Enercade

Your Digital Platform for Renewable Energy Communities

	Leaderboard	l de	
	Nome	Punteggio	Badges
	Marco Rossi	843	000
	Giulia Romano	713	00
Il mio account	Stefano Russo	694	000
	Antonio Costa	623	0
Il mio contributo alla CEF	2	3%	
+1.2%			
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1. The company

Enercade S.r.l is an innovative startup based in Turin founded by three professional engineers in the field of renewable energy and development of hardware and software technical solutions with over 20 years of accumulated experience. The company aims to revolutionize energy management through the use of advanced technologies and gamification algorithms. Enercade aims to actively involve users and managers of Renewable Energy Communities (RECs) in the transition to renewable energy, offering intuitive tools for efficient and transparent management, promoting energy independence and a more sustainable future.

Enercade is able to assist its customers throughout the entire process that goes from the preliminary feasibility analyses, preparatory to the correct configuration of a CER, to the activities necessary for the establishment and start-up, up to the management for the entire duration of the project.

The platform is designed for both managers and users: it offers intuitive tools for efficient and transparent management. Managers can optimize day-to-day operations, while users enjoy simplified and participatory access, learning how to better manage their energy consumption.

1.1 Mission

Enercade produces value for its Customers, Collaborators and Partners. It represents a point of reference in the market and on the territory for technological innovation, services, solutions and products.

It is committed to building a sustainable future on a daily basis, where energy independence is a reality accessible to all. The founding members firmly believe in the power of active involvement of people: every individual has a crucial role in the transition to renewable energy sources. Our vision is based on the combination of advanced technology and community participation, creating an environment in which each member actively contributes to the creation of a greener and more self-sufficient energy ecosystem.

Enercade has been accepted as a partner of the Social Innovation Teams (SIT), a non-profit community for projects and startups with a social and environmental impact. Together with the SIT, Enercade is made up of people and organizations committed to the creation and promotion of entrepreneurial projects that generate a positive impact. The common goal is to promote a new economic model that is fairer for society and the environment.

1.2 Objectives

Enercade aims to return energy to citizens, encouraging local energy exchange and creating a sustainable and conscious energy economy. The use of the Enercade platform leads to an increase



in the incentive that can be achieved by creating an economic surplus that will remain in the CER coffers (net of the costs of the platform).

However, Enercade's value proposition also wants to go beyond the purely economic aspects and instead emphasize the aspect related to social innovation. To this end, Enercade encourages a digital space that aims to achieve new services and then link them to the satisfaction of the energy issue.

1.3 Governance

Enercade is made up of a young, solid group united by a common vision: to become the first choice of users and administrators of energy communities. The specific expertise in the energy field and the design of photovoltaic systems is complemented by technical skills in electronic design, AI and machine learning, and in the implementation of IoT systems. The training is engineering, complemented by numerous projects that have improved soft skills and entrepreneurial skills.

Enercade is made up of three founding partners and directors, and numerous collaborators.



Figure 1-Founders

Co-Founder Ingegnere energetico În @marco-visione

1.4 Services

Enercade, having accumulated several years of experience in the market, has an extensive network of contacts that aggregate technical, commercial, legal and management skills and resources.

Enercade is able to provide directly and through its qualified partners:

- Web and mobile platform for the management, monitoring and control of CERs and the active involvement of its members
- Design and installation of generation and storage systems and industrial and civil plant engineering, energy audits and technical and financial feasibility studies
- Legal advice on articles of association and CER regulations, legislation, corporate documents and governance
- Consultancy for the submission of technical documentation to the GSE network operator
- Electronic and software design, including the supply of energy monitoring devices



1.5 Partners

There are many institutions, public and private, that believe in Enercade and collaborate with the company to provide customers and end users with the best possible experience in the noble path of the Energy Transition:

- IFEC (Italian Forum of Energy Communities), an initiative promoted by the Polytechnic University of Turin and the Energy Center Lab, with which the company has undertaken research and collaboration activities.
- <u>Social Innovation Teams (SIT)</u>, a non-profit community for projects and startups with a social and environmental impact.
- <u>ESCOP4Green</u>, which with 40 researchers from universities in 8 countries, examines sustainability best practices around the world.
- Politecnico di Torino, through dedicated thesis, internship and R&D courses.
- <u>I3P incubator</u> of the Polytechnic University of Turin, supports the birth and development of innovative startups with high technological intensity and growth potential.
- For_over 30 years, Alsiber has been designing industrial, photovoltaic and automation electrical systems, with a constant commitment to innovation and sustainability.
- <u>Innoventure</u>, assistance for local authorities, businesses, and utility companies in responding to new challenges in the field of energy and sustainable development.
- <u>EMA Global engineering</u>, an engineering services company with twenty years of experience in the electronic and mechatronic design of innovative embedded systems.

