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MARINE SPATIAL POLITICS AND ENERGY TRANSITION IN BANGKA BELITUNG

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ABSTRACT

The marine space of the Bangka Belitung Islands has become an arena of contention where tin mining, fisheries, conservation, tourism, marine infrastructure, and energy transition projects intersect. This article examines how marine spatial planning is organized through the provincial RZWP3K, central government instruments, local environmental initiatives, and the evolving discourse surrounding the Pulau Gelasa/Kelasa energy project. Using qualitative document analysis and a structured literature review, this study evaluates local regulations, national legal documents, official reports, academic studies, and credible environmental media sources. The analysis shows that although the RZWP3K provides formal spatial planning certainty, this instrument does not automatically resolve conflicts due to overlaps between economic zones, conservation areas, shipping lanes, migration corridors, and fishermen's livelihoods. Furthermore, centralized instruments such as the KKPRL, conservation decrees, managed fishing, and nuclear site evaluations do enhance regulatory integration, but they risk distancing decision-making from coastal communities and highlight inequalities in power relations. The Gelasa/Kelasa case demonstrates that ocean-based energy transition should not be treated merely as a technological project, but rather as an issue of spatial justice involving safety, ecosystem protection, public legitimacy, and equitable local benefits. Theoretically, this study contributes to the fields of maritime governance and political ecology by demonstrating that the energy transition in archipelagic regions inherently alters the configuration of power relations and spatial justice.

Keywords: Marine spatial politics; RZWP3K; Bangka Belitung; coastal justice; Gelasa/Kelasa Island; ocean energy

1. INTRODUCTION

Bangka Belitung is an archipelagic province in which the sea functions simultaneously as a productive space, a living space, and a jurisdictional space. The sea is not only a source of livelihood for small-scale fishers; it is also a location for offshore tin mining, shipping lanes, conservation areas, tourism destinations, submarine cables, and potential energy infrastructure. These overlapping functions make marine space politically charged. It cannot be understood as an empty container ready for investment, but as a

socio-ecological arena structured by power relations, access, risk, and competing claims of legitimacy. Within this context, Provincial Regulation of the Bangka Belitung Islands No. 3 of 2020 on the Coastal Zone and Small Islands Zoning Plan for 2020-2040, hereafter RZWP3K, occupies a strategic position. The regulation is designed to direct coastal and small-island resource use, establish spatial structures and patterns, and provide a legal basis for marine-space utilization. Normatively, RZWP3K offers legal certainty. Politically, however, it also becomes an arena of contestation because each zoning decision distributes opportunity, risk, and authority unevenly.

Sujadmi and Murtasidin (2020) show that marine spatial planning in Bangka Belitung emerged through conflict, negotiation, and local political-economic contestation. Sulaiman et al. (2023) further frame the Bangka Sea conflict as a struggle over the distribution of benefits and the unequal capacity of actors to shape marine decisions. The governance problem becomes more complex when marine spatial licensing is increasingly linked to central-government instruments. Regulation of the Minister of Marine Affairs and Fisheries No. 28 of 2021 regulates marine spatial planning, while Government Regulation No. 11 of 2023 introduces measured fishing through zones and quotas. Conservation areas in Bangka Belitung are also formally strengthened through ministerial decrees.

This configuration is not inherently problematic because national standards are needed to maintain policy consistency and resource protection. Yet, when transparency and meaningful participation are weak, stronger central authority can widen the distance between decision-making processes and coastal communities that experience the direct consequences of marine-space allocation. It is important to define the core concepts that frame this study. Maritime spatial politics refers to power struggles over the allocation, use, and regulation of maritime space among competing actors.

Spatial justice emphasizes the equitable distribution of spatial resources and environmental risks, ensuring that marginalized communities do not bear a disproportionate burden of development. Governance, in this context, refers to the multi-level institutional and political processes involving the state, the market, and civil society through which marine space is managed. Finally, the energy transition is understood not merely as a technological shift toward low-carbon sources, but as a political and spatial process that significantly influences the use of land and sea.

