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Conflicts in the use of the landscape: the issue of wind farms

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Abstract

The issue of spatial conflicts is a recurring theme in territorial planning. It is a complex and multidimensional topic involving diverse actors and conflicting interests. In particular, the landscape is often at the center of controversy, reflecting the differing needs and expectations of residents, local authorities, and economic stakeholders. Among these, the issue of renewable energy production has become increasingly prominent. We used the Region of Sardinia as a case study, where numerous wind farm projects have been proposed in recent years and have almost always faced strong opposition from local communities and administrators. We investigated these conflicts through an analysis of local press articles from 2009 to 2024 to identify the main critical issues. Several recurring themes and sub-themes emerged. Overall, the situation in Sardinia reflects typical conflicts related to the energy transition, where national or global decarbonization goals clash with local demands for territorial protection; tensions arise between economic development and environmental and cultural preservation; legal gaps and a lack of community participation in decision-making processes are evident. At the same time, some distinctive features emerged, particularly regarding the collective nature of dissent and the political-institutional strategies adopted by regional civil society. Understanding these dynamics is a key premise, as it provides important insights for planning, implementing, and communicating projects that are truly place-based and capable of contributing to a more inclusive and shared ecological transition-addressing a conflict that remains largely unresolved.

Keywords Wind energy, Territorial conflicts, Landscape and identity, Social acceptance, Energy justice, Ecological transition, Participatory governance

Introduction

Space is not just a material field, but a symbolic and political place where power relations, cultural priorities, and visions of the future are defined (Lefebvre 1991). The plurality of interests that may converge on it, and the different needs for its use, can generate conflicts that are difficult to manage (Balestrieri 2013).

In particular, the landscape is increasingly at the center of heated debates regarding its use. The plurality of

meanings it encompasses—as a place of identity, an economic resource, a public or natural space—makes it a battleground between those who seek to preserve it and those who seek to transform it. A significant issue in this regard is the challenge posed by renewable energy and the siting of related production facilities (LaPatin et al. 2023).

Over time, there has been a growing effort to promote renewable energy in order to support climate change mitigation and reduce CO₂ emissions, both at the European and national levels. At the European level, the Renewable Energy Directive RED III, which came into force in November 2023, set the EU target for renewable energy sources at 42.5% by 2030, with an additional ambition of

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reaching 45%. In line with these goals, to speed up the permitting process for the construction of new plants, a maximum time limit of 12 months has been established for approval in designated priority areas, and 24 months for the rest of the territory. Nonetheless, the implementation of such plants is struggling to materialize, with most member states, including Italy, failing to meet the transposition deadlines for provisions on authorization procedures, leading the European Commission to initiate infringement proceedings against them. In fact, the creation of such plants has proceeded more slowly than expected as their implementation appears to be a more complex process than assumed. These projects, in fact, compete with the many uses of natural resources affected areas and are therefore often opposed and obstructed by local communities. In fact, the installation of renewable energy plants is being contested in several parts of the world. There is a need to understand these oppositions in order to reduce the number of delayed projects or to overcome future barriers.

Scientific literature on the subject shows that this is a fairly widespread issue, affecting countries and cultural contexts that are often very different from one another (e.g. cf. Lakhanpal 2019; Kohsaka and Kohyama 2023; Kapeller and Biegelbauer 2020; Sovacool 2009; Warren et al. 2005). It also emerges that, although the controversies concern various types of renewable energy—such as biomass (Lehmann and Tittor 2021), geothermal energy (Benighaus and Bleicher 2019), and photovoltaic energy (Bras et al. 2024)—wind energy is one of the most problematic in the reviewed literature (Aitken 2010a, b; Rochmińska 2023; Pasqualetti 2000). In general, social acceptance has emerged as a major obstacle to the implementation of renewable energy systems. Despite the generally high level of support for renewable energy, limited local acceptance has hindered the progress of renewable energy projects (Segreto et al. 2020). The scientific community has therefore questioned the reasons behind these oppositions. To explain the related dynamics, the concept of NIMBY (Not In My Back Yard) was initially widely used in the literature. This concept suggests that while people generally support renewable energy, they tend to oppose its installation in their immediate vicinity. For example, surveys generally show strong overall public support for wind power, while concrete projects, and the placement of turbines, are perceived to suffer from strong opposition. This behaviour has been explained by resorting to concepts such as the so-called social dilemma or even the prisoner's dilemma, which seek to explain through psychology and/or game theory why certain public goods are not produced within a given society, even though all individuals in that society want that good to be provided. According to the aforementioned theories, the reasons for this attitude are said to lie in the

fact that individuals tend to make decisions that maximise their personal benefit in the short term, even when such decisions may harm the community in the long term (Wolsink 2000). Although collective cooperation can bring significant benefits, such as the realisation of a public good or the adoption of a functional infrastructure, many individuals choose not to support the initiative, or to hinder it, in order to maximise their personal benefit. Those who oppose such projects according to the NIMBY concept would, therefore, be guided by a myopic and individualistic view (Wolsink 2000; Easterling 1992) since they wish to benefit from a public good, but are not willing to bear the inconvenience and disadvantage of its presence in their territory, wishing it to be located elsewhere. However, this interpretation is to some extent outdated or at least challenged since the proponents of this argument do not distinguish between the interests of opponents and their motivations (Wolsink 2000). Several studies have argued that the NIMBY concept is incomplete and insufficient to truly explain social acceptance (Enevoldsen et al. 2016) and local opposition (Lake 1993; Wolsink 1994, 2000; Devine-Wright and Howes 2010). Some studies have proposed an alternative approach based upon the notion of disruption to place attachment, and the theory of social representations, with a focus upon the symbolic meanings associated with a proposed project and the places affected by it (Devine-Wright and Howes 2010). Other studies have identified two key explanations—place-making and trust-building—drawn from the substantial social science literature investigating local community reactions to wind farms (Fast and Mabee 2015). Segreto et al. (2020) have assessed the determinants of local and general social acceptance of renewable energy projects (REP) across Europe through a qualitative analysis of 25 case studies, identifying the most significant social drivers and barriers. They identified six key factors influencing social acceptance.

In Italy, too, the energy transition faces conflicting dynamics. The Integrated National Energy and Climate Plan, updated in 2024, sets a target of 63.4% of final electricity consumption to be covered by renewable energy sources by 2030. Wind power is expected to contribute 28.1 GW of installed capacity, 2.1 GW of which will come from offshore plants (MASE 2024).

However, this scenario faces several obstacles to its implementation, particularly due to the difficulties in identifying suitable areas for new installations in the context of widespread local opposition. An emblematic case is the region of Sardinia.

