest bodies, European and international institutions, as well as any association formed by one or more of these public authorities. There are no restrictions on participation in citizens' energy communities. However, effective control may only be exercised by natural persons, local authorities or small companies for which the energy sector is not the main economic activity (art. 28bis OELEC and definition 2° sexies in the decree of March 2023).

(v) Do participants need a permit?

In the Brussels-Capital Region, energy sharing must be declared to the operator (Sibelga). In addition, the creation of an energy community must be authorised by the regulator (Brugel).

In Wallonia, energy sharing does not require a supply licence. A notification procedure (in the case of sharing within the same building) or an authorisation procedure (in the case of energy pooling) must be carried out by the regulator (the CWaPE) after receiving technical advice from the network operator concerned.

(vi) Can actors exchange energy off-grid?

The creation of private micro-grids is prohibited, so each participant must be connected to a local distribution or transmission network.

(vii) If not, what is the role of the electricity DSO/TSO?

The quantities consumed by each active customer are determined numerically by the network operators in application of the allocation key defined by agreement (art. 6 § 1 of the decree of March 2023 for Wallonia).

(viii) Do energy communities have legal personality?

It is not necessary to create a legal entity in order to share energy within a building. However, a representative must be appointed from among the participants (single point of contact with the network operator).

The energy community must have a legal personality separate from that of its participants.

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(ix) Do they have to own the energy production equipment?

In the Brussels-Capital Region, in the case of energy sharing within a building, the production plant must belong to an active customer occupying the building or, under certain conditions, to a third party investor. In the case of energy communities, the plant must belong to the community itself (except in the case of local communities, where it can belong to the community, one or more of its members or a third party).

The Brussels-Capital Region and the Walloon Region provide practical leaflets (leaflets of the Brussels-Capital Region factsheets, leaflets of the Walloon Region factsheets).

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C. France

(i) Does the local legal/regulatory framework allow for local energy exchanges? What is "local"?

The collective self-consumption system in France allows energy producers to exchange energy directly with final consumers at a local level within a radius of 1 km (article L315-2 of the Energy Code and article 1 of the ministerial order of 21 November 2019 defining the proximity criteria for extended collective self-consumption systems).
The French regulatory framework also provides for the creation of energy communities (articles L291-1 et seq. of the Energy Code) in which participants can exchange energy. There are two different types of energy communities: renewable energy communities and citizens' energy communities.

(ii) If so, what energy can be exchanged?

The collective consumption regime only allows the exchange of electricity (article L315-2 of the Energy Code). The renewable energy community scheme allows the exchange of renewable energy in general (article L291-2 of the Energy Code), while the citizens' energy community scheme only allows the exchange of electricity and heat (article L292-2 of the Energy Code).

(iii) Are there any technological constraints on energy exchanges?

Local energy power exchanges are limited to a total installed capacity of 3 MW in metropolitan French, and to 0,5 MW in overseas regions.

(iv) Are there any geographical restrictions?

Collective self-consumption systems are limited to power exchanges within a radius of 1 km. Energy communities must comply with the collective self-consumption scheme and are therefore limited to the same radius. Other energies can be exchanged on a larger scale (on a "département" scale).

(v) Is energy exchange limited to certain people/entities?

Anyone can participate in collective consumption systems. Participation in energy communities are restricted to SMEs, public administrations, citizens and associations (articles L291-1 and L292-1 of the Energy code).

(vi) Can players exchange energy off-grid?

The exchange of electricity off-grid between persons with different legal personality is strictly prohibited (see Cour de cassation, civile, Chambre commerciale, *Valsophia*, 4 septembre 2018, 17-13.015, Inédit).

(vii) If not, what is the role of the electricity DSO/TSO?

The DSO is in charge of dispatching electricity to consumers: it measures the electricity injections and withdrawals from the grid and matches local production with local consumption every half hour.

(viii) Do energy communities have legal personality?

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Energy communities have legal personality. Their legal form is governed by articles L291-1 and L292-1 of the energy code. Collective self-consumption systems do not have their own legal personality, but are managed and administered by a common entity (the "Organising Legal Entity[1]").

(ix) Do they have to own the energy production assets?

No, neither energy communities, nor organising legal entities are required to own electricity generation assets.

(x) Can they operate energy networks?

Electricity and gas networks are subject to a legal monopoly held by Enedis[2] (power) and GRDF (gas). Energy communities can operate renewable heat networks (article L293-2 of the energy code).

[1] Or "Personne Morale Organisatrice" (see article L315-2 of the energy code).
[2] Enedis covers almost 95% of the French metroplitan, the rest being managed by 100+ local distribution companies.

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D. Germany

(i) Does the local legal/regulatory framework allow for local energy trading?

The legal framework for local energy trading is defined by the Electricity and Gas Supply Act (EnWG) and the Renewable Energy Sources Act (EEG). German law provides for a system similar to that for collective consumption in residential buildings ("Mieterstrom"). Electricity generated by solar panels on the roof of a residential building is shared with final consumers (in particular tenants) in the building or in the same neighbourhood, without being fed into the grid.

If the energy exchange is organised through energy communities, it may take place between people living within a 50 km radius of the power plant.

(ii) If so, what energy can be exchanged?

The scheme applies to electricity in the case of the Mieterstrom scheme.

(iii) Are there any technological restrictions on the exchange of energy?

The collective self-consumption scheme requires that energy exchanges take place off-grid.

(iv) Are there any geographical constraints?