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1.6 UN Agenda 2030

Enercade promotes the development of sustainable solutions through the accurate interpretation of Italian laws and regulations specific to CERs. It guides users, companies and associations in the implementation of renewable energy projects, ensuring regulatory compliance and encouraging the efficient use of resources. We contribute to the energy transition, supporting the integration of eco-friendly solutions and the fair distribution of energy benefits.

Enercade promotes the following objectives of the Agena UN 2030:



Figure 2- UN 2030 Agenda Goals



2. Context

CERs represent an important piece of European policy towards achieving decarbonisation goals, as well as a powerful factor in strengthening citizens' commitment and direct participation in the transition to green energy with undoubted benefits for local communities. The Italian government has allocated substantial resources to support the production and self-consumption of electricity from renewable sources, in line with the European Green Deal. Operationally, the public intervention takes the form of an advantageous tariff on the amount of electricity consumed by self-consumers and renewable energy communities and, if certain conditions are met, also in an investment subsidy of up to 40% of the eligible costs.

2.1 Definition

Renewable Energy Communities (RECs) are associations of citizens, local authorities, small and medium-sized enterprises, non-profit organizations, and other local actors that collaborate to produce, manage and consume renewable energy in a collective and sustainable way. These communities are created with the aim of promoting the self-consumption of renewable energy, reducing energy costs, and contributing to environmental sustainability.

The concept of the ERC is based on principles of sharing and cooperation, allowing members to become producers, consumers, and producers-consumers of energy (prosumers). In this way, the energy produced by local renewable energy plants such as photovoltaic, wind, hydroelectric or biomass is shared among the members of the community. CERs can operate within a defined geographical area, such as a neighbourhood, municipality or rural area, supporting energy efficiency and the resilience of local communities. The only technical constraints existing in the construction of a CER are that all the connected PODs must belong to the same primary substation and the production plants from renewable sources must have a nominal power not exceeding 1 MW.

According to the European Commission, by 2050, half of European citizens could produce half of the EU's renewable energy. As of 2023, there are more than 9,000 CERs on the European territory, with an allocation of funds of more than €90 billion for European Green Deal policies. Despite the legislative difficulties, Italy is one of the leading countries in the reception and application of European directives, with an expected use of the European funds made available to all countries equal to 85%.

CERs represent a concrete response to the challenging objectives of the European Green Deal, which envisages a 55% reduction in CO2 emissions by 2030 and an increase in the share of renewable energy from 45% to 70% over the same period. The incremental capacity needed to



achieve these targets is estimated at 70 GW, added to the current 55 GW for a total of 125 GW by 2030.

2.2 Benefits

CERs offer numerous benefits both individually and collectively. One of the main benefits is economic incentives. Thanks to the production and self-consumption of renewable energy, community members can access incentive tariffs for the energy produced and shared. These incentives, provided by the Energy Services Manager (GSE), make it possible to obtain remuneration for the energy fed into the grid, generating additional income for the community that can be redistributed among the members.

From an environmental point of view, it contributes significantly to the reduction of greenhouse gas emissions and pollution, promoting the use of clean energy. This supports environmental sustainability goals at local, national and global levels, contributing to the fight against climate change. Local energy production also makes communities more resilient to supply disruptions and fluctuations in energy prices. CERs can increase local energy security by reducing dependence on large utilities and fossil energy sources.

CERs stimulate the local economy by creating new jobs and encouraging investments in energy infrastructure. In addition, they can attract government funding and incentives, increasing the resources available. They promote the active participation of citizens in the management of energy resources, increasing awareness and education on energy and environmental issues. This direct involvement strengthens the sense of community and promotes social cohesion.

Italian and European regulations offer additional incentives and tax breaks for the establishment and operation of CERs. These include non-repayable grants, incentive tariffs and subsidized loans, making projects more accessible and economically sustainable. CERs are therefore an effective tool to tackle energy poverty, offering energy at reduced costs and improving access to sustainable energy for low-income households.

