

A multilevel analysis of the intention to engage in Renewable Energy Communities (RECs): The role of individual dimensions and trust in local institutions

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ABSTRACT

Renewable Energy Communities (RECs) are increasingly promoted as key tools for participatory energy transition, yet the psychosocial factors shaping citizens' intention to join them remain only partially understood. This study examines individual and community-level predictors of the intention to join a REC among Italian citizens not currently involved in one, using a multilevel and multiple informant approach. Data was collected from 900 participants nested within 30 Italian municipalities. Individual-level variables included perceived positive and negative impacts of RECs, perceived benefits of RECs based on social communications, intrinsic and extrinsic motivations, eco-anxiety, and subjective norms. Trust in local institutions was examined as a municipality-level predictor. At the individual level, the intention to engage in a REC was positively associated with eco-anxiety, extrinsic motivation, perceived communications-based benefits, and subjective norms, and negatively associated with perceived negative impacts of RECs; intrinsic motivation and perceived positive impacts showed no association. At the municipality level, higher trust in local institutions was unexpectedly related to lower intention to engage in a REC. Overall, findings suggest that engagement in RECs is driven more by pragmatic incentives, social pressures, and affective coping with climate-related negative emotions than by intrinsic motivation, and that institutional trust may reduce perceived personal responsibility for action. These results contribute to community energy and energy citizenship literature by further unraveling the individual and community-related aspects that can promote or hinder citizens' involvement in RECs.

1. Introduction

The climate crisis is expected to cause 250,000 additional deaths each year between 2030 and 2050 (Woodward et al., 2014); as of now, its effects can already be observed in a wide range of issues, from individual mental health (Anneser et al., 2024) to extreme weather, resource scarcity, and social injustices (Bourque & Willox, 2014). Among the types of actions that can be undertaken to face this crisis, a sustainable energy transition represents a valuable option, leading to sociotechnical innovation that impacts environmental well-being (Mori & Tasaki, 2019; Van der Waal et al., 2018). A strategic approach to this lies in

the promotion of energy communities (Petrovich & Kubli, 2023), which rely on the promotion of participatory processes towards energy transition (Bauwens, 2019).

Among these, Renewable Energy Communities (RECs) have been reckoned as a fundamental tool to promote decarbonisation by the European Community, following the Directive (EU) 2018/2001, also known as RED II (Ahmed et al., 2024), translated in Italy with law 199/2021. Indeed, RECs are autonomous legal entities “where citizens, groups, enterprises, and local authorities produce, consume, and share energy generated from renewable sources” (Scardigno et al., 2025, p. 2), both managing energy assets and sharing locally generated energy

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among their members (European Parliament and Council, 2018). The Italian government has promoted their spread by offering economic incentives for their implementation (law 414/2023) based on the collaboration with different actors in the territory (e.g., in small municipalities with fewer than 50,000 inhabitants; DM 127/2025). Therefore, in Italy, the implementation of RECs is often based on collaboration with and trust in institutions (Ricerca Sistema Energetico, 2025). When publicly driven, RECs are characterized by a long-term vision focused on producing public value, as well as strengthening social and cultural dimensions, through the investment of resources (Dujany et al., 2026). Consistently, public-led RECs produce a stronger social impact through directing the income in social projects (Martiniello & Presciutti, 2024), and this allows them to sustain long-term public engagement (Pierre & Mazaud, 2021; Walker et al., 2010).

Overall, RECs represent *socio-technical* constructs (Magnani et al., 2017) based on energy democracy – that is, the institutionalization of participatory forms of energy provision (Szulecki, 2018) – and energy citizenship (Wahlund & Palm, 2022) – which focuses on fostering citizens' active engagement with energy in daily life. Therefore, they involve various types of benefits, namely: (a) environmental ones, thanks to the use of renewable energy for power generation; (b) economic ones, due to savings on energy bills; (c) social ones, due to the social acknowledgment of one's pro-environmental effort and involvement.

From a social standpoint, RECs require a long-term commitment and rely on collective, participatory, and democratic processes that aim to generate energy and social benefits through the self-production and self-consumption of energy produced from renewable sources (De Simone, Rochira, & Mannarini, 2025; Scardigno et al., 2025). Consistently, in the last decade, psychology has focused on their social aspects, such as relationships among the actors involved (Soeiro & Ferreira Dias, 2020), acceptance of RECs in the community (Goedkoop et al., 2022), communicative processes revolving around RECs (D'Errico et al., 2025; Scardigno et al., 2025), and regulatory context and trust in it (Wirth, 2014). Additionally, two recent reviews (De Simone, Rochira, & Mannarini, 2025; De Simone, Rochira, & Procentese, 2025) focused on the factors catalysing citizens' participation in RECs, paying attention to the intertwining of individual and community psychosocial dimensions. Indeed, individual and community-related psychosocial factors – that are shaped by social and governance aspects (Sarrica et al., 2018) – are reckoned as critical to build a REC (Cabarcos et al., 2020; De Simone et al., 2026). Therefore, a multilevel focus allowing to address both is required to better understand citizens' intention to get involved in one (De Franco et al., 2023). However, despite these two theoretical papers, to authors' best knowledge no study has already endeavored to provide an integrated model addressing the intertwining of the relevant individual and community-based dimensions in promoting citizens' intention to become members of a REC.

The present study contributes to the established literature by proposing a model of the individual and community-related psychosocial dimensions shaping citizens' intention to engage in a REC within a sample of Italian citizens not involved in one yet having potentially heard about them. A multilevel theoretical and methodological approach (Hox, 2010) is adopted as the most suitable to properly address the variables attaining to the individual and community levels (De Franco et al., 2023), namely: (a) the individual aspects that can shape the intention to engage in a REC, following previous research (D'Errico et al., 2025; De Simone, Rochira, & Mannarini, 2025; De Simone, Rochira, & Procentese, 2025; Soeiro & Ferreira Dias, 2020); (b) the role of local Institutions, by addressing citizens' shared perceptions about their trustworthiness and REC-related competence (De Simone, Rochira, & Mannarini, 2025; De Simone, Rochira, & Procentese, 2025; Musolino et al., 2023; Wirth, 2014). Indeed, citizens living in the same local community – in Italy, bureaucratically reckoned in the municipality – are impacted by the same local policies and

institutional decisions (Bronfenbrenner, 1979; Lewin, 1951; March & Olsen, 1989; Wiesenfeld, 1996); therefore, taking into account the interdependency that stems from this – both in the theoretical framework and in data analysis – is critical to avoid misrepresented results (Snijders & Bosker, 2011).

In the following sections, the role of individual psychosocial dimensions (intrinsic and extrinsic motivation towards the involvement in RECs, eco-anxiety, perception of the positive and negative impacts of RECs, communication-based perception of the benefits of RECs; section 2.1 and 2.2), as well as of citizens' trust in local Institutions (section 2.3), in shaping the intention to become member of a REC will be unpacked, up to defining the hypotheses that represent the basis for the present study. Then, in section 3 and its subsections the methodological and analytical aspects of the study will be detailed, and the results will be described in section 4. Last, in section 5 these results will be discussed and linked to the literature framework previously established, and in section 6 the main conclusions stemming from the present study will be drawn.