The Energy Exchange Scheme was strengthened in the EEG 2021, which extended the geographical scope from individual buildings to neighbourhoods. The solar package (Solarpaket I) adopted in August 2023 will confirm this system in Article 42b of the Energy Act (EnWG), entitled "Municipal building supply". This new article will not be limited to residential buildings, but will also cover other buildings, in particular industrial and commercial buildings and ancillary facilities such as garages, as long as the electricity is consumed without being fed into the grid.

(v) Are energy exchanges limited to certain persons/entities?

If energy exchanges are organised by energy communities, citizens' energy companies within the meaning of the EEG 2017 (§ 3 no. 15) must have at least ten natural persons as members with voting rights or shareholders with voting rights.

(vi) Can actors exchange energy outside the grid?

Self-consumption systems require that energy is exchanged off-grid.

(vii) If so, can there be more than two actors (one producer, one consumer) ? And how is their energy exchange organised.

Self-consumption schemes may involve sales to multiple actors, provided they are located off-grid. Similarly, where energy exchanges take place within energy communities, energy may be dispatched to a large number of consumers.

(viii) Do energy communities have legal personality?

Citizens' energy communities must be established as cooperatives or other companies with specific governance requirements (EEG 2023).

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E. Italy

(i) Does the local legal/regulatory framework allow local energy exchanges?

The collective self-consumption system in Italy allows energy producers to exchange energy directly with final consumers located in the same building and/or condominium (art. 42 *bis* of Decree *Milleproprghe* 162/2019 and art. 3 of Allegato A of ARERA Decision n°318/2020/R/eel).
Also, the Italian regulatory framework also provides for the creation of energy communities in which participants can exchange energy with each other, provided they are located within the same low-voltage electrical circuit.

(ii) If so, what energy can be exchanged?

Collective self-consumption schemes and energy communities only provide for the exchanges of electricity (art. 42 *bis* of Decree *Milleproprghe* 162/2019).

(iii) Are there any technological restrictions on energy exchanges?

Power plants are limited to 200 kW in both collective self-consumption schemes and energy communities (art. 3,1 and 3.2 of Allegato A of ARERA Decision n°318/2020/R/eel).

(iv) Are there any geographical restrictions ?

Collective self-consumption systems cannot exceed the boundaries of the condominium (art. 3,1 and 3.2 of Allegato A of ARERA Decision n°318/2020/R/eel).

(v) Is the exchange of energy limited to certain persons/entities?

Energy exchanges under the collective self-consumption scheme are not limited to certain persons or entities, provided that the exchange of energy does not constitute the primary activity of the participants. Energy exchanges under the energy community scheme are limited to physical persons, SMEs, public bodies, also provided that the energy exchange does not constitute their primary economic activity art. 42 *bis* of Decree *Milleproprghe* 162/2019.

(vi) Can players exchange energy off-grid?

Exchanges of energy are permitted within the framework of collective consumption, provided that they take place within the same building of condominium. The DSO must be informed of these energy exchanges. With regard to energy communities, energy exchanges require a connection to the grid (art. 3.1 (d) and 3.2 (b) of Allegato A of ARERA Decision n°318/2020/R/eel).

(vii) If so, can there be more than two actors (one producer, one consumer) ? And how is their energy exchange organised.

In the case of collective self-consumption, energy exchanges can be organised between several actors, provided that they have appointed the same coordinator (the coordinator can be either the representative of the building or condominium, or the producer). In the case of energy communities, the coordinator is the energy community itself.

(viii) Do energy communities have legal personality?

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Energy communities must be incorporated as a legal entities (section 4. of art. 42 *bis* of Decree *Milleproprghe* 162/2019)

(ix) Do they have to own the energy production assets?

Energy communities must own the power plants (art. 3.2 (d) of Allegato A of ARERA Decision nº318/2020/R/eel)

(x) Can they operate electricity grids?

The current legal framework does not allow energy communities to operate energy distribution networks.

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F. Portugal

(i) Does the local legal/regulatory framework allow for local energy exchanges?

Ordinance nº15/2022 dated 14 January 2022 provides for the creation of collective self-consumption systems, in which energy producers are allowed to exchange energy directly with final consumers at local level (see art. 86 thereof).
The Portuguese regulatory framework also provides for the creation of energy communities (art. 189 *et seq.* of Ordinance nº15/2022 dated 14 January 2022) where participants can exchange energy among each other. There are two different types of energy communities, renewable energy communities and the citizens energy communities.
Finally, the Portuguese legal framework does not explicitly allow bilateral direct exchanges of electricity between a producer and an end user, except for self-consumption schemes.

(ii) If so, what energy can be exchanged?

The collective self-consumption regime only allows the exchange of electricity (art. 3 of Ordinance nº15/2022 dated 14 January 2022). The regime of the two energy communities' allows the exchanges of renewable energy in general (art. 189 and 191 of Ordinance nº15/2022 dated 14 January 2022).

(iii) Are there any technological restrictions on the exchange of energy? (i.e. installed capacity limitations)

The collective self-consumption system allows energy exchanges regardless of the installed capacity. Power plants above 1 MW must comply with additional rules related to security of supply (art. 91 of Ordinance nº15/2022 dated 14 January 2022).

(iv) Are there any geographical constraints?

The definition of what is "nearby" depends on the voltage range to which the plant is connected to: 2km max when connected to low voltage (< 1 kV), 4 km when connected to medium voltage (< 45kV), 10 km when connected to high voltage (< 110 kV) and 20 km when connected to very high voltage networks (< 110 kV) (art. 3 and 83 of Ordinance nº15/2022 dated 14 January 2022).