However, this scenario sees various obstacles to its realisation, not least in light of the difficulties in identifying areas where new plants can be built due to local opposition. An emblematic case is the region of Sardinia. This region is called upon by its characteristics to

contribute more significantly than other regions to the ecological transition. Sardinia, in fact, has great potential for the production of renewable energy. Its low population density, the presence of vast non-urbanized areas, and strong, consistent winds such as the Mistral, provide significant conditions for the development of such facilities. However, while it is one of the regions expected to contribute most significantly to the growth of renewable energy, it is also among the most active in opposing it.

Few studies have examined the issue with specific attention to the Italian context (Muller and Pellenbarg 2021; Giordano and Tedesco 2023), and even fewer have focused on Sardinia, except in reference to specific, localized cases (Gazzani 2024; Deledda and Casu 2022). Furthermore, much of the research, even outside of Italy, tends to focus on the analysis of a single site at a specific point in time, and only a small portion of the literature considers a broader time span (Rochmińska 2023). Therefore, our analysis aims to contribute in this direction by seeking to understand the motivations behind the opposition, observing it over the long term and at the regional level. In particular, this paper addresses the following research question: what are the main motivations, forms, and evolutions of local opposition to wind energy projects in Sardinia between 2009 and 2024, and how can they be understood.

Method

This study investigates conflicts and disputes in Sardinia concerning wind farms on the basis of articles published in the local press over the last 15 years, from 2009 to 2024. Using the search engine of the online archive of the most widely circulated daily newspaper on the island ("Unione Sarda"), all articles concerning wind energy (951) were extracted. Those considered irrelevant (i.e. those that did not concern the local dimension or those in which wind energy was only mentioned), or irrelevant to the research objective (i.e. that did not deal with protests/complaints) were subsequently eliminated. This resulted in 574 articles.

The articles were collected and filed through a grid that included textual data and metadata (title, date, project phase, subjects involved, keywords, type of facility, etc.). The texts were subsequently analyzed using an approach attributable to Qualitative Structural Analysis (QSA), understood as a mixed methodological approach that integrates qualitative content analysis with the reconstruction of conceptual and relational structures emerging from a complex discursive field. This integration is consistent with methodological approaches in qualitative content analysis that allow for the systematic combination of qualitative coding and the examination of structural patterns within textual data (e.g., Schreier 2012; Krippendorff 2018). It is a qualitative method oriented

towards the identification of recurring categories, but also towards the mapping of conceptual relations and the reconstruction of the discursive structure underlying the semantic field under investigation. This methodology proves particularly suitable for investigating territorial conflicts in which normative, economic, environmental, symbolic and participatory dimensions are intertwined. While Qualitative Structural Analysis does not represent a standardized methodological framework within wind energy studies, comparable qualitative and discourse-oriented approaches combining thematic coding with the analysis of governance and conflict dynamics have been applied to the study of wind energy and other energy infrastructure conflicts (e.g., Wolsink 2007; Cotton et al. 2014).

Within this framework, different analytical steps can be attributed to complementary methodological components: thematic analysis was used for the identification and refinement of conflict themes and sub-themes (Braun and Clarke 2006), qualitative content analysis informed the systematic coding of textual material and the examination of recurring patterns across the corpus (Schreier 2012; Krippendorff 2018), while Qualitative Structural Analysis refers to their integration through the mapping of conceptual and relational structures emerging from the data.

The analysis involved several stages. First an open coding process inspired by grounded theory (Glaser and Strauss 1967), which led to the identification of the main conflict macro-themes. The identification of emerging themes was based on a coding process inspired by qualitative topic modelling (Braun and Clarke 2006), which combined lexical frequency analysis, semantic clustering of recurring concepts, and interpretative code clustering. The coding and thematic identification process was carried out iteratively and continued until no substantially new themes emerged from the analysis of the articles, in line with the principle of thematic saturation commonly adopted in qualitative research.

Subsequently, an extraction and rationalisation of the sub-themes was carried out, whereby for each theme, the most recurrent or significant sub-themes were identified, understood as narrative, cognitive or value devices. After an initial extensive classification, a conceptual grouping phase was carried out, with the aim of reducing complexity while maintaining semantic representativeness. In this phase, priority was given to the preservation of central conceptual nodes (e.g. "active participation", "speculation", "self-determination", "identity", "transparency", "ecology", "region", "energy justice"). This was done in order to arrive at a mapping of relationships. Three types of relationships were mapped: theme ↔ theme: structural interdependencies between conflicting dimensions; theme ↔ sub-theme: thematic assignments of discursive

nodes; sub-theme $\leftrightarrow$ sub-theme: semantic, logical or symbolic connections. Relationships were inferred both through textual analysis and through the recognition of recurring patterns and co-occurrences between concepts. Relationships were established when concepts repeatedly appeared together within the same articles or across different articles, rather than as isolated occurrences. Finally, the information was formalised in a structured CSV file, in which the nodes are represented by themes or sub-themes, the arcs correspond to the relationships between them, and the weighting (2 for links between themes, 1 for others) reflects the symbolic importance and structural function of the link. The dataset was made compatible with RAWGraphs for interactive exploration of the generated semantic networks.

We also conducted an analysis on the temporal evolution of the identified themes. Figure 1 visually summarises the methodological path adopted, which consists of six main phases: target definition, data collection and selection, coding, categorisation, relationship analysis and visual restitution. These phases can be supported by software such as MAXQDA, however, these processes cannot be automated as they still require human intervention for thematic synthesis, interpretation of content, definition of analytical categories and construction of conceptual connections between the data. Figure 1 also includes the word cloud of the top 100 words.

