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The key mechanisms in social acceptance of wind farms from energy justice perspective: a case study in Turkey

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ABSTRACT

Based on a case study in Çanakkale province of Turkey, this article examines the mechanisms of social acceptance in the development of wind farms in Turkey from the perspective of energy justice. Through the analysis of in-depth interviews, we identify that Environmental Impact Assessment (EIA) as a tool for social participation, and community benefits as a compensatory mechanism are key mechanisms influencing qualified community acceptance, which we define as the character of social acceptance. By questioning how these mechanisms operate, we incorporate the embedded power and sovereignty relations within the social dimension of wind farms into our analysis.

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KEYWORDS Wind farms; social acceptance; community benefits; Environmental Impact Assessment; Turkey

Introduction

In the context of climate change mitigation policies, the transition to renewable energy as a low-carbon energy type has become a strategy adopted, promoted, and supported by the United Nations, various countries, and governments on a global scale.[1] Turkey follows these international developments and incorporates them into its policies. In this context, increasing the share of domestic and renewable energy in electricity production is among the main objectives of Turkey's energy policy and strategy.[2] Developments regarding the utilization of wind energy in the world began in the 1980s and spread rapidly. The importance of wind energy in Turkey started to be recognized in the mid-1990s. With contributions from the International

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Energy Agency (IEA), investments in this field have increased over time.[3] The fact that wind is a favorable renewable and domestic resource that can provide a significant amount of energy has led to the increasing importance of wind energy policies in Turkey. The Renewable Energy Resource Areas (RERA) Regulation, enacted in 2005, supported wind farms with government incentive mechanisms, and the purchase of the produced electricity was guaranteed by the state. Consequently, high-capacity wind energy investments have started to increase gradually.[4] Çanakkale is one of the provinces with the highest concentration of wind farms investments in Turkey (See Figure 1).[5]

With its high wind speed and potential, Çanakkale accounts for more than 10 percent of Turkey's total installed wind power capacity.[6] Following the establishment of the first wind power plant (WPP) in Turkey in 1998, the first WPP in Çanakkale was established in 2000. Nevertheless, 42 percent of the wind farms were established after 2018. Considering the investments in the Southern Marmara Region and the wind potential of Çanakkale, it is observed that Çanakkale lags behind Balıkesir.[7] Therefore, the hypothesis that the lower wind energy capacity in Çanakkale is related to social acceptance prompted this study.

Scholars of energy justice have found that the combined implementation of procedural justice (involving the participation of the local population and other local actors – associations, representatives of the local economy, etc. – in consultation and information meetings, as well as in the planning and decision-making process) and distributive justice (financial benefits, joint

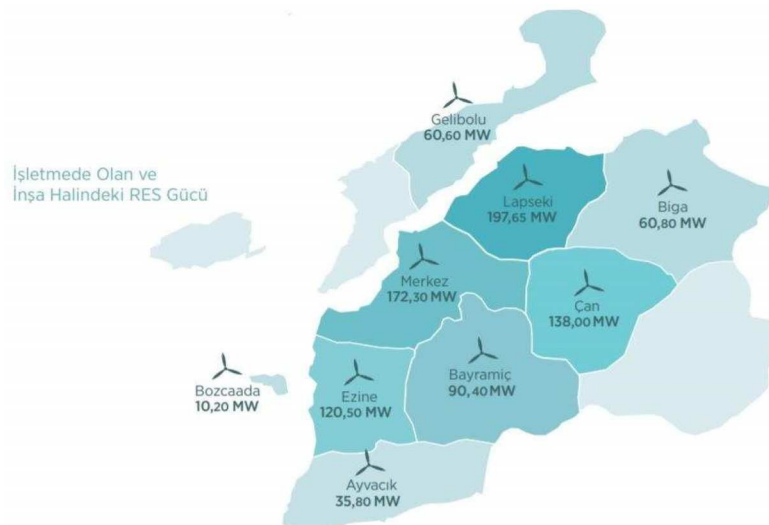

Figure 1. Map of Wind Power Plants (WPPs) in Operation and Installation in Çanakkale[80].

ownership, etc.) is an important factor for the local social acceptance of wind farms.[8] In Turkey, studies on wind farms have increased with the enactment of the RERA regulation No. 5344 in 2005.[9] Among these studies, those concerned with the social dimensions of wind energy are limited, and the theme of social acceptance generally comes to the fore.[10] However, these studies do not possess a holistic energy justice perspective that encompasses both procedural justice and distributive justice while considering local community members or stakeholders (local NGOs, local governments, and universities) beyond just the residents. This research addresses the limitation of studies focused solely on economic benefit and cost within the scope of distributive justice by incorporating both distributive justice and procedural justice to more holistically examine local-level social acceptance, in other words, community acceptance. In line with Wüstenhagen et al.[11], who conceptualized social acceptance in three dimensions, socio-political acceptance, community acceptance, and market acceptance, this research particularly focuses on the dimension of community acceptance, which reflects the social acceptance of the local population. Building on this background, the research problem of this study is to identify the mechanisms that influence the social acceptance of wind farms development in Çanakkale. The sub-research questions that arise from this problem are 'how the mechanisms of social acceptance operate' and 'what are the outcomes of these mechanisms in terms of the interests of the local community'.

Our aim, therefore, is to uncover the underlying causes and consequences of social acceptance. Examining the reasons and results of social acceptance from the perspective of energy justice will demonstrate how wind energy policies can be more effectively and efficiently aligned with the principles of energy justice. From the perspective of energy justice, we identified under what conditions and to what extent these mechanisms operate efficiently, and we developed suggestions for improving existing mechanisms and/or developing alternative (new) regulatory mechanisms, as Çanakkale possesses significant wind energy capacity and potential, and mitigating conflicts among stakeholders is crucial to ensure that wind energy development progresses in alignment with renewable energy goals, which are part of climate change mitigation policies, while also safeguarding the interests of the local community. Tornel[12] and Healy and Barry[13] criticizes the tendency of recent studies on energy justice to center around policy-based solutions and ignore politics. However, this research, stemming from the question of how social acceptance mechanisms operate, focuses on how these mechanisms are managed and also interrogates the unequal and hegemonic power relations in the development of wind farms in Çanakkale. Thus, as Tornel, Healy and Barry emphasize, we incorporate an analysis of the politics of wind energy, considering the systems of power and domination embedded within its social dimension.

Renewable energy policies in Turkey

Wind energy is a favorable domestic resource in Turkey that can provide a significant amount of energy. The Law on the Use of Renewable Energy Resources for the Purpose of Generating Electrical Energy, which came into force in 2005 as an incentive mechanism, guaranteed the purchase of electricity produced from renewable energy sources, thereby increasing interest in the energy sector; after its adoption, investments in wind energy and installed capacity began to rise rapidly. Based on the projection that by 2023, approximately one-third of the total electricity consumed in Turkey would be obtained from renewable energy sources, great importance has been given to the development of wind and solar energy.[14] According to the 2023 data from the Ministry of Energy and Natural Resources, the distribution of installed capacity by source is as follows: 29.8 percent hydraulic energy, 23.9 percent natural gas, 20.6 percent coal, 11 percent wind, 10.5 percent solar, 1.6 percent geothermal, and 2.6 percent other sources.[15]

Under the RERA Regulation (2016)[16], the installation area for renewable energy is determined based on measurements made on the basis of energy efficiency. However, installation areas differ according to the types of renewable energy. Similarly, according to the Regulation on the Technical Evaluation of Applications for Electricity Generation Based on Wind Resources (2015), WPP installation areas are determined by the state and put up for tender. Through regulations, both public lands belonging to the treasury and private lands can be allocated to investors for energy production; large-scale energy investments can receive support at both national and international levels. The RERA Regulation defines pre-license and license processes for renewable energy installation. Energy cooperatives, however, are defined as unlicensed electricity production, being outside the scope of obtaining a license.

