

# The Renewable Energy Community of Cernusco sul Naviglio, Italy

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## **Is the project a case of...:**

- State-initiated co-creation
- Entrepreneur-driven co-creation
- Grassroots-based co-creation\*

*\*For an elaboration of the typology, please consult the GOGREEN theoretical framework p. 25.*

## **Integrated case analysis**

Before proceeding to the scoring of the GFs, please provide a *3–5 page case analysis* in which you describe the background, history, and national, regional, and local contexts of the case, the problems and goals addressed by the local collaboration, the participating actors and their relationships, the unfolding of the co-creation process, the most important governance factors (this may include factors other than those in focus in this project), and the generated outputs and outcomes. The conclusion may specify a few lessons learned from the case study.

### **1) Background, history, and national, regional, and local contexts of the case**

The **project** being studied for the purposes of GOGREEN is the **Renewable Energy Community (REC) of Cernusco sul Naviglio**, a town located in the Northern Italian region of Lombardy. RECs are groupings of actors (producers and consumers of renewable energy) which are based on open and voluntary participation. A REC is established as an autonomous legal entity (which can, for instance, take the form of an association, a third sector organization, a cooperative, a benefit cooperative, a consortium, a partnership, etc.) whose members are natural persons, small and medium-sized enterprises, local authorities, municipal administrations, research and training institutions, religious entities, third sector organizations and environmental protection bodies. The main objective of a REC is to provide environmental, economic or social benefits at the community level to its members and the local areas in which it operates. The REC therefore becomes a tool to increase energy efficiency, and to fight climate change and energy poverty.

As of **April 2024**, the **first phase of the project has been concluded, and the second phase is about to begin**. As it will be clearer from the information below, the overall process was affected by a significant delay due, in turn, to a legislative delay at the national level.

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The **regulatory background** to this project is provided by the guiding **role played by the European Union (EU)** in the fight against climate change, where targets set for 2020, 2030, and 2050 have drawn a path emphasizing energy efficiency, reduction of greenhouse gas emissions and promotion of renewable

energy. In particular, the EU's 2030 targets include a reduction of at least 40% in greenhouse gas emissions compared to 1990 levels, a share of at least 32% of energy from renewable sources in the energy mix and an improvement in energy efficiency by 32.5%. The **European Green Deal** represents the current pillar of the European strategy towards a sustainable energy future. This ambitious roadmap aims to steer the European Union towards a green energy transition, combining climate change mitigation measures with a sustainable economy.

Within this broad context, renewable energy is emerging as a key solution in the fight against climate change. In recent decades, dependence on fossil fuels has had a significant impact on the environment, contributing to increased greenhouse gas emissions and the resulting global warming. The adoption and promotion of renewable energy represents a crucial response to this challenge, offering multiple benefits. Renewable energies, in fact, are characterized by a significantly lower environmental impact than fossil fuels. Generating energy from renewable sources such as sun, wind, water and biomass does not produce greenhouse gas emissions or harmful air pollutants. From a global perspective, the widespread use of renewable energy can help reduce energy poverty and improve access to clean energy in rural communities and less developed regions.

**At the EU level, Directive 2018/2001 (RED II) on the promotion of the use of energy from renewable sources** was approved in December 2018, and refers to the new objectives to be achieved based on Conference of the Parties (COP21), also known as the "Paris Agreement", as well as the objectives set by the Clean Energy for all European Package (2019). This European directive, binding for Member States, establishes global objectives to be reached at the European and national level, while leaving Member States the responsibility to develop their own National Energy Strategies in order to achieve these objectives. By 30 June 2021, Member States had to transpose those provisions.

RED II therefore provided a clear definition of energy communities, in particular renewable energy communities, establishing the rights and duties associated with them and distinguishing them from self-consumers of renewable energy who act collectively.

According to the definition provided by Article 2 of the Directive, a renewable energy community is a legal entity that is based on open and voluntary participation, is autonomous, and is effectively controlled by shareholders or members located in the vicinity of installations producing energy from renewable sources. Shareholders or members can be natural persons, small and medium-sized enterprises (SMEs) or local authorities, including municipalities. The primary objective of an energy community is to provide community-wide environmental, economic or social benefits to its shareholders or members or to the local areas in which it operates. Article 22 of the directive lists a series of rights and duties of renewable energy communities, as well as actions that European Union member states must take to encourage their development. For example, end customers must be able to freely choose to create an energy community without losing their rights or being subject to discrimination or disproportionate burdens. Energy communities can produce, consume, store and sell energy generated by community-owned production facilities. Furthermore, it is important that energy communities have access to all electricity markets without discrimination.

Member States commit to removing regulatory and administrative obstacles that slow down the proliferation of energy communities, to ensuring the cooperation of the distribution system operator with community members and to providing regulatory support to public authorities to facilitate the emergence and participation to energy communities.

**At the national level**, the European RED II Directive was implemented through the enactment and conversion into law of **Legislative Decree 162/2019 ("Milleproroghe Decree") and subsequently with the Legislative Decree 199/2021 and the Legislative Decree 210/2021**. In particular, the art. 42-bis of the Milleproroghe Decree introduced a provision of a transitional nature with the aim of regulating a first experimental phase of RECs which included plants powered by renewable sources with a power not exceeding 200 kW each and a perimeter of the eligible plants limited to those belonging to the same secondary transformation substation.

On 4 January 2023, the ARERA resolution, known as Tiad (Testo Integrato per l'Autoconsumo Diffuso - Integrated Text for Widespread Self-Consumption), was adopted, which adds to the previous resolutions on Simple production and consumption systems and on Closed distribution systems, promulgated in compliance with Decrees 199 /2021 and 210/2021. The Tiad regulates the requirements, methods and procedures for the different typologies (collective self-consumption, renewable energy communities, energy communities of citizens and individual self-consumers), updating the relevant regulatory framework and simplifying some procedures. This resolution has, on the one hand, confirmed some of the previous provisions, such as the definitions of the different configurations for self-consumption as well as the right of all the subjects involved to choose their own electricity supplier; on the other hand, it has brought some changes.

More recently, with the **Legislative Decree 414/2023 (known as RECs Decree and effective since January 24, 2024)**, measures were introduced to further encourage the development of self-consumption and energy communities. Among the main innovations, the decree provides for a non-repayable contribution of up to 40% for plants built in municipalities under 5,000 inhabitants and a variable incentive tariff for renewable energy that is produced and shared.

This decree has been particularly important as a tool to implement the provisions of the key LD 199/2021: in fact, before LD 414/2023, RECs were allowed to be established, but with technical rules that limited their geographical extension considerably, thus making their establishment not particularly appealing. The content of the forthcoming LD 414/2023 was already known to improve such conditions, but was subject to subsequent delays which dampened the enthusiasm among several actors.

The LD 414/2023 was finally issued at the end of 2023 and became effective on January 24, 2024, and was then followed by the official issuance of the Operational Rules by the *Gestore dei Servizi Energetici (GSE)*, a joint-stock company founded in 1999, entirely owned by the Ministry of Economy and Finance, which is responsible for the promotion and development of renewable sources and energy efficiency. Based on these latest developments, RECs can formally be established under the new rules from April 8, 2024, and be registered as such in the GSE's portal dedicated to the RECs.