Results and discussion

The trend of articles initially shows a gradual trend with relatively low and stable numbers until 2014. Between 2015 and 2019 there are no articles. From 2020 they reappear with values similar to pre-2015. Between 2022 and 2023, however, there is a significant increase in numbers, and in 2024 there is exponential growth so that the number of articles in this year covers more than 57% of the total. This is an extremely significant increase compared to previous years, which suggests a structural change. Initially, the articles mainly concern cases of offshore wind farms, then the discourse widens first to include onshore

wind farms and later to become general. The protests mainly concern proposals for wind farms and therefore concern the initial and authorisation phase, prior to their approval and implementation. The protests involve citizens, committees, environmental associations, local as well as regional administrators, politicians and privileged actors. From free protest over time they become organised protest. In particular, the analysis of the themes that emerged from the different articles suggests that the protest against wind energy in Sardinia went through different phases of evolution from 2009 to 2024. While initially the opposition was focused on landscape defence and environmental concerns, the protest later became more highly politicised, with accusations of energy speculation, economic inequality and an increasing emphasis on democratic participation. The protest became more organised, with mobilisation embracing all the territories of the region and focusing on the need for popular involvement in political decisions. The qualitative analysis of the articles in 2010 shows continuity with the themes of the previous year, but with an increasing focus on institutional conflict, local mobilisation against wind farms and economic concerns related to state incentives. The political and legal struggle becomes a central element in the discussion on the future of renewable energy, bringing to light a desire for greater involvement of local communities and greater transparency in decision-making processes. Compared to previous years, the 2020 challenges seem to be characterised by greater complexity in the arguments, with an emphasis on issues such as social and economic justice, landscape impact and energy justice. The growth of social and political awareness has led to a polarisation of opinions, with greater emphasis on the contradictions between global economic benefits and local costs. These changes indicate an evolution in the nature and scope of objections, with local communities becoming increasingly prominent in the defence of their own interests. In 2021, criticism intensifies not only of environmental impacts but also of the economic and fiscal system that makes the implementation of such

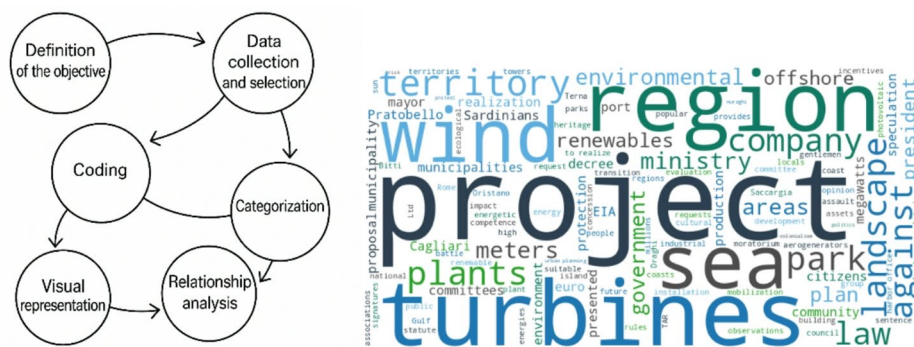


Fig. 1 Methodological sequence and recurring word clouds. *Source:* elaboration by the author

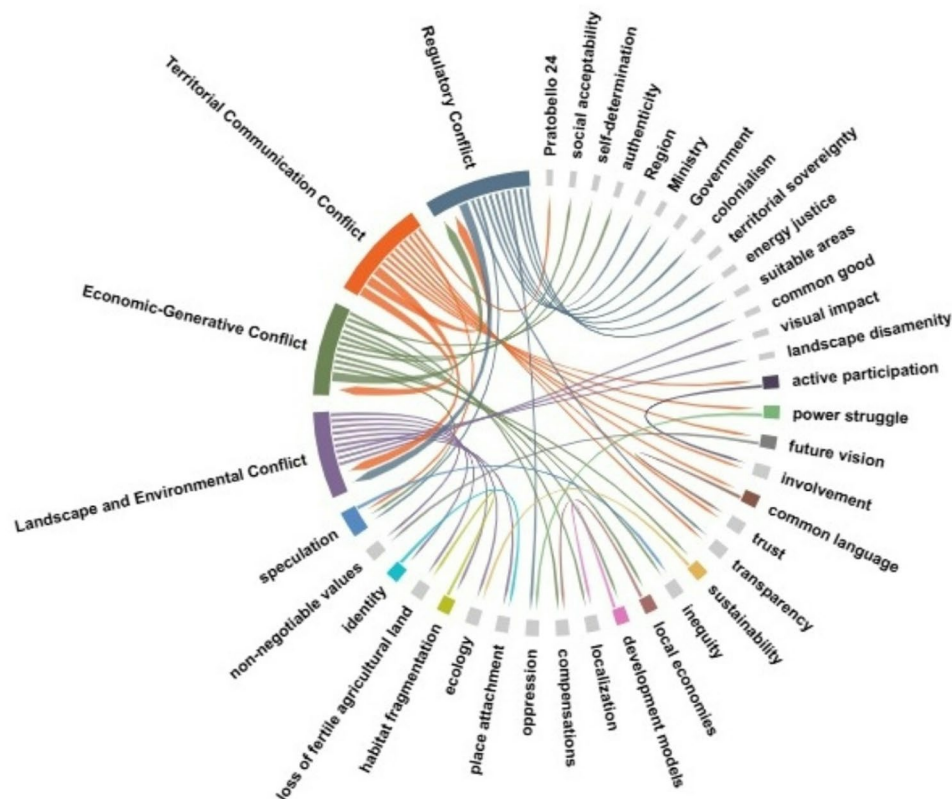


Fig. 2 Main themes, sub-themes and connections. *Source:* elaboration by the author

projects possible. Resistance to wind farms is enriched by a more complex narrative, which interweaves historical, cultural, environmental and economic elements. In 2022, compared to previous years, there is an increase in sensitivity towards the protection of local and environmental heritage against initiatives considered too invasive. The issue of protecting regional powers in the landscape and environmental sphere emerges strongly, an aspect that has also become more urgent due to the central government's energy and environmental policies. In 2023, issues such as energy overproduction, the need for state and centralised planning and the risk of "landscape and cultural replacement" emerge in comparison to previous years. These themes parallel and intertwine with previously raised concerns about wind speculation, political inertia and the need for an ecological energy transition. These developments suggest a growing awareness of the long-term impacts of wind power projects, not only environmentally, but also economically and culturally.

In 2024, the year in which the largest number of articles is concentrated, differences emerge in both the content and the political and social dynamics expressed. Overall, the main difference between the 2024 articles and the earlier ones concerns the intensification of popular mobilisation, the polarisation of the narrative, the growing criticism of regional policies, and the centrality of

popular participation. Whereas before, the discussion was more moderate and focused on compromises and technical solutions, in 2024 a strong tension emerges between energy development and landscape protection, with a clear rejection of policies considered favourable to speculation.

Figure 2 shows the main themes identified with the analysis and their sub-themes, which will be discussed further on, as well as the connections between them. The diagram represents the multi-level conceptual network resulting from the structural analysis conducted. This visualisation is the result of the qualitative coding and subsequent reconstruction of the relationships between recurring themes, sub-themes and concepts, according to the criteria defined in the methodology section. The visual network highlights central nodes and transversal concepts, makes visible multiple connections between thematic domains and suggests possible emerging discursive clusters. In particular, the presence of bridge-concepts such as speculation, transparency, active participation or identity, linked to several themes, confirms the hypothesis of an interconnected and overlapping discursive field, where environmental, economic, political and symbolic instances do not operate in separate compartments, but contaminate each other.