(v) Is the exchange of energy limited to certain people/entities?

Anyone can participate in the collective consumption systems. Participation in energy communities includes, but is not limited to SMEs, public administrative bodies, citizens and associations (art. 189 and 191 of Ordinance nº15/2022 dated 14 January 2022).

(vi) Can actors exchange energy outside the grid?

The collective consumption system allows the exchange of energy in internal networks, closed distribution networks and direct lines. (art.3 and 83 of Ordinance nº15/2022 dated 14 January 2022).

(vii) If so, can there be more than two (one producer, one consumer) stakeholders? And how is their energy exchange organised?

Participants in collective consumption schemes must designate an organising entity that is in charge of communicating with the DSO/TSO in order to assign each consumer its corresponding consumption (art. 87 of Ordinance nº15/2022 dated 14 January 2022). When a collective consumption scheme is organised through an energy community, such community shall bear the responsibility of being the organising entity (art. 189 and 191 of Ordinance nº15/2022 dated 14 January 2022).

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(viii) Do energy communities have legal personality?

Energy communities must be incorporated, although the specific form of incorporation is not specified (art. 189 and 191 of Ordinance nº15/2022 dated 14 January 2022).

(ix) Do they have to own the energy production assets?

Article 189 of Ordinance nº15/2022 dated 14 January 2022 does not strictly require renewable energy communities to own the asset, as it only requires the community to have participated in its development, but also allows to participate in projects developed by third parties.

(x) Can they operate electricity grids?

Citizen's energy communities may operate closed distribution networks (art. 191 *et seq.* of Ordinance nº15/2022 dated 14 January 2022). Renewable energy communities are not authorised)art. 189 of Ordinance nº15/2022 dated 14 January 2022).

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G. Spain

(i) Does the local legal/regulatory framework allow for local energy exchanges?

Royal decree 244/2019 foresees the creation of collective self-consumption systems, in which energy producers may directly exchange energy with final consumers at a local level within a radius of 250 metres (see art. 3 thereof).
The Spanish regulatory framework also provides for the creation of energy communities (art 12 *bis* and 12 *ter* of Ley 24/2013 on the Electricity Sector) where participants can exchange energy with each other. There are two different regimes for energy communities – the renewable energy communities and the citizens energy communities.
Finally, outside the self-consumptions regimes, the Law on the Electricity Sector law authorises bilateral exchanges of electricity (art. 24 of Ley 24/2013), the physical exchange of electricity between producers (or self-producers) and consumers (art. 19 *et seq* of Royal Decree 2019/1997).

(ii) If so, what energy can be exchanged?

The collective self-consumption regime only allows the exchange of electricity (art. 3 of Royal decree 244/2019). The renewable energy community scheme allows the exchanges of renewable energy in general (art. 12 *bis* of Law 24/2013 on the Electricity Sector), while the citizen energy community scheme only allows the exchange of electricity (art. 12 *ter* of Law 24/2013 on the Electricity Sector).

(iii) Are there any technological constraints for energy exchanges? (i.e. limitations on installed capacity)

Collective self-consumption systems requiring grid connection are limited to low-voltage exchanges, i.e. < 1000 V for AC and < 1,500 V for DC (art. 2 of Electrotechnical regulations for low voltage) whilst off-grid systems are not limited in terms of capacity.

(iv) Are there any geographical constraints?

Under the collective self-consumption scheme, the grid-connected supply and consumption points cannot be more than 500 metres apart (art. 3 of Royal decree 244/2019) The regulations on energy communities have not yet been published. The Electricity Sector Law does not impose any geographical restrictions on C-PPAs.

(v) Are energy exchanges limited to certain persons/entities?

Anyone can participate in collective self-consumption schemes. In addition, the regulations on collective self-consumption explicitly provide for the possibility to exchange energy between several actors. The current legislation on energy communities does not restrict participation to certain persons.

(vi) Can actors exchange energy off-grid?

Yes Law 24/2013 on the Electricity Sector and Royal decree 244/2019 specifically allow for off-grid exchanges, provided that the energy exchange is carried out through direct lines or "internal networks".

(vii) What is the role of the DSO/TSO?

The DSO is responsible for dispatching electricity to consumers according to the production share coefficients of each producer and consumer participating in a collective self-consumption system.

(viii) Do energy communities have legal personality?

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The Law 24/2013 on the Electricity Sector provides that communities have "shareholders" or "members" which requires the creatin of an entity with legal personality. Secondary regulations are still to be published.

(ix) Do they have to own the energy production assets?

Energy communities do not need to own the production assets, although secondary regulations are yet to be published.

(x) Can they operate energy networks?

The current legal framework does not allow energy communities to operate energy distribution networks.

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IV. Synthesis of good practices

A. Good practices in relation to business engagement

The first challenge was to contact the companies. They were sensitive to the type of person contacting them, including their name and reputation. Most of the projects we interviewed did not use the name of the European project to contact the target companies. They preferred to go through intermediary organisations.

For the EaaS project, some partners such as Agoria worked from a database of their members (the logic of offering to a club) and Inno Energy spread its wings through business associations. They did not really try to find prospects, people came with questions or specific problems and they answered them.