2. Literature review and hypotheses

Joining a REC not only involves an energy-related change but also requires a shift in the overall style of energy production and consumption, with affective, social, and community-related implications.

2.1. The motivations towards getting involved in RECs

A first, complex issue refers to the intention to join a REC: is it driven by intrinsic or extrinsic motivations? Intrinsic motivation refers to the interest in, and satisfaction derived from, the participation in the REC itself, while extrinsic one refers to instrumental advantages one can derive, such as economic (e.g., reductions on bills) or social (e.g., social recognition) ones (Deci & Ryan, 2000). Motivation for engaging in environmental actions has traditionally been considered from an intrinsic perspective (Sloot et al., 2018; Van der Werff & Steg, 2016), showing that intrinsic motivation is the most suitable for individuals to commit towards shared goals and sustain such commitment over time (Horstink et al., 2020; Lupi et al., 2021; Silvi & Padilla, 2021). Therefore, based on the nature of RECs and on the acknowledgment that getting involved in one requires a long-term commitment from citizens' side, it is here hypothesized that intrinsic motivation could associate with stronger intentions to get involved in a REC:

H1a. intrinsic motivation toward RECs positively associates with citizens' intention to become members of one.

However, extrinsic motivation can have a key role too in making people act in a sustainable way, because it can be a turning point between amotivation and intrinsic motivation (Ryan & Deci, 2000). With regards to this, there is also evidence that actions based on extrinsic motivation can be internalized, as people get used to the behaviors, meaning that individuals can be both extrinsically motivated and still be committed and genuine (Kotilainen et al., 2016). Specifically, based on the nature and implementation processes of RECs, extrinsic motivation may represent a trigger toward the decision to get involved too, e.g., with reference to economic- or social-acknowledgment-based issues (De Franco et al., 2023). Therefore, this hypothesis is added:

H1b. extrinsic motivation toward RECs positively associates with citizens' intention to become members of one.

Additionally, the intentions toward adhering to new forms of energy production and pro-environmental behaviors can be impacted by affective and emotional arousal about the climate crisis – which has been conceptualized over time as eco-anxiety (Pihkala, 2018). Eco-anxiety is a negative emotional state related to the impact of the climate crisis, and some individuals experience it more than others (Lemée et al., 2019). With reference to pro-environmental behaviors, studies showed that this affective state represents a *practical anxiety* (Kurth & Pihkala, 2022), that

is, it promotes the adoption of practical behaviors aimed at environmental protection. However, eco-anxiety has not been explored with reference to the specific context of the involvement in RECs yet; therefore, addressing this gap is of great interest. Based on this, this hypothesis follows:

H2. eco-anxiety positively associates with citizens' intention to become members of a REC.

2.2. Personal and socially-based perceptions of RECs

The understanding individuals achieve of a specific issue can impact their intentions towards it as well as their following behaviors (Wieber et al., 2015). Consistently, understanding new forms of energy production – and RECs, specifically – as having positive impacts and reducing harm with regard to the environmental and climate crisis (e.g., enhancing local employment, contributing to climate change mitigation) already showed a positive association with the intention to join a REC (Conradie et al., 2021; Goedkoop et al., 2022; Lode et al., 2022; Perlaviciute et al., 2018). Conversely, understanding RECs as having negative impacts (e.g., damaging landscapes, local nature, and wildlife; producing further costs for citizens) may discourage the involvement in them. Therefore, this hypothesis follows:

H3. perceiving RECs as having positive impacts positively associates with citizens' intention to become members of one (H3a), while perceiving them as having negative impacts negatively does (H3b).

However, besides direct contacts with REC-based experiences, the perceptions individuals develop about RECs and their impacts are also shaped by their surrounding social context. Indeed, proximal (e.g., family, friends) and distal (e.g., neighborhood) social contexts represent relevant contexts from where subjective norms – that is, the norms derived from the social weight of significant others and broader social contexts – are derived (Han et al., 2019). Such norms can strongly shape individual behavioral intentions (Nowak & Heldt, 2023) and the involvement in RECs is no exception to this (De Simone, Rochira, & Mannarini, 2025; De Simone, Rochira, & Procentese, 2025): the opinions of friends, family, and neighbors about the involvement in a REC proved to be able to shape individuals' intention to join one (Conradie et al., 2021). Indeed, in the case of collective processes, being member of a group can produce a normative influence bringing individuals towards internalizing the group's purpose and incorporating the perspectives of others into one's own individual motivation (Krettenauer & Lefebvre, 2021), up to it becoming intrinsic motivation (Deutsch & Gerard, 1955; Fielding & Hornsey, 2016). Consistently, the following hypothesis is posed:

H4. subjective norms positively evaluating the involvement in RECs positively associate with citizens' intention to become members of one.

Additionally, the perception of RECs and their impacts can also be shaped by broader social communications (Bauwens et al., 2019; Dóci, 2021), which can help spread awareness of the strategies needed for and benefits of a sustainable energy transition (Biddlestone et al., 2022; Lucas et al., 2021), promoting citizens' intention to engage in a REC through this (D'Errico et al., 2025). Indeed, media campaigns can influence behaviors and facilitate the transition toward sustainable energy consumption too (Beachcroft-Shaw & Ellis, 2017), as communication plays a central role in shaping public understanding, modifying perceptions around renewable energy technologies. Therefore, social communication about RECs can have a positive impact, highlighting renewable energy's environmental and economic benefits (Ioannidis & Koutsoyiannis, 2020); however, it can also foster doubts when appropriate information lacks (Esiri et al., 2023). Therefore, this hypothesis follows:

H5. the communication-based perception of the benefits of RECs positively associates with citizens' intention to become members of one.

2.3. Trust in local institutions as a community feature

In Italy, the most recent regulation (DM 127/2025) aims to promote the development of RECs in small municipalities (with fewer than 50,000 inhabitants) based on the collaboration with different actors in the territory, through the government providing 40% of the required development costs as non-repayable funding. However, despite this drastically reducing the development cost, the latter remains relevant. Therefore, in publicly driven RECs local institutions can take the responsibility to provide the remaining fundings and use their technical offices to further reduce implementation costs – which means an intention to collaborate with them is required on citizens' side. In this way, institutions become effective partners of the RECs, allowing citizens to rely on public funding by the National Ministry of the Environment. Consistently, currently, most of Italian RECs include a local institution as a member, as shown on the interactive map created by Italian institute of Research on Energetic Systems (Ricerca Sistema Energetico, 2025). However, involving local institutions is not easy task, as it requires implementing specific legal structures, potentially producing bureaucratic delays, and that local institutions trust this kind of initiatives, so to avoid jeopardising their introduction as innovation (Lettmayer et al., 2018). Therefore, National culture towards energy systems represents a critical issue, which is shaped by national history but also trust in institutions (Spasova & Braungardt, 2021).