The integration of textual explanation and visual representation aims to restore not only the structure of the conflicts detected and described below, but also its narrative density, conceptual ambiguities and latent tensions.

Theme 1. Conflict over territorial communication. Sense of overreach. Conflict over territorial legitimacy

The lack of dialogue with local institutional levels represents one of the most recurring and clearly highlighted critical issues in the analyzed *corpus*. It constitutes a structural factor of conflict and a source of mistrust toward public institutions and private promoters of wind energy projects.

The objections are not directed solely at wind energy itself, but primarily at the way it is implemented: following a top-down logic, perceived as opaque, unilateral, and lacking participatory legitimacy.

In the analyzed articles, conflicts over territorial communication and legitimacy are articulated through recurring expressions such as “top down decision,” “lack of involvement,” and “lack of dialogue,” as well as through references to local actors learning about projects through the press rather than through institutional channels.

Especially in recent years, this issue has become central and systemic: the absence of dialogue is cited as the primary explicit reason in almost all public statements, resolutions, and protest actions. Mayors and local movements are demanding greater involvement and decision-making power to protect their territory.

The sense of political exclusion perceived by the population regarding decisions that affect their environment and daily lives translates into strong opposition. The *moratorium* (Regional Law No. 5 of July 3, 2024) on energy installations and the debate on the law concerning “suitable areas,” for example, have highlighted the lack of active citizen involvement in decision-making processes that concern them, consequently generating demands for greater direct democracy. The proposal for a popular referendum by committees such as “Rete Pratobello 24” reflects the desire to have the population’s right to speak recognized in matters of strategic energy choices on the island. Citizens are asking to have a say in their own future and to actively participate in political decisions regarding their territory. The “Pratobello24” legislative proposal itself represents an attempt at popular affirmation and the reclaiming of the right to decision-making. Indeed, when such a right is lacking, planning efforts are rarely met with acceptance, as has long been demonstrated in the literature in relation to various issues and contexts. This absence tends to give rise to a series of consequential problems.

The lack of appropriate dialogue with local communities gives rise to a conflict of territorial legitimation, as external actors—including both state and regional

institutions as well as private developers —unilaterally define the functions of a given territory without recognizing the social and cultural authority of the communities inhabiting it. This conflict touches upon the issue of both decision-making and symbolic power, raising the question of who holds the right to determine what is considered “right” or “useful” for a specific territorial context. Such conflict can be interpreted as the outcome of a power struggle between dominant groups (who decide from above) and local communities (who are subjected to those decisions), but also as the consequence of an absence of a shared narrative. The meanings attributed to places are constructed in a disconnected manner between central institutions and the local population (Berger and Luckmann 1966). Indeed, this kind of conflict emerges in spatial planning or territorial transformation processes, when the narratives, meanings, and representations of the territory produced by local communities come into tension with those imposed or promoted by external actors (institutions, businesses, technical experts). In this type of conflict, what is at stake is not only the use of the territory, but also the right to define its meaning, values, and future vision. In this sense, the fracture is not only material but also discursive and symbolic.

The absence of dialogue constitutes a failure in the construction of a shared language and in the mutual recognition of different perspectives (Watzlawick 1967). The perception of a lack of recognition fuels frustration and local resistance. Feelings of imposition and disregard for actual needs lead to a hardening of oppositional stances. Moreover, the perception of exclusion undermines trust in public institutions and their decision-making capacity. The Sardinian case empirically illustrates these dynamics, showing how the lack of meaningful consultation contributes to mistrust and conflict around wind energy projects. In this regard, the analysis of the articles also reveals concerns about the transparency and economic sustainability of the projects. Key questions include who will finance the projects, who will carry them out, and what the actual interests are behind the requests for public land concessions.

Attention is drawn to the promoters of the projects, who are frequently associated with companies registered in tax havens and with representative offices lacking any substantive operational presence. This aspect reflects a broader trend toward increasing globalization and corporate anonymity. Concerns have been raised about speculative initiatives that could result in environmental harm without delivering tangible benefits to the local area. These concerns are compounded by judicial investigations that point to a significant risk of criminal infiltration in such projects.

The analysis also highlights criticisms of the authorization process. Many reports include statements from

local administrators and politicians who denounce the central government's tendency to exclude regional and municipal authorities from decision-making procedures—particularly with regard to environmental impact assessments. Fundamental questions thus emerge concerning who will finance the projects, who will carry them out, and what the actual interests are behind the requests for public land concessions. There is also concern regarding a superficial or merely formal form of local involvement. For instance, some municipalities have pointed out that the request made by the Regional Authority to provide input on suitable and unsuitable areas for the installation of energy facilities within their territories—within extremely short timeframes—was not commensurate with the complexity of the issue or with the resources available to the municipalities themselves. This top-down and time-constrained procedure was perceived by many local administrations as a merely formal consultation, rather than a genuine participatory process, reinforcing the sense of marginalization and institutional asymmetry between regional and municipal levels.

International literature confirms that the exclusion of local communities undermines the acceptance of energy transition projects. Wolsink (2007) highlights the lack of genuine participation as one of the main reasons for the failure of wind energy projects. Other studies, such as those by Ruddat (2022) and Westerlund (2020), emphasize the decisive role of trust, procedural justice, and public participation in decision-making processes. Gross (2019) and Jobert et al. (2007) demonstrate that public consent depends not only on technical factors, but also on the political capacity to engage communities and to fairly distribute both the benefits and the costs. Finally, Miller et al. (2013) propose an understanding of energy transitions as social—not merely technological—processes. This underscores the urgency of adopting an integrated approach that also considers social and cultural dimensions, which are essential for the success of renewable energy projects.

Theme 2. Economic and generative conflict—critiques of the governance model and speculative practices

The theme of economic conflict emerges recurrently and across different contexts in the articles analyzed. It is articulated through recurring lexical references to terms such as “speculation,” “profits,” “inequity” and “external operators,” as well as through repeated contrasts between private economic interests and the limited or absent benefits expected for local communities. Criticisms focus on the limited positive impact on the local territory and a pronounced imbalance between costs and benefits for local communities. In this case, the conflict is linked to the perception of an inequitable distribution of resources. The projects are not perceived as genuine

tools for advancing the ecological transition, but rather as mechanisms aimed at maximizing the profits of large corporations at the expense of local communities.

This conflict manifests itself in at least three main directions.