A further advantage is represented by the specific concessions offered to CERs for small municipalities with less than 5,000 inhabitants. These municipalities can benefit from non-repayable grants of up to 40% of the investment necessary for the creation of an energy community and the installation of production plants included in the specific configuration of collective self-consumption. These contributions, financed by the National Recovery and Resilience Plan (PNRR), amount to €2.2 billion and have been allocated to support the construction of new renewable capacity of 2 GW by 30 June 2026. The concessions can be combined with the incentive tariffs, offering significant economic support for the territories in small municipalities.

In summary, CERs represent a concrete opportunity to promote environmental, economic, and social sustainability, through cooperation and the sharing of renewable energy resources. They have been identified by the European Union as the key element in the transition to a sustainable



energy future, helping to achieve the objectives of the European Green Deal and improving the quality of life of local communities.

2.3 Operational aspects

The operational management of CERs requires careful planning and the combination of different technical, administrative, and management elements to ensure efficient and sustainable operation.

Following the establishment of the legal entity (association, cooperative, etc.) and the commissioning of the renewable plants serving the CER, it is possible to submit a formal request for the incentives provided for shared energy to the GSE through a dedicated portal.

The energy produced from renewable sources can be partly used directly by those who own a production plant and the excess part is fed into the grid. Thanks to the establishment of a CER, all the members that are located within the same primary substation (i.e., the current that arrives in the meters all comes from the same high voltage supply point) allow the creation of a new flow of energy, shared energy. The surplus energy fed into the grid can be virtually used by CER members, generating an economic incentive that will be sent by the GSE and received by the CER. The incentive may be redistributed among the members of the CER or used for social purposes in the area according to procedures defined by a regulation defined by the members.



Figure 3- Representation of a Renewable Energy Community



The main operational aspects of CERs are described below:

- Organizational Structure: CERs must define a clear organizational structure that includes roles and responsibilities for the management and coordination of energy activities. The typical structure includes a board of directors, a technical committee and specific working groups. The board of directors is responsible for strategic decisions and general supervision, while the technical committee manages the technical and operational aspects related to the production and distribution of energy.
- Technologies and Infrastructures: The construction of a CER requires the installation of renewable energy production plants such as photovoltaic solar panels, wind, hydroelectric or biomass plants. It is also recommended to provide energy storage systems, such as batteries, to ensure the continuity of the energy supply.
- Digital Platform: CERs need digital platforms that allow the monitoring of consumption, the

management of energy production and distribution. These platforms can include reporting capabilities, data analytics, and incentive systems to promote sustainable behaviors among community members. One of the main problems encountered is the lack of visibility and control over energy assets within communities. Without a dedicated platform, CER members may find it difficult to actively participate in the management of their consumption, and a lack of coordination can lead to situations where energy is produced but users are unable to share it efficiently.



• *Regulation and Compliance*: CERs must operate in accordance with local, national, and European

regulations regarding renewable energy, self-consumption, and tax incentives. It is essential to be up-to-date on regulatory provisions and ensure compliance with the rules for accessing incentives. It is necessary to indicate experts who maintain the documents and relations with the GSE.

- Business Model: CERs can adopt different business models to ensure economic sustainability. These include selling excess energy to the power grid, sharing energy savings among members, and applying for access to public incentives. A user subscription model for community entry and use of management platforms can optimize the administrative part.
- Member Management: Active member participation is essential to the success of CERs. It
 is important to involve members through training activities, continuous communication and
 active participation initiatives. The management of energy sharing contracts and
 agreements must be transparent and well documented.



- Financing and Incentives: CERs can access various financing instruments and public incentives, such as interest-free loans, non-repayable grants, and incentive tariffs for the production and sharing of renewable energy. It is important to plan and effectively manage financial resources to ensure the economic sustainability of the project, which will last at least 20 years.
- Monitoring and Optimization: The use of advanced monitoring systems allows you to optimize energy use, identify inefficiencies, and improve the energy performance of the community. The collection and analysis of energy data is crucial for continuous improvement and effective resource management.

2.4 Statute and Regulations of a CER

After establishing the ERC, identifying the most suitable legal form, the two documents that regulate its functioning and define its purposes are the statute and the internal regulations.

The statutes are the founding document that establishes the legal and organisational basis of the ERC. Includes:

- Name and Location: Name of the community and address of the registered office.
- Aim and Purpose: Description of the objectives of the ERC, such as promoting the use of renewable energy and improving energy efficiency.
- Duration: The duration of the community, which is usually indefinite.
- Members: Admission criteria, rights and obligations of members, withdrawal and exclusion procedures.
- Corporate Bodies: Organisational structure, tasks and functioning of the corporate bodies (shareholders' meeting, board of directors, president, etc.).
- Heritage and Resources: Indications on economic resources and the heritage of the community.
- Dissolution Rules: Procedures for the dissolution of the community and the destination of the residual assets.