According to the data from the Turkish Wind Energy Association [TUREB] in 2023 (Figures 2 and 3)[17], the installed capacity of WPPs in Turkey is increasing day by day. The Strategic Plan of the Ministry of Energy and Natural Resources for 2015-2019, the Turkey National Renewable Energy Action Plan for 2013-2023, and the Development Plans are centrally designing energy installation areas that are increasing day by day. According to the Turkey National Energy Plan of 2022, the share of renewable energy sources is planned to reach 69.1 percent by 2053. Legal and institutional regulations are being prepared in line with these plans. Thanks to the opportunities provided by the Law No. 5346 on the Use of Renewable Energy Resources for the Purpose of Generating Electrical Energy, enacted in 2005, the installed capacity of WPPs in the Çanakkale-Balıkesir Region has shown a rapid increase since 2007.[18]

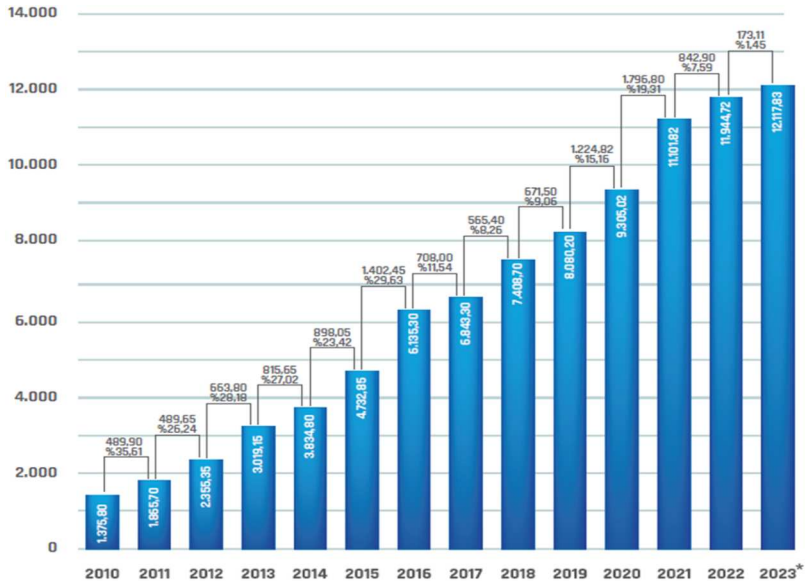

Figure 2. Cumulative Installation for Wind Power Plants in Turkey (Turkish Wind Energy Association, 2023).

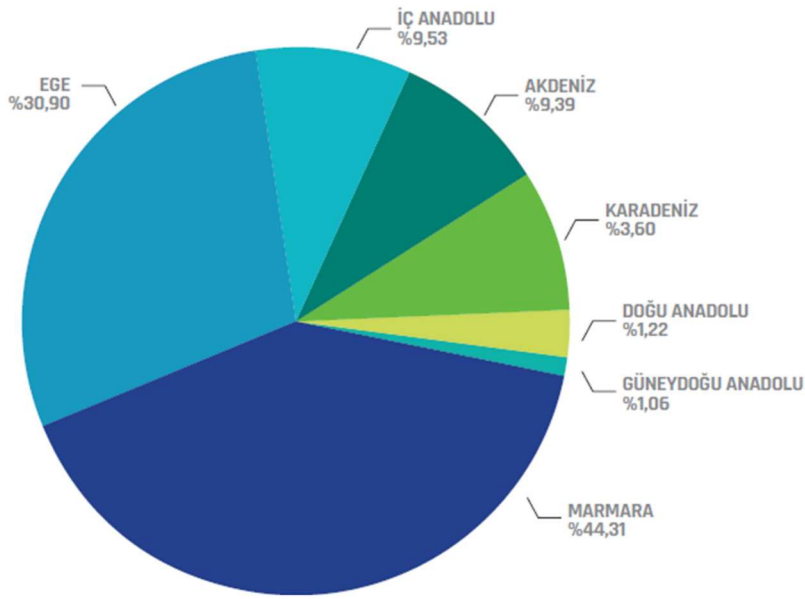

Figure 3. Regional Distribution of Operational WPPs (Turkish Wind Energy Association, 2023).

Theoretical framework

Energy justice constitutes the theoretical framework of this study. In line with Sovacool and Dworkin[19], we consider energy justice to be both a conceptual framework that effectively integrates distributive and procedural justice, and a crucial analytical tool. This dual perspective helps understand how values are embedded in energy systems, and how energy issues arise and evolve, and aids in identifying solutions. This is because 'considering energy justice holds the potential to resolve tensions between different groups and policies.'[20]

Energy justice is a newly emerging concept that has originated from environmental justice and climate change movements and is often seen as part of the transition from fossil fuels to renewable energy.[21] When considering the social dimensions of the transition to renewable energy, concerns about 'justice and equity' are among the primary topics of discussion, and this relationship is evaluated in the context of 'energy justice'.[22] There are different approaches to the fundamental principles or dimensions of energy justice. According to some, energy justice has three fundamental principles or dimensions: distributive justice, procedural justice, and recognition justice.[23] Distributive justice addresses issues of sharing or allocation; procedural justice refers to the mechanisms for involving different stakeholders in the decision-making process; and recognition justice involves including all entities in the process.[24] When analyzing energy justice, the concepts of distributive justice and procedural justice are primarily used to understand and capture the unfair distribution of potential impacts of energy systems and to examine unjust practices in more detail.[25] McCauley and Heffron[26] identify distributive justice and procedural justice as the two dominant analytical frameworks of energy justice. This emphasis arises because the scope of inequalities related to the energy transition is often defined through these distributive or procedural lenses. Additionally, the appropriate distribution of outcomes in the energy system – distributive justice – and impartiality in decision-making – procedural justice – are interconnected, as the character of the benefits provided and the process by which these benefits are achieved are not independent of each other.[27]

Distributive justice concerns how energy services and harms are distributed and whether energy systems are equitable within and across generations.[28] It involves the unequal physical sharing of both environmental benefits and costs, as well as the unequal distribution of responsibilities associated with them.[29] It represents a call for the equal distribution of the benefits and costs arising from energy services or systems to all members of society, regardless of race, income, gender or other social affiliations. Procedural justice relates to access to decision-making processes governing these distributions in energy systems.[30] It manifests as the inclusion of all stakeholders in fair procedures without discrimination.[31] The core principles of

procedural justice include full participation in the process, the free expression and consideration of ideas, provision of adequate information, and the impartiality of decision-makers..[32]

Although justice as recognition is sometimes viewed as a component of procedural justice, many scholars incorporate it as a distinct principle within the framework of energy justice.[33] Recognition is not synonymous with participation; it manifests as the process by which the identities of certain places and people are devalued, humiliated, or disrespected in comparison to others. Thus, a lack of recognition can emerge through various forms of cultural and political domination and devaluation.[34] Energy justice is concerned with justice as recognition because the improper functioning of procedural justice can lead to discrimination and marginalization.[35] Recognition justice pertains to identifying those who are ignored and involves detecting individuals affected by energy injustices.[36] In this context, recognition justice emphasizes the impact on vulnerable, excluded, impoverished, or otherwise underrepresented or misrepresented populations and demographic groups – particularly on vulnerable groups such as women, children, minorities, or Indigenous peoples.[37]

Methodology

Research design

In this study, which adopts a qualitative research method, we employed a case study design. In a case study, multiple data collection tools such as interviews, documents, and reports are used to thoroughly examine one or more cases, which allows for the identification of themes related to the cases and their contexts.[38] The nested multiple-case design involves including multiple cases within different layers.[39] In this study, we employed an embedded multiple case design, as understanding community acceptance in a holistic manner necessitated addressing multiple layers. Accordingly, one layer comprises local stakeholders, while the other layer involves renewable energy companies.