Disproportion between multinational profits and local benefits

Protests suggest that wind power installations are perceived as a false economic opportunity, since most of the profits from the energy they generate do not benefit local communities. These projects fail to create meaningful employment, and the companies involved are typically external actors—neither rooted in the region's socio-economic context nor connected to the territory in any substantive way. The issue of the “false promise” of economic and employment growth is addressed with a strong sense of disappointment. In particular, the promises of significant economic development appear unconvincing, the economic spillovers resulting from the construction of wind farms are minimal, and the “rewards” for local communities are negligible compared to the substantial profits earned by the multinational corporations involved.

This issue highlights a significant structural problem: the absence of redistributive mechanisms across the country. In Italy, unlike in other European contexts, it is rare for host territories to derive tangible benefits from the presence of such installations in the form of economic participation. In this regard, it is important to distinguish between redistributive mechanisms—aimed at ensuring that host territories benefit from the economic value generated by energy infrastructures—and incentive schemes that primarily support investment and production. More equitable approaches, such as community benefit schemes, territorial compensation funds, or participatory ownership structures, could help mitigate negative externalities and strengthen local acceptance of renewable energy projects. Unlike models found, for instance, in Denmark (Hvelplund et al. 2017) or Germany (Yildiz et al. 2015), institutionalized instruments for the local redistribution of benefits remain limited and weak. In the absence of a robust and binding national framework a binding national framework in this regard, territories lack any guarantee of structural returns, which exacerbates the perception of dispossession (Brunner 2018; Sovacool et al. 2022a, b).

In the German model, citizens can purchase shares in wind power plants through cooperatives, community investment funds, or legal obligations mandating local involvement, while the Danish framework relies on legally mandated compensation and benefit-sharing mechanisms to ensure local involvement. Such mechanisms enhance social acceptance by allowing individuals to be not merely passive observers, but actual owners of

the projects (Warren and McFadyen, 2010; Bauwens et al. 2016).

Italy has never introduced legal frameworks or incentive schemes to promote citizen shareholding in renewable energy projects, despite the presence of experiences with energy cooperatives (particularly alpine hydroelectric cooperatives) and some forms of community and cooperative energy. From the outset, wind power development has been concentrated in the hands of large industrial or financial operators, often external to the local territories (Lucarelli and Biancalana, 2019). The complexity of authorization procedures, limited access to credit, and the lack of technical, legal, and financial support networks further hinder the emergence and growth of such local actors. Yet, as some studies have shown, models based on distributed or participatory ownership are crucial not only to ensure economic equity, but also to foster social acceptance of renewable energy infrastructure (Brummer 2018).

Moreover, in Italy, the production of energy from renewable sources does not generate territorial tax revenues proportional to the local impacts. Municipalities often receive only modest income (such as property taxes on technical infrastructure or land use fees), while the revenues derived from energy production (e.g., incentives, energy sales) are largely captured by the project developer.

There is no national equalization mechanism in place to redistribute benefits to the territories that host the facilities and bear the environmental and landscape externalities. By contrast, in countries such as Denmark and Germany, municipalities receive production taxes, royalties, environmental fees, or a share of the profits (Hvelplund et al. 2017). As a result, many mayors—as evidenced by statements cited in the articles reviewed—perceive these projects solely as a loss: transformed territories, compromised landscapes, and no tangible return.

In this regard, the currently proposed model aligns with what some scholars have termed an "unjust transition" (Sovacool et al. 2022a, b), that is, a decarbonization process which, despite promoting green technologies, reproduces well-known patterns of inequality previously seen in industrial and extractive contexts. Indeed, international literature highlights how the absence of a "just energy transition" leads to persistent and growing forms of socio-territorial conflict (Jenkins et al. 2016). In particular, research conducted across various European countries has shown that when energy projects are not accompanied by visible economic redistribution, procedural engagement, and respect for local identities, resistance tends to intensify, sometimes culminating in acts of sabotage (Aitken 2010a, b; Wolsink 2010). This is consistent with Sovacool's (2021) findings, which identify the lack of distributive, procedural, and recognition justice

as one of the main barriers to the legitimization of decarbonization projects. In this respect, the Sardinian case resonates with existing literature on distributive justice in renewable energy development, as the analyzed articles emphasize perceived asymmetries between external economic actors and local communities.

The absence of positive economic outcomes from wind power in Sardinian territories should not be seen merely as a collateral effect, but rather as a structural result of an economic and political model that continues to view marginal areas as sites of resource extraction, rather than as active agents of change. Only a paradigm shift—one that centers territorial co-design, distributive justice, and active participation—can transform wind energy from a source of conflict into a shared asset for local development.

Adverse impacts on existing local economies and traditional productive sectors

The perceived impact of wind farms extends beyond the symbolic or landscape dimension. Wind energy projects are often regarded as threats to traditional economic sectors such as agriculture, tourism, viticulture, and fishing.

A conflict emerges around the forced coexistence of old and new economies, wherein the green economy risks undermining the green economy itself. Local communities perceive wind turbines as industrial infrastructures incompatible with their development models. Several studies report concerns regarding the perceived impacts of wind energy on traditional economic sectors such as agriculture, fishing, and tourism (e.g. Broekel and Alfken 2015; Sobrinho et al. 2022). Similar concerns emerge in the analyzed Sardinian case, where these sectors are central to the identity and economic survival of inland and coastal areas. In this context, the conflict takes the form of a clash between development models: on one side, a territorial vision grounded in embedded, identity-based, and relational economies; on the other, the intensive infrastructuring of the landscape for extractive and financial purposes (Bridge et al. 2013).

Some studies have highlighted that the installation of wind farms on agricultural land can lead to a reduction in cultivable area and interfere with agricultural production cycles (e.g. Morris and Blekkenhorst 2017). In various European contexts, opposition from farmers, livestock breeders, and rural tourism operators stems from both direct material impacts and the spatial integration strategies of the projects. Aitken (2010a, b), in his analysis of the Scottish context, observes that the promise of community benefits is insufficient to prevent conflicts when local economic activities perceive operational interference. Farmers report obstacles related to field access, maneuverability of agricultural machinery, and the loss—albeit marginal—of arable land due to service

infrastructure. At the same time, rural tourism operators express concerns about the degradation of the sensory environment, understood not only in terms of visual landscape but also acoustic qualities, which are considered a distinctive feature of their offering. The comparative study by Warren and McFadyen (2010) of two rural wind farms in Scotland—one operated by a private company and the other by a local cooperative—highlights how community involvement significantly influences the perception and acceptance of such projects. In the case of the community-run wind farm, the ability to negotiate the placement of turbines helped mitigate the impact on agricultural activities. Conversely, the top-down planning approach adopted in the privately managed project resulted in several negative outcomes, including increased operational costs, reduced productivity, and a lack of coordination with local tourism initiatives. Similarly, Frantál and Kunc (2011), in their analysis of rural and mountainous areas in the Czech Republic, identify forms of resistance among agritourism and campsite operators. The main concerns reported pertain to a potential decline in tourist demand—particularly among foreign visitors—due to the perceived degradation of landscape integrity and tranquility, both of which are key elements for the attractiveness of these destinations.