The Gelasa/Kelasa Island energy discourse gives a sharper form to this problem. Public debate on a thorium-based power plant, the formal site-evaluation process for the ThorCon 500 nuclear power plant, wave-energy potential in the Gelasa Strait, submarine electricity cables, and other ocean-energy options shows that energy transition is also a spatial agenda. Energy projects require more than technology; they require land and sea space, permits, safety studies, transmission corridors, public legitimacy, and compatibility with zoning rules.

In 2025, BAPETEN received an application and later issued a site-evaluation approval for the ThorCon 500 nuclear power plant on Kelasa Island. This stage should not be equated with a construction or operating license, but it indicates that the Gelasa/Kelasa energy issue has moved from public discourse into a formal regulatory process. This article argues that marine spatial politics in Bangka Belitung should be read through the relationship between zoning certainty, shifting central-local authority, coastal environmental activism, and marine-based energy-transition projects. Its contribution lies in connecting RZWP3K, KKPR, conservation areas, measured fishing, local initiatives, and the Gelasa/Kelasa energy issue within one analytical frame of spatial justice. The central question is therefore not only whether a project is administratively legal, but whether marine-space utilization protects ecosystems, recognizes coastal communities as political subjects, and distributes benefits fairly.

Although there are many studies on marine governance, there remains a significant research gap regarding how the national energy transition agenda intersects spatially with existing marine spatial planning conflicts. Much of the literature still treats the energy transition and marine zoning as two separate policy domains. The novelty and contribution of this article lie in its effort to explicitly integrate marine spatial planning policies with energy transition governance. This article argues that marine spatial planning policies in Bangka Belitung must be understood through the interplay between zoning certainty, shifts in central-local authority dynamics, coastal environmental activism, and marine-based energy transition projects. Its main contribution is linking the RZWP3K, KKPR, conservation areas, sustainable fishing, local initiatives, and the Gelasa/Kelasa energy discourse into a single analytical framework of spatial justice. Therefore, the central question in this study is not merely whether a project is administratively legal, but whether the governance of marine spatial use is capable of protecting ecosystems, recognizing coastal communities as political actors, and distributing benefits equitably.

2. METHOD

This study uses a qualitative document-based research design. Document analysis is appropriate for this article because regulations, zoning plans, official decrees, policy reports, scientific papers, and advocacy materials are not merely background information; they are evidentiary sources through which institutions define problems, allocate authority, and justify action (Bowen, 2009). The literature-review component follows the principle that a review must be conducted systematically rather than as an ad hoc compilation of sources, so that the reader can assess the logic of selection, classification, and synthesis (Snyder, 2019). The data consist of four groups of sources. First, legal and policy documents were used to examine the formal design of authority and spatial allocation, including the Bangka Belitung RZWP3K, ministerial regulations on marine spatial planning, decrees on conservation areas, measured-fishing regulations, and official electricity-planning documents. Second, peer-reviewed journal articles were used to assess conflicts over offshore tin mining, small-scale fisheries, local political economy, and marine-energy potential. Third, reports from public institutions and international organizations were used to place the local case within broader energy-transition and ocean-energy debates. Fourth, credible environmental media and civil-society documents were used as contextual data to trace public controversies, advocacy claims, and local narratives. These media sources were not treated as theoretical foundations; they were used to identify issue dynamics and actor positions that require interpretation through scholarly and official sources. The analysis proceeded in three stages.

The first stage identified the central issues in the source manuscript, RZWP3K zoning, central authority, local initiatives, and marine-based energy. The second stage classified each source by analytical function: legal sources were used to read authority design; journal articles were used to interpret conflict and socio-ecological impact; official reports were used to understand energy and conservation policy directions; and advocacy or media sources were used to map public contestation. The third stage synthesized the findings through four analytical categories: actors, rules, spatial claims, and socio-ecological implications. This procedure enabled the study to move beyond description and to interpret how marine-space regulation produces conflict, legitimacy, and policy constraints. The limitation of this study is that it does not use field observation or interviews. Its conclusions are therefore documentary and analytical, not ethnographic. This limitation is important because coastal communities, fishers, local officials, and project proponents may have experiences that cannot be fully captured through documents. Nevertheless, the approach

remains adequate for identifying governance patterns because the issue is strongly documented through regulations, official decisions, public policy reports, journal articles, and civil-society materials.

3. THEORETICAL FRAMEWORK

This study is grounded in a multidimensional theoretical synthesis that integrates the literature on marine governance, political ecology, environmental justice, and energy justice. Conventional studies of marine governance and Marine Spatial Planning (MSP) generally focus on aspects of technocratic rationality, policy coherence, and institutional coordination to mitigate overlapping sectoral jurisdictions (Ehler et al., 2019; Santos et al., 2019). Within this dominant narrative, marine spatial planning is often assumed to be a neutral instrument that can automatically balance economic growth, ecological sustainability, and social well-being a so-called “win-win solution” (Qiu & Jones, 2020).

However, the political ecology approach offers a critical counterargument: no maritime governance instrument operates in a political vacuum. Political ecology reveals that every form of spatial allocation is inherently laden with asymmetrical power relations and specific economic-political agendas (Tafon, 2018; Bennett et al., 2019). Marine spatial planning practices are often driven not merely by administrative efficiency, but by the pressures of capital accumulation in a phenomenon known as “blue acceleration” or the acceleration of blue economy exploitation (Jouffray et al., 2020). Rather than protecting local communities, spatial planning instruments are often used to legitimize “ocean grabbing,” in which the legal framework of zoning is employed to deny access to on-the-ground resource users such as traditional fishermen and coastal communities in order to facilitate the expansion of large-scale extractive industries (Barbesgaard, 2018; Jentoft & Chuenpagdee, 2019). The frameworks of spatial justice and environmental justice highlight the ethical consequences of such governance. This paradigm critiques the empirical reality in which the economic benefits of marine exploitation tend to be accumulated and enjoyed by dominant state or corporate actors, while the socio-ecological costs—such as the loss of fishing grounds, coral reef degradation, and water pollution—are borne disproportionately by vulnerable coastal communities (Bennett, 2022; Crosman et al., 2022). In the context of archipelagic regions, spatial justice demands that spatial planning not be reduced merely to geographical coordinates on a map, but must recognize marine areas as historical and cultural living spaces that must not be erased by unilateral investment permits (Tafon et al., 2023).

When this analytical lens is applied to the discourse on electricity infrastructure development in marine spaces, the concept of environmental justice transforms into a framework of “energy justice.” The energy transition—though promoted as an urgent global decarbonization effort can give rise to new forms of injustice (such as “green grabbing”) if its implementation disregards local spatial rights (McCauley & Heffron, 2018; Sovacool et al., 2023). Energy justice requires the fulfillment of three fundamental pillars: (1) procedural justice, namely the equal, meaningful, and transparent involvement of affected communities throughout the entire decision-making process; (2) distributive justice, which ensures the proportional allocation of environmental burdens and risks while equitably distributing the socioeconomic benefits of such energy projects; and (3) recognition justice, which entails genuine legal and political recognition of the identity, tenure rights, culture, and local knowledge of coastal communities (Jenkins et al., 2016; Williams et al., 2022). By integrating these four theoretical concepts, this article develops a comprehensive analytical framework to examine the political constellation of marine spatial planning in the Bangka Belitung Islands Province. This analytical framework is applied to evaluate how the implementation

of the RZWP3K and the energy transition discourse (specifically plans for energy megaprojects in the Gelasa/Kelasa Islands) interact with the structure of local-national power relations (Sujadmi & Murtasidin, 2020; Sulaiman et al., 2023). Ultimately, this study aims to critically determine whether these spatial planning instruments and energy transition policies truly facilitate a transformation toward spatial justice, or whether they are merely engineered as technocratic tools to reproduce inequalities in spatial control and give rise to the hegemony of a new ruling class.