The Rules of Procedure supplement the Statutes and lay down the operating rules for the day-today functioning of the ERC. Includes:

- Procedure for the Admission of Members: Registration procedures, registration fee and selection criteria.
- Rights and Duties of Members: Rules of conduct, contribution obligations and participation in community activities.
- Shareholders' Meetings and Voting: Methods of convening shareholders' meetings, quorum, voting procedures and approval of resolutions.
- Operational Management: Rules for the management of energy production and distribution plants, maintenance and monitoring.
- Use of Funds: Methods of management and use of the economic resources of the community.



• Dispute Resolution: Procedures for resolving disputes between members or with third parties.

2.5 Regulatory references

The regulation of Renewable Energy Communities in Italy is based on a series of national and European regulations governing the production, sharing and incentive of renewable energy. The main regulatory references are shown below:

- CACER Decree of the Ministry of the Environment and Energy Security of 7 December 2023, no. 414: introduces incentive and financing measures for CERs, allocating significant funds for their establishment and dissemination. The decree provides for non-repayable contributions of up to 40% of costs and incentive tariffs on renewable energy produced and shared.
- European Directive 2023/2413 RED III Directive (Renewable Energy Directive III): The directive on the promotion of the use of energy from renewable sources establishes the legal framework for the promotion of CERs at European level. It encourages Member States to facilitate the development of CERs and to remove regulatory barriers that hinder their growth.
- ARERA Resolution 727/2022/R/EEL: Establishes the rules for widespread self-consumption and energy sharing in CACERs. The resolution provides detailed guidance on how CERs must operate in order to comply with current regulations.
- Legislative Decree No. 199 of 8 November 2021: This decree implements the RED II Directive (deprecated) in Italy, defining the modalities for the establishment and operation of CERs and the related support measures. The decree includes specific provisions for collective self-consumption and energy community configurations.
- Ministerial Decree of 16 September 2020: Defines the incentive tariffs for renewable energy production plants included in experimental self-consumption configurations. Feed-in tariffs are one of the main tools for supporting CERs economically.
- National Recovery and Resilience Plan (PNRR): Includes significant investments for the promotion
 of CERs, with the aim of supporting the ecological transition and energy resilience of local
 communities. The PNRR provides funds for the construction of new renewable plants and for
 the upgrading of existing energy infrastructure.
- Legislative Decree no. 28 of 3 March 2011: Promotes the use of energy from renewable sources and establishes the criteria for access to incentives for the production of renewable energy. This decree is fundamental to define the economic incentive framework for CERs.



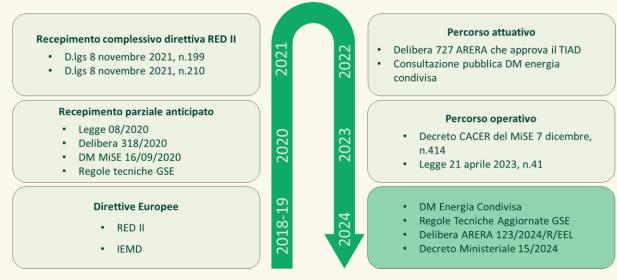


Figure 4- Regulatory references

These regulatory references provide the legal and operational framework for the development and management of CERs, ensuring the necessary support for the implementation of sustainable and innovative projects in the energy sector. For more information and updates, it is advisable to periodically consult the websites of ARERA (www.arera.it), MASE (www.mase.gov.it), and GSE (www.gse.it).



3. Technical proposal

The creation of a Renewable Energy Community (REC) is a complex process that involves various actors with different skills. Energy engineers calculate the optimal sizing of the photovoltaic system based on energy needs, while lawyers take care of the drafting of corporate documents. Financial advisors assess the economic feasibility and payback time of the investment. Governance experts identify the legal form that best suits the needs of the participants, ensuring efficient and sustainable management of the CER.

Enercade is able to assist its customers throughout the entire process that goes from the preliminary feasibility analyses, preparatory to the correct configuration of a CER, to the activities necessary for the establishment and start-up, up to the management for the entire duration of the project.