ESI Europe took a different approach. To get in touch with the SMEs, the consortium got contacts through the sector association. For technology providers, they already had some pools of contacts. For hotels, they tried tourism fairs, but this was not very successful. The ESI Europe project also tried to go to webinars of other European projects. In Croatia, they found a channel from the state that had a pool of SMEs and reached out to companies attending the conference. For insurance companies it was a challenge, not everyone was open to discussion, it was difficult to talk to the right person. For financial institutions, the consortium went straight to them. They contacted UNFI, which is a branch of the UN that has contacts. The European Bank also helped. In Spain, the Menorca Preservation Foundation played a central role in coordinating the construction of the community and helping to channel the necessary investment.

Another solution was to work through business organisations, as the Leap4SME project found. This was a good way of reaching SMEs. In Portugal, there are three or four major business associations. If you could get in touch with one of them, you could reach a lot of SMEs. In Italy, the energy agencies are large, so they could contact people directly and were seen as trusted organisations. Contacting stakeholders was difficult. Sometimes only half of the people invited to meetings showed up, which made communication difficult.

Gear@SME, explained their difficulties in involving SMEs without tools and good practices to share. For example, Romania had to look for another business park because the first one selected could not see their interest in joining the project. They felt that the materials offered were not sufficient. In the end, the same industrial park decided to join the project when it was more developed. To avoid similar situations, Gear@SME came up with a new role: a trusted partner. A business manager who sits between the SMEs and the project partners in order to facilitate their mobilisation.

The main difficulty of the projects studied by TranZAE is not technical, but rather getting companies on board and building a community. The difficulty lies in putting together the project of implementing solar panel solutions in business parks itself. That's why more and more companies are specialising in this type of installation.

The main point to take away from these exchanges is that without a privileged point of contact, the project will have difficulty in making itself known to companies. A solid intermediary close to the companies ensures good communication and understanding, which is the key to success.

Participation in exchange meetings bringing together the leaders of different energy efficiency projects has made it possible to identify some of the solutions put in place to find qualified contacts and involve them in the process, in particular by responding to a survey. LIFE CirculEnergies took part in a meeting with DEESME 2050, AUDIT-TO-MESURE, EnTrainer, KNOWnNEBs and the following lessons can be drawn:

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Find qualified and motivated candidates:

- Make as many calls or emails as possible. An example was given of making 5000 interviews to get down to 60 candidates.
- Use LinkedIn to find better candidates.
- Reach out to companies that consortium members have worked with before.
  Work with the Chamber of Commerce to get contacts from companies or business networks that are involved in energy saving.

Get them involved:

- Keep the surveys short and simple, promise feedback about their energy management strategy.
- Promise a free audit from the start if companies respond to the survey.
- Offer a financial incentive to get more responses from companies.
- Talk upfront about the financial benefits of the surveys and the programme. An example given was to ask the company about its energy bill and explain how the project will reduce it and by how much.
- Work with professional / public networks to get a privileged point of contact.
- Make personal calls or go on site to improve engagement and the quality of the data collected.
- Promise some kind of certification, badge if companies go through the scheme.

B. A wide range of solutions

Depending on the project and its final objective, the offer was very different.

ESI Europe offers an innovative business model with 4 elements.

- Standardised contract for the prevision off the energy efficiency solution.
- Energy services insurance: bond
- Technical validation process
- Financing solutions

Gear@SME offers energy scan, training material, collective energy project, best practices. They have developed a lot of materials that can be used. For example, in the Netherlands they have developed a programme for sustainable business parks, using their good practices to spread the good. Without a concrete offer it is difficult to get companies involved. They had to look for partners right up to the end.

Leap4SME mainly offers training, not audits. The aim was to communicate the benefits of energy audits.

EaaS offers tools adapted to the accounting laws of different countries, guidelines on directives (in particular on scope 3), network/cost tool to support companies. An economic model is provided by EaaS, available on the website, and will allow the pricing of energy efficient services, once filled with the fixed technical and economic parameters.

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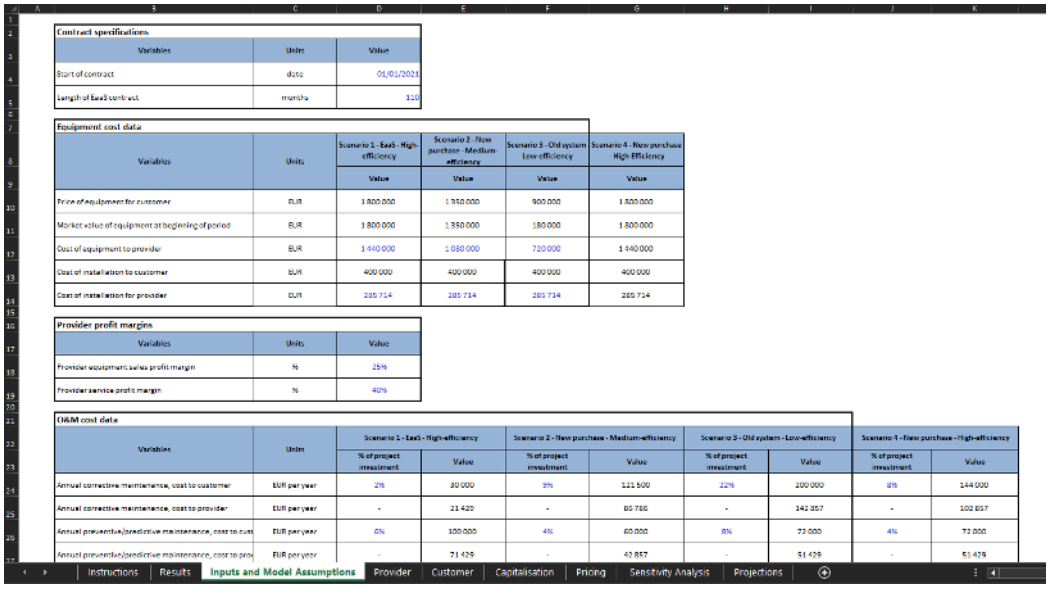

