

CONFERENCE PROCEEDINGS

**Digital, environmental, and social transformation:
challenges and perspectives**

September 28th – 29th, 2023 - University of Messina



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**RENEWABLE ENERGY COMMUNITIES IN ITALY:
A CRITICAL ANALYSIS**

Domenica Farinella and Monica Musolino

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Abstract

Text Objectives. *The current restructuring of energy systems, also due to the liberalization of the energy market and the implementation of renewable energies, proceeded along two pillars: on the one hand, the possibility of more economic efficiency due to the market mechanisms; and on the other hand, the environmental and social benefits, related to the increased use of clean energy that, as it is locally co-produced and co-distributed, implies an enhanced participation of "so-called" prosumers. In this context, energy communities are uncritically presented as "smart," that graft harmoniously onto market mechanisms.*

However, empirical research is showing the several open issues affecting the implementation of energy communities, which are the objectives of our analysis and can be summarized in at least three aspects:

- Relationships between RECs and the energy markets.*
- Role of public incentives in shaping the new energy market and the emerging "organizational" fashions associated with it.*
- Ambiguity of the concept of "energy community" and of a "participation" that is increasingly mediated by a technological infrastructure and that paradoxically appears highly individualized.*

Methodology. *We are carrying out comparative research on emerging energy communities in Sicily, Sardinia, Campania and Trentino-Alto Adige based on selected case studies. The methods used to collect data and information are mainly qualitative: semi-structured interviews with the stakeholders of the energy sector and promoters of RECs; socio-ethnographic observation.*

Findings. *It will be highlighted how in Italy RECs are becoming new schemes to reconfigure the energy market: in fact, partnerships composed of energy suppliers/sellers, technical actors and (although not always) actors experienced in organizational processes related to participation arise. These partnerships build REC proposals of large size (reference to Law 199/2021) and from the required territorial concentration, which have two paradoxical effects:*

- *The RECs create "safe" market segments for the promoting economic actors themselves (expanding market diversification opportunities).*
- *There is a progressive process of concentration of the energy market in a few large multi-utility players that seems opposite to the stated objectives of these initiatives.*

Research limits. *The research is still in progress and is monitoring an uncertain process of setting up of new socio-technical configurations.*

Practical implications. *In this context, there is a further risk for the Italian southern regions, where the greatest potential for wind and photovoltaic parks: to be turned into energy landscapes, where local communities are invested by energy land grabbing phenomena.*

Significant exceptions seem to be the CERSs (Renewable and Solidarity Energy Communities), an Italian specificity that is unique in the European panorama. These experiences enhance the role of the third sector, but also of other local institutional actors (such as local government) who use energy communities as a tool within broader policies of poverty reduction, urban and social regeneration, making use of gift economy and reciprocity mechanisms.

Originality of the study. *Through a critical perspective, the article will explore the differences between these two REC models and the implications for territories.*

Key words: renewable energy communities; energy transition; energy market; Italy; local community; public incentives

1. INTRODUCTION

From the mid-1990s onwards, there has been a progressive liberalisation of the energy market in the European Community, thanks to the demolition of the natural monopoly that characterised the production and distribution of energy, made possible by the spread of new technologies, especially from renewables such as wind or photovoltaics, which allowed economically sustainable production even on a small scale, through localised production and consumption of electricity.

While at first the reorganisation of the energy sector was emphasised as a means to break down market entry barriers and generate economic efficiency and lower prices, the new relevance of renewable energies has introduced the possibility of achieving not only economic, but also environmental and social benefits (De Vincenzo, 2022). On the one hand, 'clean' energies contribute to the reduction of greenhouse gas emissions and pollution in general (Battisti, 2009); on the other hand, the new localised energy production and distribution networks necessarily imply the activation of forms of collective participation, intimately linked to the former, introducing perspectives of energy democracy (Pellizzoni 2017), i.e. universal access to energy, at fair prices. It is in this context that the

EU Clean Energy Package (Nouicer, Meeus, 2019) has stimulated the spread of bottom-up initiatives in energy production and consumption, based on horizontal and localised forms of participation, i.e. Renewable Energy Communities (RECs).