For the optimal management of the CER throughout its duration, it is advisable to have a complete *all-inclusive* system that allows both the member user and the manager of the CER to have all the necessary information available in one place and in real time

Enercade is able to provide the following services directly and through its qualified partners:

- Web and mobile platform for the management, monitoring and control of CERs and the active involvement of its members
- Design and installation of generation and storage systems and industrial and civil plant engineering, energy audits and technical and financial feasibility studies
- Legal advice on articles of association and CER regulations, legislation, corporate documents and governance
- Consultancy for the submission of technical documentation to the GSE network operator
- Electronic and software design, including the supply of energy monitoring devices

3.1 The Platform

Enercade is a cutting-edge platform that combines *gamification* and Artificial Intelligence, enabling efficient energy management and incentivizing sustainable user behavior. It is aimed at CER participants and operators, as well as partners and installers, suppliers and system maintainers.

The platform is designed for both managers and users: it offers intuitive tools for efficient and transparent management. Managers can optimize day-to-day operations, while users enjoy simplified and participatory access, learning how to better manage their energy consumption.





Figure 5- User dashboard view final

Enercade aims to return energy to citizens, encouraging local energy exchange and creating a sustainable and conscious energy economy and does so by providing four solutions in a single service:

- providing a complete management software for CER administrators and managers, which allows to simplify the commissioning, document management, configuration and integration of data between public and private entities, of one or more Shared Self-Consumption Configurations (CACER)
- 2) providing a mobile application dedicated to end users (CER members) that allows them to monitor in real time their energy consumption, solar energy production and the amount of energy shared within the community. In addition, the platform offers tools to coordinate and optimize energy usage, allowing users to efficiently plan and share excess energy produced or request it when needed.
- 3) providing a low-cost smart meter natively integrated with the platform and enabling real-time monitoring and reporting of CER performance
- 4) providing a public digital space for meeting between producers, consumers and investors natively integrated with the platform, in which to promote their CER in the area





Figure 6 - The platform manages two types of accounts: manager and end-user

3.2 Management of the CER

The management of Renewable Energy Communities (RECs) requires a structured and multidisciplinary approach to ensure efficiency and sustainability. Enercade's administrative management includes:

- CACER configuration: simplifies the management of member and plant data, collecting in a single centralized point all the information necessary to design and set up a self-consumption configuration; it allows the invitation of members and the download of the CSV file for immediate upload to the GSE portal.
- Multi-CACER dashboard: shows the performance of all the self-consumption configurations of the individual CER with clear indicators: monitors the status of the plants, production and shared energy in real time; displays the status of matches between producers and consumers.
- Economic management: generates monthly and annual reports of the CACER performance by dividing the incentive paid by the GSE to individual members according to standard or customized algorithms.
- Document storage and management: secure and organized management of documents, contracts, statutes, regulations, identity documents. This ensures the availability and traceability of crucial documents, making it easier to consult and manage legal and operational information.
- Automation of administrative processes: reduces manual load, speeds up operations and minimizes errors. Daily activities, such as bill management, reporting and communications, are optimized, allowing for more efficient and transparent management.
- Collaborative workflow: Allows CER administrators to work together in reviewing and approving documents. Members can view documents shared with the CER or only personal documents.
- Controlled access to documents: Access to documents is strictly controlled, ensuring that only authorized members can view or edit sensitive documents. This is accomplished



through authentication and authorization systems that protect data and ensure compliance with privacy and security regulations.

These elements contribute to an integrated and transparent management of CERs, promoting efficient and participatory governance.

Soggetti Consumatori Produttori Prosumers		3 1 Pr	oduttori 1 osumers 2	42 kW Potenza 30 kW 12 kW	Consumatori Prosumers		14.3 kW Consumo 6.3 kW 8 kW
POD	Tipologia	Intestatario	Utente	Stato Account	Stato Configurazione	Ultima modifica	🛓 Esporta CSV
 Intestatario: - 							
IT123456789123	Prosumer	-	Serena Amalinverno	Attivo	In corso	26 giugno 2024 01:14	1
IT123456789123	Consumer	-	Donatella Cali	Attivo	Completata	26 giugno 2024 01:14	/ :
IT123456789123	Consumer	-	Simona Alquati	Attivo	In corso	26 giugno 2024 01:14	× :
IT123456789123	Producer		Simona Alquati	Attivo	In corso	26 giugno 2024 01:15	× :
IT123456789123	Consumer	-	-	Non invitato	In corso	26 giugno 2024 01:15	1
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IT123456789123	Prosumer	aaa		Non invitato	In corso	26 giugno 2024 01:15	

Figure 7 - Configuration and management of the members of a CACER

3.3 User engagement

Enercade combines renewable energy with *gamification*, offering an engaging and fun experience in energy management. We motivate users to make smart decisions by challenging them with goals, leaderboards, and rewards.