Thus, the level of trust in institutions plays a crucial role in the successful development of RECs (De Simone, Rochira, & Mannarini, 2025; De Simone, Rochira, & Procentese, 2025; Musolino et al., 2023; Wiersma & Devine-Wright, 2014; Wirth, 2014), particularly when these projects are promoted as government policies (Spasova & Braungardt, 2021). Consistently, it was recognized as an element promoting the decision to invest in a REC (Guetein & Schleich, 2023). Conversely, a lack of trust in Institutions can expose RECs to low rates of engagement (Lettmayer et al., 2018; Morgan & Canfield, 2021) based on citizens perceiving sharing energy as risky (Morgan & Canfield, 2021). Indeed, trust represents a key element in the community approach to renewable energy (Walker et al., 2010), as well as in civic engagement and cooperative behaviors broadly speaking (Putnam, 1993); it can be a driver for social change (Di Martino et al., 2018) and promote community engagement and participation in shared actions aimed at common goals (Di Napoli et al., 2019; Foglia et al., 2026). Conversely, a lack of trust can lead to disengagement towards collective initiatives aimed at community well-being (Carbone et al., 2021) and lower levels of cooperation in social initiatives (Marozzi, 2014).

From this perspective, trust shifts from a purely individual dimension to becoming part of the relational dynamics within a given community – that is, among individuals (e.g., Ahlemeyer et al., 2022; Prilandita et al., 2022), but also between individuals and local institutional referents (e.g., Di Napoli et al., 2019; Musolino et al., 2023; Wirth, 2014). Indeed, local communities represent social entities wherein values, aims, but also local institutional decisions and policies contribute to shaping their members' daily lives, intentions, and behaviors (Bronfenbrenner, 1979; Lewin, 1951; March & Olsen, 1989; Wiesenfeld, 1996). In this vein, trust represents a community-based socio-institutional factor (Koirala et al., 2018).

Within this framework, institutional trust specifically refers to community members' trust in institutional performance, and how the latter reflects citizens' expectations (Bachmann, 2011). In this, specific relevance is given to institutional referents being perceived as trustworthy and competent as to the issues and policies they engage with (Palomo-Velez et al., 2024; Wirth, 2014). The level of trust in institutions can shape communities' expectations on how they can act in a collaborative way doing “the right thing” (Schneider, 2017), as well as their members' intentions and behaviors (Bronfenbrenner, 1979; Lewin, 1951; March & Olsen, 1989; Wiesenfeld, 1996). Specifically, higher levels of institutional trust can bring the community to work together more cohesively and effectively (Lo Iacono & Sonmez, 2021). Therefore,

in communities where local institutions are reckoned as trustworthy and competent as to the specific matter of the development and management of RECs, the development processes underlying their establishment may be boosted, with citizens being more likely to develop the intention to become members of local RECs:

H6. in municipalities characterized by the perception of local Institutional referents as trustworthy and competent as to RECs, citizens' intention to become members of one will be higher.

3. Method

Based on this framework, the present study addresses the role of the mentioned individual and community-based dimensions (De Franco et al., 2023) in fostering or hindering citizens' intention to become members of a REC (see Fig. 1) through a multilevel and multiple informant approach (Hox, 2010). Consistent with the main aim of the study, these relationships will be unraveled in a sample of Italian citizens not being involved in a REC yet potentially having heard about them.

3.1. Participants and procedures

Data was collected in Italy between March and April 2025 by a professional panel provider, with a screening question ensuring that only individuals not currently involved in RECs were included. An online questionnaire was set up using Qualtrics; a stratified quota sampling approach was employed to ensure adequate representation by age and gender within each community. The questionnaire was introduced by an explanation about confidentiality and anonymity issues, where participants had to express their informed consent to take part in the study and access the questionnaire. No IP addresses or other identifying data were retained. Ethical approval was acquired from the Ethical Committee of Psychological Research of the University of Naples Federico II with protocol number 1/2025 (date of approval: January 15, 2025).

Respondents were 900 Italian citizens (51.4% female) not involved in RECs, aged between 18 and 84 ($M = 50.64$; $SD = 14.33$). They were from 30 Italian municipalities from 16 Regions and had been living in their municipality for 39.86 years on average ($SD = 19.58$, 1–84 range scale). Municipalities and Regions were randomly selected, keeping in mind that at least 30 level 2 units were needed for the model to properly

address level 2 variability (Maas & Hox, 2005). The average group size is 30 respondents per municipality.

Most of the participants (58.2%) had a high school diploma, while 20.1% had a master's degree, 11.2% had a bachelor's degree, and 8.3% a post-graduate degree; only 2% had a secondary school diploma, while 0.2% had a primary school diploma. Participants were mainly employees (46.4%) or retired (20.1%), while 15.4% were unemployed, 9.6% were freelancers, 3.6% were students, 2.6% were entrepreneurs, and 2.2% had managerial roles; only one participant chose not to disclose this information. 65.6% of the respondents were married or in a cohabitant couple, and 61% had at least one child; 21.9% were single, 8% were separated or divorced, 1.8% were widowers, and 2.7% were involved in an unmarried and non-cohabitant couple. Consistently, most of the participants lived with their partner and children (45%) or only with their partner (22.1%), while 17.4% lived alone, 8.9% with their parents, 4.7% with their children but without their partner, 0.9% with housemates, and 0.9% with other relatives (not being their parents); one participant chose not to disclose this information.

As to their experiences with RECs, most of them had already heard about them (64.9%) and would also have been interested in becoming a member if the municipality where they lived was to collect subscriptions to a new REC (62.3%, $n = 561$). Of these 561 respondents, 51.7% were interested in taking part as consumers – that is, only using the produced energy – while 32.6% as prosumers – that is, as producers and users of the energy at the same time – and 15.7% as prosumers also willing to do voluntary work for the REC.

3.2. Measures

The questionnaire included a socio-demographic section, followed by these measures.

3.2.1. Individual level

3.2.1.1. Perception of the impacts of RECs. Six items (see Table 1 for their wordings) were pooled based on the Public Acceptability of Energy Projects scale by Perlaviciute et al. (2018); they were aimed at detecting the perceived positive and negative impacts of RECs. For each item, respondents were asked to rate their agreement on a 7-point Likert scale