Contract specifications

Variables	Units	Value
Start of contract	date	01/01/2021
Length of EaaS contract	months	120

Equipment cost data

Variables	Units	Scenario 1 - EaaS - High-efficiency	Scenario 2 - New purchase - Medium-efficiency	Scenario 3 - Old system - Low-efficiency	Scenario 4 - New purchase - High-Efficiency
		Value	Value	Value	Value
Price of equipment for customer	EUR	1 800 000	1 350 000	900 000	1 800 000
Market value of equipment at beginning of period	EUR	1 800 000	1 350 000	180 000	1 800 000
Cost of equipment to provider	EUR	1 440 000	1 080 000	720 000	1 440 000
Cost of installation to customer	EUR	400 000	400 000	400 000	400 000
Cost of installation for provider	EUR	285 714	285 714	285 714	285 714

Provider profit margins

Variables	Units	Value
Provider equipment sales profit margin	%	25%
Provider service profit margin	%	40%

O&M cost data

Variables	Units	Scenario 1 - EaaS - High-efficiency		Scenario 2 - New purchase - Medium-efficiency		Scenario 3 - Old system - Low-efficiency		Scenario 4 - New purchase - High-efficiency	
		% of project investment	Value	% of project investment	Value	% of project investment	Value	% of project investment	Value
Annual corrective maintenance, cost to customer	EUR per year	2%	30 000	3%	121 500	22%	200 000	8%	144 000
Annual corrective maintenance, cost to provider	EUR per year	-	21 429	-	86 786	-	142 857	-	102 857
Annual preventive/predictive maintenance, cost to cust	EUR per year	6%	100 000	4%	60 000	8%	72 000	4%	72 000
Annual preventive/predictive maintenance, cost to pro	EUR per year	-	71 429	-	42 857	-	51 429	-	51 429

Instructions | Results | Inputs and Model Assumptions | Provider | Customer | Capitalisation | Pricing | Sensitivity Analysis | Projections

Figure 1: EaaS economic model – pricing tool

EaaS also offers a contract model that needs to be adapted to local regulations (Holland, Belgium and Spain), but which can be used as a good model to start starting to implementing EaaS.

CONTENTS

Figure 2: Product as a service Belgium

ESI Europe has developed the "Go Safe" online platform to:

- Register and store information on EE projects using GoSafe with ESI
- Manage the process of implementation and monitoring of the EE project
- Generate reports on the EE projects, according to the user / stakeholder access level
- Build trust among key stakeholders through transparency of the information mentioned in the previous points.

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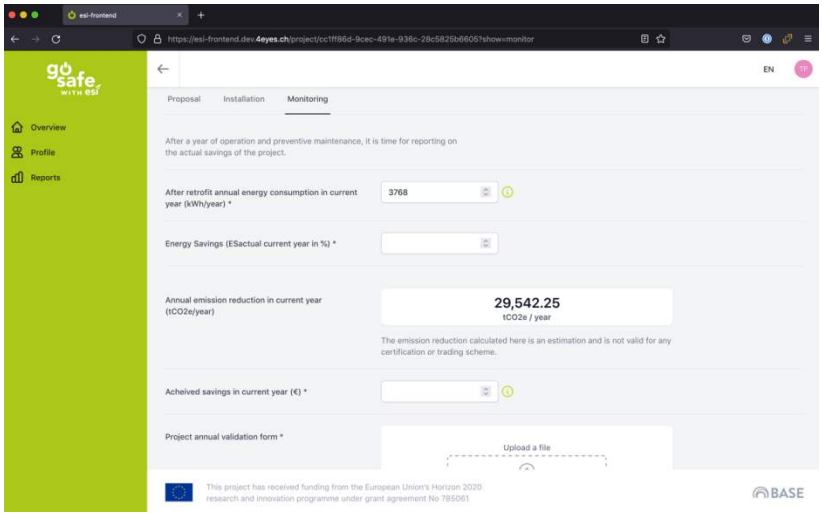

Figure 3: ESI Europe Go Safe Online Platform

GEAR@SMEs worked on an online portal that was launched in 2022: https://www.energyefficientsme.eu/
This portal offers free training, tools and best practices.