Participants

In this study, we conducted in-depth interviews with renewable energy companies and local stakeholders from different layers through purposive sampling. Conducting in-depth interviews with various stakeholders is significant because they represent different interest groups. Civil society organizations focus on environmental requirements, investors on economic interests and profit, and government officials on balancing different interests.[40] Therefore, a detailed study of the characteristics of different stakeholder groups can inform policy design aimed at reducing objections.[41] Hence, in this study, we conducted in-depth interviews with various

stakeholders. The sample of the research consisted of wind power plant companies investing in Çanakkale and stakeholders (local residents, local governments, local civil society organizations, and universities) in the region where these turbines were installed. In total, we interviewed 56 individuals, including 47 local residents, 7 other local stakeholders, and 2 employees from WPP companies (18 female, 38 male) (see Appendix 1).

In this study, we initially planned to conduct interviews with four different WPP companies. These companies are the founders and operators of two WPPs established under the 'No EIA Required' decision and two WPPs established under the 'EIA Required – Positive' decision. We selected energy companies from the WPPs that were active in Çanakkale in 2021, the year when the research field was determined (see Figure 4). In 2021, 20 different companies were operating in Çanakkale, and for our sample, we selected companies with high electricity production capacity and a significant number of turbines. However, two of the companies planned for interviews declined to participate, which constitutes one of the limitations of this study. The other two companies interviewed had international partners and received financial support. The interviews with the local population were conducted in three villages connected to the central district of Çanakkale and one village within a district. These villages were selected based on their proximity to the WPP installation sites (ranging from 500 meters to 1.5 kilometers) as determined by the aforementioned criteria. In accordance with the ethics committee's decision, we did not disclose the names of the companies and villages in the study.

Data collection and analysis

In this study, we collected the data through in-depth interviews using a semi-structured interview guide. We developed questions based on the

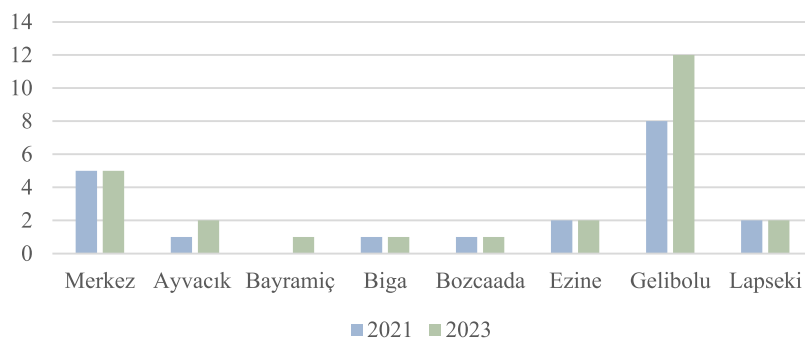

Figure 4. Distribution of Wind Power Plants (WPPs) by Districts in Çanakkale (TUREB 2021-2023)[81].

information obtained from the literature. To ensure the validity of the interview guide, we sought feedback from two experts in the field of renewable energy. Based on their recommendations and critiques, we restructured the questions in the interview guide. We conducted in-depth interviews between January and March 2023 with employees of wind energy companies, public officials at the local government level, representatives of non-governmental organizations, renewable energy experts from universities, and residents living near the areas where wind turbines were installed. Initially, we briefed on the content of the research to the participants, and requested their voluntary participation. We assured the participants that their real names and shared information would remain confidential before starting the interviews. Additionally, we asked the participants for permission to record the interviews and had them sign an informed consent form. We audio-recorded each interview and they lasted approximately 40–60 minutes.

We used the MAXQDA software for the analysis of the interviews. We analyzed the data within the framework of thematic analysis. This method aims to identify, analyze, and report patterns in the data, facilitating organization and detailed examination of the dataset.[42] In this context, we sequentially employed 'open coding, axial coding, and selective coding'.[43] Using the code relations browser and code map in MAXQDA, we tested relationships between the data and made comparisons.

Results

We asked the local community, including residents and other stakeholders, questions about the mechanisms shaping their support for the development of WPPs. The majority of the participants approved of WPPs because they were perceived as cleaner and more environmentally friendly compared to fossil fuels. Çanakkale is one of the leading provinces in energy production from fossil fuels, particularly coal-fired power plants. As such, most participants were well aware of the harmful effects of energy produced by thermal power plants and were able to clearly compare the impacts of fossil fuels and wind energy. In contrast to thermal power plants, they considered WPPs as a healthier and cleaner energy source because they do not result in carbon emissions, air pollution, or environmental waste. However, the study's findings reveal that the character of local social acceptance was characterized by qualified community acceptance.

While wind energy is generally viewed favorably by the local community (including local residents and other stakeholders) in Çanakkale due to its status as a cleaner energy source compared to fossil fuels, the level of support is not uniform. This discrepancy is related to the challenges associated with the development of WPPs in Çanakkale. Although the local community has not developed significant social resistance to wind turbines, it is

also not possible to speak of a high level of social acceptance. Therefore, drawing on Bell[44] et al's conceptualization of qualified support, this study defines the character of social acceptance of wind energy in Çanakkale as qualified community acceptance. This term underscores that achieving acceptance involves both distributive and procedural justice considerations as equally essential and decisive factors. This perspective contrasts with the 'Not in My Backyard' phenomenon, which is primarily concerned with distributive justice, and the democratic deficit approach, which focuses on procedural justice dimensions, respectively. In this context, the more inclusive character of the qualified support approach aligns with the findings of this research. Qualified support for wind energy entails endorsing it under specific conditions and controls related to landscape, environment, and human life (such as noise and proximity).[45] Therefore, it depends on certain defined criteria.[46] To understand the conditions under which the local community opposes the development of wind power plants, it is important to examine the specific reasons they offer. It is crucial to pay attention to the criteria that are important in qualified community acceptance. These criteria also highlight the key mechanisms that influence social acceptance. We categorized these mechanisms under two themes: Environmental Impact Assessment (EIA), and Community Benefits.