Taken as a whole, these contributions demonstrate that opposition to wind farms by local economic actors is not merely a matter of aesthetic or symbolic values, but may instead stem from material, concrete, and measurable issues that directly affect the daily realities of agricultural, livestock, and tourism-related activities. Therefore, genuine co-design processes are needed—ones that acknowledge the specificities of local economies and the legitimacy of their operational needs.

Expropriations, with ambiguous or absent financial compensations

The analysis reveals that some residents express concerns regarding opaque practices in land acquisition or expropriation processes, as well as in the determination of compensations. These dynamics foster suspicion and mistrust, highlighting a pronounced sense of distributive injustice and a perceived lack of transparency in negotiations. The projects are often perceived as being imposed by actors possessing disproportionate economic and legal means compared to local communities.

Within this context, the compensations offered by multinational corporations—such as sponsorship of local festivals or the construction of cycling paths—are perceived as inadequate and even offensive, given the scale of the environmental damage and the value of the landscape and agricultural activities.

Theme 3. Normative conflict—institutional conflicts

Another emerging issue concerns regulation. In the analyzed articles, normative and institutional conflict is articulated through recurring references to terms such as “regional autonomy”, “self-determination”, “territorial sovereignty”, and as well as through frequent mentions of legal disputes, appeals, and regulatory overlaps between different levels of governance.

Initially, criticism was directed at the lack of a sufficiently structured regulatory framework capable of preventing ad hoc decisions and the uncontrolled proliferation of wind power installations. Subsequently, both national and regional regulations were challenged by local territories, while at the same time, these two levels of government began to come into conflict with one another.

This regulatory conflict has manifested itself through overlapping and incompatible provisions between state and regional legislation, resulting in institutional tensions, hindering coherent spatial planning, and raising questions regarding the actual allocation of authority over wind energy. Opposition to wind power in Sardinia, in fact, is not limited to local communities but also involves political actors at the regional and national levels. Jurisdiction over the matter has been assumed by the central government, which has opposed the Region of Sardinia's attempts to establish its own autonomous regulatory framework. This conflict has manifested through a series of legislative, judicial, and political actions, reflecting the complex dynamics of energy governance in Italy. In 2022, the Italian government, through the “Decreto Energia”, streamlined the authorization process for renewable energy plants, thereby limiting the Regions' power to block such projects. The Region of Sardinia contested the decree, arguing that it infringed upon its autonomy, and filed a complaint with the Regional Administrative Court (TAR), which, however, rejected the claim.

In 2024, while awaiting the definition of suitable areas for renewable energy development, the Region enacted an 18-month moratorium on new renewable energy plant authorizations (Regional Law No. 5/2024). The central government challenged this law before the Constitutional Court, arguing that it exceeded the Region's legislative competences and violated both national and EU regulations. With judgment No. 28/2025, the Constitutional Court declared Article 3 of the regional law unconstitutional, reaffirming the primacy of national legislation in the energy sector and the obligation to comply with the fundamental principles set forth in Legislative Decree No. 199/2021.

In response to growing concerns regarding energy speculation, a law entitled the “Pratobello Law” was proposed by citizen committees and the general public. This is a citizens' initiative bill aimed at prohibiting energy

speculation in Sardinia. The proposal garnered widespread support, collecting over 210,000 signatures, and represents a significant example of popular mobilization in defence of territorial integrity and regional autonomy.

With the Decree of June 21, 2024, the Italian government established quantitative targets for new renewable energy capacity to be achieved by 2030, allocating 6,264 MW to Sardinia.

Subsequently, the Region passed Law No. 20/2024 to identify areas suitable and unsuitable for the installation of renewable energy facilities. However, the central government challenged this law once again, arguing that the restrictions imposed excessively limited suitable areas, thereby compromising national decarbonization objectives and infringing upon the principles of legal certainty and economic freedom.

In summary, the Region of Sardinia sought to oppose national energy policies through legal challenges and the adoption of regional legislation. However, these initiatives were rejected by the competent judicial authorities, reaffirming the primacy of national legislation and international obligations in the field of energy (even though the “suitable areas” law (Regional Law No. 20/2024) is still pending judicial review).

At the same time, the Region’s incomplete revision of the Regional Landscape Plan (PPR) and the limited coordination of the Energy and Environmental Plan (PEARS 2015–2030) with spatial planning instruments have constrained its ability to exercise effective autonomy and contributed to the fragmentation of territorial governance. Although the Region has often positioned itself as a mediator between national energy objectives and local resistance, its stance has never been entirely neutral. It has sought to assert its autonomy in governance and territorial planning, yet its actions have alternated between legal opposition to national policies and delays in exercising its own planning competences. Furthermore, as the lack of discussion on the Pratobello case reflects, tensions persist between institutional authority and grassroots mobilizations, revealing the complex and sometimes contradictory nature of regional intervention in energy governance.

Overall, this institutional and social opposition reveals a deeper tension concerning the governance of the landscape, rooted in the absence of a coherent framework for integrating territorial protection and energy transition policies.

In any case, those institutional tensions did not stop the protests of local committees, administrators, and citizens, who continued to oppose the construction of the plants, perceiving these laws as top-down impositions.

These positions expressed by local actors and civic movements are also influenced by the historical background of the region. Notably, the concept of energy

colonialism frequently emerges in the analysis conducted, particularly in articles published from 2022 onwards. Industrial wind power—both onshore and offshore—has come to symbolize a new form of economic and political subordination: Sardinia, historically marginalized, is once again perceived as a “territory to be exploited” for the benefit of external interests.

The term *colonization*, repeatedly used by opposition committees, local administrators, and even regional politicians, fits within a well-established narrative in Sardinia. According to this narrative, decisions regarding renewable energy—imposed by the central government—are interpreted as acts of territorial sovereignty expropriation. Similarly, numerous statements by committees, mayors, and citizens—particularly in the areas of Sulcis, Planargia, and Marghine—evoke the perception that Sardinia is being treated as a repository for energy infrastructures “unwanted elsewhere,” effectively turning it into a “sacrifice zone” (Nixon 2011), a central concept in the literature on the environmentalism of the poor (Martínez Alier 2002). This dynamic reflects a form of green colonialism, defined as the imposition of environmentally justified projects that are in fact top-down interventions aimed at meeting the energy needs of distant industrial and urban centers, with little to no meaningful benefit for local communities.