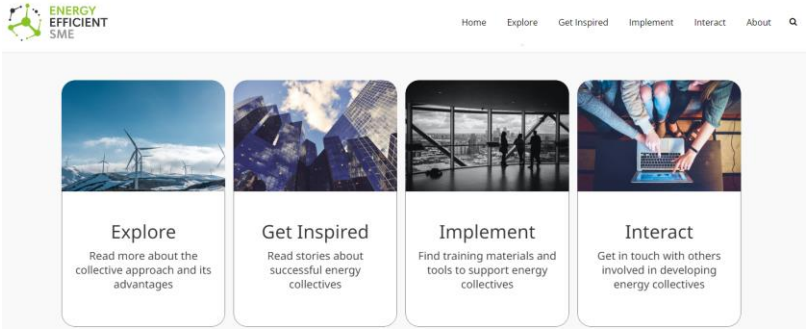

Figure 4: Energy Efficient SME portal

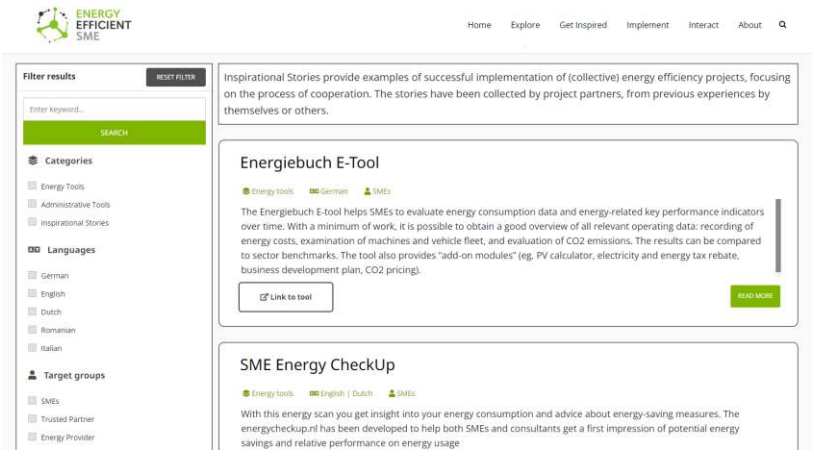

Figure 5: Energy efficiency tools

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Gear@SME
Saving energy together

This project has received funding from the European Union's H2020 Coordination &Support Action under Grant Agreement No. 894356.

Best Practice	OPTIMISATION OF COMPRESSED AIR USERS/APPLIANCES	CAIR-01
Application	Compressed Air Systems	
SME sector	Industrial	
SME Sub-sector	All	
Technical description	Compressed Air is an essential part of modern industry used by nearly every branch of production. In some sectors compressed air can take up to 20% (glass industries even 40%) of the electrical energy used. On average about 7% to 11% of the electrical energy in industry is used for compressed air. Due to its bad efficiency, compressed air is the most expensive form of energy in industry. Typical fields of application are: • Automatization: cylinders, engines, valves, conveyor belts, weaving • Active air: transport (e.g., bulk transport) • Process air: drying process, fermentation process, ventilation of sedimentation tanks • Vacuum: wrapping, drying, sucking, lifting, positioning The main advantages of compressed air are availability, precision, downscaling, safety and the low weight of the tools used. Fields of application based on the pressure used: • Ultra-high pressure (over 40 bar pressure): testing for leakages, power plants, oxygen bottles • High pressure (17-40 bar): pipe pressure tests, blow moulding of plastic components • Middle pressure (10–17 bar): heavy vehicles, special manufactures • Low pressure (under 10 bar pressure): most industrial applications The compressors power lies about 45% above the value, needed for ideal theoretical compression.	
Recommendation for optimisation	It is possible to increase the efficiency of the production process by reducing the use of air and reducing air losses through the optimization of distribution channels and connected components. In many systems, the working pressure is much higher than needed. Several studies have shown that the pressure level can be reduced by up to 1 bar without affecting productivity. By decreasing the pressure required for the proper operation of the system, it is possible to use compressors of a smaller size and increase the energy efficiency of the entire system.	

Figure 6: GEAR@SMEs best practice example

LEAP4SME: Offers Energy Audits guide:

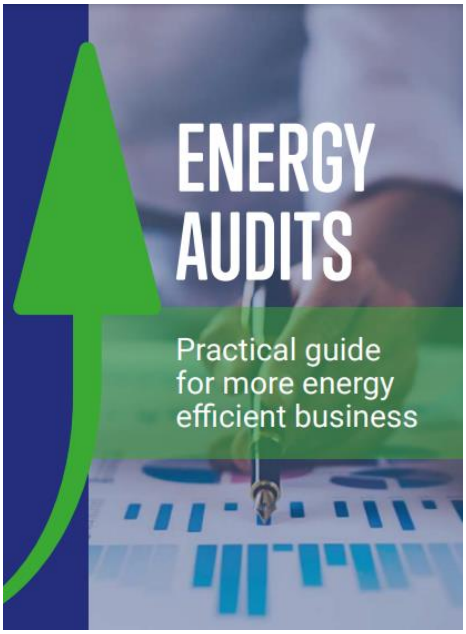

Figure 7: LEAP4SME Energy efficiency practical guide

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In most of the projects studied, the offer mainly provides tools that enable the targeted companies or actors to find a solution that suits them and to implement it easily and independently. **Few of the projects seem to follow the issue from start to finish, from the study phase to funding and implementation.**

C. Adapting the offer to different countries

A major difference with LIFE CirculEnergies is that the projects interviewed took place in several countries. LIFE CirculEnergies aims to develop its offer only in France. The European projects were not equally successful depending on the country in which they were implemented.

EaaS explained that Spain worked better than the Netherlands and Belgium, as these two markets are small. In these markets, 525 contracts had been promised, with a target of €42 million. In terms of the investment target they had set with Europe, the result needed to be higher. In terms of dissemination, Eastern European countries were seen as an opportunity for their project over the next 6 months.

ESI Europe selected local partners to implement the project in the target countries: ESE in Slovakia, Doors in Croatia, Kress in Greece. They also hired local law firms and validation bodies to better understand the specificities of national law. This choice was necessary as they did not have the legal expertise themselves.
Gear@SME had different countries in mind and the German use case was not a success. They faced many challenges without direct and global solutions. They explained: "It takes time, patience and trust". In the end, 3 out of 4 countries were successful.