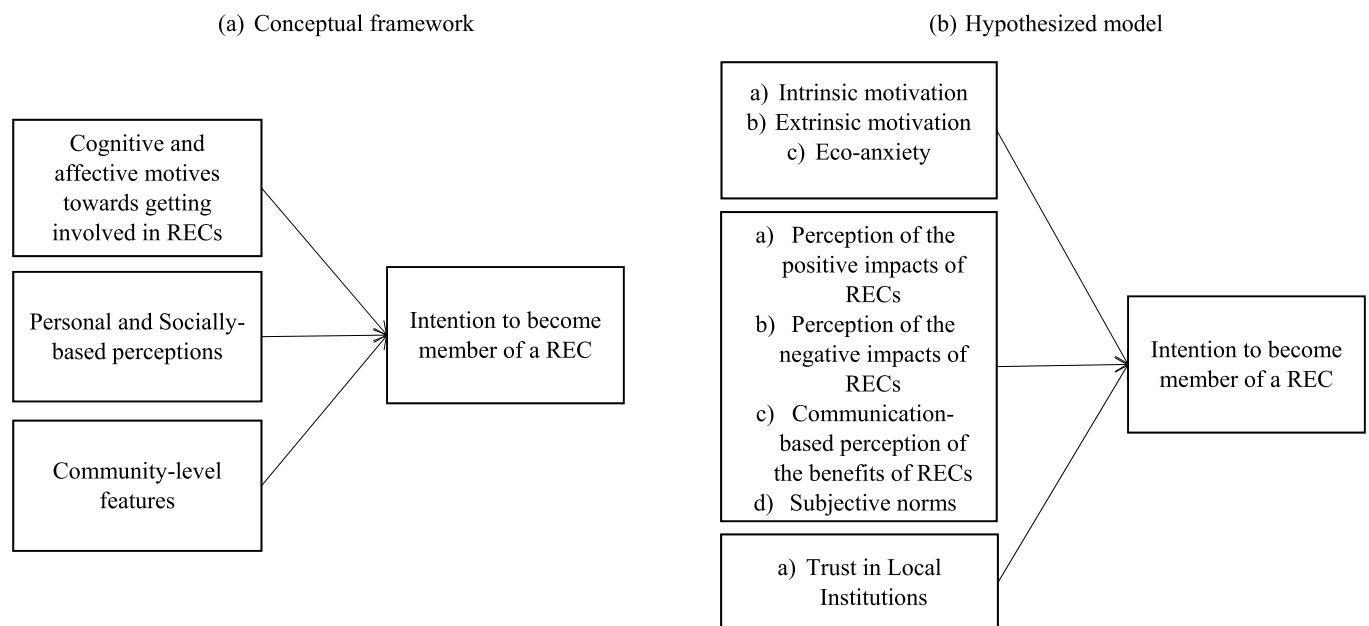


Fig. 1. Conceptual framework (a) and hypothesized model (b).
Note. REC = Renewable Energy Community.

Table 1

EFA factor loadings for the items about the perception of the impacts of RECs.

Item	Negative impacts	Positive impacts
1. Renewable energy communities have positive effects on local employment.		0.611
2. Renewable energy communities have negative effects on the landscape	0.771	
3. Renewable energy communities have negative effects on nature and wildlife	0.906	
4. Renewable energy communities will contribute to climate change mitigation		0.774
5. Renewable energy communities will reduce dependence on fossil fuel sources		0.751
6. Renewable energy communities will increase energy costs for consumers	0.581	
Explained variance (%)	30.63	24.31

Note. $n = 900$.(1 = *Strongly disagree*; 7 = *Strongly agree*).

3.2.1.2. Communication-based perception of the benefits of RECs. Three items (see Table 2 for their wordings) were pooled based on D'Errico et al. (2025) and Scardigno et al. (2025); they were aimed at detecting the relevance attributed to environmental, economic, and social benefits of RECs in individuals' perceptions based on interpersonal and mediated communication. Such relevance was to be rated on a 5-point Likert scale (1 = *Not important at all*; 7 = *Extremely important*), yet respondents were asked to do so only if they had previously answered positively a filter question asking whether they had been reached by any kind of communication about RECs; therefore, only 584 participants answered this scale, as they had been exposed to communications about RECs.

3.2.1.3. Eco-anxiety. The Hogg Eco-Anxiety Scale (13 items; Hogg et al., 2021) was used; it detects affective symptoms (4 items, e.g., "Feeling nervous, anxious or on edge"), rumination behavior (3 items, e.g., "Unable to stop thinking about future climate change and other global environmental problems"), behavioral symptoms (3 items, e.g., "Difficulty sleeping"), and anxiety about personal impacts (3 items, e.g., "Feeling anxious about the impact of your personal behaviors on the earth") with reference to current ecological crisis. Respondents were asked to rate how often in the previous two weeks they had experienced what was described in each sentence when thinking about climate change and other global environmental conditions (e.g., global warming, ecological degradation, resource depletion, species extinction, ozone depletion, ocean pollution, deforestation) on a 4-point Likert scale (0 = *Not at all*; 3 = *Nearly every day*).

3.2.1.4. Extrinsic motivation. Three items (e.g., "Because I have the

Table 2

EFA factor loadings for the items about the communication-based perception of the benefits of RECs.

Item	Factor loadings
1. Environmental benefits (e.g., land protection, sustainable use of energy resources, reduction of CO2 emissions, combating climate change, etc.)	0.822
2. Social benefits for the community (e.g., combating energy poverty, supporting vulnerable families, opportunities for socializing and participation, possibility of reinvesting part of the proceeds in community support initiatives)	0.855
3. Economic benefits (e.g., achieving energy independence for the building, feeding surplus energy into the grid with consequent financial gains, savings on bills in terms of lower electricity consumption)	0.800
Explained variance (%)	68.22

Note. $n = 584$.

opportunity to save money on my bill") were adapted from those included in the Intrinsic and Extrinsic Motivation Scale by Tabernero and Hernández (2011) to detect the main extrinsic reasons that could motivate respondents to get involved in a REC. Participants were asked to rate their agreement with each statement on a 5-point Likert scale (1 = *Strongly disagree*; 5 = *Strongly agree*).

3.2.1.5. Intrinsic motivation. Three items (e.g., "Because I find it rewarding to actively participate in the energy transition") were adapted from those included in the Intrinsic and Extrinsic Motivation Scale by Tabernero and Hernández (2011) to detect the main intrinsic reasons that could motivate respondents to get involved in a REC. Participants were asked to rate their agreement with each statement on a 5-point Likert scale (1 = *Strongly disagree*; 5 = *Strongly agree*).

3.2.1.6. Subjective norms. The four items detecting subjective norms (e.g., "My family would approve of me participating in a local renewable energy community") by Conradie et al. (2021) were used. Respondents were asked to rate each item on a 5-point Likert scale (1 = *Strongly disagree*; 5 = *Strongly agree*).

3.2.1.7. Intention to become member of a REC. A single item was used to detect whether respondents would have liked to join a REC in their municipality (0 = *No*; 1 = *Yes*) regardless of the degree of involvement they would have accepted. A hypothetical scenario was presented, using the following stimulus: "The municipality where you live is collecting applications for a new Renewable Energy Community (REC) project. Would you like to join this initiative?". Subsequently, participants answering positively to this question were also asked the extent to which they would have liked to get involved in the REC; possible answers were: (a) *As a consumer (merely a user of the energy produced)*, (b) *As a prosumer (energy producer and consumer)*, and (c) *As a prosumer willing to carry out voluntary work for the REC*.

3.2.1.8. Municipality. Respondents were asked to indicate the municipality and Region where they lived. This information was used to group them and aggregate the municipality level variable.