Environmental Impact Assessment (EIA)

In the development of wind energy in Çanakkale, the EIA process has emerged as a prominent legal and institutional mechanism for community acceptance. EIA is an important process that enables local-level social participation in the development of wind energy. In EIA, local governments (municipalities and village councils) and the local community are defined as key stakeholders. Local actors such as NGOs and universities are not formally recognized as defined participants in the EIA process. However, wind energy companies may occasionally informally consult or seek input from these local actors. Additionally, local actors may choose to attend public participation meetings related to the EIA process. This study reveals that while institutional opinions and approvals are obtained from municipalities within the scope of EIA, municipalities do not have an effective position or role due to WPP project areas falling outside their jurisdiction. Municipal participation in the planning and installation process is limited to submitting a joint opinion letter that includes consideration of environmental impacts by the relevant commission. Despite the limited and ineffective participation of municipalities in Çanakkale, the process predominantly revolves around the opinions, approvals, and practices of village councils as local authorities. This is because WPP installations are mostly situated in rural areas, and municipalities without metropolitan status have limited authority in these

regions. Therefore, it can be concluded that village councils hold an active position and play a prominent role as key local actors in WPP investment processes.

> They ask for our opinion but generally, all these types of projects are outside our [participant knowledge removed] boundaries. So, saying it's outside our boundaries means it's outside our jurisdiction. When you give an opinion on something you don't have authority over, it's not taken very seriously anyway (Local Stakeholder, Male, Age 35).

> The *mukhtar* [the head of local government of a town or village] is responsible here. The mukhtarship is informed and his signature is requested. It's not like that in any other system. Even outsiders coming in look for the mukhtar first in the village (Participant 32, Local Resident, Male, Age 35).

Mukhtars, as local authorities, are approached by energy company officials if wind power plants are to be installed in village pasturelands. Secondly, mukhtars, being both public servants and members of the local community, assume a mediator role between energy companies and the local populace. The mukhtars' mediator role manifests in two ways: facilitating access to and persuading property owners when WPPs are to be installed on private property, and announcing and ensuring community participation in public participation meetings under EIA.

> We tell the mukhtar, 'Look, our female attendance is a bit low. Please try to increase it.' We want the [participation meetings] to be crowded. People should hear it directly from us. If they don't hear it firsthand, things go in different directions. Then you can't bring it back together (Company Employee, Male, Age 35).

The effective position and role of village councils actually weaken the practicality of informing the local population. This is because the area outside the jurisdiction of mukhtars and their surroundings, except for landowners in the area where WPP installations will take place, often cannot access sufficient information and are excluded from consultation and approval processes. During the planning and installation stages of WPPs, informing the local population and gathering their opinions occur through the legal-institutional EIA process. The local community participates in the EIA process through Public Participation Meetings. However, we observed several issues regarding the implementation of public participation meetings in this research: inadequate clarity and comprehensibility of information (insufficient information dissemination) and limited and unequal social participation (insufficient qualified social participation).

In the EIA process, it is as important to convey information to the local community about WPP projects as it is to ensure that this information is communicated in a way that they can understand. Some participants from the local community in this research indicated that they did not understand

the information provided about WPPs because it was not presented clearly and understandably. Additionally, we observed that the majority of the local community had little to no knowledge about the EIA, with only a small fraction having limited information.

> When someone explains there, it doesn't quite sink in. They don't explain it in a way that will sink in. We understand enough, but of course, there are parts we don't understand. Because we don't have the education, we pass over what we can understand and move on from what we can't (Local Resident-Mukhtar, Male, Age 58).

This research revealed that public participation meetings were often held for small and specific groups rather than reaching the majority of the local community, particularly focusing on mukhtars and their associates, as well as property owners. As a result, the intended goal of social participation was not achieved.

> They consult with the mukhtar, who has deputies, connections, and friends in the village. They talk to them, but they don't reach out to us. In other words, we don't have the right to object. Only those who own land get to speak (Local Resident, Male, Age 75).

For WPP installations on private property, it is mandatory to obtain consent and approval from property owners. At this stage, wind energy companies negotiate with private property owners to purchase their land by obtaining their consent. This indicates the presence of information and dialogue in the planning of these WPP projects. However, when landowners are unwilling to sell their land to energy companies or when the parties cannot agree on a price, expropriation decisions, though not frequently, are occasionally enforced. This means that the right to use private property transfers to government agencies for a fee determined by experts. Once the land ownership transitions from local residents to the treasury, it is leased to renewable energy companies.

> In private lands, renewable projects can be expropriated under expropriation laws because infrastructure such as bridges, highways, energy, which are of geopolitical importance and reduce the current account deficit, the state can expropriate these matters. But first, we try to reach an agreement with citizens within the scope of consent. … So, if there is no consent, expropriation becomes necessary. (Company Employee, Male, Age 35).

We observed that expropriation was one of the reasons behind objections to WPPs. Although this tendency among local communities does not lead to significant social resistance at the local level, it negatively affects community acceptance: 'Basically, everyone [the local community] supported it because it's clean energy, but the problem arose when expropriation occurred … ' (P39, Local Resident – Former Mayor, Male, 65). Additionally, we found

that holding public participation meetings mostly in village coffeehouses restricted the social participation of women in particular. While some female participants stated that they did not have any information about WPPs, they pointed out the venue of the meetings: 'Honestly, they gathered the men in the coffeehouse. They discussed it there' (Local Resident, Female, Age 70). The participants from the local community conveyed that information sessions about WPP projects were generally conducted in village coffeehouses. Consequently, we observed that the women often did not attend these participation meetings or did not have direct access to information about wind power plants to be installed in the area, thus excluding them from the participation process. We also found that the women were generally less eager about social participation, believing that men are generally knowledgeable and decision-makers in public matters, and should be.

Community benefits

In the development of wind energy in Çanakkale, community benefits have emerged as a key mechanism significantly influencing community acceptance. The limited availability of economic benefits such as income generation, employment, and procurement of local services has made community benefits increasingly significant. The ownership model of wind turbines (providing one-time financial compensation), their establishment predominantly on forested and pasturelands, and their low capacity for local employment and service procurement – largely restricted to the construction phase – limit economic opportunities for the local population:

> Yes, there is an impact on the local economy during the construction phase … Of course, during the installation stage, there are economic contributions to the surrounding area. Workers come, stay here, and spend money on food and other needs. They buy concrete and iron locally, hire labor, and rent machinery, which benefits many sectors during the construction stage (P5, Local Stakeholder, Male, 44).

> They don't need employees there … You only need one or two guards. Even if there were 20 turbines, one guard would suffice. So, there's no economic contribution (P48, Local Resident, Male, 67).

> hey mostly tried to place those wind turbines on state-owned or forest lands … They chose such areas, always those sides. (P23, Local Resident, Male, 73).

Some companies that own WPPs in Çanakkale have supported the local community by addressing and/or improving needs in shared village spaces, such as schools, roads, mosques, and infrastructure. This research reveals that community benefits in Turkey are implemented as informal and voluntary corporate social responsibility projects based on the corporate policies of companies. Community benefits are not legally defined or

included in regulations, and thus, there is no standardized practice regarding their distribution, conditions, or criteria. Instead, we observed that large-scale national and/or multinational companies tended to provide more public services and support within the scope of their social responsibility activities. The employees of the companies interviewed expressed the character of these community benefits as follows:

> This is entirely at the discretion of companies and municipalities … whether you call it initiatives or the money they allocate for social issues, there is no obligation. You can spend not a penny or a billion dollars. There is no limit to this. But for social peace … you need to do something (Company Employee, Male, Age 35).