## 2) The aims of the project and the sustainability problems that it seeks to address

Renewable Energy Communities have been promoted at the European, national and local level as they provide **four types of benefits**:

- a) **Environmental benefits**: RECs promote and increase the use of renewable and clean energy sources in order to replace fossil sources, and therefore reduce the environmental impact of the production and consumption of energy. In fact, a photovoltaic system - compared to a fossil fuel production system - can considerably cut emissions of CO<sub>2</sub> and other climate-altering gases that are harmful to the health of the planet and its inhabitants.
- b) **Financial benefits**: They consist of a reduction in electricity bills and a medium to long-term cost stabilization for all members of the Energy Community. The extent of the reduction in bills depends on several factors, in particular on the amount of energy shared between members (i.e. the energy that is produced by one member and consumed by another within a certain time limit). Based on existing legislation, RECs can benefit from a state monetary incentive for this shared energy.
- c) **Systemic benefits**: Distributed energy generation and local self-consumption also bring benefits for the national energy system and the distribution network, as they reduce transport costs and the technical problems of network imbalance and supply consistency. All this translates into a more flexible system that can be managed in a simpler and less expensive way, to the benefit of consumers.
- d) **Social benefits**: The spread of Energy Communities and other forms of collective self-consumption promotes more sustainable, conscious and attentive energy consumption; a lifestyle oriented towards sharing and energy saving; and more distributed and equitable electricity generation. Moreover, RECs are required by statute to have also cultural and/or social purposes, which reinforces their potential role as driver of change in different sustainability dimensions.

In 2022, as part of its policies aimed at increasing energy efficiency, the **Municipal administration** of the Northern Italian town of **Cernusco sul Naviglio** began to explore the possibility to promote the creation of a Renewable Energy Community (REC). At the beginning the main objective driving the Municipality's effort was that of making energy consumption more efficient. Over time, this extended to a broader objective of providing environmental, financial and social benefits at the community level to its members and the local areas in which it operates. The REC therefore became not only a tool to increase energy efficiency, but also to fight climate change and energy poverty.

As stated by Daniele Restelli, Councilor for Energy Transition, Cernusco Municipality: *«RECs are a valid tool for reducing emissions that have a negative impact on the environment and for reducing costs, encouraging the production of energy from renewable sources, leading to new forms of circular and solidarity-based social economy where resources will be generated also to support families who experience difficulties in meeting energy costs. As an administration we strongly want to promote and guide this change by deploying resources and skills that we can share with citizens and businesses».*

In addition to the need to increase energy efficiency, the Cernusco Municipality was led to the REC's initiation by several inducing factors at different levels:

- a) At the international and national level, the legislation mentioned above;

- b) At the regional level, incentives offered by the Regional Government to municipal administrations in order to support REC feasibility studies and the construction of new energy producing systems;
- c) At the municipal level, a pre-existing intention to build new clean energy producing systems (such as photovoltaic systems) by using surfaces (e.g. roofs) of publicly-owned buildings.

Daniele Restelli, Councilor for Energy Transition, further declared that the Municipality does not aim to play the role of the “governor of the REC”, but rather it wishes to promote the idea, and more generally a culture of change. For instance, an additional by-product of a REC might be the establishment of an app shared by all the members of the REC which sends an alert when excess energy is produced within the REC, which may push members – who are able to do so – to use the dishwasher or charge their electric car at that time.

### **3) The participants and their interaction and communication in and between meetings**

As part of the effort to establish a REC, the Municipality first developed the idea internally in the course of 2022, and subsequently commissioned the Department of Engineering and Applied Sciences of the University of Bergamo to carry out an exploratory study, with the aim of promoting the creation of a local REC among all the relevant categories of stakeholders. As described under point (8) below, this marked the beginning of the **first phase of the project, lasting from the second half of 2022 to the beginning of April 2024**, followed by a **second phase beginning from April 8, 2024**.

**In the first phase**, the initiators were therefore the Municipality of Cernusco, led by the Councilor for Energy Transition, and the Department of Engineering at the University of Bergamo, led by a Professor specializing in Systems for Energy and the Environment, with their respective teams. Over time, and following the developments described under point (8), the Municipality began to involve citizens and other stakeholders as potential members of the soon to be formally established REC. Two open town hall meetings were organized by the Municipality in collaboration with the University to promote the project and formally collect expression of interest.

Interaction among members in this first phase took predominantly two forms:

- a) First, interaction and collaboration took place between the Municipality’s team and the University’s team, aimed at constructing and developing the RECs proposal over time. As better described below, this consisted first in a draft project of 2 RECs, which later became more detailed after citizens and other stakeholders declared their in principle willingness to become part of the RECs. The 2 detailed project were then submitted to Lombardy’s regional government under a call for expression of interest (with deadline set on May 31, 2023). Once one of the 2 proposals was judged successful (with the results published in November 2023), the University further supported the Municipality in the preparation of a financial plan to be submitted by February 29, 2024).
- b) Secondly, the effort carried out by the Municipality and the University would have been meaningless without the contribution of the citizens and stakeholders who confirmed their interest in becoming part of the emerging REC(s). Such confirmation of interest was not binding but nonetheless formally expressed thorough a form which included not only information about the would-be participant, but also their juridical status (if not private citizens), their location, their average energy consumption, etc.

**In the second phase, set to begin in April 2024**, the actors who have declared their interest will decide either to confirm it, and formally become part of the REC, or not. For the REC to be formally established, at least 2 actors are needed who will constitute the REC as an autonomous and independent third party (different juridical forms are allowed by the relevant Italian legislation). According to a key informant, *“the formal establishment of the REC will mark a key moment, because that’s when the second phase will really get going, and additional actors will be drawn to become members”*. Once the REC will be formally established, the members will together draft a set of key rules for its functioning, including those for the distribution among members of the financial incentives that the REC will receive.

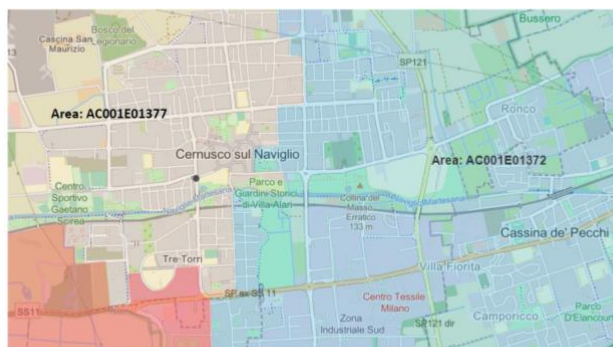
#### **4) How often do they meet, and do they communicate between meetings?**

In the first phase of the project, frequency and means of communication have been different in relation to the **two groups of participants** mentioned under point 3 above:

- a) The teams from the Municipality and the University of Bergamo have met frequently and both face-to-face and online during the most intensive steps of the RECs’ presentation preparation process. They have also met with citizens and other stakeholders during the two town hall meetings held in the first half of 2023.
- b) Potential members of the RECs (including the Municipality) have met in largest numbers, also together with representatives of the University of Bergamo, during the two town hall meetings, which can be seen in effect as the main form of co-creation taking place during the first phase of the project. By expressing their needs, asking questions, and raising doubts – and confirming their interest in becoming part of the REC - citizens and stakeholders have started a process of informal co-creation of the REC, which will become real once the REC itself is formally established.

It’s important to note that both channels of interaction and communication have been critical to the first phase of the co-creation process. In fact, without the effort by the Municipality and the University to ‘make the REC’s visible’ (see figure below) and understand its functioning, it would have been much more difficult to engage local actors.

#### **CERNUSCO area ovest - CERNUSCO area est**



At the same time, without the interest and the contribution from citizens and stakeholders, including the detailed information about their status and their energy consumption, a simulation of the RECs’ establishment could not be done, thereby jeopardizing the opportunity to submit a proposal to the call of the Lombardy region, and also reducing the Municipality’s ability to present the RECs project in an attractive way.

### **5) The role and forms of knowledge sharing, coordination and joint problem-solving**

In the first phase of the project (up to March 2024), knowledge sharing, coordination, and joint problem solving have taken **two partially different forms** as related to the 2 groups of participants as also described above.

The **first group** includes the **teams from the Municipality and from the University of Bergamo**, whose interaction and collaboration aimed at drafting and over time developing the technical proposal for the establishment of Cernusco's RECs. The Municipality brought to the collaboration its needs and knowledge of the local territory, whereas the University of Bergamo brought its specialized knowledge and dedicated tools, including a software developed by the Department of Engineering itself for the purposes of RECs analysis and development, which can simulate the functioning of a REC given certain parameters, and can also estimate the impact of adding one additional member with certain characteristics. As the University of Bergamo has supported a number of other Municipalities in Lombardy to develop their RECs' plans, it was able to bring also its experience with other local actors to the joint co-creation effort.

The **second group** includes, **in addition to the Municipality and the University of Bergamo, all the citizens and local stakeholders** who have been invited to join the REC creation effort, and who have in various ways participated in this first phase. For instance, they took part in the two town hall meetings organized by the Municipality in cooperation with the University, where representatives of the latter presented the REC in understandable yet detailed form, so that participants could understand what are the strengths and weaknesses of a REC, pose questions and raise doubts, and confirm (or not) their in principle willingness to join the REC. Questions posed by participants were not only aimed at the academics in relation to RECs' functioning, but were also aimed at the public officials representing the Municipality, and were related to the role that the Municipality was planning to play, both in the shorter and longer term.

In addition to these two in-person meetings, the Municipality has carried out both dissemination and collection of expressions of interests through other channels, including the Municipality website, where interested actors could also access the recording of the two town hall meetings, and download the form for the expression of interest. Other channels included other community-based events or direct communication between the Municipality and specific actors, such as business associations and local companies.

### **6) The relation between consensus and conflict and the handling of the latter**

In the **first phase** of the project, the interaction among participants has been **smooth and free of conflict**, mostly because of its nature and aims. In this phase there were no conflicting or competing interests which could create tensions or establish polarized positions. Beyond the technical collaboration between the Municipality and the University, aimed at creating a draft REC proposal that could be attractive for local stakeholders and successful with the call of the Lombardy Region, local stakeholders were invited to participate and contribute based on their interest in the project. Those who were not interested, or who were not sufficiently convinced, just abandoned the process (or didn't even join in the first place).

The **second phase of the project**, which will take place **from April 2024 onwards**, may be characterised by a certain level of tensions and conflicts once the members of the soon to be established REC will build

together its formal Rules and Regulations. The Italian law states that should rules should be co-created by the REC members: whereas all will aim at the same objective, it is possible that different perspectives and interests may emerge.

#### **7) The role and form of leadership: lead actor, steering group and/or collective leadership**

The form of leadership in the first phase of the project can be seen as a **dual leadership**: an ‘administrative’ (and in the words of one key informant ‘motivational’) leadership, represented by the Cernusco Municipality and embodied primarily by the Councillor for Energy Transition; and a ‘technical’ leadership, represented by the Department of Engineering of the University of Bergamo and embodied by a Full Professor of Systems for Energy and the Environment.

These two actors and individuals have played in this phase a key and **complementary role**. With the help of a charismatic personality, the Councillor has been effectively able to lead and show the Municipality’s commitment towards the creation of the REC, and the interest for the REC’s potential impact not only in terms of energy efficiency but also in terms of wider environmental, social, and economic benefits. The Professor has been able to explain to non-experts and lay actors what a REC is and what are its benefits, and to present to the local community the draft project created in collaboration with the Municipality, thereby reinforcing the Councillor’s message. The joint participation of these two actors in the town hall meeting has been of key importance, because of the joint and integrated support to the project both from a technical and an administrative/political viewpoint.

#### **8) The temporal unfolding of the co-creation process: major shifts and ups and downs**

As mentioned above, **interest for RECs** at the local level has been driven by **EU level legislation**, but more **specifically in Italy by the LDs 199/2021 and 414/2023**. The LD 199/2021 was especially welcome because, as stated by one key informant *“it was introducing Renewable Energy Communities as a tool to pursue something towards sustainability which was also community-based”*. At the end of 2021 energy prices were also particularly high in Italy, which drove additional interest towards the creation of RECs.

In this context, during the year 2022, as part of its policies aimed at increasing energy efficiency, the Municipal administration of Cernusco sul Naviglio began a process to launch the creation of two possible RECs within the municipal boundaries (because of technical reasons, one single REC covering the entire municipal territory could not be established).

The **first phase of the project** then began in the second half of the year 2022, when the Municipality contracted the Department of Engineering and Applied Sciences of the University of Bergamo to conduct a feasibility study for the establishment of a REC within the territory of Cernusco. Crucially, this effort was also driven by a development at the regional<sup>1</sup> level. The government of the northern Italian region of Lombardy, where Cernusco is located, issued in July 2022 a call for ‘Expression of interest for the presentation of Renewable Energy Community projects’, providing for an evaluation process and financial support for the successful projects. The original deadline for submission was later extended to May 31, 2023, and worked as a strong incentive for several Municipalities in Lombardy to initiate a feasibility study.

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<sup>1</sup> Regions are the first-level administrative divisions of the Italian Republic, constituting its second NUTS administrative level. There are twenty regions, five of which are autonomous regions with special status. Under the Constitution of Italy, each region is an autonomous entity with defined powers.



As part of the process aimed at producing this feasibility study, the Municipality organised two town hall meetings together with representatives from the University of Bergamo, in March and May of 2023. These meetings aimed at presenting RECs and Cernusco's plan to citizens and all interested stakeholders, address participants' questions and concerns, and most importantly also to formally collect local stakeholders' expression of interest (in becoming members of the REC). While not binding, this latest action (implemented through an invitation to fill in a dedicated form) was needed to effectively construct a feasibility study focusing on the creation of possibly two separate RECs in the area of Cernusco sul Naviglio. The form allowed to collect information such as the nature of the actor (individual or group of private citizens, private company, non-profit organization, public sector organization, etc) and also some technical information which was needed to effectively simulate the creation of the 2 RECs. The Municipality also took advantage of other occasions and events to collect expressions of interest. Two separate feasibility studies (covering the eastern and western parts of Cernusco respectively) were then submitted under Lombardy's call.

On November 16, 2023, Lombardy's regional government published the list of the approx 350 (out of 600 received) project proposals deemed worthy of access to Phase 2 – and one of Cernusco's two project was indeed part of this list. By the February 29, 2024, successful Municipalities on the list were required to submit the financial plan of the proposed energy communities, in order to appropriately quantify the necessary resources at the start of Phase 2. Once again Cernusco's Municipality, with the support of the University of Bergamo and on the basis of the information supplied by interested citizens and stakeholders, prepared a more detailed plan for the selected REC.

In the meantime, the process was subject to a **slowdown** also due to **events which took place at the national level**. In fact, the national government was expected to promulgate the implementing Decree that would help to better define the RECs' regulatory environment, and provide details about relevant financial incentives. This Decree had been announced at the end of 2022 and remained awaited for most of the year 2023, effectively pushing into a standstill all the Italian RECs that were in an initial phase. From the viewpoint of RECs promoters, it made more sense to wait for the Decree to be issued, especially as it was repeatedly announced as imminent. **On December 7, 2023, the Legislative Decree n. 414/2023 (known as RECs Decree) was finally issued** and became **effective on January 24, 2024**, introducing measures to further encourage the development of self-consumption and energy communities. The subsequent Operational Rules issued by the *Gestore dei Servizi Energetici* (GSE) stated that RECs could formally be established – and registered with the GSE's portal – beginning on April 8, 2024. **April 2024 therefore marks the beginning of the second phase** in the process of the establishment of Cernusco's REC.

#### **9) The most important governance factors (may include factors other than those in focus in this project)**

As of April 2024, the first phase of the project is concluded and the second one is about to begin with different characteristics and dynamics. According to the Municipality's Councillor for Energy – and as shown by the experience of this first phase - the most important factors for the success of co-created green transitions are:

- a) The **presence of one actor who leads the process**. In the case of Cernusco's RECs, this has been first and foremost the Municipality and the Councilor himself. As highlighted by one key informant, the legislative and regulatory delays at the national level were such that several Municipalities lost

interest. In Cernusco, the Municipality never abandoned the project, and officially declared that it was willing to develop the REC even in absence of financial support from the regional government. This commitment has helped to fuel commitment and interest on the part of the local actors; the unfolding of the second phase will make clear how such commitment will actually become concrete.

- b) **Clarity of the objectives and of the steps that the process will entail.** The Municipality has from the outset made clear that the objectives to be pursued through the REC were linked to energy efficiency, but also to social, environmental, and economic benefits. The Councilor has also always clearly explained how the process was going to develop in its different phases and how it was linked to events and actions at the regional (i.e. the call for expressions of interest) and at the national (i.e. implementing decrees) level.
- c) **Clear and convincing answers.** Both the Municipality and the University have been forthcoming and open to respond to stakeholders' questions and doubts, based on available information at any given step, and without overestimating the benefits or underestimating the risks.
- d) **The presence of financial benefits / incentives.** As acknowledged by the Councilor and by other key informants, part of the attractiveness of the REC project is linked to its financial benefits for those who become members. This is important also because certain actors may choose to undertake investments – such as the installation of photovoltaic systems – which are costly and require an assessment of their return in the longer run. At the same time, informants realistically recognize that at least part of the interested actors are moved in a significant way by the opportunity to obtain financial benefits.

#### **10) The generated outputs and outcomes**

As of the **end of the first phase** of the project (April 2024), the **main outputs** are as follows:

- a) Two detailed projects (based on citizens' and stakeholders' declarations of interest) for the establishment of 2 separate RECs in the territory of Cernusco; both submitted to the call of 'expressions of interest' issued by the regional government of Lombardy and aimed at supporting RECs' development.
- b) One of the two project being judged worth of proceeding to step 2 of the call by the Lombardy Region (i.e. presentation of a detailed plan of the investments that the Municipality plans to carry out as a partner of the REC)
- c) Informal establishment of two possible RECs consisting of the would-be participants who expressed their interest by filling in the form. This constitutes a strong basis for the formal establishment of the first core of the REC(s).

As of April 2024, the REC has not been formally created yet, but all the informants are optimistic about the fact that it will indeed be established. In the meantime, an important **outcome of this first phase** is greater awareness among the Cernusco citizenry of the opportunities that RECs offer, and also of the commitment that the Municipality – admittedly as embodied by the current Administration – is showing in relation to energy and environmental-related issues.

#### **11) Lessons learned about the conditions for co-creating green solutions**

As often recalled in the above pages, in the case of Cernusco the REC project, which had been launched with great enthusiasm in the second half of 2022, was subject to considerable delays because of delays in

the issuance of critical implementing legislation at the national level. Without such legislation, the key principles for the functioning of Italian RECs, while widely anticipated and used for plans and simulations, could not be considered final and therefore reliable. In the case of Cernusco, the Municipality has played and keeps playing a very important role, but such commitment and investment could not overcome the impact of the (regulatory) delays at the national level.

Overall, the Cernusco case reflects a situation where the regulatory framework has played a critical role as a driving force at the international European level, beginning with the European Green Deal and especially the RED II Directive. However, as of April 2024, despite promising conditions at the local level (and the related high score on several governance factors), it appears that the regulatory context at the national level has played against the co-creation process, rather than in its favour.

## Scoring and analysis of governance factors

### 1. Perceived importance of biosphere conditions

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

Perceived importance of the biosphere conditions is high, as shown by the repeated references to the role that RECs can play in reducing emissions and encouraging the production of energy from renewable sources. On the other hand, other motives, including social objectives and savings on energy bills, have been a significant driving force.

As stated by a key informant: «RECs are a valid tool for reducing emissions that have a negative impact on the environment and for reducing costs, encouraging the production of energy from renewable sources, leading to new forms of circular and solidarity-based social economy where resources will be generated also to support families who experience difficulties in meeting energy costs. As an administration we strongly want to promote and guide this change by deploying resources and skills that we can share with citizens and businesses».

Another key informant stated: «Participants in this project have different motivations: some are indeed driven by the opportunity to save on energy bills or benefit from the RECs' financial incentives. But I would say that the willingness to reduce the negative effects of energy consumption on the environment is also widely shared, probably predominant».

On the other hand, several questions raised by the public during the two town hall meetings were related to dimensions such as savings and financial incentives. Overall, the perceived importance of biosphere

condition is undoubtedly high, but the fact the financial considerations also have a significant weight suggests that this GF plays a role as ‘significance’ rather than ‘support’.

**2. Legislation, programs, and formal goals**

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

Relevant legislation and regulation have been of critical importance for this project, both positively and negatively. In terms of positive impact, the drive for the establishment of the RECs originated from regulatory developments at the European level (European Green Deal and EU Directive 2018/2001-RED II) at the national level (Legislative Decrees 162/19, 199/2021, 210/2021, and 414/2023) and also at the regional level (call issued by the regional government of Lombardy for ‘Expression of interest for the presentation of Renewable Energy Community projects’, July 2022). These regulatory and legislative developments set the framework for the establishment of the RECs and also for the provision of incentives that would promote their establishment.