Although this set of directives identified guidelines for the structuring of renewable energy markets in terms of instruments, targets and models, it also produced a kind of paradoxical effect: its transposition within the national legislations of member countries varied greatly in terms of both modalities and timing, hindering the emergence of effective enabling frameworks (Krug et al. 2022). Moreover, the capacities to implement the new legislation have varied, both among the various states and within the states themselves, as in the case of Italy, where a strong territorial differentiation of the initiatives planned and/or launched can be observed, one thinks here of the study by De Vidovich et al. (2021), which shows how the implementation processes of RECs in Italy differ with respect to, for example, the types of participation and mobilisation of local actors (top-down vs. bottom-up). Indeed, some Italian areas and macro areas present historical and institutional characteristics particularly favourable to the reception of decentralisation, pluralisation and segmentation drives in the energy sector and market (Musolino, 2022; Magnani, Carrosio, 2021: 81-93) compared to other areas with much more problematic structural conditions.

2. LITERATURE REVIEW

In recent years, the debate on renewable energy communities in Europe and Italy has gained importance. Indeed, many scholars have been

carrying out reseraches on RECs focusing on different aspects such as technical (Coletta and Pellegrino 2021, Stentati et al. 2022) economical (Abbà et al. 2021, Cielo et al. 2021, Del Pizzo et al. 2022) normative (Zatti et al. 2021, Di Silvestre et al. 2021, Grignani et al. 2021) and social (Ceglia et al. 2022, Magnani and Cittati, 2022, Musolino 2022, De Vidovich et al. 2023] ones. In relation to the social sciences, the analyses focused on socio-technical aspects as conditions for the setting up of RECs are mainly based on some specific theoretical apporoaches. Fors instance, some authors used the multilevel perspective (MLP) to analyse some Italian RECs considered as a niche phenomenon. This perspective is able to highlight the conditions that can foster transition processes through applying socio-technical innovations (Magnani and Cittati 2022). Other scholars (De Vidovich et al. 2023) focused on the internal organisational aspects that feature the emerging REC initiatives in Italy with the aim of identifying possible models of sharing resources and knowledge. Moreover, a new trend is related to studies on energy poverty applied to the RECs: i.e., Ceglia et al. (2022) focused their analysis on an indicator to measure the potential of RECs in the mitigation of energy poverty.

2.1 THEORETICAL FRAMEWORK

In our research, we adopted the territorialist approach, used to carry out the community studies, local development and district analysis. This theoretical lens allows for the selection of certain relevant dimensions of the observed process and their variation over time:

- organisational structure;
- symbolic and value dimension and its modes of communication and dissemination;

- the role of the political dimension and public institutional actors (leadership);
- role of expertise and technical knowledge;
- weight of institutional and cultural factors rooted in the territory and how they influence the process;
- territorial location of processes, explored along two basic assets: urban vs. rural, central districts vs. peripheral districts;
- dynamics of participation and involvement of the local community;
- degree of energy awareness of users/potential REC's members;
- role of environmental associations, other associations and representative organisations.

3. METHODOLOGY

In the context of the building process of the Italian RECs, we are carrying out comparative research on emerging energy communities in Sicily, Sardinia, Campania and Trentino-Alto Adige based on selected case studies. The research focused on the analysis of the energy community setting up in the southern regions, where these experiences are multiplying, in a spotty manner, however mainly concentrated in rural areas or in peripheral and marginal neighbourhoods of urban centres. Nine case studies were selected in three southern regions: Sardinia (RECs of Villanovaforru and Ussaramanna in the province of Cagliari, RECs of Berchidda and Benetutti in the province of Sassari), Sicily (REC of Fondo Sacca in the municipality of Messina, REC of Roccavaldina in the province of Messina, CER of Ferla in the province of Siracusa, REC of agricultural collective self-consumption of Acate in the province of Ragusa), Campania (REC of San Giovanni a Teduccio, in the eastern suburbs of Naples). Moreover, some case studies of energy cooperatives and RECs have been

selected in relation to an interesting area of the Northern Italy (Trentino-Alto Adige) featured by a relevant practice and tradition of cooperation in the energy sector. In this area, we are analysing the cases of some “historical energy cooperatives” such as Fleres, Prato, Funes, CEDIS; a new consumption cooperative (energy provider) named Ötzi placed in Bolzano; a federation of energy cooperatives; and some RECs (the REC of Riccomassimo placed in the province of Trento and other projects of RECs).