The analysis of the articles reveals that in 2024, during the mobilizations related to the “Pratobello 24” law, colonial rhetoric became increasingly radicalized. Committees have accused the state and multinational corporations in the sector of “plunder” and “expropriation.”

From an academic perspective, this perception relates to the broader discourse on just energy transitions and energy justice (Sovacool et al. 2022a, b; Jenkins et al. 2016), in which one of the key pillars is procedural justice—that is, the right of local communities to be informed, consulted, and actively involved. Similar dynamics are discussed in the literature on “internal colonialism” (Hechter 1975). This body of work describes how peripheral and marginal areas are systematically deprived of their territorial, economic, and cultural resources to the benefit of dominant centers. The concept is particularly applicable to insular and sub-state contexts, where geographic marginalization is compounded by institutional subordination.

Other studies have analyzed the power dynamics and social tensions arising in energy transition processes through the lens of colonialism, although primarily with reference to Indigenous populations in highly marginalized contexts or to countries in the Global South (Fjellheim 2024; Normann 2020; Dunlap 2018, 2021).

The name chosen for the proposed law known as “Pratobello 24” itself evokes the historic anti-militarist protest of 1969 in Orgosolo (a town in Sardinia, in the

province of Nuoro), where the local community peacefully opposed the military occupation of the Pratobello pastures by the Italian Army. That mobilization, characterized by non-violent resistance, led to the withdrawal of the troops and became a symbol of self-determination and territorial defense. The name Pratobello has thus been revived as it signifies a spirit of rebellion and resistance against external impositions—one that ultimately resonated throughout an entire region.

Theme 3. Landscape and environmental conflict

One of the main issues raised in opposition to wind energy development in Sardinia concerns the potential degradation of the landscape. This aspect is not perceived in a uniform manner, nor is it confined to mere aesthetic considerations; rather, it encompasses a plurality of meanings, including the cultural, symbolic, environmental, and productive dimensions of the territory.

First and foremost, the landscape is perceived as a common good and as a fundamental component of collective identity. The transformations brought about by the installation of wind turbines—especially large-scale ones—are interpreted as a disfigurement of the landscape and an act of violence against it, capable of irreversibly altering the visual horizon and the balance between nature and human settlements. The perception of visual damage (visual intrusion) is often associated with a loss of harmony, a sense of the artificial nature of the structures in relation to their surroundings, and a disruption in the symbolic interpretation of place. The radical transformation of the visual horizon is perceived as a violation of landscape integrity. In the statements collected in the articles analyzed, references to the visual impact of wind turbines are consistently present.

According to the literature (Jobert et al. 2007; Gee and Burkhard 2010), visual intrusion is one of the main catalysts for opposition to wind farms, particularly when they are installed in areas considered to have high scenic, historical, or environmental value. The concern that, if left unregulated, wind energy development could result in a veritable "forest" of turbines—thus impacting the visual quality of the landscape—is a recurring theme in opposition discourse. Turbines are often perceived as disproportionate elements and symbols of an invasion or exploitation of natural resources. The visual impact of wind farms, both offshore and onshore, fuels resistance not only to the construction of new facilities but also to the expansion of existing ones. This issue goes beyond mere aesthetics: the landscape is perceived as an identity-bearing and symbolic space. Transformations that alter its visual perception (e.g., infrastructure) are interpreted as assaults on the cultural or aesthetic values of the community. Visual impact reshapes the emotional experience of a place and embodies a rupture with its historical

continuity. People tend to respond negatively to changes that are perceived as invasive or threatening to their psychological connection with the environment.

The visual impact can be perceived as a form of cultural domination, whereby a group imposes symbols (e.g., infrastructures, buildings) that alter the identity of the landscape (Bourdieu 1991).

The visual issue associated with wind energy represents one of the main drivers of opposition to wind farms and features prominently in the narrative of the articles analyzed. In the public discourse reported in analyzed articles, wind turbines are frequently described as "towers," "monsters," "steel giants," or "cathedrals of the wind," emphasizing their perceived dissonance with the local landscape.

Sardinia builds its hospitality economy and regional identity upon the aesthetic and symbolic value of its landscape. Unbuilt coastlines, undeveloped spaces, natural light, and visual emptiness collectively represent an "intangible resource" of both economic and cultural significance.

Scientific literature confirms that visual perception constitutes a critical factor in opposition to projects across various contexts, often outweighing material elements such as noise or safety. The negative effect that large-scale infrastructure projects exert on the aesthetic and cultural value of the perceived landscape—commonly referred to in landscape and visual impact studies as "landscape disamenity" (Wolsink 2007; Pasqualetti 2011)—is frequently cited in studies examining resistance to wind energy developments, particularly when focusing on the non-material factors underlying socio-territorial conflicts. The dimension of territorial rootedness, specifically the sense of place attachment—tied to both collective and personal memories—represents a foundational aspect of protest movements in a variety of settings.

In the case of Sardinia, this issue takes on a distinctive connotation, as it is closely intertwined with a strong sense of territorial identity.

Visual opposition thus becomes a form of semiotic resistance: the presence of wind turbines redefines the meaning of the landscape.

Not coincidentally, the most significant protests emerge when turbines are perceived to threaten "symbolic places" of Sardinian culture and identity. A paradigmatic example is that of Saccargia, where the tacit approval (through administrative silence) of the repowering of the wind farm adjacent to the renowned Romanesque basilica triggered intense public outcry, culminating in a human chain encircling the sacred site. This act carries powerful symbolic weight: a physical and spiritual gesture of protection for one of the Island's most emblematic identity landmarks, seen as threatened by a project perceived as external, intrusive, and culturally dissonant.

In such contexts, the introduction of infrastructures perceived as alien disrupts the continuity between place, memory, and belonging. In this regard, the *Unione Sarda* in 2024 headlined: “Saccargia is sacred,” underscoring the notion that this is an untouchable site whose integrity is non-negotiable, echoing a collective mobilization that merges identity and landscape protection. Citizens are not merely opposing the construction of a set of wind turbines; they are resisting the dissolution of a memory embodied in the space.

According to the protesters, installing wind turbines as tall as 180 or even 355 m near these locations “turns Sardinia into an industrial zone.” This concern is echoed in academic discussions on the sacredness of landscapes (Selman 2010).