Gamification (the application of game elements and dynamics in non-playful contexts) can play an important role in engaging and motivating users in the intelligent management of energy within an energy community. Enercade aims to encourage users to actively engage in energy management by introducing challenging challenges and goals. For example, Enercade sets monthly or weekly energy savings goals on which users receive virtual points and rewards when they reach those milestones. This friendly competition pushes users to look for creative ways to reduce energy consumption.



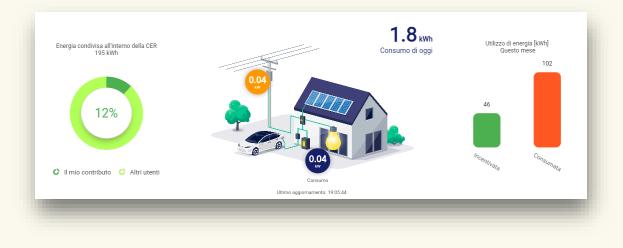


Figure 8 - Personal energy profile

Personal and shared rankings show users' energy performance, fostering a sense of competition and belonging to the community. Users can see how they stack up against other participants in terms of energy savings or renewable energy production. This transparency and visibility encourages users to improve their energy performance to move up the rankings. In addition, awarding tangible or virtual rewards can provide an incentive for users to manage energy intelligently. For example, you might be offered discounts on your energy bill, access to exclusive products or services, or points that can be exchanged for material rewards or special experiences. The rewards incentivize users to engage in responsible energy management.

Enercade revolves around an intuitive and engaging user interface that can make monitoring energy consumption more interesting. For example, interactive graphical visualizations can provide immediate feedback on energy usage and the impact of user actions. This type of feedback allows users to better understand the effect of their decisions on energy and make any adjustments to improve their performance.



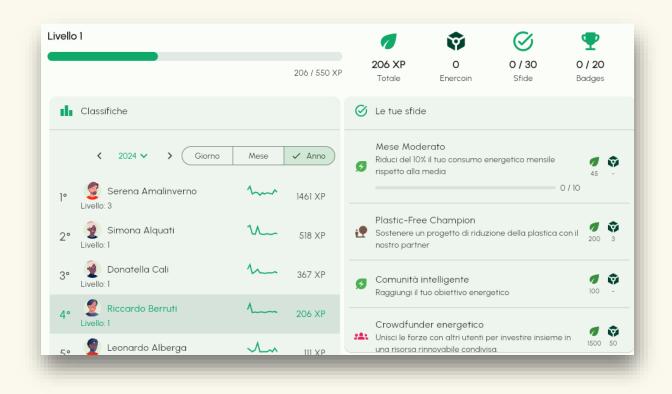


Figure 9- Energy Arena, for the sustainable use of energy resources by users

3.4 Smart Energy Meter

The installation of an electricity sensor is of fundamental importance to monitor the real-time energy production and consumption of the participants of an Energy Community and enable Enercade's innovative technology. These sensors are used to collect data on the energy flow within the community, both for the production of energy from renewable sources and for the energy consumption of users.

Enercade provides a sensor that uses the Chain2 technology made available by the second generation Open Meter (2G) meters. The sensor connects to a common power outlet and is able to monitor and communicate the energy flows of production and consumption. The sensor enables real-time energy reporting and redistribution, minimizing the impact of installation and configuration (Plug & Play tool).

3.5 Monitoring and efficiency

Monitoring and efficiency are fundamental for the effective management of CERs. Enercade allows you to observe the production of the plants and the energy consumption of the members,

Enercade SRL Corso Galileo Ferraris, 80, Turin, 10129 VAT 12817770014 info@enercade.com www.enercade.com



Enercade

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identifying any inefficiencies due to wear and tear of the plants or mismatches between the production and consumption curves. It facilitates data collection and analysis to make informed decisions and improve energy performance by identifying room for manoeuvre in CER balancing. The graph below, for example, shows a CACER in which more consumption is required by members to significantly increase the amount of energy shared.