The method used is the process analysis, reconstructed through qualitative techniques: in-depth interviews with local stakeholders and community members, assisted by some phases of participant observation. Overall, about one hundred interviews have already been carried out so far.

4. CRITICAL ISSUES IN THE SETTING UP PROCESS OF RECS IN ITALY

According to our research, the process of designing and promoting energy communities was initiated by a variety of actors in relation to every different case study: some NGOs fighting against energy poverty (in the cases of Messina and Naples Est); the four federations of cooperatives in the autonomous province of Bolzano/Bozen; some municipalities (i.e. Ferla and the cases placed in Sardinia), as well as some individual cooperatives (i.e. in the case of the REC of Riccomassimo) and big players in the sector (i.e. in some projects placed in South Tyrol/Alto Adige), through the constitution of precise partnerships oriented towards the proposal of "turnkey" projects. In this kind of projects, energy suppliers,

technical subjects dealing with plants and data management platforms, and public or private actors facilitating organisational aspects are present, often directed towards the cooperative or community-based models.

However, some critical issues are emerging that do not allow a fast successful implementation of the RECs. In particular, we can highlight three main criticalities, as follow.

4.1 RELATIONSHIPS BETWEEN RECS AND THE ENERGY

MARKETS

The design to reconfigure the energy system in a decentralised and participatory perspective through the deployment of RECs, according to public rhetoric and legislation, is grafted onto market dynamics characterised by a strong concentration of power in the hands of a few players that, therefore, make the implementation of such processes more problematic. More in detail, we can outline two dimensions of the energy market and sector considerable as hindering factors for the spread of a more participatory model of governance in the energy sector:

- 1- the feature of the energy market that is really capital intensive so that it fosters the action of the big players who can base their intervention strategies on economies of scale as opposed to players with much smaller economic capital;

- 2- the technical dimension, which requires a high degree of specialisation that is not always easily transmissible and comprehensible in ordinary practice and, therefore, not translatable in terms of participation by ordinary users/prosumers.

4.2 ROLE OF PUBLIC INCENTIVES

Even the aspect related to economic incentive policies for the promotion of RECs, as the current draft stands, seems to be particularly unsustainable and unattractive for those initiatives promoted by smaller or medium-sized organizations (cooperatives or federations of cooperatives, NGOs, etc.) compared to the big players, who can rely on their own economies of scale. In the former, indeed, it seems more realistic the strategy related to the intervention of a sort of economy of the gift or reciprocity.

4.3 THE AMBIGUITY OF THE CONCEPT OF COMMUNITY

In recent years, a large body of empirical literature analysing the development of energy communities has spread, which has sometimes ended up emphasising, almost as an ideological postulate, such a historically and sociologically problematic concept as 'community' (Bagnasco, 1999). Some of the literature has emphasised how energy communities represent 'communities of place', in which central and interrelated, but often seen as distant, issues such as climate change, sustainability and renewables development take shape in a practical and territorially situated way, showing the concrete 'feasibility' and 'territorial' viability of ecological and energy transition processes (Walker and Devine-Wright 2008; Seyfang et al. 2013; Burchell et al. 2014). In this sense, energy community models seem to carry great potential in terms of social and territorial impact: supporting local development pathways and at the same time raising the levels of participation of the population, thanks to

the aggregation and sharing practices that are structured in the community management of energy resources.

5. FINDINGS

To summarise, starting from field research, this contribution addresses some critical issues in the process of building community energy and, specifically:

- The difficulty already emerging on the part of smaller experiences of dealing with the energy market, making use of an economic incentive system that is still not well defined
- The possibility for the RECs of creating "safe" market segments for the promoting economic actors themselves (expanding market diversification opportunities).
- The narrowness of the real participation space that ordinary citizens/prosumers can access in the governance of energy, given the criticalities dictated by the economic sustainability of these REC projects due to the particular technical constraints to which they are confined by the economic incentive system, based mainly on maximising consumption from self-produced energy. This, in fact, generates the need to keep different and complementary consumption profiles (domestic consumers, offices, schools, SMEs, etc.) within the RECs
- The big players (energy suppliers and sellers) have a competitive advantage in building cost-effective REC proposals also through partnerships with other well-established players in the territory and market, even though they cannot be part of the RECs.

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