

Research Paper

Offshore Wind Policy in Portugal Balancing Green Growth and Legal Equity

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Abstract: Portugal's ambitious plan to expand offshore wind capacity to 10 GW by 2030 positions the country as a frontrunner in Europe's green energy transition. However, this rapid development raises pressing legal and policy challenges concerning environmental justice, public accountability, and governance. This study critically examines the legal framework and regulatory instruments that govern offshore wind projects in Portugal, particularly focusing on spatial planning, licensing procedures, and mechanisms of public participation. Using a doctrinal legal research method combined with policy analysis, this paper analyzes national legislation, EU directives, and recent regulatory practices, while integrating cases of contestation from coastal communities and environmental organizations. The findings reveal significant procedural gaps in public participation, particularly the exclusion of local fishing communities and municipal stakeholders from the zoning and licensing processes. Moreover, the current auction-based model privileges investment logic over environmental and social equity. The lack of independent environmental assessments and weak grievance mechanisms raise concerns about transparency, legal accountability, and compliance with the Aarhus Convention principles. This study argues that Portugal's offshore wind transition, while environmentally progressive in ambition, requires stronger legal safeguards to ensure that it is also socially just and participatory. Recommendations are offered to improve the governance architecture toward a more inclusive and equitable energy policy.

Keywords: Environmental Justice, Energy Law, Legal Framework, Offshore Wind Energy, Public Participation.



1. Introduction

In recent years, Portugal has emerged as a prominent actor in Europe's green energy agenda, particularly through its aggressive expansion into offshore wind energy. In 2023, the Portuguese government announced its intention to install 10 gigawatts of offshore wind capacity by 2030, one of the most ambitious targets in Southern Europe. The plan includes public auctions for marine zones in key coastal regions such as Viana do Castelo, Figueira da Foz, and Sines. These developments are part of a broader strategy to meet national climate goals and reduce dependency on fossil fuels. However, the rapid deployment of offshore wind infrastructure raises complex legal, environmental, and social questions that go beyond technological feasibility.

At the center of these debates lies the tension between economic acceleration and democratic environmental governance. Civil society groups and local fishing communities have expressed concerns about exclusion from the spatial planning process and lack of transparency in licensing procedures. Recent protests in northern Portugal, particularly regarding the Viana do Castelo auction, have drawn attention to the shortcomings in public participation and environmental impact assessment mechanisms. These concerns reflect broader questions about how the law structures access to natural resources, distributes environmental risks, and allocates decision-making power in the context of green transition.

This paper seeks to critically examine the legal and policy framework governing offshore wind development in Portugal, with a focus on regulatory instruments, procedural safeguards, and mechanisms of accountability. The following research questions guide this study: (1) How does the current legal framework structure the governance of offshore wind projects in Portugal? (2) To what extent does the licensing and zoning process enable meaningful public participation? (3) What legal and institutional reforms are necessary to ensure that Portugal's energy transition aligns with principles of environmental justice and social equity?

By interrogating the normative and procedural dimensions of Portugal's offshore wind policy, this study contributes to broader discourses on the legal architecture of energy transition. It argues that a socially just transition requires more than ambitious capacity targets, it demands a governance model that embeds transparency, inclusiveness, and legal accountability. The findings aim to inform both domestic regulatory reform and comparative policy dialogue on offshore renewable energy governance.

2. Literature Review

2.1. Environmental Justice in Renewable Energy Transitions

Environmental justice (EJ) provides a critical lens for understanding how renewable energy policies may reinforce or mitigate social and ecological inequalities. Schlosberg identifies three interrelated dimensions: distributive justice, concerning how environmental goods and harms are allocated; procedural justice, referring to participation in decision-making; and recognitional justice, which addresses respect for diverse identities and knowledge systems [1]. These dimensions are increasingly applied to examine transitions to low-carbon energy, especially large-scale infrastructure projects.

Sovacool and Dworkin argue that while renewable energy is environmentally necessary, the social outcomes of such projects are uneven [2]. In many cases, land use changes and infrastructure siting affect vulnerable or politically marginal communities who benefit the least. This is particularly visible in wind and hydro projects, where local ecological disruption and visual impacts generate local resistance. The issue is not opposition to renewables per se, but to processes perceived as unjust or imposed.