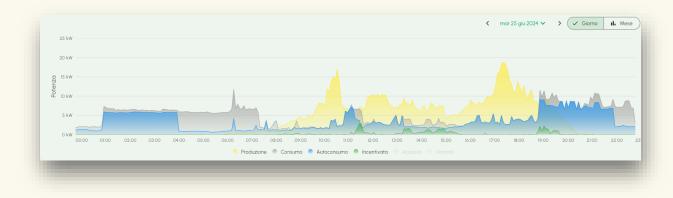


Figure 10 - Energy profile of a CACER

3.6 Digital showcase

The Enercade marketplace is a public digital space integrated into the platform, which facilitates the meeting between producers, consumers and investors in the CER sector. This virtual environment allows you to promote your CER, putting stakeholders interested in the energy transition in direct contact. Users can find investment opportunities, sell and buy renewable energy, and collaborate on the development of new sustainable energy projects. The platform supports efficient and transparent interaction between all parties involved, promoting the growth of CERs in the territory.

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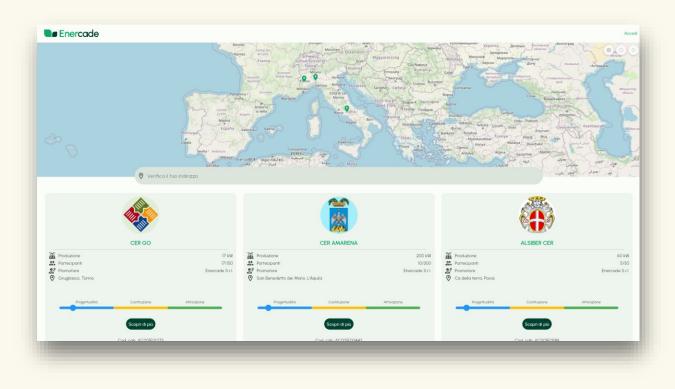


Figure 11 – Marketplace

The expression of interest feature on Enercade allows users to express their desire to actively participate in a Renewable Energy Community (CER). Through a dedicated form, users can express their interest in joining a CER.

Once the form has been filled out and sent, the system allows you to be contacted by the CER promoter, promoting integration and collaboration in the energy community. This process facilitates the collection of memberships and supports the growth of CERs.

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	CER GO Grugilasco. Torno	Marker Co	Provention Commission	Manifestazione di interesse Otima soliti Questo è il luo primo passo per prendere parte in modo attivo alla rivolu enegatori Nei samo presenti cer affrazcarti nella solita più adatta a te
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	Progettualita	Costinuzione	Attivizzone	d Ragione sociale
				Necessario solo se rappresenti un'azienda
get		iasco ha fobiettivo di essere la prima CER Sostenibile e inclusiva. La	diocesi sostiene un'iniziativa volta a promuziven	Numero di telefono
		torio, e l'obiettivo è produrre almeno 100 kW di potenza fotovoltaica, per	nte vantaggioso di energia pulita per tutti i partec ciò è necessario il contributo di tutti	Verifica il tuo indirizzo
				Verifica il tuo indirizzo
ccoli impi	anti, uno privato e uno installato sulle coperture dell'ora Obiettivi Sociali	torio, e l'obiettivo è produrre almeno 100 kW di potenzo fotovellaica, per Obiettivi Ambientali	ció, è necessano il contributo di tutti Obiettivi Economici	Procedendo con l'invio esprimi il consenso al trattamento dei tuoi dati personali
CER si	anti, uno privato e uno installato sulle coperture dell'ora	torio, e l'abiettivo è produrre almeno 100 kW di potenza fotovoltaica, per	ciò è necessario il contributo di futti	Procedendo con l'invio esprimi il consenso al trattamento dei fuoi dati personali al fine di essere messo contatto con il promotore di questa configurazione di
CER si ravenso l ravenso l lia comu promiche lugpo de mazione sibilazzar ergetica	anti, une privato e une installato sulle coperture dell'ora Obiettivi Sociali impegna a pramuovere l'inclusione sociale accesso eque all'energia. Questo viene riggiunto	toro e l'obertivo è produre almeno 100 kW di potenza fotovoltaca, per Obiettivi Ambientali La CER si impegna a nature l'impatto ambientale della produziore a del consumo di energia, promuviendo	ciò, è necessario il contributo di tutti Obiettivi Economici Dal punto di vinta oconomico, la CER si pro costi energetici per i suo membri attraverio	Procedendo con linvio esprimi il consenso al trattamento dei tuoi dati personali al fine di essere messo contratto con il promotore di questa configurazione di autorosnumo.
CER si ravenso l ravenso l lia comu promiche lugpo de mazione sibilazzar ergetica	anti uno privato e uno initializio sulle oppentire dell'ori Obiettivi Social Impegno al premuestro finitazione scole ango patro a prezi accessibili per tati i menti- negno patro a prezi accessibili per tati i menti- ne companya alla dei si traveno i initiazione a companya chi dei si	torce e faberthise è produre admine ICO VM à potenza faberthise, per Dicitité Annéan Dicitité Annéan Maria de contrar de la contra de la contrar de la contra de	có e necessario il contributo di tutti Oblettivi Economici Dal punto di vista economica, la CER si pro- costi anergenci per i suo membri attraveno dell'uso delle morse e la condivisione dei attravento privisto dal CEE, la comunita pi	Procedendo con l'invio esprimi il consenso di trattamento dei tual dati personali al fine di essare messo contatto con il promotore di questa configunazione di autoconsumo. Visualizzo la nostra Privacy Paley