> They support village charities, provide support for the village's generator and water pump needs, support the village's football team, and help in many other ways. This is a norm in the wind sector; I don't know about other companies (Company Employee, Male, Age 37).

The general function of these community benefits is to prevent social reactions that may arise from the development, expansion, and widespread adoption of WPPs, and to garner community support. Associated with this general function, this research identified two important roles of community benefits. One role is to compensate for certain social, economic, and environmental costs in the installation and operation process of WPPs, and the other is to ensure the development of local regions in exchange for the economic gains obtained by companies and the state from WPP investments.

> Yes, of course, they should provide benefits to the village. If they are damaging our roads, they are obligated to provide services to the village (Local Resident, Male, Age 55).

> … If they are directly providing services here, we should receive something in return for the pole … (Local Resident, Male, Age 40).

> … If you are going to provide a benefit from there, that region also needs to develop. If your project will contribute to the development of that village through production, then that village also needs to develop … (Company Employee, Male, Age 35).

However, we observed that the distribution of community benefits varied among different communities in various installation areas. While some villages received relatively more public services and improvement initiatives, others were lacking in such practices. This disparity highlights injustices in the distribution of in-kind community benefits among villages.

> They haven't invested in our village at all. They did it in other villages, for example, they built mosques and coffeehouses there; they didn't do anything like that here (Local Resident, Male, Age 55).

In this form of injustices in the distribution of community benefits, the relationship between village councils and companies, and the managerial skills of village councils, are decisive. This is because village councils play a significant role in obtaining and distributing them.

> In [location name], it happened, the mukhtar made a deal. He said, 'I'll open this work area, I have requests'. They sat down, discussed it, got their requests fulfilled. The mukhtar said, 'I'll issue the permit, but I have my requests'. He said, 'You will build me an imam's house', it was done. 'You will asphalt my roads, renovate the mosque', he said, it was done. The contractor delivered all of these, then started and completed the foundation. We didn't benefit from this, the mukhtar worked for himself last term. It didn't benefit the village at all … (Local Resident, Male, Age 59).

Discussion

The social acceptance mechanisms in the development of wind power plants (WPPs) serve as mechanisms to reduce or prevent conflict and opposition. This research identified two key mechanisms: EIA and community benefits. The analysis shows that while these mechanisms are important tools that accelerate the development of wind energy, they also create social and environmental pressures on local communities due to issues within the regulatory framework and institutional operations. Therefore, it is essential to consider and evaluate the social outcomes of WPPs in Çanakkale – their impact on local communities – through the lens of energy justice principles, including procedural justice, recognition justice, and distributive justice.

Institutional issues in the functioning of EIA: lack of inclusivity in public participation meetings – lack of recognition of the local community

The EIA process is an international, national, and local practice aimed at balancing development with environmental considerations.[47] Since the EIA process is generally part of the planning and installation process, its effective functioning includes several criteria such as participation, efficiency, stakeholder relations, and environmental outcomes.[48] In Turkey, from 2000 to 2022, there was a limitation rooted in the regulatory framework of the EIA process. The EIA Regulation has been frequently revised since 2000, and by 2022, 89.8 percent of EIA applications resulted in a 'No EIA Required' decision.[49] Additionally, with regulatory changes, the authority to make EIA decisions has been centralized under the Ministry of Environment, Urbanization, and Climate Change, with a noticeable decline in projects receiving the 'EIA Required' decision over the years for

the sake of energy development and growth.[50] This trend highlights the acceleration of energy projects through centralized decision-making mechanisms. Despite the influence of a liberal economy after 1980, large infrastructure projects in Turkey have continued under centralized decision-making mechanisms, and following the 2008 economic crisis, the authorization, supervision, and implementation principles of these projects have become more distinctly centralized.[51]

However, with the regulatory amendment made in 2022, all WPP projects have been included within the scope of EIA. The 2022 EIA regulation aimed to reduce the number of project activities exempted from EIA requirements and to block avenues for excluding or exempting projects from the scope of the EIA regulation, particularly in response to the Paris Climate Agreement.[52] This new legal regulation stipulates that regional and environmental assessments be conducted more thoroughly and that public participation meetings be held for all WPP projects. We can view this change in the regulatory framework of the EIA process as an improvement. 'From the beginning to the end of the EIA process, every activity detailed in the stakeholder participation plan to inform the public about the project and to gather their opinions and suggestions on the project (brochures, promotional films, official announcements, meetings, information offices, etc.)'[53] is implemented at this stage. The public participation meetings represent a significant step in enhancing social participation in the development of WPPs in the region. But in interviews conducted with the local population, we frequently observed several issues related to public participation meetings: inadequate information (information not being clear and understandable), non-inclusive social participation (involvement mainly of a specific group in the village – mukhtar and his/her associates, mostly men, and property owners), and expropriation concerns. These issues evoke discussions regarding the symbolic character of social participation. While public participation meetings represent an important step towards social engagement in the development of wind power plants in the region, they risk remaining at a symbolic level. The character of these meetings aligns with the symbolic stages of Arnstein's Ladder of Citizen Participation[54], which include informing, consulting, and placating. According to Arnstein, although public opinions may be heard, there is no guarantee that they will be taken into account by decision-makers. Researches indicates that Arnstein's ladder remains relevant for describing social participation in wind energy projects.[55] Moreover, it suggests that instead of achieving full social participation and the vision of full citizen empowerment, these projects reflect a phase described as being halfway up the ladder.[56]

These issues indicate that the social participation provided through the EIA process does not have a qualitative character. The character of this social participation has, in certain instances – specifically between the local

population and mukhtars – led to social conflicts and a lack of trust in institutions, especially the mukhtarship institution. These issues are closely related to how the EIA process is organized and managed. Consequently, they reflect the outcomes of both centralized decision-making mechanisms and local power dynamics in the politics of wind energy. Proximity and familiarity with the mukhtar, as well as gender, play a decisive role in the exclusionary character of social participation. This discrimination, which stems from the improper functioning of procedural justice, brings the issue of recognition justice to the fore.[57] In this context, when we consider 'who is being overlooked'[58], it is particularly evident that women stand out. While the status of women is linked to how social participation processes are organized, it is more closely related to the characteristics of rural social structures. Factors such as the frequent use of coffeehouses as meeting venues and the perception of public matters as outside the interests of women make it difficult for them to participate socially.[59] These findings strengthen criticisms of the EIA process, such as the non-binding character of public participation and the disregard of public demands.[60] The findings reveal that, although expropriation is rarely used, it has a significant impact on social acceptance. In the development of wind energy in Turkey, criticism from local communities arises due to the prioritization of national-level 'public interest' principles over local community interests. This is particularly evident in the use of treasury lands and the implementation of expropriation decisions, which have been contentious issues. With the enactment of the 'Regulation on Immovable Procurement Transactions Conducted by the Energy Market Regulatory Authority' in 2021, urgent expropriation decisions were introduced to facilitate the implementation of energy projects and accelerate decarbonization efforts. Urgent expropriation describes a new rule concerning the judicial oversight of regulatory mechanisms in energy projects.[61] It emerges as a measure to prevent the state from encountering conflicts when acquiring land for energy projects (including electricity transmission lines and transportation routes).[62] Therefore, unlike other expropriation practices, urgent expropriation does not grant local communities the right to object to the location chosen for energy installation, nor can they file cancelation lawsuits. Consequently, property owners in WPP installation areas may have their lands expropriated at prices lower than those offered by companies if they refuse the company's proposed compensation. However, they can dispute the valuation of expropriated land and appeal the decision. These centralized decision-making mechanisms, driven by the urgency of transitioning to renewable energy, weaken the inclusion of local community opinions and diminish social participation.

Despite the limitations in the institutional functioning of the EIA process, it remains the only legal-institutional mechanism that ensures social participation. Therefore, it is necessary to reflect on potential improvements to the

EIA process and develop solutions. In this context, we can regard the inclusion of all WPP projects under the scope of the EIA process with the new regulation enacted in 2022 as an improvement in the regulatory framework. We can interpret this improvement as a notable step towards procedural justice within the development of Turkey's national energy policy. However, the findings of this research indicate that further improvements in the institutional functioning of the EIA process are needed. In this regard, expanding the scope of social participation in public participation meetings is crucial. This can be achieved by effectively developing request and complaint mechanisms, offering cooperation models (in agricultural production with residents; in employment with local NGOs or universities) to engage a broader segment of the local population, and selecting meeting venues that facilitate women's participation, such as neutral spaces like village squares. We can regard these improvements as a way of taking social participation from the symbolic to the real or concrete level.

Additionally, the participants' statements in this study indicated that the principle of long-term dialogue was not realized in the WPP installation areas. Therefore, it is important to include legal regulations concerning monitoring of projects during the operational phase of WPPs within the EIA process, aiming to establish mechanisms for informing the local community and addressing complaints. Long-term and continuous dialogue and regular information updates[63] form the basis of procedural justice. In other words, adopting an approach of consult-think-adjust-progress in energy transitions will foster dialogue opportunities between policymakers and local communities, leading to increased community acceptance.[64] Indeed, the participants in this research highlighted collaborative and multi-stakeholder social participation models in the development of WPPs in the region among other local stakeholders. Moreover, we observed that there was openness among these stakeholders and company employees to enhance collaboration and expand such models, indicating potential for development and widespread adoption. Improvements in the institutional functioning of the EIA process in Turkey have the potential to make such a model more effective. Consequently, 'monitoring and enforcement implemented through the EIA Regulation could help ensure environmental protection'[65] and meaningful social participation.

Regulatory framework issue of community benefits: lack of institutionalization

This research has revealed that WPPs provide limited opportunities for income and employment to the local community. These constraints on economic benefits are closely linked to the structure and conditions of wind energy investments, which are based on neoliberal economic policies and

centralized decision-making mechanisms. The character of modern wind turbine manufacturing limits substantial rural employment opportunities. This is primarily due to turbine manufacturers' tendency to use their own personnel for on-site maintenance and the reduced need for supervision as turbine management is largely automated.[66] Therefore, it is important to ask how the limitations of the economic benefits provided to the local community can be overcome.

Based on the data obtained from the research field, we suggest that community benefits could serve as significant opportunities for compensation. This is because local communities believe that in exchange for both the costs imposed on villages by WPPs and the profits derived by companies or the government from these projects, certain public services should be provided. Therefore, there is a need for greater consideration of public services provided by energy companies to villages. In other words, inevitable inequalities in economic benefits can be transformed into community benefits by compensating local communities with public services. In this context, we propose that discounted or free access to electricity could be provided to local communities surrounding those areas where wind turbines are installed. In the discussions held, the participants from the local community strongly advocated for measures such as discounts on electricity bills or the allocation of a WPP to the village to meet their electricity needs, ensuring that all villagers can benefit from this service. Developing such mechanisms would also prevent conflicts of interest among local community members. Our findings indicate that inequalities in the distribution of economic benefits have the potential to create conflicts of interest among the local population. This potential can lead to divisions within the local community and disrupt community cohesion.

When considering the potential of community benefits, it is also essential to account for the various perspectives surrounding them. Community benefits can sometimes be perceived as local support, while they, at other times, may be viewed as a form of bribery.[67] In many countries, voluntary community benefit packages provided by wind energy developers to local communities have become increasingly common. In the United Kingdom, these benefits can range from individual or household-level advantages (such as reduced energy bills) to community-level initiatives (such as supporting local clubs). However, skepticism about the motivations behind these community funds frequently arises. Such benefits are often seen as developers' attempts to 'buy' local community support to facilitate the development of wind energy projects and ease the planning process, which is perceived as a form of bribery. If community benefits were defined in regulations, they would be seen as a national requirement, rather than a voluntary offering, and could be viewed more favorably. Institutionalized guidelines and rules that establish minimum requirements for community benefits would provide greater clarity and help reduce the perception of

bribery.[68] When community benefits are presented as a policy requirement, local support may increase, even if community members are aware of the perception of bribery, as the institutionalization of benefits shifts the perception towards personal and collective gain rather than voluntary handouts.[69] In fact, in European Union countries and leading wind energy nations, such social contributions are widespread and standardized, particularly among large-scale companies.[70] However, this research demonstrates that community benefits are viewed and implemented by wind energy companies not as a corporate requirement but rather as a 'custom of the wind sector' or a 'tool for social harmony'. Therefore, there is a need for community benefits to be regulated and standardized within the regulatory framework of wind energy policies in Turkey, ensuring their institutionalization. In this way, community benefits would be formally defined as a regulatory mechanism in the development of wind energy, similar to the EIA process. Our findings reveal that the absence of a clear regulatory framework for community benefits – where the conditions, criteria, and qualities of public services and support are not legally defined in regulations – has led to an unjust distribution among villages in the local area.

Due to the lack of institutionalization of community benefits, our findings indicate that they are often left to the discretion of companies and local actors, such as mukhtars, rather than being a key agenda item in the public participation meetings held as part of the EIA process. However, within the framework of procedural justice, it is crucial that community benefits be implemented in consultation with the local community. This is because perceptions of justice regarding community benefits cannot be separated from perceptions of fairness in the decision-making processes related to planning. Perceptions of justice are also linked to the trustworthiness of wind energy developers. A lack of trust can heighten the local community's perceptions of community benefits as bribes. Inclusively involving the local community in the design of community benefit packages presents an opportunity to improve the planning and development processes of renewable energy projects.[71] Furthermore, incorporating local communities into the planning process is itself a sign of community benefit.[72] Ultimately, institutionalizing community benefits as a regulatory mechanism and including them as an agenda item in public participation meetings – along with consulting the local community – would be significant steps toward addressing bribery suspicions and ensuring energy justice.