In the European context, Simcock emphasizes that community acceptance of wind farms hinges not only on economic compensation but also on meaningful engagement [3]. His comparative study in the UK and Germany found that perceived fairness in planning processes strongly influenced local perceptions of legitimacy. This links back to Schlosberg's notion that justice is not merely about outcomes, but about how decisions are made and whose voices count.

Portugal, while progressive in environmental legislation, faces challenges in operationalizing justice in the deployment of renewable energy infrastructure. According to Jenkins, recent offshore wind projects have been rolled out with minimal consultation of fishing communities, creating tensions over marine access and traditional livelihoods [4]. This reveals a tension between macro-level sustainability goals and micro-level social justice outcomes.

Emerging research on marine justice also expands the environmental justice discourse into the oceanic realm. Bennett et al. argue that coastal and marine spaces, often treated as "blank slates" for

development, are in fact deeply embedded with social, cultural, and ecological values [5]. The neglect of these values in offshore planning can lead to ocean grabbing, where industrial interests override local rights and stewardship.

Furthermore, the distributive effects of offshore wind are not just local. Hamwi and Lizarralde discuss how financialization of energy projects through corporate-led models often leads to benefits concentrating among investors, while externalities, ecological, visual, economic, are borne by host communities. Without legal instruments that redistribute gains and empower affected groups, renewable energy can reproduce the very inequalities it aims to solve [6].

In sum, literature on environmental justice underscores the importance of integrating legal safeguards that promote equitable benefit-sharing, transparent governance, and community empowerment within energy transitions. These insights are critical for assessing whether Portugal's offshore wind expansion aligns with a socially just pathway or risks replicating extractive logics under a green façade.

2.2. Public Participation and Legal Accountability in Energy Governance

Public participation is a legal and normative cornerstone in environmental governance, enshrined most prominently in the Aarhus Convention, which Portugal ratified. The Convention establishes three pillars: access to information, public participation in decision-making, and access to justice in environmental matters [7]. These principles are widely recognized as foundational to democratic environmental law [8].

In practice, however, numerous studies have highlighted gaps between legal commitments and participatory realities. Funtowicz and Ravetz introduced the concept of post-normal science to describe policy contexts where uncertainty, complexity, and value disputes dominate, conditions typical of offshore energy planning [9]. They argue that in such cases, extended peer communities must be involved, including laypeople and affected stakeholders, not only experts and officials.

In the energy sector, Dwyer and Bidwell show that participation often remains procedural and superficial, aimed at legitimizing pre-determined decisions rather than shaping outcomes. Their case studies in the UK demonstrate that community input in wind farm projects was limited to comment periods, with little influence on siting or design choices. This procedural minimalism undermines trust and fuels opposition [10].

The Portuguese legal framework provides for public consultation during Environmental Impact Assessments (EIAs) and zoning plans under Decree-Law No. 38/2015. However, Monteiro et al argues that in marine contexts, participation is often limited to written submissions and lacks proactive engagement mechanisms. Moreover, EIA reports are frequently prepared by consultants hired by project developers, raising questions of independence and accountability [11].

From a comparative perspective, Newig and Fritsch identify two key success factors in participatory governance: early-stage involvement and institutional responsiveness [12]. They found that late-stage consultations, where plans are already fixed, tend to generate public dissatisfaction and low-quality input. In contrast, iterative engagement builds legitimacy and improves substantive outcomes.

Transparency and legal accountability are intertwined. Without access to timely and intelligible information, communities cannot meaningfully participate or challenge decisions. Portugal's current digital platforms for public consultation, while improving access, still suffer from information asymmetries, particularly for marginalized coastal stakeholders [13]. Legal scholars argue that procedural safeguards must be accompanied by enforceable rights to appeal or challenge administrative decisions.

The literature thus indicates that participation must be understood not as a checkbox but as a substantive legal and democratic right. For Portugal's offshore wind policy to be legitimate, it must embed participatory justice as an operational principle, not a procedural afterthought. This calls for reform not only of participation mechanisms but also of the institutional cultures that govern marine spatial planning.

2.3. Offshore Wind Policy and Regulatory Complexity in the EU Context

The governance of offshore wind energy in the European Union is marked by regulatory complexity and multi-level coordination challenges. At the EU level, the Renewable Energy Directive (RED II) and the Maritime Spatial Planning Directive (2014/89/EU) provide overarching legal frameworks that

member states must transpose into national law. However, the specific modalities of implementation vary widely [14].