Figure 12 – Marketplace, form for expression of interest

3.7 CER Simulator

The Community Simulator is an advanced tool designed to support the optimization of energy sharing. This module allows you to predict the sharing of energy between users, using as input a CSV file containing the hourly energy consumption of users and integrating them with the photovoltaic production of the specific geographical area.

During the growth of the CER, it will be possible to verify whether the number of producers and consumers is suitable for maximizing the incentive, or whether it was necessary to look for other users to balance the virtual exchange of energy.

At the end of the simulation, the tool generates reports and graphical visualizations that show how the energy was produced and shared. This information provides a solid basis for making informed decisions about energy community management and can be saved for later reference. Its intuitive interface makes it easy to use even for users with no technical experience, allowing them to upload data and interpret simulation results with ease.



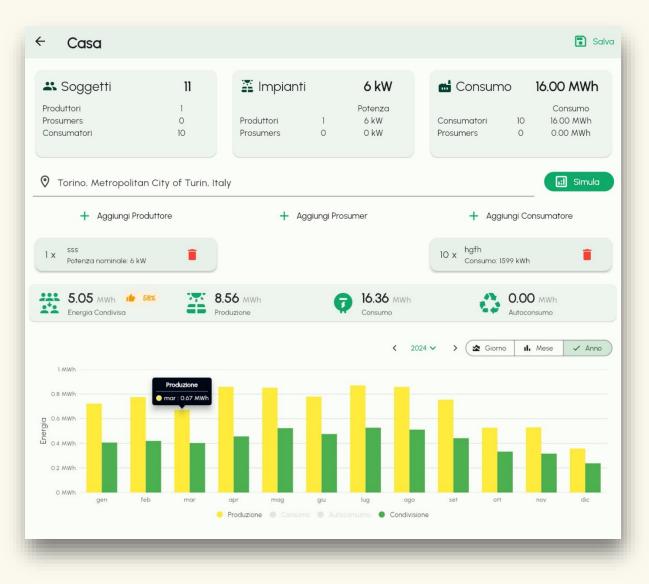


Figure 13 – CER simulator, the result of energy sharing



4. Conclusions

Enercade is the ideal technical partner for projects on energy analysis, user involvement and administrative management of communities, thanks to its innovative platform and the expertise of its team and associated partners. It offers cutting-edge solutions for the management, monitoring and optimization of Renewable Energy Communities. The platform facilitates the meeting between producers, consumers and investors, promoting sustainable growth and the active participation of members. Enercade expresses its support and support as a technical partner towards its customers in the realization of its energy and environmental objectives.

Features/Services	Description
Web and Mobile Platform	Management, monitoring and control of CERs with active involvement of members.
Design and Installation	Energy generation and storage systems, industrial and civil plant engineering.
Energy Audits and Feasibility Studies	Preliminary analyses for the optimal configuration of CERs.
Legal Advice	Articles of association, regulations, corporate documents and regulatory compliance for CERs.
Submission of Technical Documentation	Assistance in the submission of technical documentation to the GSE.
Electronic and Software Design	Supply of energy monitoring devices and development of customized software solutions.
Gamification	Application of game elements to encourage sustainable behaviour and efficient use of energy.
Digital Marketplace	Public space for producers, consumers and investors to meet, promoting their CER and facilitating the exchange of renewable energy.
Smart Energy Meter	Low-cost device for real-time monitoring of energy flows, integrated with the platform.
Automation of Administrative Processes	Reduce manual load, optimize daily operations, and minimize administrative errors.
Collaborative Workflow	Review and approve documents in real-time, facilitating cooperation between administrators and CER members.
Controlled Access to Documents	Secure document management, ensuring that only authorized members can view or edit sensitive information.

The proposed technical offer is summarized below:

