

Does civil society matter? Challenges and strategies of grassroots initiatives in Italy's energy transition

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ABSTRACT

The paper analyzes the role of civil society in Italy's energy transition with particular attention paid to those forms of social innovation developing new energy pathways alternative to the dominant ones. The international literature emphasizes the weakness of such initiatives in southern Europe as compared to Northern European countries. However, there is a lack of analysis of empirical cases in this area, as well as convincing explanations for the lagging behind of Southern European countries.

Against this background, on the basis of qualitative research centered on semi-structured interviews with civil society actors, we analyze the main grassroots initiatives emerging in Italy in regard to the production, consumption, and recently the provision, of renewable energy. In the discussion part of the paper, we explore these innovative practices with a comparative approach taking Germany as the main reference point. Hence we explain the fragility of Italian experience in relation to structural socio-economic characteristics of the country – namely municipal socialism and dualism of the capitalist system – and to the evolution of the Italian cooperative movement. Eventually we also assess the potential of emerging initiatives for challenging the existing centralized energy system.

1. Introduction

A large body of literature has recently considered the role of civil society in energy transition. The latter has been analysed from two main points of view. On the one hand, using the concept of social acceptance of renewable energy sources (RES), one strand of the literature has analysed local conflicts and opposition to renewable energy production projects and facilities decided from above and promoted in the name of the green energy revolution [1]. This literature [2,3,4,5,6] has criticised the NIMBY syndrome explanation as an over-simplification of people's actual motives. Hence it has highlighted the role of local communities in claiming and pushing for a strong ecological modernization [7], taking account of justice and fairness – both procedural and distributive (e.g., [8,9]) – as well as the social and ecological sustainability of the projects proposed. In this way, as stressed by Smith [10][10,p. 5], civil society may become a major source of reflexivity within the energy transition.

On the other hand, another strand of the literature has considered civil society to be a source of social and organizational

innovation promoting a variety of energy pathways alternative to the dominant traditional ones [10,11]. This will be the subject of our paper. Community renewable energy (CRE) projects are the most widely studied forms of civil society social innovation.

CRE includes a variety of experiences of renewable energy development and provision characterized by various degrees of public participation in project development [3,12]. As highlighted by Walker [13], community initiatives can take different financial, organizational and legal forms, ranging from green energy cooperatives owning the energy infrastructures – the most widespread and oldest model – through community charities running the plant, to co-ownership of green energy projects by local communities, enterprises and local government. They may operate only as energy producers or also as providers [14]. Moreover, they can take the form of a community of place, where people are mainly mobilized by the fact that they belong to the same territory, or the form of a community of interest [13], where people are united in a common action by other factors, such as the sharing of economic, environmental or solidarity interests.

Research (e.g., [15,16,17,14,18]) highlights that in Northern European countries like Denmark and Germany cooperatively-owned plants have existed since the early 20th century. In the 1970s, as a result of the energy crisis and the desire to find alternatives to nuclear power, such social innovation underwent a

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significant revival. Hence in 2000s the liberalization of energy systems, feed-in tariff for renewable energy production and scalable technology have led to a wider societal diffusion of renewable energy cooperatives [19,18].

A recent boom of CRE projects has been documented also in other countries like the UK as a result of specific government support programs and of growing awareness at the grassroots level of the environmental costs of traditional fossil fuels (e.g., [20,13,21,22,23,12]).

Research on CRE has generally stressed the distinctive environmental and social advantages of this form of organization of energy production/consumption compared with government or business-led developments [21]. In particular, it has been emphasized how, by building on local knowledge and networks, CRE often consist of more locally appropriate solutions [24], which also contribute to local economic development [25,22,26] and community cohesion [12]. Moreover, it has been stressed that community initiatives may result in increased awareness of energy issues and more sustainable energy consumption practices [12,20].

Research on renewable energy cooperatives has highlighted in particular that organizations of this kind have access to non-market resources, like trust, strongly needed for the re-production of quasi-public goods like energy [27,19]. Having access to these social resources allows civil society organizations to ensure closer control over the nature of the energy and its price [19,p. 203]. Some studies have also explained the decision by consumers to buy electricity from renewable energy cooperatives in terms of their ability thus to reduce transaction costs [28,18].

Among the factors that can favor or hinder this development, the literature has highlighted the importance of the interaction between the macro institutional framework and the micro level actor-network [14,21]. In particular, at the macro level, institutional and cultural factors have been emphasized. Among the former are systems of financial support, land use policies, incentive and taxation schemes, legislation concerning the production, sale and distribution of electricity, and organization of the electricity grid [14,19]. Among the latter are traditions of 'energy activism' and legitimacy issues. At the individual level, attention has been paid in particular to the presence of key committed individuals with access to the information, skills, and economic capital needed to start the project, as well as to social capital in order to form supportive partnerships [29,14,13,30,21].

As stressed above, the large majority of the studies in the literature on CRE initiatives have focused on Northern/Central European countries, while almost no studies have been conducted on Southern European ones. Indeed, the international literature explicitly stresses that Southern European countries lag behind in the involvement of civil society in energy transition [19,31]. However, the tentative explanations for this weakness – i.e. a lower population density and therefore less income available for investment, lower environmental concerns, and a lesser development of renewable energies [31] – tend to be vague and not based on empirical research.

Starting from this background, our general objective in this article is to contribute to filling the gap in the literature on the role of civil society in energy transition in Southern Europe. In particular, we consider the need recently stressed also by Brondi et al. [32], to address the grassroots level of energy transition in the case of Italy.

The article has two purposes: on the one hand, drawing on original empirical research it explores the main CRE initiatives in Italy; on the other, it conducts comparative analysis of these initiatives in order to provide an in-depth explanation of their weakness with respect to ones in other European countries.

Accordingly the article is structured as follows. Section 2 presents in detail the research method used to study Italian civil society's involvement in energy transition and to select the case

studies considered in the article. Sections 3, 4 and 5 analyse the most significant initiatives involving Italian civil society in respectively renewable energy production, consumption and provision. Section 6 (discussion) conducts a critical analysis of the practices described in the previous sections. In particular, the weakness of renewable energy grassroots initiatives in Italy will be interpreted in relation to characteristics of the country's social and economic organization – so-called municipal socialism and dualism in the Italian industrial sector – and to the evolution of the Italian cooperative movement. A comparison will be made with Germany, given its leading role among European countries in the ecological modernization process – and in particular in energy transition – and given its geographical proximity to Italy. Finally, in the Conclusions not only the weaknesses but also the potential of emerging initiatives for challenging the existing centralized energy system will be highlighted.

2. Exploring civil society initiatives on renewable energy in Italy

2.1. Context of the research

In order to investigate the role of civil society in Italy's energy transition, it is important to review the trend in Italy's renewable energy production and its impact on land and local communities. Hydroelectric production has traditionally been the most important RES in Italy in terms of installed capacity. However, its contribution has remained substantially unchanged since the 1950s, when large dams were constructed in the Alpine areas [33].

Beginning in 2009, the significant rise in installed capacity of renewable energy was driven by the rapid growth of photovoltaic production. This was the result of the introduction in 2005 of a very generous feed-in tariff scheme, together with a net-metering system, for solar electricity (called *conto energia*). As a consequence of this policy development, Italy's installed photovoltaic capacity rose rapidly from 87 MW in 2007 to 18,450 in 2014, making the country the second largest photovoltaic market in Europe after Germany. Less important increases have concerned other RES, which have also benefited from national subsidies of different kinds. This is particularly the case of biogas-power plants and wind farms. For the former, a generous all-inclusive tariff was introduced in 2007. The latter enjoyed both a special sale price and a system of green certificates [34]. Indeed, as highlighted by Brondi et al [32], Italy is one of the countries with the strongest policy support for green energy production. As stressed by these authors, this has mainly been the result of a strategic political choice, rather than of environmental concerns, given that Italy is the biggest importer of energy in the EU.

The combination of the generous incentive system for renewable energy and the liberalization of the electricity market in the late 1990s produced new land-use tensions which exhibited a spatially differentiated pattern. In particular, land-use conflicts mainly concerned large biogas facilities in northern agriculture-oriented lowland areas, and large wind and on-land solar PV plants in southern regions [34]. This was a first kind of mobilization by civil society intended to unsettle the regime [10]. Data from 2011 NIMBY Forum report highlight that, in the past five years, energy-related conflicts have become the most frequent kind of local environmental controversy in Italy [35,34].¹

¹ NIMBY Forum is a permanent media observatory sponsored by the Italian Minister of the Environment and the Italian Minister for Economic Development. It was created in 2004 with the aim of collecting data on local opposition to a variety of different facilities as reported by the major national and local newspapers.

However, the changes in the energy institutional and market conditions have also created opportunities for the entry into the energy sector of civil society as a new market actor bringing new environmental and social reflexivity.

In particular, three forms of innovative involvement of civil society in the electricity market can be identified in Italian society. On the one hand, as in other European countries so in Italy, now that citizens can sell electricity to the grid, they have also tried to become power producers themselves and have started to set up locally-owned renewable energy production facilities. In the majority of cases these facilities have concerned solar PV plants, and they have often involved small communities of place. On the other hand, there has been the emergence in the energy sector of new forms of organized green and ethical consumerism concerning electricity and extending beyond local community borders in order to involve a broader community of interest. Recently, by joining these two forms of social innovation, attempts to address the provision of electricity from RES have begun.

2.2. Method of the research

In our research these three types of involvement of Italian civil society in RE transition were analysed using a qualitative methodology. In particular, as [Table 1](#) shows in detail, for each form of civil society engagement, we focused on one or more case studies [\[36\]](#).

Concerning cooperatives of prosumers, the two case studies were selected because they marked the beginning of the new wave of solar PV cooperatives and because, though similar in their general goals, they had different origins and organizational approaches. They thus well represent the diversity of the small-scale community-based RE cooperatives that have emerged in recent years.

As regards associations of green and ethical energy consumers, the largest organization of PV purchasing groups (*Energoclub*) was considered. Moreover, analysis was made of the unique *Co-energy* project to scale up the organization of green and solidarity-based consumer groups in the energy sector to the national level.

Finally, the third type of involvement of civil society, i.e. the provision of electricity from RES, is still very much in its infancy. Hence *E' nostra* was the only emerging project studied.

Since our analysis deals with new practices on which there is almost no literature, our case study research was mainly based on semi-structured interviews with key representatives of the cooperatives and associations considered. In the case of locally-based cooperatives, we also participated in cooperative meetings.

The objective of the interviews was to explore the origins of these innovative experiences, their socio-technical organization and the obstacles and difficulties that they faced in further developing and spreading among citizens. In total about 11 interviews were conducted, as detailed by [Table 1](#).

The following sections analyse the results of this qualitative research work for each type of initiative.

In addition, we conducted 2 semi-structured interviews with experts of a sustainability think tank (*Avanzi*) promoting the diffusion of CRE in Italy and working as consultants to civil society associations.² These interviews yielded additional information on existing civil society initiatives and furnished an external point of view on the challenges and possibilities of CRE development in Italy in order to strengthen our interpretations. Finally, work in the field was complemented with analysis of grey literature provided by the interviewees or gathered on their websites.

² *Avanzi* is a partner of the European funded project REScoop 20-20-20 (Renewable Energy Sources Cooperative) aimed at sharing knowledge about energy production and provision among renewable energy cooperatives in Europe.

3. Local cooperatives of renewable energy prosumers

3.1. Origins and territorial diffusion of renewable energy cooperatives in Italy

Civil society involvement in renewable energy production and management is not new in Italy. However, it has been mostly limited to a specific geographical area of the country. Indeed, 'historical hydroelectric cooperatives' emerged as early as the first half of the twentieth century in the northern Alpine area of the country. Their purpose was to foster the economic and social well-being of mountain populations through the production and distribution of electricity from medium hydroelectric plants [\[37\]](#). Since the nationalization of the electricity grid, these cooperatives have enjoyed a special legal status which allows them to maintain ownership of the local grid. About thirty of these hydroelectric cooperatives are still to be found in the Trentino and South Tyrol autonomous regions. Since the beginning of the twentieth century they have grown into large economic organizations selling the energy that they produce to thousands of customers connected to their grid.

This area of the country, and especially the German speaking autonomous province of South-Tyrol, has also traditionally been characterized by community projects focused on wood biomasses for heat production, leading in some cases to the creation of district heating systems. The large number of community projects in this area can be explained by a deep-rooted tradition of cooperativism and by the connected presence of historically 'institutionalized networks' [\[34\]](#).

However, the diffusion of renewable energy and the forms that it has taken in this geographically circumscribed and ethnically distinctive territory represent something of an exception in Italy. In what follows, therefore, we pay more attention to emergent social innovation processes in the rest of the country.

3.2. New solar PV cooperatives

In the rest of Italy, innovative community projects linking renewable energy consumption and production have emerged only very recently – in the past five to seven years – mainly as a response to the national incentive policy. The number of them in Italy, as in Southern European countries in general, is still small compared with Northern and Central European countries, where hundreds of renewable energy cooperatives can be counted [\[19\]](#). The large majority of them are based on shareholding in solar PV installations for the production and consumption of electricity. Compared with the situation in other European countries, the number of members of Italian solar cooperatives is usually small, rarely reaching one hundred [\[18\]](#). The creation of a cooperative is a means to reduce the costs of technology, but also to maximize the economic output deriving from sale of the electricity to the grid. The ultimate goal of these cooperatives is to reduce the cost of electricity for individual families but also to invest at least part of the profit in local development projects. Moreover, there is often also a concern to promote energy-saving behavior. The ability and willingness to pursue all these goals to a more or less significant extent depend on many factors. As previously highlighted in the review of the international literature, besides geographical and socio-cultural characteristics of the context, also of key importance is the leader of the project and its ability to mobilize social, technical and economic resources.

At the origins of these innovative forms of electricity production and consumption are ecopreneurs of different types [\[38\]](#). In some cases, they have links with the environmental movement of the 1970s or with the social economy. In other cases, they are new figures who have acquired technical knowledge and environmental sensitivity by working in the emerging green economy sector.

Table 1

Initiatives of Italian civil society on renewable energy.

Type of initiative	Type of community mobilised	Case study considered	Method
Local cooperatives of renewable energy prosumers	Mostly community of place	<i>Coop. SoLe</i> <i>Coop. Energyland</i>	2 interviews with current presidents 2 interviews with former presidents 4 interviews with members of cooperatives
Associations of green and ethical energy consumers	Community of interest	<i>Energoclub</i> <i>Co-energy</i>	2 interviews with current presidents
Initiatives for green electricity provision	Community of interest	<i>E' nostra</i>	1 interview with one of the project leaders

An example of the former case is the *SoLe* cooperative, which has developed in a small mountain valley located in the province of Trento (North-East Italy). The initiator was an ecopreneur who had previously been a militant in the environmental movement and who had worked for several years as environmental councilor of a nearby urban municipality. He also worked as director of a cooperative enterprise installing small renewable energy facilities for the private market. From the encounter between this ecopreneur and some locals interested in renewable energy technology there emerged the idea of creating a cooperative working on solar PV installations and making solar technology the basis for new relationships of local mutuality and new development opportunities. Eventually, as part of the project, it was also decided to build one or more community PV plants. The collective solar project would perform two functions: solve the problems of people who wanted to become members of the cooperative but could not install a solar PV panel on the roofs of their houses for architectural reasons (practical function); strengthen social ties around the project of building an environmentally sustainable community (symbolic function). Initially, a collective plant was constructed on the local fire station, and then another one on the roof of a private sawmill. The total installed kW amounted to about 98 kW. The local cooperative bank was involved. The local citizens who wanted to participate as shareholders were not asked to invest a sum of money; rather, they were asked to sign a bank guarantee. In order to maximize participation by local residents, 3 kW was set as the maximum share for both of the plants, since it was estimated that this amount would cover the average need of a family.³

Eventually, as a result of the incentive rate for renewable energy production, the cooperative managed to ensure an average of 90–100 euros per year to each shareholder (depending on each member's share): this meant a saving of about 25% on a yearly electricity bill. Moreover, the *SoLe* cooperative decided to finance a number of small local development initiatives: for instance, recovery of a cycle path, the building of a small community biogas plant, and an exchange project between the local university and the cooperative for young people training in the energy sector.

An example of a different type of cooperative is *Energyland*. This project developed in an area located on the outskirts of a medium-sized city (Verona) characterized by the presence of small-medium sized enterprises. At its origins was an 'ecopreneur' who was originally from the area and had worked for many years as manager of an important energy utility. He had recently created a company selling energy to small-medium businesses. Hence this ecopreneur could count on an extensive financial and technical network. Accordingly, the first step of the project was the creation of a financial entity in the form of an investment trust company including banks, insurance companies, foundations, regional development bodies, as well

as businesses and private citizens, able to provide the financial capital to build a large solar facility. With an investment of three and a half million euros, a network of 22 enterprises in the area (called 'energy 4 life') was involved in the construction of a PV plant of 997,81 kWh on a 3-ha plot of land in the hilly part of the valley. The area was rented from a local farmer who had previously used it for sheep grazing. As the last step, the cooperative was created; and it bought the plant, once it had been completed, from the trust company. In order to become member of the cooperative, it was necessary to buy one or more shares in the plant. The cost was set at 3600 euros per kW. It was established that the maximum allowed individual share was 6 kW. The majority of the cooperative's members eventually bought a share of 3 kW, thus investing a sum of about 10,800 euros. In order to incentivize membership of the cooperative, an interest rate of about 4% on part of the capital invested was granted to shareholders.

Eventually, a mechanism was also introduced to promote energy saving through a form of economic incentivization. In the event that a shareholder consumed less than the kW that it had invested in, the cooperative would buy the non-consumed energy and sell it to the best buyer on the market. Thus the individual shareholder could regain some of the money invested (tax free), and the cooperative could improve its economic surplus. 70% of its 100 members consumed less than 3000 kWh. On average a member of the cooperative managed to repay its electricity bills and earn about 10% of the invested capital per year. Finally, it was decided to use part of the cooperative's surplus to finance a project in synergy with a local private enterprise created by the founding ecopreneur in order to devise and test smart monitors for the constant real-time monitoring of energy consumption by the cooperative shareholders.

These two case studies represent quite different examples of CRE in Italy. The first project aimed at maximizing local environmental and social benefits, and thus favored the creation of very small plants with no risky economic investment by local citizens. The other project sought to combine the maximization of profit for families with energy-saving initiatives. It was therefore based on the creation of one medium-size plant, and it required a significant economic investment by participants. The former model of a cooperative is the one that predominates in Italy, while the latter is largely an exception.

3.3. Actors' view of obstacles to further development of renewable energy cooperatives

In spite of their differences, both cooperatives encountered common difficulties in the provision of electricity to their members. During research in the field it was often stressed that a number of factors obstruct cooperatives from selling the energy they produce directly back to their members. The first factor cited was the unbundling rule, which formally separates the production of electricity from its sale. Moreover, it was argued that managing the provision of electricity – due to the complexity of regulations on the sale of electricity, the number of actors involved, and the need to complement different discontinuous energy sources – requires a degree of specialized knowledge and organizational capability not available to small cooperatives.

³ Other energy cooperatives have been based on this model. An interesting example is provided by Retenergie. This is a cooperative developed in the North-West of Italy (Cuneo) which has constructed 7 collective solar PV plants for a total power of 500 kWh. It has about 800 members. Most of them hold small shares of 1 kW, investing an average of 500 euros each, with a total of about total of 1 million €. Most of the plants have been built on public infrastructures.

Accordingly, Italian renewable energy cooperatives generally decided to search for commercial partners able to furnish the electricity provision service, but which also had a social and environmental sensitivity consistent with their culture, and which would be willing to stipulate a good contract with a small cooperative. The provider would buy the electricity from the cooperative at a convenient price and then sell it back to the cooperative's members. The provider would also become a member of the cooperative in order to preserve the mutuality principle. Finding such a partner was not easy, however. Eventually, all local community initiatives in Italy have chosen a medium-sized utility called *Trenta* as their preferred commercial partner. This utility was created in 2008, and it operates mainly in the autonomous province of Trentino. Several factors explain its key role for community initiatives. First, it has a large availability of clean natural resources for the production of renewable energy (30 hydroelectric plants producing 4 billion kWh annually), which can supplement CRE needs. Moreover, it is one of the few utilities which (to date) have not been involved in the management of controversial energy sources (e.g. waste incinerators). Furthermore, unlike other utilities, it can count on special expertise in managing relationships with cooperative-type organizations, building on the long-standing tradition of cooperativism in the area where it operates (see above).

In spite of these characteristics of the provider, the representatives of the cooperatives interviewed regarded the need to rely on intermediation by a third commercial partner as an obstacle to the general goal of maximizing the mutuality principles, and thus to the wider spread of cooperativism in renewable energy production.

4. Associations of green and ethical energy consumers

4.1. The *Energoclub* association

Besides community-based cooperatives owning their plants, in late 2000 also associations of green energy consumers emerged. The most important of them, *Energoclub*, takes the form of a large buying club consisting of consumers with individual solar photovoltaic systems. Also in this case, the association is characterized by a leadership with a relevant technological-scientific background—namely an engineer with particular environmental sensitivity. The association has constructed 1488 solar PV plants for a total of 7038 kW. Its members are either individual families or locally-based PV purchasing groups. These are groups of consumers, sometimes created *ad hoc*, sometimes already active in the food market, intending to implement a different economic model based on direct relationships between consumers and producers (e.g. [39]). The aim of the association is to apply these principles to the PV market in relation to the buying of both PV technology and, partially, electricity.⁴

The advantages of the creation of PV purchasing groups concern various aspects (interview with the president of the association). First, thanks to the collective bargaining power of the purchasing group it is possible to obtain a fairer price for the PV plant and to exercise closer control over its technological and social quality. In fact, the building of a photovoltaic system requires specific knowledge and competence in selection of the various companies. The role of PV purchasing groups is to select suppliers of panels and plant components consistent with the quality standards of the members of the buying group and to fix a price (usually in terms of euros per watt installed for different categories of plant size). The main quality features usually concern the origin of the modules

⁴ Five other minor photovoltaic purchasing associations operate in northern and central Italy. Together they have 738 individual PV plants, for a total of about 3600 kW.

(national or European is preferred), the company's transparency in regard to taxation and labor, warranty service of the equipment, maintenance services, and work safety during installation.

PV purchasing groups have a crucial role in ensuring the quality of the technology because, unlike ordinary installers who have an incentive to sell, they do not have any conflict of interest.

Membership of a PV purchasing group also provides a network of support for the solution of problems, from technical ones to those concerning administrative procedures relative to incentives, taxation, relations with the energy provider and the grid operator. Moreover, the research highlighted that associations of collective PV buying clubs facilitate administrative practices related to energy installations, and they help in solving problems related to local authorization through discussion and negotiation with local authorities.

Furthermore, the association was able to use the bargaining power deriving from the high number of consumers to stipulate a good contract with a green energy provider for purchase of the electricity needed to integrate the electricity needs of its members.

In spite of these advantages, it should be stressed that the contribution of associations of PV purchasing groups to energy transition is still restricted to decisions by individuals or small consumer groups to buy green technologies and partly green energy.

4.2. The *Co-energy* project

In 2010 an initiative was launched to scale the organization of green and solidarity-based consumer groups in the energy sector up to the national level. The *Co-energy* ('co' means together) association was created from the union of Lombardy's purchasing groups and districts of solidarity-based economy.⁵ It then spread to other districts of solidarity-based economy in Northern and central Italy. 'Districts of solidarity-based economy' are networks of consumers and producers created to implement a different economic model based on the principles of social and ecological sustainability, justice, reciprocity, and valorization of local production through the creation of new relationships between consumers and producers.

Building on these practices and values, the general aim of *Co-energy* was to exert pressure on the traditional fossil-based energy system by removing green consumers from it. The *Co-energy* project was organized into two phases. The first was focused on searching the market for a provider of renewable electricity offering the best ethical, environmental and entrepreneurial guarantees. The ultimate goal of the project was the self-production of electricity through implementation of a decentralized and participative model for the production of electricity from RES. This model would be based on cooperative-based share ownership, minimizing landscape degradation, and energy loss.

Eventually, an agreement was signed with *Trenta* utility. It was open to any consumer/group (no formal membership) and based on the following principles: fairness and transparency in terms of commercial pricing and tariffs based on the company's real costs; the renewable nature of the energy provided; transparency in regard to the characteristics of the plants (energy sources, location, management) and the possibility to visit them; timely communication in the event of strategic decisions not in line with the association's principles (e.g. to manage a waste incinerator).

Consumers signing the agreement were also required to participate actively in the development of a 'solidarity economy' by investing 1% of the power fee in a solidarity and future fund (but they also had a 12% discount on electricity provision). Each year a decision is collectively taken on how to use the fund, e.g. for

⁵ For further information on the project see the website: <http://www.co-energia.org/>

an emergency situation, for development projects, for information campaigns on renewable energy, etc.

4.3. Actors' view of the obstacles to further development of renewable energy consumer initiatives

However, as emerged from the interview with the current president of the association *Co-energy*, the main problem faced by this initiative is the limited number of accessions to the agreement: the numbers are still modest and well below the potential of green and ethical consumers at the national level. In particular, a year and a half after the launching of the agreement (2014) only 500 contracts have been signed out of an estimated 400,000 participants in purchasing groups and districts of solidarity-based economy nationwide.

According to the president of *Co-energy*, energy is not like food. Unlike in other sectors, decentralized and environmentally sensitive approaches to energy consumption encounter a number of obstacles. First there are institutional obstacles concerning European and national regulations on unbundling which obstruct shortening the energy supply chain and reassembling energy production, consumption and distribution (see above).

Another problem already stressed by cooperatives of prosumers is that it is difficult for environmentally-sensitive and solidarity-based groups to find fully trustable renewable energy providers. As also highlighted by the president of *Co-energy*, the agreement eventually stipulated for energy provision with *Trenta* was a compromise: "The provider we have chosen is considered the least worst choice... We know that also big energy companies like Edison are involved in the management of their plants. Moreover, some years ago it came out that they were buying a small quantity of energy from on-land PV plants or from palm oil".

Other obstacles involve the socio-cultural level and are linked to cognitive frames concerning the invisible and neutral nature of energy. During the interview with the president of *Co-Energy* it was stressed that, unlike food, which can be smelt, touched and tasted, people often do not think about the nature of the energy that they consume. Moreover, choosing energy is not a choice that people have to make every day, and it can have a more or less direct effect on their health.

Social obstacles also concerned entrenched habits about energy consumption. Respondents highlighted that people were used to the monopoly situation where it was not necessary to choose the energy provider. People were skeptical about changing providers because of their difficulties in other sectors which had previously been liberalized (e.g. telephone services). In these sectors shifting to a non-monopolistic company for consumers often meant delays and problems with the service.

The development of a project aimed at radically changing energy consumption and production among civil society groups also faces communicative challenges. Communication on energy is complex because it requires technical expertise concerning technology as well as regulations on electricity. Solidarity-purchasing groups often lack this expertise.

Finally, also changing how people consume energy requires time and specialized knowledge, and it cannot be done on a voluntary basis. Green and solidarity-based purchasing groups act on the basis of voluntary work and reciprocity. While this kind of social exchange seems to work well in the case of food, allowing the emergence of niches implementing new models of relationships between consumers and producers, this does not seem to be the case of energy. As stressed by the president of *Co-energy*, this has to do with the above-mentioned issues, and in particular with the intangible nature of energy: "Things can change only if you use energy to create job opportunities and so people can see tangible results".

5. Beyond production and consumption: towards renewable energy provision from below

As highlighted by Huybrechts and Mertens [19], access to the provision of electricity by cooperatives and by civil society in general in Europe is particularly difficult, and the number of cooperatives which manage to furnish that service is very small. The general barriers that civil society organizations face are linked to the fact that this market is still controlled by a small number of big electrical companies and that the electricity grid is most often owned by the historical electricity provider. These considerations apply to Italy as well. However, as stressed above, it emerged during the field research that resolving this issue was increasingly identified as crucial for the spreading of decentralized approaches to energy production and consumption.

As a result, in 2014 the main solar PV community cooperatives, *Energoclub* and some experts from the sustainability think tank *Avanzi* joined together in a project to create a cooperative for the provision of renewable energy. On the basis of similar initiatives in other countries, like the successful *Ecopower* scheme in Belgium, the goal was to create a specific commercial entity for the solidarity-based economy acting as a provider and consisting of the same actors that produce and consume green and cooperative energy. This is the so-called *E' nostra* (It is ours) project.⁶

In order to address the energy provision issue, it was decided to include as a key partner in the project also a green enterprise (*Forgreen*) with the knowledge and the organizational structure needed to manage commercial relationships in the energy market. *Forgreen* is a young company dedicated to the sale of energy to private businesses, and whose manager was also the initiator of the above-described *Energyland* cooperative.

The creation of *E' nostra* makes it possible to close the energy circle. Members of cooperatives or solidarity networks can buy electricity directly from the plants that they have contributed to creating; or, if their production is insufficient, they can buy it from plants selected on the basis of social and environmental characteristics. In particular, in order to ensure the additional energy needed by members of the cooperative, attempts have been made to negotiate contracts directly with historical mountain hydroelectric cooperatives without any commercial intermediation.

In light of energy provision schemes in other countries, it is foreseen that with 500/1000 members the cooperative will be able start supplying its service with the help of an external commercial partner. When it reaches at least 5000 members, it will be able to begin to full internalization of the service. The goals of '*E' nostra*' are thus first to have more members – rather than maximize sales – and second to use profits to implement common social or environmental initiatives. Membership is allowed with a basic investment of 150 euros.

As stressed by one of the leaders of the project, the price of electricity that the cooperative will initially be able to offer will not be competitive with the best offers on the market. However, other forms of incentive favoring energy-saving behavior will possibly be implemented.

At present, the main challenge is expanding the membership as much as possible to include green and solidarity-based purchasing groups and their national organization *Co-energy*. As one of the founding members of *E' nostra* stated, there are two key obstacles in this case. First, because *Co-energy* is a network of voluntary-based local networks, decision-making processes are particularly slow. Moreover, it is difficult to enter the energy market because of limited knowledge on how it works and the reluctance

⁶ For further information on this project see the website: <http://www.enostraitalia.it>

of mutuality-based civil society organizations to incorporate market skills and market actors. At present, these obstacles seem to obstruct the shift of civil society initiatives from the local to the national levels.

6. Discussion

We have so far focused on analysis of the representations of the socio-technical issues involved in CRE development by the actors. We now seek to provide a critical interpretation of those experiences starting from the structure of Italian society. In the energy sector, the influence of past socio-economic structures is particularly strong. Monopolist or oligopolist positions cannot be easily eliminated in a few years, notwithstanding the liberalization and the entry into the electricity market of new renewables companies.

In Italy, the weakness of civil society initiatives in the energy field is evident, even if RES are well developed and the network of associations in Italian society is dense and innovative. What are the reasons for this weakness? Of course, as documented in the first part of the paper, some pioneering initiatives are now emerging. However, they are in their infancy or they are located on the territorial margins of the country. They are more common in the Alpine chain, especially in the area more influenced by German-speaking culture. There is a suspicion that the difficulties of Italian civil society in creating new energy communities depends not only on contingent administrative obstacles but also on deeper-lying factors linked to the socio-economic structure. These factors can be related to three aspects of Italian society: municipal socialism, dualism in the Italian industrial sector, and biases of the cooperative movement itself.

6.1. Municipal socialism

The expression 'municipal socialism' denotes a long-term movement of local public institutions aimed at extending the main utilities to all the population [40]. At the beginning of the last century, and mainly in central and northern Italy, public agencies, prompted by this movement, were able to provide a good supply of so-called 'local public services'. Some of them were grid services, like power and water and, later, gas. They were considered natural monopolies, at least for the distribution to final consumers. Grids in fact were and still are in the hand of public bodies, local or national, usually under a licensing scheme.

The power grid has followed a specific trajectory: the mainly private and regional scale utilities were nationalized in 1962 under pressure by the Socialist Party, which had just entered the government coalition. In 1999, following a EU Directive concerning common rules for the internal market in electricity (Directive 96/92/EC), the national public monopolistic electric system was unbundled to create four subsystems: the power producers (liberalized); the high voltage transmission grid (one public operator); the commercial sector (liberalized); and the final consumers low tension provision grid, given in exclusive concession to a single operator (so that it remained a natural monopoly like the transmission subsystem). In addition, the same company could not operate as both producer and distributor in the same territory. This was a limit established to prevent concentration, but it greatly penalized energy companies willing to be communitarian and integrated.

This is the formal framework of power sector unbundling. The real situation is somewhat different. The production sector is highly concentrated in the hands of a few companies. One of them is the former power monopolist, *Enel*, now transformed into a financial group of six different Italian companies. Moreover, there are about half a million PV producers, almost all of them with micro plants of a few kW capacity. The transmission system is indirectly and weakly

controlled by the Treasury through a mixed ownership company (*Terna*). The buying/selling of electricity takes place mainly through a spot exchange market in which several hundred companies are authorized to operate. This is the most open segment of the power chain [41]. Finally, the distribution system is regulated through 30-year licenses and is 86% controlled by *Enel Distribution*, a company entirely owned by the public holding Enel Limited. The remaining quota is divided among three municipal companies, while all the other operators have less than 1% of final consumers, either households or companies [42,p. 78].

The picture is only slightly different for gas and thermal energy distributed by district heating systems. The conclusion is the same: energy grids in Italy are very closed, not just because of an explicit determination to exclude new entrants, but also due to the combination of the large sizes of historical companies and the presence of natural monopolies. To be noted is that the agencies which emerged from the municipal socialist movement have become large joint-stock companies whose main shareholders are national or local public bodies. In this situation, cooperatives have very limited chances of entering the management of energy grids. The grid concession is awarded for a long period of time and the older grid owners – *Enel* plus municipal companies – have monopolised the distribution segment.

It is particularly useful to compare the situation of Italy with that of Germany, a European country generally recognized as leading the way in energy transition and with a long tradition of cooperativism in the energy sector [19,18]. In Germany, the situation of the power system is not much different from that of Italy: the 'big four' energy companies dominate. The main difference with Italy is the higher number of cooperatives involved in power production from renewable sources. For the rest, the big four companies "own and operate a significant portion of the distribution system, though the exact level is not clear" [43,p. 8]. Attempts to penetrate the distribution sector by the German cooperative movement are extremely recent, though in some cases very significant.⁷

In Italy, at the moment, buying the electricity grid, even of a small town, is unthinkable for a cooperative or a consortium. Thus, the most open segments are still production by RES and energy commercialization. For the former, we have seen some cases in Section 3; for the latter, civil society initiatives are only at project level and face many uncertainties, as highlighted in Section 5. The reasons why Italian cooperative movement finds it so difficult to penetrate the power market have to do with the other two groups of factors now analysed.

6.2. Dualism of the capitalist system

The second group of factors possibly explaining Italian civil society's weakness in the energy system concern the dualism of the Italian capitalist system [44,45]. It is well known that Italy is the European country with the highest presence of small enterprises. The evolution of the Italian socio-economic system is towards an increasing concentration imitating the other main industrial countries. But the divide remains, and it is complicated by a threefold territorial division: big companies are concentrated in the north-west of Italy, middle-sized ones in the north-eastern and central parts, and very small ones in the south, where, however, the small/big dualism is wider [46].

This dualism has even been exacerbated in the energy sector, especially in PV energy provision: the above-mentioned 500,000 PV

⁷ The most notable example is the case of Hamburg, Germany's second largest city where citizens managed to buy back the grid from private companies. See the website: «<https://ec.europa.eu/easme/en/news/spreading-model-renewable-energy-cooperatives>», accessed on 14 July 2015.

plant owners are socially isolated.⁸ As said, there was some prosumer aggregation in the panels purchase–installation phase, but it was often extemporaneous, and it was unable to produce new stable social relationships or new initiatives on energy. After the PV installation phase, the marked individual pattern of PV production prevailed.

Conversely, a few big private companies have been able to install on-land PV panels with great impact on the landscape and no links with the local population or consumers. In the wind energy sector, the dualism does not exist because micro turbines have never succeeded and only big farms have been installed. Most of them are in southern Italy, where there is no distributed ownership of capital for the sharing of large-scale investment in high capacity turbines. Some municipalities and mountain communities have made rare attempts to implement wind farms, but with modest results, in that a new technical-economic colonisation of marginal areas has been created [34].

It is indeed in cooperative wind farms that the distance between Italy and the northern European countries is most evident. In Italy, the wind blows more where the diffuse capital ownership necessary to create a cooperative is not present. Italian assets and the relative economic activities are polarized: a few families hold large quantities of industrial capital while the bulk of small and medium enterprises are undercapitalized. This dualism fosters the growth of many financial mediators who often collude with criminal organizations.

Incidentally, the deficit of capital is a situation typical of cooperatives, and it can be a useful criterion with which to distinguish the Italian financial-industrial model. Italy is qualified in different ways in the literature on types of capitalism [47,48]. Undoubtedly, it is a hybrid case where the forms of accumulation have been marked by a sort of dualism between State and big companies, which have been the only actors able to intervene in the energy sector with powerful technical and financial means.

The old integrated energy system based on large-scale plants and extensive grids needed great investments that only agents with a good capacity for accumulation were able to perform. A new system based on diffuse generation and a smart grid would require smaller investments and therefore a lower entrance threshold for companies with small amounts of financial capital. While energy transition is awaited, institutional and financial barriers remain. This polarized system does not change easily: interests are consolidated, large companies have familiarity with energy sector officials; often companies themselves are the ‘public side’ in the sense that they are owned by municipalities or the government. In this situation, small cooperative enterprises and energy customers do not find it easy to operate or to be active participants, even though unbundling has opened some gateways for new actors to enter the energy arena.

This again marks the distance from Germany. In Germany, since the outset cooperatives have been able to enter the power production sector with renewable sources. Two factors have contributed to the success of the movement. The first is “a change in the law [which] made it easier for citizens to found cooperatives as legal entities in 2006—hence the increase in the number of citizen-owned projects listed as cooperatives” [49]. This factor thus concerns the existence in Germany of a favorable legal framework for CRE and of a substantial political will to support that economy model. By contrast, in Italy the legal framework concerning the creation of cooperatives is still very complex and requires a very specialized competence.

The second factor concerns the capacity of citizens for economic accumulation. In Germany many ordinary citizens have been able to invest capitals in building or buying renewable energy infrastructures. Indeed as highlighted by Yildiz et al. [18], German renewable energy cooperatives are mostly based on equity collected from their members. This can be explained by the medium-high average disposable income of the German middle class.⁹ Good revenues of German ordinary people were probably in search of promising investments replacing stock exchange and other uncertain destinations of savings.

In rural Southern Italy, where most renewable energies are located (wind, sun), average family disposable income is much lower. Indeed the few examples of renewable energy cooperatives (see Section 3) in Italy have emerged in north-eastern and north-western regions, where average family incomes are higher and financial capital is more widespread. As seen above, only in these areas have emerged leading ecopreneurs able to mobilize the economic and social resources needed to start a CRE initiative.