3.2.2. Municipality level

3.2.2.1. Trust in local institutions. The Competence-based (2 items, e.g., "Has sufficient experience and skills") and Integrity-based (3 items, e.g., "Takes the interests of different groups into account in decisions") Trust Scales (Palomo-Velez et al., 2024) were pooled together and used to detect respondents' perception of their municipality Institutions with reference to starting a new REC locally. Respondents were asked to rate each item on a 7-point Likert scale (1 = *Not at all*; 7 = *Very much*).

3.3. Data analyses

3.3.1. Preliminary analyses

First, Exploratory Factor Analyses (EFA) with principal axis factoring were separately run for the measures of (a) perception of the impacts of RECs and (b) perception of the benefits of RECs based on communications, due to these being new measures. The sphericity was checked using Bartlett's test and the adequacy of sampling using the Kaiser-Meyer-Olkin (KMO) measure.

Then, Confirmatory Factor Analyses (CFA) with Structural Equation Modeling (SEM) were used to verify the factor structure of all the measures in the study. To evaluate the model fit, the Comparative Fit Index (CFI) and the Standardized Root Mean square Residual (SRMR) were observed (MacCallum & Austin, 2000): for CFI, values equal to or greater than 0.90 e 0.95 reflect good or excellent fit; for SRMR, values equal to or smaller than 0.06 and 0.08 indicate good or reasonable fit. Reliability was checked using Cronbach's alpha (α).

Outliers and influential cases were checked through the leverage value and Cook's *D*, which should respectively be lower than 0.2 and 1 to testify the absence of these values (Cousineau & Chartier, 2010).

3.3.2. Hypotheses testing

All the hypotheses were tested through a multilevel model run using Ordinary Least Squares (OLS) path analysis, following a stepwise procedure (Hox, 2010), including individual (1st level) and municipality (2nd level) levels (Maas & Hox, 2005). As trust in local institutions represents a community feature (Di Napoli et al., 2019; Musolino et al., 2023; Wirth, 2014) – based on their decisions, behaviors, and implemented policies contributing to similarly shaping the daily lives, intentions, and behaviors of citizens living in the same area (Bronfenbrenner, 1979; Lewin, 1951; March & Olsen, 1989; Wiesenfeld, 1996) – it was used as a municipality-level variable. Level 2 scores were obtained through a multiple informant approach (MIM), that is, by gathering the answers from citizens and then averaging those of the respondents belonging to the same municipality, in order not to reduce this dimension to individual perceptions (Lanz et al., 2018; van Bruggen et al., 2002). This way, municipality-level scores expressed shared representations about a given feature (Lanz et al., 2018). Intra-class Correlation (ICC) and Design Effect (DEFF) coefficients were observed as inter-rater agreement indices (Lanz et al., 2018).

Maximum likelihood robust (MLR) was used as the estimator. The municipality level variable was grand mean centered while the individual level predictors were group mean centered, following Enders and Tofighi (2007). First, a baseline model (M1) was run with no predictors, to test whether the outcome (i.e., intention to become member of a REC) varied across municipalities. Then, the individual level predictors (i.e., perception of the positive and negative impacts of RECs, perception of the benefits of RECs based on communications, extrinsic and intrinsic motivation, eco-anxiety, subjective norms) were included to test their effects in addition to the clustering effect (M2). The third model (M3) tested whether the effect of individual level predictors on the outcome differed across municipalities. Finally, in the fourth model (M4), the direct effect of the municipality level predictor (i.e., trust in local Institutions) was added as well.

4. Results

4.1. Preliminary results

The EFA suggested a two-factor structure for the perception of the impacts of RECs; all items only loaded on one factor, with all factor loadings higher than 0.03. Therefore, all the items were retained, and the two correlated factors that emerged identified the positive and negative impacts of RECs (see Table 1). Bartlett's test, *Chi-square* (15) = 1595.320 $p < .001$, and KMO measure, 0.664, reported good results.

For the communication-based perception of the benefits of RECs, all the items were retained and loaded on a single factor with factor loadings higher than 0.03 (see Table 2). Bartlett's test, *Chi-square* (3) = 834.329, $p < .001$, and KMO measure, 0.736, reported good results.

CFAs confirmed the expected unidimensional structure for all the measures. All Cronbach's alpha, fit indices, and level 1 and 2 descriptive statistics are in Table 3, while level 1 and 2 correlations are in Table 4.

Even though ICC and DEFF values for the trust in local Institutions were quite low (ICC = 0.038; DEFF = 2.102), DEFF was higher than 2, suggesting the appropriateness of the nested data structure (Muthén & Satorra, 1995). Thus, as this variable theoretically represents a community-based feature (e.g., Di Napoli et al., 2019; Koirala et al., 2018) and citizens were reckoned as non-independent with reference to their municipality of belonging (Bronfenbrenner, 1979; Lewin, 1951; March & Olsen, 1989; Wiesenfeld, 1996), it was kept at that level despite the sometimes-low agreement among municipality members: indeed, the theoretical rationale and the non-independence of the data suggest that not considering the nested data structure could lead to misrepresented results (Nezlek, 2008; Snijders & Bosker, 2011). However, given its variability within municipalities and since trust in local Institutions is also experienced as the individual level (Bachmann, 2011; Guetlein & Schleich, 2023), the level 2 variable was controlled for the level 1 one – that is, its contextual effect was tested (Hox, 2010); therefore, individual scores were added to the individual level predictors in the models.

There were no outliers nor influential cases affecting the analyses, with leverage values ranging between 0.001 and 0.06 and Cook's *D* always being lower than 0.017.

Table 3
Reliability coefficients, fit indices, and level 1 and 2 descriptive statistics for all the measures.

Variables	α	CFI	SRMR	ICC	DEFF	<i>M</i>	<i>SD</i>	
							Level 1	Level 2
<i>Individual level</i>								
1. Renewable energy communities ^a	0.75	0.99	0.02	-	-	3.05 ^a	1.42	-
2. Perception of the Negative Impacts of RECs ^a	0.79			-	-	4.87 ^c	1.21	-
3. Communication-based Perception of the Benefits of RECs ^b	0.87	0.99	0.001	-	-	3.42 ^d	0.76	-
4. Eco-anxiety ^a	0.95	0.96	0.03	-	-	1.12 ^e	0.77	-
5. Extrinsic motivation ^a	0.65	0.99	0.001	-	-	3.48 ^d	0.87	-
6. Intrinsic motivation ^a	0.87	0.99	0.001	-	-	3.64 ^d	0.98	-
7. Subjective norms ^a	0.90	0.99	0.001	-	-	3.24 ^d	0.98	-
8. Intention to become member of a REC ^a	-	-	-	-	-	0.62 ^f	0.48	-
<i>Municipality level</i>								
9. Trust in local Institutions ^a	0.95	0.99	0.01	0.038	2.10	3.90 ^c	1.53	0.48

Cronbach's alpha and fit indices for the intention to become members of RECs are not included as it is a single-item variable. Municipality level values for variables 1 to 7 are not included because these are individual level variables only.