4. RESULTS AND DISCUSSION

4.1. Results and Discussion

4.1.1 RZWP3K As a Contested Instrument of Marine Spatial Ordering

RZWP3K Bangka Belitung 2020-2040 was created to provide a formal framework for a marine space saturated with competing interests. The regulation divides coastal and small-island space into general-use areas, conservation areas, and sea lanes. Administratively, this division is important because, without zoning, marine use tends to be governed by open-access dynamics that intensify resource competition. Politically, however, zoning is never neutral. Each zone carries different actors, capital requirements, ecological risks, and access consequences. The political weight of offshore tin mining is particularly significant in Bangka Belitung. Studies on Bangka coastal conflict show that offshore mining is not only an economic issue but also a question of fisherfolk rights, damaged ecosystems, altered fishing grounds, and unequal power in decision-making (Adrian & Hartanto, 2022; Mardiyani et al., 2023; Sulaiman et al., 2023). RZWP3K can therefore provide formal certainty without necessarily generating social acceptance. If a zoning decision is perceived to threaten fishing grounds, tourism, mangroves, coral reefs, or local identity, community resistance may continue even when an activity has obtained administrative grounds. The tension is visible in the difference between legal allocation and lived coastal experience. Article 6 of the RZWP3K sets a twenty-year planning period with a five-year review mechanism. Articles on general-use areas, conservation, sea lanes, submarine cables, and biota migration show that the regulation attempts to coordinate multiple functions in a single spatial architecture. Yet, the effectiveness of this architecture depends on review, enforcement, and public access to spatial data. A zoning plan that is not actively evaluated can become a mechanism that normalizes old conflicts rather than resolving them.

This point is crucial for Gelasa/Kelasa. The presence of submarine-cable provisions and marine-biota migration corridors means that energy projects cannot be considered outside the spatial logic of RZWP3K. Large-scale energy infrastructure must be assessed not only by generation capacity and investment value, but also by conformity with zoning, conservation requirements, fishing access, marine habitats, and emergency preparedness. In this sense, RZWP3K should function as a spatial safeguard, not merely as a procedural gateway for investment.

The strengthening of central instruments can be seen through KKPRL, conservation-area decrees, measured fishing, and nuclear regulatory procedures. KKPRL is designed to ensure that marine-space activities conform to spatial plans and zoning instruments. In principle, this mechanism links marine utilization to legal spatial order. In practice, it also requires strong data systems, clear institutional coordination, and effective monitoring because the activities regulated through KKPRL can directly affect fishers, tourism actors, coastal settlements, and marine habitats.

Conservation areas reveal the same multi-level authority. Provincial and local actors may prepare proposals, institutions, and management arrangements, but formal establishment is often made through ministerial decrees. The designation of conservation areas in Belitung, Ketugar-Perlang, Lepar, and Pongok shows that conservation has become a formal component of Bangka Belitung marine governance. Yet, formal designation alone does not guarantee ecological protection. Conservation requires financing, enforcement, community participation, and consistency with other permits that may produce ecological pressure. Measured fishing also needs to be read politically. Government Regulation No. 11 of 2023 and its derivative instruments introduce quota-based and zone-based control over fishing activities.

From a blue-economy perspective, the policy can be read as an effort to control overexploitation. From a coastal-justice perspective, however, its implementation must consider small-scale fishers, administrative capacity, information access, compliance costs, and the location of fishing bases. In Bangka Belitung, fishers already face pressure from offshore mining, ecological degradation, and spatial competition. A policy intended to improve sustainability can become burdensome if it does not distinguish between large-scale commercial capacity and small-scale livelihood dependence. The centralization of authority is therefore ambivalent.

It can improve standards, reduce fragmented local decision-making, and align marine use with national policy. At the same time, it can create a democratic deficit if the people most affected by marine-space decisions have limited access to licensing information, spatial maps, environmental studies, and grievance mechanisms. The quality of governance is thus not determined only by who has authority, but by how authority is exercised and whether coastal communities can meaningfully contest, revise, or monitor decisions.

Local initiatives and coastal environmental activism emerge because formal documents often fail to capture the everyday experience of marine-space change. In Bangka Belitung, civil-society organizations, environmental journalists, community conservation groups, and fisher networks have documented mangrove loss, offshore mining conflict, biodiversity concerns, and the risks of large infrastructure projects. Their role is not limited to protest. They produce corrective knowledge by recording ecological change, translating community concerns into public arguments, and pressuring formal institutions to account for social and environmental consequences. This corrective function is important because policy documents tend to present marine space through categories such as zones, permits, corridors, and development targets.

Coastal communities experience the same space as fishing grounds, routes, customary memory, tourism livelihood, conservation practice, and ecological dependency. When these two forms of knowledge are disconnected, spatial planning becomes technocratic. It may appear coherent on paper while producing conflict in practice. Local activism challenges this gap by insisting that marine governance must include lived experience and not only administrative geometry. However, local initiatives also face structural limits. Community actors often have limited access to technical data, permit maps, AMDAL documents, and formal consultation channels. Environmental groups can expose conflict but may not have decisive authority in zoning review or licensing. This asymmetry is central to marine spatial politics. The issue is not simply whether local communities are invited to meetings, but whether their knowledge can alter planning outcomes.

Participation is meaningful only when communities can influence the terms of decision-making, not merely legitimate decisions already shaped elsewhere. For that reason, fair marine governance in Bangka Belitung requires institutional bridges between scientific knowledge, regulatory knowledge, and

community knowledge. Public access to zoning maps, permit information, environmental studies, and monitoring results should be treated as a governance requirement. Local initiatives should be integrated into RZWP3K review, conservation management, KKPR evaluation, AMDAL processes, and post-permit monitoring. Without such integration, local knowledge will remain reactive, while spatial decisions continue to be dominated by state and corporate actors.

4.1.2 Gelasa/Kelasa Energy Discourse and the Spatial Test of Energy Transition

The Gelasa/Kelasa energy issue connects nearly all dimensions of Bangka Belitung marine spatial politics. A small island, conservation concerns, local livelihoods, national energy planning, private investment, nuclear safety, and marine infrastructure intersect in one spatial debate. Public discourse often uses the term PLTT to refer to a thorium-based power plant. In nuclear regulatory terms, however, the project is treated as a nuclear power plant, particularly the ThorCon 500 or TMSR500 reactor concept. This distinction matters because a public discussion framed only as thorium energy may obscure the regulatory requirements of nuclear safety, site evaluation, emergency planning, and long-term supervision. BAPETEN's 2025 site-evaluation approval for the ThorCon 500 nuclear power plant on Kelasa Island should be interpreted carefully.

Site-evaluation approval is not equivalent to a construction license, commissioning approval, or operating license. It is an early regulatory stage that allows systematic evaluation of site suitability, including external hazards and site characteristics. Academically, this means the project cannot be treated as if it were already operating, but it also cannot be dismissed as a mere rumor because it has entered a formal licensing pathway.

The opportunity argument for nuclear energy is clear: it is presented as a low-carbon, high-capacity source that can support long-term electricity security. The 2025-2034 electricity planning discourse also places nuclear power within Indonesia's future electricity transition. Yet the Gelasa/Kelasa case cannot be assessed only through national capacity targets. The island scale, marine ecology, public acceptance, emergency preparedness, radioactive and non-radioactive environmental risks, and local benefit distribution must all be made explicit. In small-island contexts, a large energy project may alter the island's function, access regime, and symbolic meaning. Other marine-energy options offer a different governance pathway. Wave and tidal energy are more directly connected to local marine dynamics and can be developed through smaller pilot projects.

Studies on Indonesia's ocean renewable energy potential show that marine currents, waves, and coastal resources deserve further site-specific assessment (Mutsuda et al., 2019; Novico et al., 2021; Purba et al., 2015). For Bangka Belitung, wave-energy or tidal-current pilot projects could become a learning platform involving the provincial government, university researchers, PLN, and coastal communities. This pathway would not eliminate the need for permits and environmental assessment, but it could build local capacity before the province commits to larger and riskier infrastructure. Submarine electricity cables are also part of marine-based energy transition. Inter-island electricity connectivity can improve reliability, reduce dependence on isolated diesel generation, and support the integration of cleaner power sources. Yet cable deployment requires spatial conformity, seabed assessment, protection from anchors and trawling, coordination with shipping lanes, and consultation with fishers. Floating solar, offshore wind, and coastal biomass also require location-specific assessment. The general implication is that marine-based energy transition must pass a spatial test: every option must demonstrate ecological compatibility, safety, public

legitimacy, and fair distribution of benefits.

The central problem in Bangka Belitung marine governance is the imbalance between the speed of economic utilization and the capacity for socio-ecological control. RZWP3K provides a legal language for organizing marine space, but conflict does not disappear simply because zones are drawn. Conflict persists when communities perceive that zoning does not protect their fishing grounds, when licensing information is not transparent, or when large projects enter coastal space without adequate public understanding of risk and benefit. Central-government instruments also produce mixed effects. KKPRL, conservation decrees, measured fishing, and nuclear-site evaluation can strengthen standards and integrate policy across sectors. Yet integration from above can produce alienation below if communities are unable to access data, contest decisions, or participate in monitoring.

The problem is not central authority itself, but the absence of democratic and ecological safeguards in how authority is operationalized. Local initiatives function as a necessary correction to formal spatial governance. They remind policymakers that the sea is not only a legal object or investment site. It is a livelihood base, ecological system, cultural memory, and everyday social space. This corrective role should not be romanticized, because community actors also need technical support and institutional recognition. Nevertheless, without local knowledge, marine spatial planning risks reproducing the logic of extractivism under a modern planning vocabulary. The Gelasa/Kelasa case is therefore a stress test for Bangka Belitung's marine governance. If energy transition is pursued without spatial justice, it may repeat the old pattern of extraction: external actors capture benefits while local communities carry ecological and social risks. A more defensible path is to require every marine-energy project to meet four standards: conformity with RZWP3K and KKPRL, credible environmental and safety assessment, meaningful public participation, and measurable local benefits. Only under these conditions can energy transition become a governance improvement rather than a new layer of spatial dispossession.

5. CONCLUSION

Marine spatial governance in Bangka Belitung shows that the sea is a political arena connecting the state, market actors, coastal communities, and ecosystems. RZWP3K creates a formal framework for organizing coastal and small-island space, but its effectiveness depends on the willingness to evaluate problematic zones, disclose spatial data, enforce rules, and protect fisherfolk and coastal communities. Central authority through KKPRL, conservation areas, measured fishing, and nuclear-site evaluation can improve regulatory coherence, but it must be accompanied by substantive participation to prevent a new distance between decision-making and local impacts. The Gelasa/Kelasa energy issue confirms that marine-based energy transition is not merely a technological choice. It involves spatial conformity, safety, conservation, public legitimacy, and benefit distribution. Nuclear energy, wave energy, submarine cables, floating solar, offshore wind, and small-island biomass must each be assessed according to ecological carrying capacity, local needs, and long-term accountability. Bangka Belitung should not be positioned merely as a site for energy projects; it should become a laboratory for transparent, fair, and sustainable marine spatial governance. This article recommends an open five-year review of RZWP3K; publication of zoning maps, permits, and ecological studies in accessible formats; stronger community-based conservation; strict testing of every marine-energy project through RZWP3K, KKPRL, AMDAL, and meaningful consultation; and the development of small-scale wave or tidal-current pilot projects involving universities, the provincial government, PLN, and coastal communities.

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