Even if LIFE CirculEnergies does not have the same problems as other projects due to its national scope, it still has to face challenges related to regional differences and historical background from one region to another. Each intermunicipality has its own way of working, communicating and approaching energy transition. Another aspect is the political interests that exist outside the project and need to be taken into account.

D. Good practices in communication

Some communication advice was given by EaaS:

- Content: Present things differently and regularly.
- Social media: Create small 4-5 minute capsules to get regular visibility, for example to announce new tools or approaches on LinkedIn, or organise a webinar from time to time (every 6 months / 1 year) to show the progress of the project. They didn't send out any newsletters during the project. The Twitter account is not very useful as members prefer to tweet in their own name rather than that of the project, which is less well known.
- Dissemination: Use the energy associations to disseminate information.

Communication can be a real strength of a project. ESI Europe is working on energy efficiency, which is not easy to understand, so they needed clear explanations. As they have a complex project, they needed a website to gather all the information and explain it with videos, brochures, etc. Narrative is important to communicate a clear message to stakeholders. Here is an example of a video they made:

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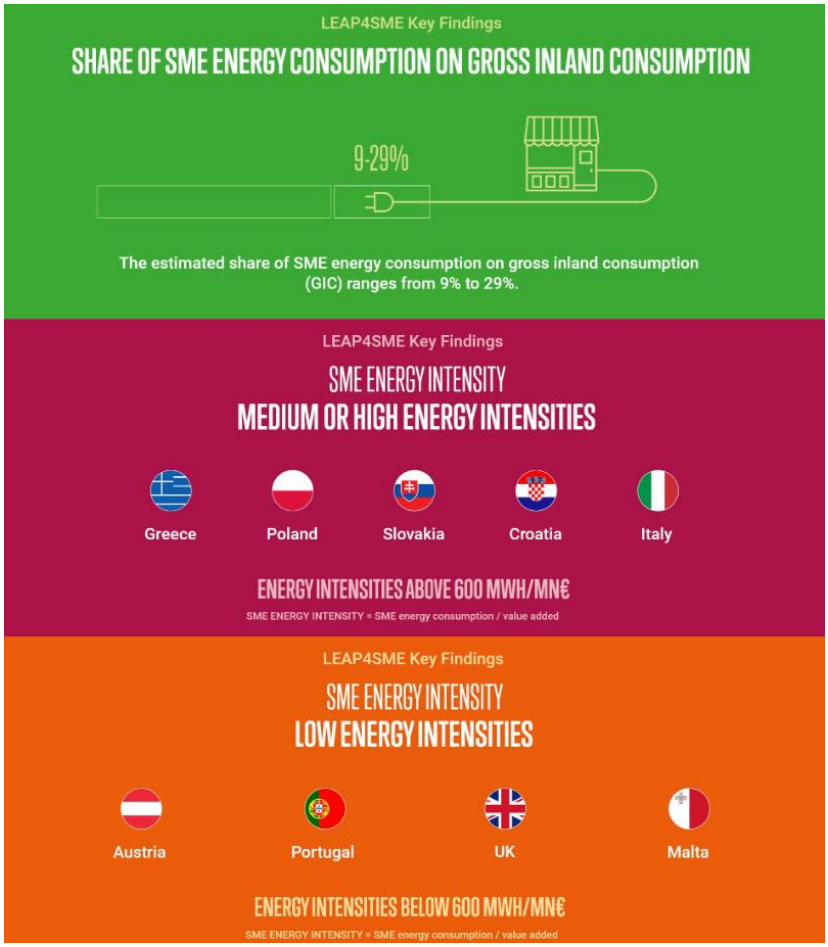

Figure 8: LEAP4SME results infographic

E. Financial aspects

ESI Europe had to hire validation cost third parties to do the pre-assessment to say that the savings presented to the target company were likely to be achieved. They wanted the SMEs to keep their savings. Knowing the return on investment is essential for companies and their customers and giving them an incentive can be interesting when signing the contract.

For Gear@SME, funding opportunities can be focused on individual issues; attractive funding is a plus. The assistance was 100% free for the business parks, partly covered by the Commission. The aim was to explain to the partner that the business parks were making the investment themselves. The trusted partner had to carry the message, the aim was to train them and then the trusted partner had to collect the data and make the investments.

Some projects have also raised the issue of being too reliant on public funding to kick-start investment. As a result, there may be some delays due to policy changes at local and/or regional level.

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F. Legal aspects-

	Austria	Belgium	France	Germany	Italy	Portugal	Spain
Is local energy exchange authorised?	✓	✓	✓	✓	✓	✓	✓
Do local framework authorise energy exchanges other than electricity?	✓	✗	✓	-	✗	✓	✓
Can energy exchanges occur offgrid?	✗	✗	✗	✓	✓	✓	✓
Are direct sales of electricity authorised outside Collective SC schemes?	✓	✓	✓	✓	✗	✗	✓
Do CSC schemes provide an attractive investment environment?	✓	✓	✓	✓	✗	✓	✗
Is the multi-party energy exchange framework operational?	✓	✗	✓	-	✗	✓	✗

According to ESI Europe, supplier-customer relationships vary from country to country. Even if they have guidelines from the EU, they translate them into their own application, so there is still some complexity.