α = Cronbach's alpha; CFI = Comparative Fit Index; SRMR = Standardized Root Mean square Residual; ICC = Intra-class Correlation; DEFF = Design Effect; *M* = mean; *SD* = standard deviation.

Note.

^a $n = 900$.

^b $n = 584$.

^c 1-7 range scale.

^d 1-5 range scale.

^e 0-3 range scale.

^f 0 = No, 1 = Yes.

Table 4

Level 1 and 2 correlations for all the measures.

Variables	1	2	3	4	5	6	7	8	9
1. Perception of the Positive Impacts of RECs ^a	-	-	-	-	-	-	-	-	-0.028
2. Perception of the Negative Impacts of RECs ^a	-0.73 *	-	-	-	-	-	-	-	-0.027
3. Communication-based Perception of the Benefits of RECs ^b	0.045	-0.002	-	-	-	-	-	-	0.063
4. Eco-anxiety ^a	-0.177 ***	0.194 ***	0.040	-	-	-	-	-	0.028
5. Extrinsic motivation ^a	0.070 *	-0.036	0.406 ***	0.257 ***	-	-	-	-	0.017
6. Intrinsic motivation ^a	0.208 ***	-0.168 ***	0.437 ***	0.293 ***	0.699 ***	-	-	-	0.009
7. Subjective norms ^a	0.103 **	-0.065	0.425 ***	0.165 ***	0.503 ***	0.550 ***	-	-	0.085 *
8. Intention to become member of a REC ^a	0.135 ***	-0.117 ***	0.242 ***	0.140 ***	0.307 ***	0.336 ***	0.328 ***	-	-0.027
9. Trust in local Institutions ^a	-0.109 ***	0.133 ***	0.246 ***	0.144 ***	0.361 ***	0.326 ***	0.493 ***	0.129 ***	-

Individual-level correlation coefficients are below the diagonal, while municipality mean-aggregated ones are above it. Municipality-level values for variables 1 to 8 are not included because these are individual level variables only.

*** $p < .001$ (2-tailed); ** $p < .01$ (2-tailed); * $p < .05$ (2-tailed).

Note.

^a $n = 900$.

^b $n = 584$.

4.2. Hypotheses testing

Multilevel modeling results are summarized in Table 5. In M1, quite low ICC and DEFF values suggested that only a small part of the variance of the intention to become member of a REC was explained by municipality clustering. M2 showed that the perception of RECs as having negative impacts was negatively associated with the intention to become members of them, while eco-anxiety, the perception of their benefits based on communications, extrinsic motivation, and subjective norms about getting involved in a REC were positively associated with it. That is, the higher the communication-based perception of the benefits of RECs, the affective response to environmental issues, the economic and social-recognition-based potential rewards, and the positive expectations about significant others' opinions on getting involved in a REC, the higher the intention to do so. Conversely, the higher the perception of the negative impacts of RECs (e.g., damaging landscapes, local nature, and wildlife; producing further costs for citizens), the lower the intention to get involved in one. Interestingly, the perception of RECs as having positive impacts (e.g., enhancing local employment, contributing to climate change mitigation) and intrinsic motivation did not show a relationship with the intention to become members of one, suggesting that such a decision may be prompted by factors other than those specifically linked to social and collective issues. Therefore, H1b, H2, H3b, H4, and H5 were supported, while H1a and H3a were not. Additionally, the non-significant random variance of the intercept showed that the outcome did not randomly vary across municipalities. In the same vein, M3 showed that all the random variances of the slopes were non-significant, suggesting that the relationship between the individual level predictors and the intention to become member of a REC did not vary across municipalities either. Further, when adding this in the model, level 1 relationships became non-significant too, suggesting that the interaction between level 1 predictors and the clustering effect explained such significance. Last, in M4 the trust in local Institutions showed a significant yet negative effect on the intention to become member of a REC – that is, the more municipality Institutions were perceived as trustworthy as to RECs implementation, the less citizens in that municipality were willing to engage in one. Therefore, H6 was not supported either. Across all models, the control effect of trust in local Institutions as an individual level variable was always not significant.

5. Discussion

The present study aimed at unraveling the complexities underlying the implementation of RECs by specifically addressing citizens' intention to become members of one. Based on the established literature and on the processes and characteristics of RECs (D'Errico et al., 2025; De Simone, Rochira, & Mannarini, 2025; De Simone, Rochira, &

Procentese, 2025; Musolino et al., 2023; Soeiro & Ferreira Dias, 2020; Wirth, 2014), a multilevel approach (Hox, 2010) was chosen as the most appropriate to properly address the role of individual and community-related dimensions potentially promoting citizens' intention to become members of a REC.

Consistent with this theoretical framework, the present results suggest that both individual and community-based psychosocial dimensions can play a role in promoting citizens' intention to become members of a REC, even though only a small part of the variability of the latter is explained by the sole belonging to a given community. This is the first relevant hint: the variability of the intention to become member of a REC only poorly depends on the solely geographical and bureaucratic context of belonging – that is, when referring to the Italian context, the Municipality where one lives. One possible explanation for this may be that the regional disparities characterizing the Italian landscape (e.g., in the regulatory implementation, broader socio-cultural conditions, and energy poverty risks; De Vidovich et al., 2023) may not play a relevant role in shaping individuals' intention to become members of a REC. However, their role was not explicitly addressed in this study; therefore, this hypothesis will require further testing. Additionally, different from community belonging, several individual and community level psychosocial dimensions proved to play a relevant role as to individuals' intention to become members of a REC.

At the individual level, getting involved in a REC seems a coping strategy aimed at reducing the negative emotional arousal stemming from being aware of the current environmental crisis. Therefore, on the one hand, the more citizens experience worries and concern regarding the current environmental crisis, the more likely they are to express the intention to join a REC – which supports H2. This stands consistent with eco-anxiety representing a *practical anxiety* (Kurth & Pihkala, 2022) potentially triggering problem solving, problem-focused coping strategies, and problem-oriented behaviors (Mathews, 1990), up to making people actively engage to safeguard their life places through playing out practical solutions (Albertson & Gadarian, 2015; Anneser et al., 2024; Grose, 2020; Kurth & Pihkala, 2022; Pihkala, 2022). On the other hand, however, when citizens perceive that RECs can produce negative impacts (on landscape, nature and wildlife, and energy costs), this discourages their intention to join them, which aligns with H3b and still stands consistent with the involvement in a REC being only experienced as desirable when it is framed as a strategy to reduce one's harm to environment, landscape, and nature broadly speaking.

However, the personal perception of the material positive impacts of RECs (on employment, climate change mitigation, and reduction of dependence on fossil fuel sources) does not play the specular role in promoting citizens' intention to become member of one, countering H3a. This result may depend on the benefits mentioned being too broadly framed, while citizens may be more focused on closer and more

Table 5
Multilevel modeling results.