Portugal's legal framework for offshore wind is grounded in Decree-Law No. 38/2015, which governs the use of maritime space for commercial purposes, including energy production [15]. It establishes the basis for marine spatial planning (MSP) and licensing but leaves many procedural details to executive ordinances [16], [17]. This creates a flexible but fragmented legal environment that has been criticized for lack of clarity and coordination [18].

One challenge is the overlapping authority among agencies involved in offshore wind development. The *Direção-Geral de Recursos Naturais (DGRM)*, the Institute for the Conservation of Nature and Forests (ICNF), and the Portuguese Environment Agency (APA) all play roles, often without clear delineation of responsibilities. According to Olawole and Esther, this institutional fragmentation leads to delays, regulatory gaps, and inconsistent enforcement [19].

Another issue concerns the recent shift toward auction-based allocation of offshore wind zones, as announced in 2023. While this aligns with EU competition rules and investment promotion, it raises questions about how socio-environmental criteria are integrated into bidding processes. Studies by Hall and Foxon suggest that market-oriented mechanisms often marginalize non-market values, such as community wellbeing or ecological integrity [20].

Environmental licensing remains a contentious point. Although Portugal requires EIAs for offshore wind, the depth and independence of these assessments vary. IPMA (2024) notes that cumulative impacts, on migratory species, sediment flows, and local fisheries, are often underestimated or poorly modeled. Moreover, licensing procedures lack robust monitoring and follow-up mechanisms [21].

Comparative research in countries like Denmark and the Netherlands shows that clear legal timelines, transparent data-sharing, and community benefit schemes enhance both project success and public legitimacy [22]. Portugal could learn from these experiences to strengthen its regulatory architecture, particularly in fostering legal certainty and public trust.

Ultimately, the literature converges on the need for a coherent, transparent, and participatory regulatory regime for offshore wind [23]. This involves not only harmonizing legal instruments but also ensuring that energy law, marine governance, and environmental protection are not treated as separate silos [24]. Portugal's current trajectory offers promise, but its legal and institutional frameworks require critical reform to fulfill the promise of a just energy transition [25].

3. Methodology

This study employs a qualitative legal-normative approach, integrated with elements of policy analysis, to examine the regulatory framework, governance mechanisms, and socio-legal implications of offshore wind development in Portugal.

The primary method used is doctrinal legal research, which involves a systematic analysis of legal texts, including statutes, regulations, and judicial decisions. This includes examination of national laws such as Decree-Law No. 38/2015, Portaria No. 38/2021, and relevant administrative guidelines governing marine spatial planning and offshore energy licensing. In addition, EU-level directives, notably the Renewable Energy Directive (RED II) and Directive 2014/89/EU on Maritime Spatial Planning, are analyzed to understand supranational obligations and their implementation in the Portuguese context.

Complementing the doctrinal approach, the study applies qualitative policy analysis to assess how legal frameworks are implemented in practice. This involves the review of government reports, public consultation records, and project-specific environmental assessments (e.g., for the Viana do Castelo zone). Statements and press releases by the *Direção-Geral de Recursos Naturais (DGRM)*, as well as feedback from civil society organizations and fishing cooperatives, are examined to identify patterns of inclusion or exclusion in decision-making processes.

To critically evaluate the principles of public participation and justice, the research draws from normative frameworks such as the Aarhus Convention, Schlosberg's theory of environmental justice, and relevant international guidelines on just energy transitions. These frameworks serve as benchmarks against which the adequacy and fairness of Portugal's offshore wind governance are assessed.

While the research does not involve fieldwork or interviews, it incorporates secondary empirical sources, such as stakeholder analyses and case study reports from think tanks, NGOs, and academic

publications. This mixed approach enables the study to bridge the gap between normative legal analysis and real-world regulatory outcomes, ensuring both conceptual depth and contextual accuracy.

4. Finding and Discussion

4.1. Legal Architecture of Offshore Wind Governance in Portugal

Portugal’s offshore wind governance is primarily structured by Decree-Law No. 38/2015, which provides the legal foundation for marine spatial planning and use of maritime space for energy purposes. This law establishes the basis for designating offshore zones, licensing developers, and integrating environmental assessments. However, the regulatory environment remains fragmented. Agencies such as the Direção-Geral de Recursos Naturais (DGRM), the Portuguese Environment Agency (APA), and the Institute for the Conservation of Nature and Forests (ICNF) operate with overlapping mandates, often without clear institutional coordination.

Findings suggest that while the legal framework is generally aligned with EU directives, its operationalization is technocratic and investment-driven, privileging efficiency and competition over inclusivity and social safeguards. The recent launch of public auctions for offshore wind zones in Viana do Castelo, Figueira da Foz, and Sines exemplifies this orientation. The auction process, though transparent in economic terms, lacks binding social or ecological criteria, leading to critiques that public interest is subordinated to market logic.

Moreover, secondary legislation and executive ordinances, such as Portaria No. 38/2021, often leave discretion to administrative authorities without detailed procedural guidelines, creating legal uncertainty. For instance, the timeline for public consultations, criteria for evaluating socio-ecological impacts, and mechanisms for community input are vaguely defined. This undermines the principle of legal predictability and weakens stakeholder confidence in the system.

The absence of a unified offshore wind act, akin to models in Denmark or the Netherlands, further contributes to regulatory fragmentation. The lack of integrated legal instruments that coordinate environmental licensing, energy regulation, and marine governance hinders holistic planning and oversight. As such, the current legal architecture, while progressive in ambition, reveals institutional asymmetries and normative gaps that must be addressed to ensure accountable and just governance.

Table 1. Legal and Policy Challenges in Portugal’s Offshore Wind Governance

Analytical Dimension	Legal Basis / Framework	Key Findings	Impacts	Recommended Reforms
Legal Structure & Governance	<ul style="list-style-type: none"> Decree-Law No. 38/2015 Portaria No. 38/2021 EU Maritime Spatial Planning Directive 	<ul style="list-style-type: none"> Fragmented institutional roles Auctions prioritize investment over equity 	<ul style="list-style-type: none"> Legal uncertainty Dominance of central agencies Weak territorial coordination 	<ul style="list-style-type: none"> Enact unified Offshore Wind Law Clarify agency mandates and coordination rules
Public Participation	<ul style="list-style-type: none"> Aarhus Convention National EIA regulations 	<ul style="list-style-type: none"> Late-stage, technical consultations No grievance mechanism Developer-led EIA reports 	<ul style="list-style-type: none"> Exclusion of local stakeholders Procedural distrust Limited access to justice 	<ul style="list-style-type: none"> Mandate early consultation Independent review of EIAs Legal right to appeal
Environmental Justice	<ul style="list-style-type: none"> Constitutional Right to Environment EU RED II Directive 	<ul style="list-style-type: none"> Unequal benefit/risk distribution No community reinvestment schemes - Neglect of local rights 	<ul style="list-style-type: none"> Risk of ocean grabbing - Perceived injustice in siting 	<ul style="list-style-type: none"> Require benefit-sharing clauses - Embed just transition principles in law

4.2. Procedural Gaps and the Limits of Public Participation

Despite Portugal's formal adherence to the Aarhus Convention, procedural justice in offshore wind planning remains limited. The study finds that public participation mechanisms are tokenistic and poorly institutionalized, particularly for coastal communities directly affected by offshore infrastructure. Consultations are typically conducted online, over short timeframes, and in highly technical language, limiting accessibility and engagement.

Table 2. Gaps Between Legal Provisions and Implementation in Public Participation

Participation Element	Legal Provision	Observed Practice	Implications for Procedural Justice	Reform Direction
Early-stage stakeholder involvement	Aarhus Convention: early and effective participation Decree-Law 38/2015	Consultations occur post-zoning; limited notice to local communities	Decisions perceived as pre-determined; procedural tokenism	Institutionalize consultation before zone designation; require stakeholder mapping
Accessibility of information	Right to environmental information via public platforms	Technical language, short consultation windows, weak outreach to coastal populations	Exclusion of low-literacy and traditional stakeholders	Use of plain language; multilingual formats; extended and proactive information delivery
Environmental Impact Assessments (EIA)	EIA required by law; public comment invited	EIAs commissioned by developers; lack of independent peer review	Perceived bias in assessments; limited credibility	Establish independent EIA panels; require public disclosure of raw data
Grievance and appeal mechanisms	Administrative Code allows appeals	No dedicated mechanism for challenging licensing decisions in marine energy context	Barriers to access justice; procedural closure	Create specialized environmental ombudsman or tribunal for marine disputes
Recognition of traditional marine users	Not explicitly required in national law	Fishers, artisanal users often ignored or symbolically included	Social marginalization; loss of legitimacy	Mandate recognition of customary marine uses; integrate ethnographic input
Influence on final decisions	Formal inclusion of public input in licensing	No legal obligation for agencies to incorporate public concerns into final project approval	Public input treated as non-binding consultation	Introduce binding response requirement; agencies must justify acceptance/rejection of input
Feedback loops and transparency post-approval	No explicit mandate in licensing framework	Lack of communication with stakeholders after approval; weak monitoring	Disconnection between planning and accountability	Require public reporting on project performance, community monitoring participation

Local fishing cooperatives and municipal councils in zones like Viana do Castelo have raised concerns about being excluded from early-stage planning processes. Their input is often solicited only after spatial designations have been finalized, reflecting a post hoc consultation model. This violates

the spirit, if not the letter, of participatory law, which requires prior and informed involvement of stakeholders in environmental decision-making.

Furthermore, environmental impact assessments (EIAs), although legally required, are often commissioned by developers and lack independent verification. Communities have limited avenues to contest the findings or challenge the underlying data. The absence of a public grievance mechanism within the licensing regime means that local concerns are rarely translated into regulatory revisions or legal remedies.

This limited participation reinforces power asymmetries between corporate actors, the state, and affected populations. While developers benefit from legal clarity and investment incentives, communities face opaque processes and minimal leverage. The findings confirm what previous studies suggest: that procedural deficits in renewable energy governance risk eroding public trust and provoking social resistance, even to environmentally sound projects.

The discussion also points to missed opportunities for co-creation of policy through participatory marine planning. Cases from Denmark and Scotland show that early engagement with communities leads to better site selection, fewer conflicts, and more resilient projects. Portugal's offshore wind expansion would benefit from similar institutional reforms, ensuring that participation is not merely procedural, but genuinely deliberative.

4.3. Environmental Justice and Accountability in Energy Transition

The final theme explores how Portugal's offshore wind governance aligns with principles of environmental justice, particularly distributive and recognitional justice. The findings reveal that benefits from offshore wind development such as energy profits, job creation, and infrastructure are concentrated among corporate investors and urban centers, while the burdens, including disrupted livelihoods, visual impacts, and ecological degradation, are externalized to peripheral coastal communities. This uneven distribution reflects a deeper pattern of environmental and spatial injustice, whereby green infrastructure is installed in areas with limited political clout or media visibility. In zones like Sines and Figueira da Foz, socio-economic vulnerabilities intersect with environmental exposure, yet regulatory tools to assess cumulative impacts or long-term social risks remain underdeveloped.

Beyond distributive concerns, the findings also raise the issue of recognitional and procedural justice. Traditional marine users such as small-scale fishers, tourism operators, and artisanal communities are rarely acknowledged as legitimate stakeholders, despite their deep cultural and historical ties to marine spaces. Consultations remain limited, non-binding, and without legal avenues to challenge decisions, leaving local voices excluded from processes that directly affect their livelihoods. This lack of recognition deepens perceptions of marginalization and fuels resistance to offshore wind development, while also eroding trust in regulatory institutions.

Furthermore, Portugal's legal framework offers insufficient accountability and long-term safeguards. Once licenses are granted, project oversight is fragmented, monitoring is weak, and there are no legal requirements for benefit-sharing, community reinvestment, or ecological restoration guarantees in case of degradation. The absence of cumulative environmental impact assessments and intergenerational safeguards further undermines both ecological integrity and social equity. In this light, Portugal's offshore wind transition, though environmentally ambitious, is not yet socially inclusive or legally accountable. To close this gap, the governance framework must integrate just transition principles into national energy law, including enforceable standards for participation, revenue-sharing, cumulative EIAs, spatial equity metrics, independent post-project audits, and intergenerational justice provisions. Without such reforms, the risk is that the green transition will replicate extractive paradigms under a sustainable guise, precisely the outcome that environmental law seeks to prevent.

Looking forward, this analysis highlights the importance of embedding environmental justice not as a peripheral concern but as a foundational principle of energy transition governance. For policymakers, this means designing legal instruments that balance efficiency with fairness, and for scholars, it opens avenues to critically examine how green infrastructures reshape social contracts between states, markets, and communities. Portugal's case illustrates that the path toward decarbonization is not only a technological and economic challenge, but also a legal and ethical one that will determine the legitimacy and durability of the transition itself.

Table 3. Environmental Justice Deficits in Portugal’s Offshore Wind Expansion

Justice Dimension	Observed Condition in Offshore Wind Projects	Legal/Policy Gaps	Impact on Local Communities	Reform Recommendations
Distributive Justice	Economic benefits concentrated in urban centers and among investors	No requirement for revenue-sharing or reinvestment in host communities	Perceived inequality and resentment; economic externalization	Introduce community benefit-sharing mechanisms; earmark revenues for coastal development
Recognition Justice	Traditional fishers and marine users not formally acknowledged as stakeholders	No legal mandate to include customary or cultural marine claims	Loss of identity, marginalization, and spatial dispossession	Legal recognition of customary marine uses; participatory ethnographic mapping
Procedural Justice	Limited consultation; input not binding; no legal remedy mechanism	Weak public influence over project licensing or zoning	Lack of voice and agency in decisions that affect livelihoods	Strengthen procedural safeguards; establish right to challenge decisions
Cumulative Environmental Impact	Ecological risks often assessed in isolation; migratory species and fisheries under-monitored	EIA frameworks lack cumulative impact provisions; weak marine biodiversity protection	Ecosystem degradation; reduced fish stock; indirect socioeconomic harm	Mandate cumulative EIAs; integrate marine conservation law into project licensing
Spatial Justice	Project siting prioritizes zones with limited political resistance	Lack of equity-based spatial planning criteria	Periphery communities disproportionately burdened; central-local power asymmetry	Apply spatial equity metrics in zoning; involve municipalities in site selection
Accountability Mechanisms	No clear legal responsibility for long-term ecological or socioeconomic harm	No provision for remediation, restoration, or monitoring by independent bodies	Communities bear long-term risks without legal recourse	Establish post-project audit obligations; create environmental compensation frameworks
Intergenerational Justice	Short-term energy targets prioritized over long-term socio-ecological sustainability	Absence of intergenerational equity principle in energy law	Risks of irreversible marine degradation; lack of safeguards for future generations	Embed intergenerational justice principles in national energy legislation

5. Conclusion

Portugal’s offshore wind expansion reflects the country’s bold commitment to climate goals and its ambition to become a leader in maritime renewable energy. However, this study has shown that behind the technical progress lies a complex legal and institutional landscape marked by procedural gaps, distributive imbalances, and limited social safeguards. While national frameworks align with EU directives in form, they fall short in substance, particularly in embedding principles of public accountability, environmental justice, and participatory governance into the actual implementation of offshore energy projects.

The analysis of Portugal’s offshore wind regime reveals a pattern where investment efficiency is prioritized over inclusive governance. Public consultations are often conducted late in the planning process, community concerns are sidelined, and environmental impact assessments lack independence and cumulative scope. As a result, coastal communities, especially traditional fishers, bear disproportionate environmental and social costs without adequate legal recognition or benefits. This not only violates procedural justice but undermines the legitimacy of the green transition itself.

Furthermore, the governance structure is fragmented, with overlapping mandates and unclear mechanisms for accountability and remediation. There is a notable absence of legal tools that guarantee community benefit-sharing, environmental restoration, or grievance redress. These omissions pose serious risks, both in terms of ecological sustainability and social cohesion. If left unaddressed, they may generate resistance and erode public trust in renewable energy policy more broadly.

In response, this paper recommends that Portugal develop a comprehensive Offshore Wind Governance Act that harmonizes environmental, energy, and marine spatial planning laws under a single legal instrument. Such legislation should mandate early-stage participatory processes, require cumulative and independent environmental assessments, and incorporate justice-based criteria in site selection and licensing. In parallel, benefit-sharing mechanisms and community reinvestment funds should be institutionalized to ensure fair distribution of economic gains.

Finally, Portugal's energy transition must explicitly adopt a just transition framework, grounded in intergenerational equity, environmental responsibility, and human rights. Offshore wind policy cannot be solely evaluated by gigawatt targets or auction efficiency, but must be judged by its ability to empower communities, protect ecosystems, and uphold democratic accountability. Only then can the country achieve a truly sustainable and just maritime energy future.

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