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V.Conclusion

This benchmark has enabled us to draw lessons from 5 different projects on a range of issues:

- **Governance:** a clear definition of what's expected of the different actors is essential. Local knowledge makes it easier to get in touch with the different stakeholders. Ensuring that each region is seen as unique and that the work carried out with them takes account of their characteristics is a good practice that should be maintained. The European projects studied made this effort for each country in which they operated. The importance of having a trusted partner to bridge the gap between SMEs and the supply side was also highlighted.

- **Business commitment:** Without a dedicated contact point, it is difficult for the project to make itself known to companies. A strong intermediary close to the companies ensures good communication and understanding, a key to success. Other key feedback included the promise of a real return on information about their energy management strategy, offering financial incentives or talking about the financial benefits of the project based on the companies' energy bills, as well as ensuring personal calls or site visits.

- **External communication:** clear communication is key to the success of a project: communicate regularly in layman's terms to raise the profile of the project and make technical issues easier to understand for as many people as possible: use the website, social networks, media production (videos, infographics, etc.), occasional webinars, etc.

- **Communication between the consortium and the target actors:** identify and mobilise key contacts to convince and involve companies in the project. Initiatives such as energy communities can help to disseminate information more efficiently.

- **Offer:** Ensure that local partners understand their specificities and adapt the offer to the specificities of the different parks (country dynamics, political stakes, local regulatory framework, specific working methods of inter-municipalities, etc.).

- **Financing:** Financial information at the pre-assessment stage is important for companies wishing to ensure a return on their investment. Furthermore, few projects go as far as proposing financing, so comprehensive support including financial guidance is a strong added value and an important differentiating aspect of LIFE CirculEnergies.

- **Legal**: The regulatory and legal framework is quite heterogeneous, although the sample of Member States is quite homogeneous (Southern and Western Europe). There is still a considerable amount of legal work to be done in each country to make energy exchanges functional (first) and attractive (second).

CirculEnergies
This project has received funding from the European Union's Life program under grant agreement No 101077067

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VII.Appendix

European projects interviewed:

EaaS
Participant: Chris Rynikiewicz (BASE)
Project overview: H2020 project with a budget of €1.4 million. Project subject to a standard European grant: 100% of salary costs covered. No additional subsidy. Ambition to write the fairest rules, avoid information asymmetries in funding issues. The aim is to standardise approaches.
Partners: BASE, Inno Energy, Agoria, Anese
Countries: Spain, Netherlands and Belgium
Period: June 2020- June 2023 (+6 months extension to finish)
Website: https://www.eaas-initiative.org/

ESI Europe
Participants: Livia Miethke (BASE)
Project overview: The ESI Europe project offers a turnkey solution for SMEs that are reluctant to invest in energy efficiency. Energy savings model. The ultimate goal is to have pilots and have sectors that are interested in the model. The consortium was reaching different types of organization: hotels, SMEs. The consortium reached Insurance companies to sell the product: the idea is that they could use a product that they already have. Financial institutions, banks have been reached: depending on the maturity of the bank and the product they already have, they see who is more interested.
Partners: ESE, Doors, Kress
Countries: Phase 1: Italy, Portugal, Spain; Phase 2: Slovakia, Greece, Croatia
Period: 2018-2022 (Phase 1); 2022-now (Phase 2)
Website: https://cordis.europa.eu/project/id/785061/fr

Gear@SME
Participants: Vincent Kamphuis and Karina Veum from TNO
Project overview: The GEAR@SME approach aims to increase the uptake of energy efficiency measures in SMEs. By introducing a new role, a trusted partner, as a key actor, the project bridges the gap between SMEs and the supply side. The project develops a local collective approach to energy efficiency in SMEs, based on geographical proximity (e.g. a business park) and puts into practice the multiple benefits approach to energy efficiency in SMEs.
Partners: Synyo, CertiMac, CSA, BEA, XXX, CCS, VNO-NCW, Servelect, TUCN, CIT
Countries: Netherlands, Romania, Italy, Germany
Period: September 2020-april 2023

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Website: https://www.tno.nl/en/sustainable/system-transition/transition-processes-districts/making-business-parks-more-sustainable/gear-sme-accelerates-energy-efficiency/

Leap4SME
Participants: Ana Cardoso, Enrico Biele, Claudia Toro, Chiara Martini
Project overview: Coordinated by ENEA, LEAP4SME aims to support Member States in establishing or improving effective policies for small and medium-sized enterprises (SMEs) to undertake energy audits and implement cost-effective, recommended energy-saving measures through identifying the barriers for unlocking energy efficiency measures, mobilising private stakeholders, and proposing effective solutions to realise both energy and non-energy benefits. The project focuses on SMEs, but also includes Business Associations/Chambers of Commerce and Policy Makers
Partners: 10 partners
Countries: Italy, Portugal, Austria, Greece, Slovakia, Croatia, Malta, Poland, United Kingdom, Belgium
Period: 2020-August 2023
Website : https://leap4sme.eu/about/

TranZAE
Participants: Lydie LAIGLE (profesor) and Paul HAMONIAU (student)
Project overview: The aim is to take stock of 3 selected projects in 3 regions: Hauts de France, Bretagne/Vendée and Rhône-Alpes (Grenoble). Analysis of the solar cadastre to see which ZAEs have roof areas, etc. Creation of a software tool requested by ADEME to enable companies to enter their data and see what the economic and technical feasibility is on their business parks. Socio-economic analysis of pilot sites.
Partners: CSTB et Ecole des Ponts
Countries: France
Period: 2022-now

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