However, as described under point (8) above, the national Legislative Decree 414/2023 was long delayed, leading to a standstill in the project’s implementation: even if the Decree’s likely provisions were mostly known, they could not be taken for granted until formal issuance of the Decree itself. Whereas other Municipalities lost enthusiasm, Cernusco’s Municipality kept the project going and implemented the first phase (from the second half of 2022 to March 2024) as described above.

**3. Relative openness of public governance paradigms**

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

Local governments in Italy have in recent years increased the degree to which they include citizens in several initiatives – see for instance the diffusion of participatory budgeting at the municipal level.

In the case of this specific project, the establishment of the REC of Cernusco sul Naviglio, the Municipality was the actor which launched and enacted the collaborative process in the first place, and created the conditions for the actors to meet and collaborate.

The Municipality initiated the project first by involving the University of Bergamo to conduct the feasibility study and construct a simulated REC, and later organized and managed the various channels for the involvement of local stakeholders. As of April 2024, at the end of the first phase of the project, the Municipality had organized the following:

- a) Organization and coordination of the 2 town hall meetings held in 2023;
- b) Contact with business associations in order to promote the REC with their members;
- c) Soliciting of expressions of interest for the REC through the Municipality’s website.

The second phase of the project, set to begin in April 2024, is intended to see the formal establishment of the REC by at least two local actors – individuals and/or organizations – who will constitute the core of the REC and expectantly will also attract others to become members. The members will then convene in order to collectively formulate the REC’s Regulation: all the members are required to participate in this activity, but this is a requirement set by law in relation to RECs’ functioning, rather than the result of a specific effort by the local Municipality.

Overall, it can be affirmed that the project would not exist, if not for the Municipality’s effort in convening, informing, and resorting to different tools and instruments to foster stakeholders’ participation.

**4. Formalized institutional channels for citizen participation and community mobilization**

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

During the first phase of the project – mid 2022 to April 2024 – the Municipality initiated and formally launched a project for the establishment of a REC. In order to disseminate information about the project and most importantly stakeholders’ expressions of interest, the Municipality devised 2 major formal channels for citizen participation:

- a) Two town hall meetings in the course of 2023 (with presentations, discussion, and collection of interest);
- b) A page on the Municipality’s website dedicated to the REC, which included a form and the instructions for interested stakeholders to confirm their (non-binding) interest.

As of April 2024, these formal channels have played a critical role, because in their absence the project and the ‘virtual’ RECs (as designed by the Bergamo University’s team on the basis of the information and interest declared by local stakeholders) would not exist.

Once the second phase begins, the REC will be established and start functioning within the boundaries of certain basic rules set by law. As of mid-2024, and for the foreseeable future, the actions of the local

Municipality and the REC legislation have played a role in the project's collaborative process, but there is no sign that they have helped to improve the collaborative process.

### **5. Mechanism for ensuring top-down government and bottom-up social accountability**

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

During the first phase of the project – mid 2022 to April 2024 – the Municipality maintained a page on its website to inform the citizenry and local stakeholders about the project and its progress. The website was used also to disseminate the recordings of the 2 town hall meetings, and to make available the form for the expression of interest and related instructions.

However, not much information was given by the Municipality in relation, for instance, to its participation to the call issued by Lombardy's regional government. The participation was announced during the town hall meetings, but no update on the outcome or on the ensuing process was given.

Overall, top-down government accountability has not been relevant to the first phase of the project, because a voluntary initiative by the local Municipality (within the context of national legislation) is not subject to such accountability, especially as far as it remains at the project's stage. Bottom-up accountability complies with informal demands of local citizens, but without intense and systematic communication.

### **6. Strategic agenda-setting by means of translation**

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

As mentioned in the general description, the project was born in the context of the European RED II directive and of the related national level legislation, with the implication that issues of environmental sustainability and renewable energy have been stronger than SDGs in driving the local agenda setting, at least during public events and in the context of the Municipality's public communication (including the website).

However, informants from the University of Bergamo declared that, especially at the beginning of the first phase, when the teams from the University and the Municipality started to work on the project, reference to the SDGs was frequent and considered among the key drivers of the project.

**7. Construction of narratives about successful multi-actor collaboration**

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

When launching the project, the Municipality used the slogan “Together towards an energy community”, thus emphasizing the collective nature of the effort. However, during the first phase of the project not much evidence emerged of narratives about prior multi-actor collaborator. This may also be due to the fact that not much in-person collaboration has taken place with citizens and local stakeholders during the first phase of the project: actors have exchanged information and discussed during collective meetings and events, but the construction of the ‘virtual’ REC project resulted primarily from the Municipality’s effort rather than from stakeholders’ collaboration.

It is possible that such narratives will emerge during the second phase of the project, once the REC’s members will be called to collaboratively construct the REC’s Regulation, but no evidence appears as of April 2024.

**8. Building or harnessing institutional platforms and arenas**

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

During the first phase of the project – mid 2022 to April 2024 – two institutional tools have been key to the project’s progress, at least in its public dimension:

- a) the 2 town hall meetings organized by the Municipality (physical venues) and
- b) the webpage dedicated to the project within the Municipality’s website.

However, as of April 2024, both tools have been used for communication, dissemination, interaction, rather than actual and intense collaboration. Still during the first phase, physical venues and digital

platforms have been used to enable and facilitate collaboration between the Municipality's and the University's team.

In summary, as of April 2024, given that physical venues and digital platforms have been used intensively for collaboration only among a selection of participants, overall harnessing of such platform and arenas is deemed present, but not significant.

### **9. Provision of access to blended financing**

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

By its nature, the REC requires a blend of financing sources: once established, the REC will consist of energy consumers, producers, and prosumers. Given that a REC cannot exist just with energy consumers, at least some members will need to be producers of energy through photovoltaic panels. Such panels have either been recently installed, or will be installed over the next months/years by the REC's members, be they public, private or non-profit actors (including citizens or groups of citizens living in the same building). In other words, funding for the project takes the form of (1) existing or planned photovoltaic panels installed by citizens and private and public organizations; (2) public funds devoted by the Municipality to the initial feasibility studies.

The declarations of interests by Cernusco's citizens and stakeholders (including public and private organizations) can be assumed to be in-principle commitments to either contribute their existing capabilities or to invest in new ones. Moreover, the positive outcome of the first step of the call of the Lombardy Region suggests that additional public funds will likely originate also from the regional government.

During the town hall meetings, representatives from the university have stressed the fact that the REC(s) will be more successful in relation not only to the number of participants (the higher, the better), but also to their diversity, because of the link to their being energy consumers/producers/prosumers as described above. Citizens are more likely to be consumers, whereas public or private organizations are more likely to be prosumers if they already have photovoltaic panels or are planning to install them. In fact, the prospect of contributing to a more successful REC could attract a higher and more diverse set of participants. This suggests that, once the REC is established and running, a positive reinforcing mechanism will attract additional private and public organizations as well as individual citizens.

As of April 2024, however, financing for all the activities of the first phase has been provided by the Municipality. In summary, whereas a REC cannot exist without multiple sources of funding and a



collaboration among participants aimed at maximizing the expected effects of such blended financing, evidence in the case of Cernusco cannot be seen until the REC is formally established (during the second phase of the project starting in April 2024).

**10. The capacity to leverage support from authorities to enable local collaboration**

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

A key role for the existence of the project was played by 2 actions / developments enabled by higher level authorities.

The first, at the national level, is the Legislative Decree 414/2023 (known as RECs Decree and effective since January 24, 2024), with measures to further encourage the development of self-consumption and energy communities. As mentioned in the general description, the establishment of RECs in Italy experienced an almost 2-year long delay because this long awaited Decree never seemed to materialize, but included key provisions for RECs' establishment (so that it didn't make much sense to establish a REC before the Decree was promulgated).

The second was a call issued in July 2022 by Lombardy's regional government for 'Expression of interest for the presentation of Renewable Energy Community projects', providing for an evaluation process and financial support for the successful projects. The call worked as a strong incentive for several Municipalities in Lombardy to initiate a feasibility study. The Municipality of Cernusco, in collaboration with the University of Bergamo, drafted a project for 2 RECs, which later became more detailed after citizens and other stakeholders declared their in-principle willingness to become part of the RECs. The 2 detailed projects were then submitted to Lombardy's regional government under the call for expression of interest (with deadline set on May 31, 2023). Once one of the 2 proposals was judged successful (with the results published in November 2023), the University further supported the Municipality in the preparation of a financial plan to be submitted by February 29, 2024.

In summary, developments both at the national and at the regional government level have played a key role for the initiation and progress of the project. However, whereas the regional call has been instrumental in pushing local governments all across Lombardy to invest in renewable energy projects, the long delay in the promulgation of the Legislative Decree 414/2023 has not played the supportive role which was meant to play.

### **11. Inclusion and empowerment of relevant and affected actors**

QCA score:

- 0  
 0.33  
 0.66  
 1

Scoring confidence:

- Low confidence  
 Medium confidence  
 High confidence

Data sources:

- Interviews  
 Documents  
 Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

In the first phase of the project (mid 2022 to April 2024), there is evidence that the project has tried to include all relevant (those with relevant knowledge, skills, and resources) and affected actors (those who are affected by problems and new solutions):

- a) relevant actors include the researchers at the University of Bergamo, who provided the technical expertise for the REC's feasibility study, Municipality employees involved in the project, and also Cernusco's citizens and other stakeholders with their energy-producing systems (both existing and planned);
- b) affected actors include all Cernusco's residents (individuals, organizations, and institutions), who were/are interested in becoming members of the REC.

As of April 2024, it appears that no specific effort has been made to encourage participation by actors perceived as potentially marginalized.

### **12. Clarification of interdependence vis-à-vis common problem and joint vision**

QCA score:

- 0  
 0.33  
 0.66  
 1

Scoring confidence:

- Low confidence  
 Medium confidence  
 High confidence

Data sources:

- Interviews  
 Documents  
 Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

During the first phase of the project (mid 2022 to April 2024), both the Municipality and the University of Bergamo have devoted considerable effort to present the planned REC and its functioning in a non-technical way, so as to facilitate understanding by different types of residents and stakeholders. A central point was the need to have a diverse composition of the REC in terms of energy consumers and energy producers (with prosumers as a third category), and their inevitable interdependence: a REC cannot function if all members produce energy but none consumes it, and similarly if all wish to consume but nobody produces it. This was repeatedly explained during the town hall meetings, and also clearly stated in the documents presented during the meeting and made available through the Municipality's webpage devoted to the REC's project.

### **13. Trust-building and conflict mediation**

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

During the first phase of the project (mid 2022 to April 2024), both the Municipality and the University of Bergamo have worked to build residents' trust in the project itself. The involvement of the University aimed to bring in the necessary technical expertise, but also to support the soundness of the project and of the claims related to the benefits of the REC. The organization of the two town hall meetings served precisely this purpose, with the technical leader (embodied by the University's Professor) and the administrative/motivational leader (embodied by the Councilor) presenting the project together and answering questions from the participants.

In summary, steps have been taken to build trust (and possibly address conflicts, though these have not emerged during the first phase), but it cannot be said that systematic measures or routines have been established for the purposes of building trust and addressing conflicts.

Given the nature of the activities carried out during the first phase, conflicts have not yet materialized in the course of the project. It is possible that they may arise in the second phase, once the REC is formally established and the members will convene to construct its functioning rules together.

### **14. Use of experimental tools for innovation**

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

During the first phase of the project (mid 2022 to April 2024), thanks to the collaboration with the University of Bergamo specifically established for the purposes of this project, and the use of specific technology owned by the Department of Engineering and Applied Sciences, the Municipality was able to simulate the construction of a local REC. This was especially important because it could be used to better explain to citizens and local stakeholders how a REC works, and most usefully what the actual benefits can be (including in financial terms) depending of the type of actors who decide to become members (i.e. citizens, private companies, non-profits, public organizations). The figure below shows one such simulation, including the type of participants, estimated production, self-consumption, and sharing of energy, and expenses and benefits in monetary terms.

## Esempio CER

### CER intercomunale + PV su cava dismessa

**Centro Raccolta**  
**500 kW<sub>p</sub>**

Ritiro dedicato  
 Premio

**€ 68 316**  
**€ 14 948**



Cons. elettr.	52 462 kWh	39 991 kWh	72 705 kWh	25 742 kWh	19 700 kWh	65 485 kWh	204 687 kWh	275 940 kWh	1013 609 kWh
Prod. FV	27 897 kWh	65 818 kWh	-	-	24 992 kWh	24 992 kWh	149 950 kWh	149 950 kWh	-
Autoconsumo	24 201 kWh	18 876 kWh	-	-	14 832 kWh	20 914 kWh	62 032 kWh	119 884 kWh	-
En. condivisa	559 773 kWh								

Spesa	<b>-12 591 €</b>	<b>-9 598 €</b>	<b>-17 449 €</b>	<b>-6 178 €</b>	<b>-4 728 €</b>	<b>-15 717 €</b>	<b>-1 637 € x30</b>	<b>-5 519 € x12</b>	<b>-24 327 € x10</b>
Ritiro dedicato	<b>480 €</b>	<b>6 102 €</b>	-	-	<b>1 321 €</b>	<b>530 €</b>	<b>381 € x30</b>	<b>326 € x12</b>	<b>0 € x10</b>
Premio	<b>406 €</b>	<b>1 400 €</b>	<b>1 632 €</b>	<b>1 080 €</b>	<b>330 €</b>	<b>640 €</b>	<b>110 € x30</b>	<b>197 € x12</b>	<b>3 358 € x10</b>
	<b>€ 66 333</b>								



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Once local actors began to formally confirm their interest in potentially becoming members – thereby providing information for instance about their legal status and their energy production/consumption capacity – the University was able to refine its simulations and produce 2 more detailed “mock RECs”, one for the eastern and one for the western part of Cernusco. The figures below depict (i) the actors provisionally located in the eastern REC, together with their energy needs, production to be obtained through future photovoltaic systems, and energy savings; and (ii) the varying amounts of energy needed, produced, consumed and shared during a typical winter and summer day.