	M1	M2	M3	M4
<i>Fixed effects</i>				
<i>Individual level</i>				
Perception of the Positive Impacts of RECs		−0.004 (0.02)	−0.004 (0.03)	−0.004 (0.02)
Perception of the Negative Impacts of RECs		−0.04 ** (0.01)	−0.04 (0.03)	−0.04 ** (0.01)
Communication-based Perception of the Benefits of RECs		0.06 * (0.03)	0.06 (0.05)	0.06 * (0.03)
Eco-anxiety		0.06 * (0.03)	0.06 (0.05)	0.06 * (0.03)
Extrinsic motivation		0.06 * (0.03)	0.06 (0.06)	0.06 * (0.03)
Intrinsic motivation		0.03 (0.03)	0.03 (0.05)	0.03 (0.03)
Subjective norms		0.11 *** (0.03)	0.11 (0.07)	0.11 *** (0.03)
Trust in local Institutions		−0.01 (0.01)	−0.01 (0.03)	−0.01 (0.01)
<i>Municipality level</i>				
Trust in local Institutions				−0.09 * (0.04)
Intercept	0.62 *** (0.02)	0.68 *** (0.02)	0.68 *** (0.08)	0.68 *** (0.02)
<i>Random effects</i>				
Intercept at municipality level		0.002 (0.002)	0.002 (0.01)	0.001 (0.002)
Perception of the Positive Impacts of RECs slope at neighborhood level			0.0001 (0.003)	
Perception of the Negative Impacts of RECs slope at neighborhood level			0.0001 (0.002)	
Communication-based Perception of the Benefits of RECs slope at neighborhood level			0.0001 (0.01)	
Eco-anxiety slope at neighborhood level			0.0001 (0.01)	
Extrinsic motivation slope at neighborhood level			0.0001 (0.01)	
Intrinsic motivation slope at neighborhood level			0.0001 (0.01)	
Subjective norms slope at neighborhood level			0.004 (0.01)	
Trust in local Institutions slope at neighborhood level			0.0001 (0.002)	
Residual within variance	0.23 *** (0.005)	0.18 *** (0.01)	0.18 ** (0.06)	0.18 *** (0.01)
ICC	0.004	0.010	0.010	0.011
DEFF	1.12	1.19	1.19	1.20

Note. $n = 584$.

Unstandardized coefficients (B) are shown; standard errors (SE) are in brackets. M1 = baseline model; M2 = random intercept-only model; M3 = random slope model; M4 = random intercept-only model with level 2 predictors. SE = Standard Error; ICC = Intraclass Correlation coefficient; DEFF = Design Effect.

*** $p < .001$ (2-tailed); ** $p < .01$ (2-tailed); * $p < .05$ (2-tailed).

community-related issues. However, these results may also be influenced by the negativity bias (Rozin & Royzman, 2001) – which brings individuals to focus on negative aspects more than on positive ones – and by the loss aversion (Schmidt & Zank, 2005) – which highlights that in the face of a choice the tendency to avoid losses (i.e., disadvantages or negative effects) is greater than the propensity to gain benefits (i.e., to obtain advantages or positive effects).

In a similar vein, intrinsic motivation (i.e., contributing to something worthwhile for the environment, enjoying taking an active part in the energetic transition, and having the opportunity to contribute to the collective well-being of one's community of belonging) does not play a role in the intention to become member of a REC, countering H1a too. Differently, extrinsic motivation (i.e., the possibility of receiving a

reward and of avoiding a penalty, and the possibility of gaining social acceptance) seems a trigger for citizens' involvement in a REC, consistent with H1b. This is in line with recent works on energy citizenship (Jansma et al., 2023) identifying discrepancies between idealized visions of politically engaged, value-driven energy citizens and empirical realities of pragmatic, incentive-responsive behavior. However, this may also depend on individuals internalizing the purpose of their social groups (Fielding & Hornsey, 2016), therefore incorporating the perspectives of others into their individual motivation (Krettenauer & Lefebvre, 2021) even when initially moved by extrinsic ones.

Therefore, the intention to become member of a REC partly seems a matter of social influence: the more citizens perceive that their close social connections (e.g., family, friends) and their broader social circles (e.g., the inhabitants of the same municipality) and overall society (e.g., considering the broader social communications) express positive understanding and appreciation of individuals' involvement in a REC, the more they are prone to do so. This stands consistent with H4 and H5, as well as with the established literature on informational influence, which states that others become the main source of influence in cases of uncertainty or lack of direct experience (e.g., when not informed enough on a given topic; Deutsch & Gerard, 1955). Furthermore, this reveals RECs as fundamentally socialized rather than individual phenomena, aligning with recent scholarship emphasizing the role of social capital and trust networks at their foundation (Dóci & Vasileiadou, 2015; Hasanov & Zuidema, 2022) and suggesting that the broader perceptions of what “people like me” do and expect plays a critical role. Based on this, making participation visible and normatively expected may be more powerful than either institutional campaigns or appeals to environmental values – a mechanism underexplored in community energy literature, which rather focused primarily on structural barriers or individual attitudes.

This also aligns with the results emerging at the Municipality level. Indeed, belonging to a municipality where local Institutions are perceived as competent as to the implementation of RECs, honest, and careful towards the interests of the different social groups included in that community discourages citizens from getting involved in a REC, countering H6. Again, this is an unexpected result, which challenges community energy literature's prevailing assumption that institutional support straightforwardly facilitates community initiatives (Walker et al., 2010; Wittmayer et al., 2021). Indeed, it rather suggests that policies designed to support RECs through institutional backing may simultaneously erode the very citizen agency they aim to enable. Such a result stands consistent with critiques in energy democracy literature (Szulecki, 2018) warning that institutionalization of community energy risks coopting grassroots movements, and with the recently identified paradoxical effect which often emerges when addressing the supposed protective role of modern communities (e.g., Mannarini et al., 2021; Procentese et al., 2023, 2025). Indeed, this paradoxical effect suggests that the assets rooted in local communities of belonging may work “as a disengagement trigger rather than as a protective factor when it comes to a concrete emergency to be faced” (Procentese et al., 2023, p. 733) – just like the environmental crisis can be considered (Procentese et al., 2025). Therefore, with specific regard to the involvement in RECs, experiencing local Institutions as competent and trustworthy may bring citizens towards disengaging from the active implementation of strategies and behaviors aimed at reducing harm to nature, environment, and landscape based on the belief that local Institutions will properly address this issue and take care of it. This may promote a tendency to delegate the task of taking concrete action to face the environmental crisis and reduce the community impact in this regard to local Institutions. However, it is also to mention that trust in local Institutions as an individual feeling did not play a role at all in shaping citizens' intention to become members of a REC. This further specifies trust-related results, suggesting that when it comes to the intention to join a REC the individual experience of trust in local Institutions is less relevant than how the latter are described and perceived within the community of reference. This may

depend on the nature of Institutional involvement in RECs based on Italian regulations: indeed, Institutions can become effective partners of RECs by taking the responsibility to provide a part of the needed fundings and supplies. Therefore, they may need to be broadly perceived as trustworthy with reference to RECs-related issues (Spasova & Braungardt, 2021) for citizens to decide to engage in these projects.