Mukhtars as key local actors at the intersection of procedural, recognition, and distributive justice

In Turkey, it is noteworthy that the distribution of community benefits is left to the corporate policies of WPP companies and remains limited to the

relationship between companies and mukhtars. Our findings demonstrate that mukhtars play an active role at the intersection of procedural justice and distributive justice in planning and implementing both social participation and the distribution of benefits and costs. This is closely related to the fact that in rural areas, mukhtars often wield much more authority as the sole public institution compared to neighborhoods in urban areas.[73] In Çanakkale, WPPs are predominantly installed in rural areas. Due to Çanakkale not having metropolitan municipality status, local authority in rural areas rests with the mukhtarship institution. In contrast, in other countries, municipalities often play a more active role as local stakeholders during planning and installation phases. Whether or not local authorities are open to cooperation is a key factor in shaping the process, as there are no legal tools or mechanisms to compel municipalities to cooperate, yet they retain veto power over planning decisions. Therefore, the influence of local politics is significant in directing these processes.[74]

This study finds that the influence and importance of local politics in the development of wind energy is embodied in the institution of the mukhtarship institution. Mukhtars emerge as key local actors who play a critical role in determining who among the local population is recognized and who is overlooked. The mukhtar figure, serving as an intermediary between the local community and companies, stands out for its role, as described by Massicard[75], in shaping public policies in the region and conducting negotiations. Mukhtars hold a decisive position in obtaining and distributing community benefits. Furthermore, considering Massicard's argument that mukhtars' authority is based more on privileged access to the local community than bureaucratic power[76], this study shows that mukhtars are effectively positioned in terms of organizing community information sessions – deciding who attends these meetings – due to their proximity and rapid communication with residents within their jurisdiction. While the active role of them as local stakeholders could have served as an opportunity to mitigate the effects of centralized decision-making mechanisms and safeguard the interests of local communities, this potential is often undermined by accusations of favoritism and suspicions of bribery, which hinders the effectiveness of the mukhtarship institution in playing its critical role. Due to political and economic power asymmetries, the intermediary role of mukhtars tends to favor energy companies. According to Massicard, 'personalized relationships between mukhtars and company employees can enable privileged favors, assistance, and even discriminatory practices.'[77] A personalized relationship can facilitate leniency in regulatory enforcement. This situation is particularly evident in areas where mukhtars have the greatest maneuverability, such as in the distribution of social benefits. As a result, there are concerns about the impartiality of mukhtars.[78] Accounts from community members in the region suggest that instead of advocating for the rights and needs of

the local population in their mediation role between communities and WPP companies, mukhtars are perceived more as spokespersons for centralized decision-making mechanisms and neoliberal economic policies in the installation of WPP projects.

Conclusion

In the context of climate change mitigation policies, the transition to wind energy as a renewable source is not only an environmental and economic issue but also encompasses social dimensions. This research demonstrates that the social dimensions of EIA and community benefits have emerged as key mechanisms influencing local community acceptance in the development of wind farms in Çanakkale. It is impossible to separate the social dimensions of community acceptance mechanisms from wind energy politics, as power and domination relations are inherently embedded in the social sphere. In this context, our study examines the impacts of wind farms development on local communities in Çanakkale in terms of procedural, distributive, and recognition justice, considering the influence of centralized decision-making mechanisms, neoliberal economic policies, and the authority of local actors. In the context of procedural and recognition justice, our research highlights the limitations of the EIA process and suggests potential improvements to address these issues. In terms of distributive justice, it reveals the arbitrary character of community benefits and the need for a regulatory framework to institutionalize and standardize these benefits to eliminate such arbitrariness. Despite challenges in the institutional functioning of the EIA process in Turkey, enhancing EIA regulations and practices remains essential, which includes involving diverse local stakeholders, increasing the representation of directly affected local communities to broaden social participation during the planning and installation phases of WPPs, and establishing mechanisms for addressing requests and complaints from local residents during the operational phase. The EIA process is one of the few mechanisms within the legal-institutional framework of wind energy development – largely shaped by centralized decision-making and neoliberal economic policies – that has the potential to advance social justice. In this study, we argue that from the perspective of distributive justice, community benefits could serve as a compensatory mechanism for the structural limitations of wind energy investments – namely, the limited economic benefits (employment, income) provided to local communities due to the character of neoliberal economic policies. However, we contend that these benefits should be developed as a regulatory mechanism rather than being subject to the arbitrary practices of energy companies.[79]

Finally, we observed that mukhtars held an influential position and role at the local level, functioning more as public officials or representatives rather

than as local actors, particularly in terms of procedural and distributive justice, and that their strong positioning as intermediaries between energy companies and local communities seemed to serve as a catalyst for the reproduction of existing inequalities. Considering this intersection or nexus could provide new insights into shaping wind energy policies in Turkey based on energy justice principles. There is a need for these proposals to be considered in the policy agenda for establishing energy justice, especially in the context of climate change mitigation policies and the transition to renewable energy. The deficiencies or issues in energy justice will emerge over time as a powerful factor complicating the achievement of community acceptance at both local and national levels.

Notes

1. Walker and Baxter, "Procedural Justice," 160; Gielen et al., "The Role of Renewable," 39; Monaco, "Energy Transition," 140; and Pasqualetti, "Opposing Wind Energy," 907.
2. TC. Dışişleri Bakanlığı, "Türkiye'nin Uluslararası."
3. Koçaslan, "Sürdürülebilir Kalkınma," 57.
4. Özçam, "Rüzgar Enerjisi," 17–8, and Kapluhan, "Rüzgar Enerjisi," 305.
5. TUREB, *2023 Faaliyet Raporu*, 115.
6. Arslan et al., "Wind Speed."
7. TUREB, *Türkiye Rüzgar*, 2023.
8. Agterbosch et al., "The Relative Importance"; Gross, "Community Perspectives"; Jobert et al., "Local Acceptance"; Hall et al., "Societal Acceptance"; Liebe et al., "A Turbine Is"; Zoellner, "Public Acceptance"; and Welton and Eisen, "Clean Energy."
9. Kapluhan, "Rüzgar Enerjisi," 305.
10. Eren and Budak, "Kırsal Alanda"; Güzel, "Rüzgar Enerji Santralleri"; Kalaycı-Önaç et al., "Rüzgâr Enerji Santralleri"; Özçam, "Rüzgar Enerjisi"; Ekşi et al., "Enerji Yatırımlarında"; Kılıç et al., "Rüzgâr Enerji"; Arslan and Uzun, "Yenilenebilir Enerji"; Gürbüz et al., "Rüzgâr Enerji"; and Taşkın et al., "Rüzgâr Enerji."
11. Wüstenhagen et al., "Social Acceptance," 2684–5.
12. Tornel, "Decolonizing Energy Justice," 44.
13. Healey and Barry, "Politicizing Energy Justice," 452.
14. Kısar, "Türkiye'de Rüzgâr," 26; Keskin, "Enerji Politikalarının," 10, 70; Özçam, "Rüzgar Enerjisi," 17–8; and Kapluhan, "Rüzgar Enerjisi," 305.
15. Enerji ve Tabi Kaynaklar Bakanlığı, "Elektrik."
16. *Resmi Gazete*, "Yenilenebilir Enerji."
17. TUREB, *Türkiye Rüzgâr*, 2023.
18. Dinçer, "Tüba-Rüzgâr Enerjisi," 20.
19. Sovacool and Dworkin, "Energy Justice," 435.
20. LaBelle, "In Pursuit," 619.
21. Heffron, "Applying Energy."
22. Heffron and Mccauley, "The Concept," 659.
23. McCauley et al., "Advancing Energy"; Jenkins et al., "Energy Justice," 174; and Heffron and McCauley, "Achieving Sustainable," 435.

24. Sareen and Haarstad, "Bridging Socio-Technical," 626.
25. Gustavsson, "The Influence," 18.
26. McCauley and Heffron, "Just Transition," 1–2.
27. Sovacool and Dworkin, "Energy Justice," 440.
28. Ibid.
29. Walker, "Beyond Distribution," 618–25.
30. Jenkins et al., "Energy Justice," 176, 178.
31. Walker, "Beyond Distribution," 627–9.
32. Gross, "Community Perspectives," 2730.
33. Van Bommel and Hoffken, "Energy Justice," 3.
34. Heffron et. al., "Resolving society's," 170, and Heffron and McCauley, "Achieving Sustainable," 436.
35. Sovacool and Dworkin, "Energy Justice," 435.
36. Jenkins et al., "Energy Justice," 175, 180.
37. Sovacool et. al, "Energy Injustice," 207,209.
38. Creswell, "Qualitative Inquiry," 73.
39. Yin, "Case Study," 96.
40. Enzensberger et al., "Policy Instruments," 799.
41. Agterbosch, "Empowering Wind," 22.
42. Braun and Clarke, "Using Thematic," 79.
43. Strauss and Corbin, "Basics of Qualitative," 101–43.
44. Bell et al., "The 'Social Gap'."
45. Ibid., 463, and Wolsink, "Wind Power" 62, and
46. Agterbosch, "Empowering Wind," 21.
47. Heffron and Mccauley, "The Concept of Energy Justice," 661.
48. Smart et. al., "Is EIA," 19.
49. In this research conducted in Çanakkale, wind power plants (WPPs) established before 2022 (when the new EIA regulation was adopted) were included in the sample. Consequently, some of the energy projects in rural areas were exempt from the EIA process. According to the pre-2022 regulation, large-scale projects exempt from the EIA process required permits and opinions from the ministry, while small-scale projects needed approvals from provincial directorates to prepare the project introduction. See Sezgin,"Çevre Mücadelesinde," 82, 90, and Elvan, "Analysis of Environmental," 3.
50. Aydilek and Şen, "Türkiye'de İstikrarsız," 55–6.
51. Bayülgen, "Byzantine Energy," 162, 168.
52. Özkaya Özlüer, "Paris Anlaşması," 519.
53. *Resmi Gazete*, "Çevresel Etki."
54. Arnstein, "A Ladder of Citizen Participation," 217.
55. Hindmarsh and Matthews, "Deliberative Speak," 228, and Janhunen et al. "The Acceptability," 226.
56. Nilson et al. "Halfway up the Ladder."
57. Sovacool and Dworkin, "Energy Justice," 435.
58. Jenkins et al., "Energy Justice," 175.
59. See also Sağlam et. al. "Çanakkale'deki Rüzgâr Enerjisi."
60. Kutlu, "Jeotermal Enerji"; Elvan, "Analysis of Environmental"; and Güneş and Aydın Coşkun, "The Legal Aspects."
61. Bayülgen, "Byzantine Energy," 171.
62. Kutlu, "Jeotermal Enerji," 124, and Aydın, "Identifying Ecological," 9.

63. Hall et al., "Societal Acceptance," 205, and Henningsson et al., "The Effects of," 113.
64. Halliday, "Wind Energy," 60.
65. Özkaya Özlüer, "Paris Anlaşması," 526.
66. Munday et al., "Wind Farms," 5–6.
67. Aitken, "Wind Power," 6073, and Walker et al., "Community Benefits," 46–54.
68. Aitken, "Wind Power," 6074.
69. Walker et al., "Community Benefits," 79.
70. Cass et al., "Good Neighbours"; Garcia et al., "Willingness to Accept" ;and Cowell et al., "Acceptance, Acceptability."
71. Aitken, "Wind Power," 6073–4.
72. Ibid; Macdonald et al., "What Is the Benefit"; Liebe et. al., "A Turbine Is."
73. Massicard, "Mahalleyi Yönetmek," 218.
74. Henningsson et al. "The Effects"; Oles and Hammarlund, "The European Landscape"; Gustavsson, "The Influence"; Khan, "Wind Power"; and Agterbosch et al., "Social Barriers."
75. Massicard, "Mahalleyi Yönetmek," 23.
76. Ibid, 12.
77. Ibid, 226.
78. Ibid, 237, 244.
79. …
80. https://www.investincanakkale.com/sektorler/yenilenebilir-enerji.
81. Prepared by authors using TUREB 2021 and TUREB 2023 reports available at https://tureb.com.tr//yayinlar/turkiye-ruzgar-enerjisi-istatistik-raporlari/5.

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Appendix 1. List of Participants

Code	Age	Gender	Occupation	Participant Status
K1	37	Male	Electrical Engineer	Company Employee
K2	35	Male	Environmental Engineer	Company Employee
K3	60	Male	Retiree, Journalist	Local Stakeholder
K4	50	Female	Lawyer	Local Stakeholder, Cooperative President
K5	44	Male	Electrical Engineer	Local Stakeholder
K6	56	Male	Agricultural Engineer	Local Stakeholder
K7	57	Male	Academician	Local Stakeholder
K8	71	Male	Retiree	Local Stakeholder, Association President
K9	35	Male	Environmental Engineer	Local Stakeholder
K10	49	Female	Housewife	Local Resident
K11	57	Male	Retiree, Animal Husbandry	Local Resident
K12	69	Male	Retiree, Farmer	Local Resident
K13	74	Female	Housewife	Local Resident
K14	25	Male	Worker	Local Resident
K15	60	Male	Driver	Local Resident
K16	40	Male	Tradesman	Local Resident
K17	?	Male	Chef	Local Resident
K18	66	Male	Retiree, Farmer	Local Resident, Former Mayor
K19	75	Male	Farmer	Local Resident
K20	76	Male	Retiree	Local Resident
K21	35	Male	Self-employment	Local Resident
K22	63	Male	Retiree	Local Resident
K23	73	Male	Tradesman	Local Resident, Former Muhtar
K24	23	Female	Student	Local Resident
K25	55	Female	Housewife	Local Resident

(*Continued*)

Continued.

Code	Age	Gender	Occupation	Participant Status
K26	26	Female	Housewife	Local Resident
K27	30	Female	Housewife, Animal Husbandry	Local Resident
K28	50	Female	Housewife	Local Resident, Muhtar's Wife
K29	66	Male	Farmer, Animal Husbandry	Local Resident
K30	50	Female	Farmer, Animal Husbandry	Local Resident
K31	54	Male	Retiree	Local Resident, Muhtar
K32	35	Male	Civil servant, Farmer	Local Resident
K33	23	Male	Student, Farmer, Animal Husbandry	Local Resident
K34	50	Female	Housewife	Local Resident
K35	59	Male	Farmer, Animal Husbandry	Local Resident
K36	78	Male	Retiree	Local Resident
K37	40	Male	Teacher	Local Resident
K38	25	Male	Student	Local Resident
K39	65	Male	Retiree	Local Resident, Former Mayor
K40	70	Female	Housewife	Local Resident
K41	47	Female	Tradesman	Local Resident
K42	78	Male	Farmer, Animal Husbandry	Local Resident
K43	46	Male	Tradesman	Local Resident
K44	53	Male	Civil servant	Local Resident
K45	26	Male	Watchman (WPP)	Local Resident
K46	57	Female	Tradesman	Local Resident
K47	20	Male	Tradesman	Local Resident
K48	67	Male	Teacher	Local Resident
K49	57	Female	Farmer	Local Resident
K50	58	Male	Farmer, Animal Husbandry	Local Resident, Muhtar
K51	58	Female	Retiree	Local Resident
K52	72	Female	Housewife	Local Resident
K53	55	Male	Civil servant	Local Resident
K54	73	Female	Farmer	Local Resident
K55	72	Female	Housewife	Local Resident
K56	60	Male	Retiree	Local Resident