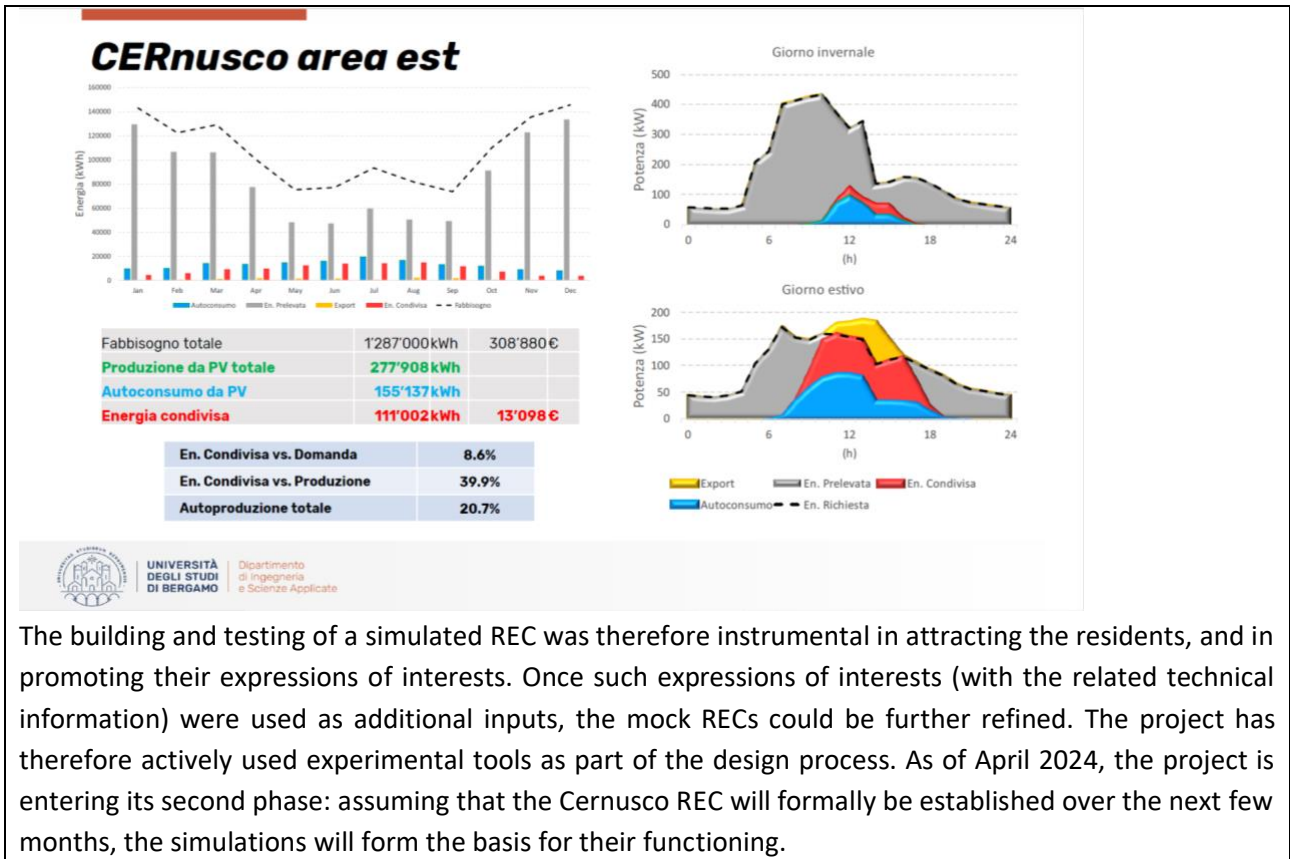
## CERnusco area est

		Fabbisogno (kWh)	PV futuro (kW)	Risparmio (kWh)
001	Municipio Auser	11'948		2'790
002	Dependance	28'295		4'207
003	Municipio	202'257		47'230
004	Scuole Medie Unità Italia	122'514	20	6'045
005	Biblioteca	151'321	20	34'802
006	Materna Dante	46'335		398
007	Magazzino PL	20'985		3'120
008	Polizia Locale	67'864		7'951
009	Casa Musica	60'819		9'042
010	Uffici Comunali	25'166		5'877
011	Centro sportivo Boccaccio	19'019	6	6'251
012	Magazzino Colombo	4'803		362
013	Centrale tecnica polo scolastico	61'776		9'185
014	Scuola primaria Martini	186'585	39	34'731
015	Scuola materna via Lazzati	91'520	30	21'531
17	<b>Privati cittadini - Residenziali</b>	<b>36'874</b>	<b>37.4</b>	<b>15'862</b>
	<b>Privati cittadini - Altri usi</b>	<b>148'919</b>	<b>70</b>	<b>56'754</b>
<b>TOT</b>		<b>1'287'000</b>	<b>222</b>	<b>266'139</b>



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The building and testing of a simulated REC was therefore instrumental in attracting the residents, and in promoting their expressions of interests. Once such expressions of interests (with the related technical information) were used as additional inputs, the mock RECs could be further refined. The project has therefore actively used experimental tools as part of the design process. As of April 2024, the project is entering its second phase: assuming that the Cernusco REC will formally be established over the next few months, the simulations will form the basis for their functioning.

**15. Ongoing critical self-reflection and learning (i.e., process and/or developmental evaluation):**

- |  |   |  |
|--|---|--|
| <u>QCA score:</u>                        | <u>Scoring confidence:</u>                            | <u>Data sources:</u>                             |
| <input type="checkbox"/> 0               | <input type="checkbox"/> Low confidence               | <input checked="" type="checkbox"/> Interviews   |
| <input type="checkbox"/> 0.33            | <input checked="" type="checkbox"/> Medium confidence | <input type="checkbox"/> Documents               |
| <input checked="" type="checkbox"/> 0.66 | <input type="checkbox"/> High confidence              | <input checked="" type="checkbox"/> Observations |
| <input type="checkbox"/> 1               |   |  |

Please elaborate on the reasoning behind your scoring for this governance factor:

During the first phase of the project (mid 2022 to April 2024), the 2 concrete projects for the establishment of 2 different RECs in Cernusco were submitted to Lombardy’s regional government under a call for expression of interest (with deadline set on May 31, 2023). Once one of the 2 proposals was judged successful (with the results published in November 2023), the University further supported the Municipality in the preparation of a financial plan to be submitted by February 29, 2024. An external evaluation was therefore carried out by a Commission created by the regional government, aimed at assessing all the RECs projects submitted under the call. The fact that one of the two Cernusco REC passed this first evaluation stage led the Municipality, together with the University of Bergamo, to further refine the project for this selected REC. However, at this stage, this refinement and further development was carried out by the teams of the Municipality and of the University, without further involvement of the citizens / local stakeholders.

**16. Exercise of facilitative leadership:**

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The project would not have seen the light without a strong leadership played by the Councillor for Energy Transition of the Cernusco Municipality, who initiated the project, and who involved the Department of Engineering of the University of Bergamo to provide the necessary technical expertise. In the first phase of the project (mid 2022 to April 2024), the ‘administrative’ and (in the words of one informant) ‘motivational’ leadership of the Councilor was then supported by a ‘technical’ leadership embodied by a Full Professor of Systems for Energy and the Environment.