Overall, several theoretical and practical implications stem from these results. On the theoretical side, to the authors' best knowledge, this represents one of the first studies empirically addressing citizens' intention to become members of a REC and the psychosocial factors that can promote or hinder it. Therefore, even though the present results provide the first relevant hints about how to promote it, more studies are needed to further understand the implied psychosocial processes and how to support the maintenance of this involvement over time. From an operational perspective, the present results suggest that RECs promoters and local policymakers should explicitly frame REC-based participation opportunities as concrete and emotionally meaningful responses to climate-related concerns, rather than solely as environmental or technological solutions. Indeed, since the involvement in RECs seems a coping strategy aimed at reducing the negative emotional arousal due to the environmental crisis, communication strategies that acknowledge citizens' worries and position RECs as actionable, locally grounded ways to "do something" about climate change may be particularly effective in stimulating engagement towards them. In a similar vein, those highlighting the potential benefits stemming from RECs and reducing misinformation about their supposed negative effects may have a positive impact too, as they may contribute to making RECs-related benefits more concrete in citizens' perspective, fostering intrinsic motivation towards RECs and countering the negativity bias – that is, reducing the perception of the risks related to joining a REC.

Additionally, as to the role of local Institutional referents, the latter should carefully balance support and delegation. In this, local institutions may benefit from explicitly framing RECs as citizen-led initiatives that require active community involvement. Policies and communications should therefore emphasize co-responsibility, highlighting that institutional support is designed to enable – rather than replace – citizen agency. Moreover, since the intention to join a REC partly seems a matter of social influence, communication strategies may also rely on making citizens' participation in RECs more visible and normative, so to take advantage of RECs as socialized phenomena as an influence on citizens' attitudes and behaviors under uncertain circumstances. Additionally, strengthening the social fabric and capital within local communities may represent a strategy to further foster the sharing of social norms about the involvement in RECs being positive and desirable, promoting virtuous cycles of informational influence.

5.1. Limitations and future directions

Some limitations of the current study should be acknowledged too. First, ICC and DEFF values for the community-level feature (i.e., trust in local Institutions) were low, suggesting a quite poor agreement among community members with regard to this. This may depend on the quite small level 2 groups (Lindell et al., 1999), but also on individual characteristics and positionings (e.g., citizens' political orientation) because of the nature of the variable considered. To verify this, future studies should endeavor to involve wider samples and control for potentially intervening variables (e.g., citizens' and institutional referents' political orientations).

Additionally, it should be noted that the sample was not representative of Italian citizens. Nevertheless, sampling and data collection procedures allowed to reach wide and heterogeneous groups of Italian citizens from several Italian Regions, providing more validity to the results. Similarly, the Italian focus limits generalizability to contexts with established community energy traditions. However, this context also provides theoretical leverage: examining RECs in early development stages, before their routinization and institutionalization, may

reveal psychosocial dynamics obscured in mature RECs sectors where participation pathways have become normalized. Comparative research across diversified regulatory contexts and development stages could allow to establish whether the overall results and the institutional trust paradox reflect universal dynamics or Italian- or stage-specific patterns.

Another issue refers to the cross-sectional design of the study, which prevents causal inferences; thus, the tested relationships may also work in the opposite direction. For example, citizens willing to get involved in a REC may be more careful to how RECs are perceived in their social circles, or to the potential benefits or costs of joining them. Additionally, the implications of the choice to address the intention to become a member of a REC rather than the actual participation behavior require attention too. Indeed, addressing stated intentions rather than actual behavior hinders from definitively establishing whether identified patterns predict sustained participation or merely reflect transient expressions shaped by social desirability. This means that the proposed model can represent a starting point for understanding how to promote citizens' interest in RECs yet does not provide a better understanding of the actual involvement behavior. Therefore, future studies should further deepen the shift from the intention to become a member to the concrete involvement in a REC to better understand the drivers which could shape this additional – yet critical – step. Furthermore, the broader intention to become member of a REC was addressed using a generic scenario which does not allow to include the extent to which respondents were interested in different degrees of involvement in the model. Longitudinal studies and studies taking into account current behavior implementation processes may help shed further light on these issues.

6. Conclusions

Overall, what emerges from this multilevel analysis suggests that getting involved in a REC may represent a coping strategy aimed at the reduction of negative emotional and cognitive activations rather than a choice based on the acknowledgment of the concrete environment- and community-related benefits which can stem from their implementation. Consistently, extrinsic motivation and social pressures, as well as eco-anxiety and the perception that RECs may produce harm to landscape and nature, or increase energy costs for citizens, can represent triggers to this more than intrinsic motivation and the acknowledgment of the positive impacts of RECs on employment, environment, and climate.

This suggests that effective strategies to promote citizens' participation in RECs should prioritize pragmatic engagement levers. Specifically, practitioners and policymakers should combine clear economic incentives, socially visible recognition mechanisms, and emotionally resonant messaging addressing climate-related concerns, rather than predominantly relying on abstract environmental benefits or moral appeals. Additionally, promoting more cohesive communities may represent a useful path too.

However, the present results also suggest the need to pay further attention to the role of local Institutions, as them being perceived as trustworthy may represent a disengagement trigger. Therefore, a clear need to turn this into an engagement trigger through proper interventions stems. This calls for the design of institutional interventions that actively foster citizens' agency, empowerment, and engagement. Local governments could implement participatory governance mechanisms, co-design workshops, and shared decision-making processes that visibly require citizens' contributions, thus counteracting passive delegation tendencies and transforming institutional trust into a driver for collective engagement.

CRedit authorship contribution statement

Flora Gatti: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Biagio Marano:** Writing – review & editing, Writing – original

draft, Investigation, Data curation, Conceptualization. **Evelyn De Simone:** Writing – review & editing, Investigation, Conceptualization. **Terri Mannarini:** Writing – review & editing, Project administration, Investigation, Conceptualization. **Alessia Rochira:** Writing – review & editing, Investigation, Conceptualization. **Francesca D'Errico:** Writing – review & editing, Investigation, Conceptualization. **Rosa Scardigno:** Writing – review & editing, Investigation, Conceptualization. **Carmela Sportelli:** Writing – review & editing, Investigation, Conceptualization. **Fortuna Procentese:** Writing – review & editing, Writing – original draft, Supervision, Investigation, Data curation, Conceptualization.

Author note

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The authors declare that the research is conducted ethically, responsibly and legally; the results are reported honestly; the submitted work is original and not (self-)plagiarized; funding sources and conflicts of interest are disclosed. Ethical approval was acquired from the Ethical Committee of Psychological Research of the University of Naples Federico II (protocol number 1/2025, date of approval January 15, 2025).

The data that support the findings of this study are available from the corresponding author upon request.

Ethics statement

The authors declare that the research is conducted ethically, responsibly and legally; the results are reported honestly; the submitted work is original and not (self-)plagiarized; funding sources and conflicts of interest are disclosed. Ethical approval was acquired from the Ethical Committee of Psychological Research of the University of Naples Federico II (protocol number 1/2025, date of approval January 15, 2025).

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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