Although wind energy policies are promoted as a solution for the transition to renewable sources and the reduction of CO₂ emissions, the opposition raises important questions about the potential environmental impacts of wind farm expansion on the landscape. The objections primarily focus on the effects that large-scale wind infrastructures may have on local fauna, as well as on the risk of altering fragile ecosystems and compromising vulnerable environments through irreversible ecological changes. In the case of offshore installations, concerns include the protection of seabeds—such as *Posidonia oceanica* meadows—as well as risks to bird species and coastal biodiversity.

Sardinia is characterized by high environmental quality, with a significant number of protected areas (Sites of Community Importance, Special Protection Areas, parks, and nature reserves), a rich presence of endemic biodiversity, and a relatively unspoiled natural landscape. From the perspective of environmental conflict, it is also worth noting that one of the main criticisms of the unregulated proliferation of wind projects concerns the lack of cumulative impact assessments—that is, the absence of integrated planning. The highlighted risk is that individually approved projects, although formally deemed compatible, may collectively result in highly detrimental synergistic effects on ecosystems. The scientific literature underscores the critical importance of this issue (Kaldellis and Zafirakis 2011), especially when multiple installations are concentrated within the same area. In Sardinia, this phenomenon is exacerbated by the exceptionally high number of project applications submitted.

Habitat fragmentation, disruption of migratory routes, and alteration of the behavior of protected wildlife species (such as the griffon vulture in the northwestern part of the island) are well-documented effects in the scientific literature (Drewitt and Langston 2006).

Another critical issue, from the analyzed newspaper articles, concerns the risk of losing fertile agricultural land, particularly in agrivoltaic projects associated

with wind power lines. The installation of wind turbines requires the concreting of large areas, the construction of access roads, and the laying of cable ducts, all of which can also impact the hydrogeological cycle. These concerns are consistent with international studies highlighting the land-intensive nature of onshore wind energy, which often entails underestimated effects on fragile or agriculturally used soils (Bergmann et al. 2008; Hernández et al. 2014). Such arguments are emblematic of an ecological conflict and illustrate the complex relationship between these infrastructures and the protection of natural resources. They reflect a broader tension between economic development and environmental conservation, reinforcing the dichotomy between productive (economic) and reproductive (ecological) logics—two equally legitimate perspectives that are difficult to reconcile without an integrated and sustainable approach.

In a significantly smaller number of contributions, concerns also arise regarding electromagnetic pollution associated with medium- and high-voltage cable ducts, and more broadly, potential risks to human health.

Moreover, while wind energy policies are promoted as part of the transition toward more sustainable energy systems, doubts persist regarding the long-term sustainability of these infrastructures and the management of their impact on future generations. The lifespan of wind turbines, their decommissioning, or potential future upgrades generate uncertainty and concern.

Finally, with regard to the competition between multifunctional land uses, there is a notable demand to prioritize alternative uses that are incompatible with wind power installations. One prominent example is the Einstein Telescope project in Sos Enattos, whose research on gravitational waves could be severely compromised by wind farms that disrupt the low-noise environment essential for the telescope's highly sensitive measurements.

Conclusions

The reasons behind the opposition and protests against wind energy in Sardinia, as revealed by the analysis of articles published in the local press between 2009 and 2024, are diverse and multifaceted. They can be grouped into several main themes that have evolved over time along various trajectories, often interrelated. These themes reflect the local population's environmental, political, economic, and cultural concerns. Overall, a complex and distinctive situation emerges—one that cannot be simply reduced to the conventional NIMBY (Not In My Back Yard) paradigm. The opposition to wind farms in Sardinia, based on the analyzed articles, does not represent a mere Nimby-style conflict; rather, it constitutes a structured movement grounded in identity-related, environmental, and political values. Renewable

energy is regarded as acceptable only when compatible with the protection of the landscape, which is perceived as a central component of local identity. Strong criticism is directed at the management of wind projects by private companies and the national government, both of which are perceived as detached from the interests of local communities. Wind turbines are viewed by the population and local institutions not only as a threat to the natural landscape, but also as a symbol of economic colonization and democratic exclusion. Popular mobilization, supported by local authorities and civic committees, represents a claim to decision-making sovereignty over the territory and to the autonomous management of natural resources.

Based on our analysis, the current developments can be interpreted as expressions of tensions over both material resources (e.g., land, regulatory frameworks) and symbolic resources (e.g., landscape, identity). These tensions are intertwined with issues of social justice, public participation, and the balance between competing interests, as well as with emotions, values, and a sense of belonging.

In conclusion, Sardinia is at the center of an intense debate over wind energy, marked by strong opposition from local administrations, various grassroots committees, and concerned citizens. While sharing similarities with other contexts—such as environmental concerns and the distribution of economic benefits—the Sardinian case also stands out as unique. To date, no other instances documented in the scientific literature or international case studies report region-wide mobilizations that have resulted in a structured and binding popular legislative proposal against wind energy, achieved such widespread and cross-sectoral support, and demanded the application of regional urban planning powers to influence energy-related decisions. In this regard, the Sardinian case represents a significant example at both the national and international levels, due to the scale, breadth, and intensity of the social mobilization against the uncontrolled expansion of wind power.

In this context, the demand for stronger control over energy resources by the Sardinia Region stands out, as it could enable better protection of the territory, the landscape, and the local economy, while preventing exploitation by external speculators. However, a certain contradiction also emerges. Indeed, the desire to regulate the development of renewable energy intertwines with a tendency toward the near-systematic rejection of their siting, thereby rendering the achievement of energy transition goals almost impossible. The risk is that a legitimate demand for autonomy and sustainability may, in practice, become an insurmountable barrier to any effective implementation.

The conflict between the need to develop renewable energy sources and the protection of the environment

and local rights remains a crucial and unresolved issue in regional policy. Gaining an understanding of the underlying motivations may provide an important contribution toward overcoming this impasse.

In conclusion, the study provides a comprehensive response to the research question, demonstrating that opposition to wind energy in Sardinia is a complex, evolving phenomenon rooted in multiple social, political, and cultural dimensions. However, in this interpretive framework, some limitations must be acknowledged. The analysis is based exclusively on articles from a single regional newspaper, which—while offering a rich and continuous documentation of local debates—may reinforce specific narratives and underrepresent alternative perspectives. Future research could therefore extend the dataset to include other media sources, both regional and national, in order to compare different framings and broaden the representativeness of the findings.

Despite these limitations, the results underline the importance of strengthening participatory governance mechanisms, ensuring redistributive benefits for host territories, and integrating landscape and energy planning. At the policy level, enhancing institutional coordination among national, regional, and local authorities and adopting more inclusive decision-making frameworks could help mitigate territorial conflicts and foster a fairer implementation of renewable energy projects.

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The author is solely responsible for all aspects of the manuscript.

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Data availability

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

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The authors declare no competing interests.

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