These two individuals have played in the first phase a key complementary role. With the help of a charismatic personality, the Councilor was effectively able to lead and show the Municipality’s commitment towards the creation of the REC, and the interest for the REC’s potential impact not only in terms of energy efficiency but also in terms of wider environmental, social, and economic benefits. The Professor was able to explain to non-experts and lay actors what a REC is and what are its benefits, and present to the local community the draft project created in collaboration with the Municipality, thereby reinforcing the Councilor’s message. The joint participation of these two actors in the town hall meetings has been of key importance, because of the joint and integrated support to the project both from a technical and an administrative/political viewpoint.

As of April 2024, overall collaboration among potential members of the REC has been relatively limited, because it is meant to take place more intensively once the REC is formally established. Therefore it cannot be affirmed that that the leaders have been enabling collaborative interaction between project participants (although this is due to the evolving stages of the project, rather than the capabilities or efforts of the leaders).

**Outcome variable: Successfully co-created green transitions**

The outcome variable ‘co-created green transitions’ will be scored in two parts. First, ‘co-creation’ will be scored based on an assessment of whether the participants in the initiative, project or process engaged in collaborative problem-solving that fostered creative ideas and innovative solutions (data will consist of survey data combined with interviews and documents). Next, ‘green transitions’ will be scored based on an assessment of whether the initiative, project or process has fulfilled or is expected to fulfill its green goals, ambitions and aspirations (data will consist of survey data combined with interviews and internal and/or external evaluation reports, including scientific publications).

*The scoring of this variable is done in two parts:*

1. *Is the developed solution based on collaborative problem-solving spurring creativity and innovative solutions?*

2. Does the developed solution engender a green transition?

This scoring should be conducted based on both the survey and complementary green outcome evaluations. Please consult Sections 4.4 and 6.10 in the Research Protocol for more details.

**1. Is the developed solution co-created?**

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Survey
- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this part of the governance factor, including the data sources used for the scoring.

Any effort to assess this project's results and outcomes is strongly influenced by the fact that – because of the legislative delays described above – as of April 2024 only the first phase of the REC's project has been concluded. Significant solutions have been created through collaboration, in the form of 2 different projects for the development of 2 RECs in the territory of Cernusco. These results could not have been reached without collaboration involving the Municipality, the University of Bergamo, and the actors who declared their interest in becoming members of the RECs.

However, this first phase has not allowed collaborative creativity to take place: not because of processual or organizational obstacles, but because of the nature of the phase itself and its function. It is in the second phase, when the REC(s) will be established and the members will come together to choose collectively the rules for the RECs' functioning, that collaborative creativity will have a role to play (still, however, within the general framework set by national level legislation for the creation of RECs).

Because of these reasons, it has not been possible to submit the survey, because the first informants noted that almost all the questions cannot be answered until the second phase of the project is reached. Scoring of the outcome variables was then conducted on the basis of information available from other sources.

**2. Does the developed solution engender a green transition<sup>2</sup>?**

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Survey
- Interviews
- Documents
- Observations

<sup>2</sup> By "green transitions", we mean objectives and aspirations that correspond to at least one of the Green SDGs (SDG 6, 7, 11, 12, 13, 14, 15). The project does not have to refer explicitly to the green SDGs, but the project's green objectives

Please elaborate on the reasoning behind your scoring for this part of the governance factor, including the data sources used for the scoring:

As of April 2024, only the first phase of the project has been concluded, and no REC in Cernusco has yet been formally established (based on the regulations enacting the Legislative Decree 414/2023, RECs can be established formally and register with the RECs National Registry from April 8, 2024). The project's solution has then, in strict terms, not yet been established. Key informants are confident that over the next few months at least one REC will be established, based on the commitment of the Municipality and also on the successful outcome of the first stage of the call promoted by the regional government (it is possible that also the timing and the results of the second stage will affect the timing of Cernusco's RECs). If and when the REC(s) in Cernusco is/are finally established (at least one, maximum 2) they will surely engender a green transition, because of their very nature. A REC allows and promotes more efficient energy consumption practices, which means that less energy will be wasted and more sustainable energy will be produced compared to a situation where the REC is absent. At best and over the longer run, additional elements of the green transition will be linked to increased virtuous behaviours by consumers, who will be able – thanks to ICT-supported tools like a REC-based app – to identify the moments of the day when excess energy is available, and use it for instance to run the dishwasher or charge their electric cars.

**Please list all the informants you have interviewed for the case study (list project role + interview date):**

Member of local administration (28.06.23)  
Citizen (21.09.23)  
Citizen (21.09.23)  
External expert (03.04.24)

**Please list all the observations you have made (type of meeting/workshop/etc. + observation date):**

Two town hall meetings organized by the Municipality to present the REC(s) project: 28.3.2023 and 30.5.2023  
  
Meeting of a local cooperative aimed at discussing the costs and benefits related to the creation of a REC, with external expert support (21.09.23)

**Please list all the documents you have analyzed (document name + source + year):**

Legislative Decree 414/2023 - decreto n. 414 del 7 dicembre 2023, recante: «Individuazione di una tariffa incentivante per impianti a fonti rinnovabili inseriti in comunità energetiche rinnovabili e nelle configurazioni di autoconsumo singolo a distanza e collettivo, in attuazione del decreto legislativo 8 novembre 2021, n.199 e in attuazione della misura appartenente alla Missione 2, Componente del 2, Investimento 1.2 del PNRR.» (24A00671) (GU Serie Generale n.31 del 07-02-2024)

Manifestazione d'interesse per la presentazione di progetti di Comunità Energetiche Rinnovabili, Regione Lombardia, 2022 (<https://www.bandiregione.lombardia.it/servizi/servizio/bandi/ambiente-energia/efficientamento-energetico/manifestazione-d-interesse-presentazione-progetti-comunita-energetiche-rinnovabili-RLV12022026663>)



“Comunità Energetiche Rinnovabili, Presentazione alla cittadinanza”, Prof. Giuseppe Franchini, Università degli Studi di Bergamo, 28.3.2023

“Comunità Energetiche Rinnovabili, Proposte progettuali per Comunità Energetiche Rinnovabili CERnusco area est e CERnusco area ovest”, Prof. Giuseppe Franchini, Università degli Studi di Bergamo, 30.5.2023

CER – Comunità Energetica Rinnovabile di Cernusco sul Naviglio webpage  
(<https://comune.cernuscosulnaviglio.mi.it/comunita-energetica-rinnovabile/>)

Insieme verso una comunità energetica (<https://comune.cernuscosulnaviglio.mi.it/32603-insieme-verso-una-comunita-energetica/>)

Manifestazione di interesse a partecipare alla costituzione di una Comunità Energetica Rinnovabile su iniziativa del Comune di Cernusco sul Naviglio, ex. art. 42bis del D.L. 162/19 (modulo adesione).

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**Please note the response rate for the survey/measurement of outcome variable:**

As of April 2024, the survey has not been submitted because, on the occasions when it was discussed with informants, the latter noted that it referred mostly to processes and dynamics which were to take place during the second phase of the project. The survey will therefore be submitted during the second phase, after the REC has formally been established and its members have started to collectively build its functioning rules.