6.3. Characteristics of the Italian cooperative movement

We finally analyse the third set of factors explaining the weakness of civil society in the energy sector, i.e. those factors linked to the internal features of the Italian cooperative movement. If we use a structure of opportunity pattern, the explanation is simple: the rigid, centralized, collusive national energy system leaves no room for new actors, especially if they are marked as green and social innovators. In fact, some margins for new entries exist at least in the sector of energy production and commercialization. Biogas – a source considered renewable – is exemplary of the capacity of small-medium companies to enter the RES circuit [50]. Nevertheless, biogas companies are rarely cooperative. The same applies to electricity commercialization in general. According to the database of the Italian energy authority, in 2015 there are almost 775 operators recognized as electric energy buyers or sellers. Among them, 7% (i.e. 56) are cooperatives. This is not a small amount in proportional terms, but it should be borne in mind that these operators are concentrated in Alpine regions [51]. In those geographical and cultural areas the cooperation spirit is stronger, and so too is the self-governing tradition. Green energy services are used as instruments to achieve further autonomy from the Italian State. The cooperative is a suitable means to this end because of its capacity to involve a wide constituency.

Outside alpine valleys, the difficulties of creating green energy cooperatives have already been described in the empirical analysis above. Specific obstacles mentioned by the actors, such as limited environmental awareness and a lack of knowledge about the energy market, are probably linked to a weak tradition of the Italian cooperative movement in *residential community services*. In Italy in general, cooperation is strong on both the production and the consumption sides. There are of course evident territorial differences in the frequency of cooperation. In regions like Emilia-Romagna the number of cooperative employees is very high, more than 8% of total employees [52,p. 24]. Territorial differences reflect different historical roots of the phenomenon. Nevertheless, not even in Emilia-Romagna, a region celebrated for its widespread social capital and good administration [53], has the cooperative movement shown any great interest in renewables.¹⁰

⁹ By contrast, energy cooperatives are almost absent in certain areas of Eastern Germany characterized by a transition economy.

¹⁰ We know of just one renewables cooperative based in Emilia-Romagna, namely ‘Power Energia’. This cooperative buys quotas of electricity from wind sources and sells them only to the members of its circuit, i.e. Confcooperative, the second largest union of cooperatives in Italy.

⁸ However, they are *not* commercially or technically isolated because the Italian incentives system has been based on a combination of net-metering and feed-in tariffs. The latter have now been abolished, replaced with tax deductions.

The territorial scale can provide an important key for both analysis and action concerning the energy issue. In Italy the cooperative movement, especially since the end of alignment with political parties [54,p. 82], has sought to become a special sector of the economy achieving a high professional and entrepreneurial profile. In other words, it has sought to stay in the market without the help of politics. Two aspects demonstrate this: one is the cooperative movement's difficulty in recognizing the emerging phenomenon of 'social cooperatives' in the last decades of the twentieth century; the other is the weak and recent spread of so-called 'communitarian cooperatives' [55]. In both cases an attempt has been made to move the socio-economic identity of the cooperative towards "integrated place based services", some of them concerning environment and energy [56].

Such changes in the cooperative mission have caused misunderstandings within the movement. The reason may be that, as emerged in some of the empirical cases considered, the economic purpose (community of interest) prevails over the territorial one (community of place). Integration into the open market outweighs the provision of mutual services to a closed residential community. The identification between economic interest and the local residents works well only in the alpine settings mentioned above. This is a matter not only of local geography – the valley morphology induces territorial belonging [57] – but also of ethno-political claims. Energy is a local resource to be developed according to the subsidiarity principle by local people.

In Germany this cultural approach to the territory is even more developed. The *heimat* concept [58] indicates a feeling of attachment to a homeland, often identified with a small residential community, in which basic experiences of life have occurred. This feeling can foster the formation of energy communities, even if their membership is not limited to people living in the place where the energy source is developed.

7. Conclusion

The two objectives of the article have been achieved. On the one hand, we have highlighted the main existing CRE initiatives in Italy, showing that it is still a marginal, though emergent, movement, operating without a special legal framework and against strong past dependent structures. Very small margins are left in the production and commercialization of electricity from renewable sources. In both sectors of the power chain the Italian cooperative movement is very weak.

On the other hand, the explanation of this weakness in comparison with other more advanced European countries has focused on three factors: the legacy of municipal socialism, wealth accumulation with industrialization, and traditional fields of intervention of Italian civil society. All of them have a territorial bias in Italy. They have developed in different historical phases, but they unfortunately maintain a strong north-south cleavage. This divide is a source of political instability and a cause of unbalances in the energy sector as well. Most renewable energy sources are in the south (wind and sun), but most of the capital and the energy demand are in the north. Nonetheless, even in the regions of the north with the highest degree of civiness, CRE did not start with the speed that we noted in the case of Germany. Also in the richest part of Italy CRE are few in number and mainly remain at niche level. More structured experiences are located in the regions of the Alps bordering on Austria, confirming the marginal nature of CRE in Italy. It seems that only by challenging the core of energy system – the grid – is it possible to accelerate the transition. The German CRE movement has understood this and is moving to a second phase of energy transition: conquest of the local distribution system. However, the existing energy oligopoly in Italy as well as in Germany seems to

obstruct attempts by civil society actors to transform the energy system. Accordingly, the situation is similar throughout western Europe.

The territorial scale of this conflictual transition can provide a final insight. The imbalance of the Italian cooperative movement in favor of larger scale services, instead of limiting them to the restricted local community may be an advantage. Section 2 highlighted that attempts have been recently made to create green energy cooperatives beyond the local scale. Unions of cooperatives are starting to operate at national level as well. To date, this has proved more difficult than operating at the local level, but if these initiatives succeed, they may produce better results: for example, a wider challenge against the centralized, inertial power system. It is likely, in fact, that the latter will change only when and if it starts losing customers on a large territorial scale. In other words, local level action and exclusive local identification can be easily tolerated by the dominant energy system. It consequently does not provoke shifts towards a more sustainable and innovative way of producing and distributing energy. In this sense, the above-analysed emerging Italian energy cooperation schemes trying to operate on a national scale are highly uncertain but, at the same time, very promising.

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