

Whose Energy Future? Indonesia's Paradox Of Coal-Dependent Transition

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Abstract: Indonesia's energy transition presents a paradox: while the state commits to decarbonization, coal remains central to national energy and industrial policy. This study examines the challenges facing energy democracy in Indonesia amidst the ongoing energy transition within the coal sector. This article investigates how state-led energy transition policies under the Joko Widodo administration reconfigure coal as part of a "green" development pathway and the implications for energy democracy. The study employs a qualitative method by review analysis of policy documents, academic literature, and civil society reports to examine policy framing, governance arrangements, and community impacts. Drawing on political ecology, green grabbing, and energy democracy frameworks, the analysis shows that centralized decision-making enables coal infrastructure to persist through mechanism such as biomass co-firing, downstream industrialization, and strategic industry exemptions. The article contributes to energy transition scholarship by showing how decarbonization policies can simultaneously advance climate commitments and reproduce extractive governance. Rather than a shift away from fossil fuels, Indonesia's transition represents a reconfiguration of coal dependence within a green developmental framework, raising question about the feasibility of energy democracy in centralized energy systems.

Keywords : Energy Democracy, energy transition, Coal.

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1. INTRODUCTION

Indonesia's energy transition presents a paradox. The country has committed to achieving net-zero emissions by 2060 and has begun implementing a variety of policies to accelerate the shift towards, renewable energy. On the other hand, coal remains a dominant force in Indonesia's energy mix-accounting for over 60% of electricity generation and continues to receive significant political, economic, and infrastructural support (Fadhillah, 2025). Rather than declining, the coal sector has become increasingly embedded within Indonesia's national energy strategy. This entanglement is often justified under the banner of "clean energy transition", where coal is reframed not be "phase-out" but as "phase-down" to be more environmentally acceptable. Through policies such as biomass co-firing and carbon offsetting schemes are presented as alternative solution that allow coal infrastructure to remain operational while aligning with climate and sustainability goals. As a result, the energy transition does not necessarily displace coal, but reconfigures its role within the Indonesia's energy landscape.

This contradiction is particularly pronounced under the administration of President Joko Widodo (Jokowi). Despite rhetorical commitments to *energi berkeadilan* (energy justice), the energy transition remains largely centralized, state-led, and investment-driven (IESR, 2024). While presented as necessary for energy security and economic growth, this governance model

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raise a critical question : can a highly centralized transition deliver democratic and socially just outcomes ?

Furthermore, local communities particularly those most affected by coal extraction and its infrastructure are frequently excluded from decision-making processes and denied access to the benefits of transition (Febriyanti et al., 2023). As a result, the energy transition risks reinforcing existing inequality and perpetuating extractive modes of development under a new “green” label. This study examines the challenges of achieving energy democracy within context of Indonesia’s ongoing energy transition in the coal sector. It investigates how state-led, centralized decision making, particularly under the Jokowi presidency has shaped the direction of energy policy in ways that exclude local communities and prioritize national development goals over environmental and social justice.

To analyze this dynamic, the article integrates three complementary frameworks. It draws on political ecology and green grabbing framework to interrogate how the transition is being governed, who benefits, and who bear the cost. The concept of green grabbing understood as the appropriation of land and resources for environmental purposes offers a critical lens to analyze how coal persist not despite but often because of its strategic rebranding as part of climate solutions. Meanwhile the political ecology provides tools to unpack the power relations, institutional interest, and territorial dynamics that shaped Indonesia’s energy transition. Through this lens, the study highlights the tensions between national policy priorities, global market dependencies, and the rights and voices of the local communities. It ultimate questions whether Indonesia’s energy transition represent a fundamental transformation or a reconfiguration of extractive politics under a green façade

This paper argues that rather than dismantling extractive structures, Indonesia’s transition is entrenching new forms of exclusion through processes such as green grabbing, where land and resources are appropriated for renewable energy and carbon offset projects under the guise of sustainability. Current critical scholarship on energy transition often analyzes political ecology, green grabbing, or energy democracy in isolation. This paper fills the gap by synthesizing these three frameworks to reveal how Indonesia’s state-led transitions actively reconfigure extractive politics under a green façade, a dynamic that not fully capture by single-framework analyses. Ultimately, this study argues that Indonesia’s energy transition, rather than representing a fundamental transformation, constitutes a reconfiguration of extractive politics operating under a green facade.

2. LITERATURE REVIEW

2.1 Political Ecology of Energy Transition

Political ecology offers more than a general critique of environmental governance, it provide a critical lens through which environmental change is understood as inherently political, means it shaped by historical legacies, power struggles, and uneven socio-ecologies relations (Robbins, 2020). Rather than viewing environmental problems as purely technical or managerial challenges, political ecology foregrounds the political nature of environmental decisions, revealing how such decisions often benefit certain groups while marginalizing others. This perspective is particularly powerful for examining Indonesia’s coal dependent transition because it reveals dimensions that conventional energy governance analyses often overlook.

Previous energy governance scholarship tends to focus on institutional design (Goldthau et al., 2018; Sovacool, 2014), policy coherence (Nilsson et al., 2012), regulatory (Burke & Stephens, 2017). Political ecology therefore directs attention to how transitions are embedded in historical extractive regimes, uneven development, and entrenched political-economic

interest (Barca, 2020; Swyngedouw & Heynen, 2003). In the context of energy transitions, this perspective shifts analytical focus away from technological fixes and policy outputs towards more questions regarding who controls access to energy resources? Who defines sustainability? Whose interests are advanced or undermined in the transition process?

From this standpoint, energy transition is not merely about breakaways from fossil fuel dependency but also represents a reconfiguration of long-standing extractive regimes that now reframed under the banner of sustainability. Political ecology thus recast energy transition as a contested political process rather than a neutral or inevitable progression toward decarbonization. Scholars emphasize that energy transitions are deeply entangled in political-economic structures, and that shifts towards renewable energy do not automatically produce more just or sustainable outcomes (Bridge & Gailing, 2020; Newell, 2021).

Existing political ecology literature critiques fossil fuel regimes for their systemic injustice tied to extraction, commodification, and coerced integration into global markets (Le Billon, 2001). More recent contributions extend this critique to the realm of renewable energy, illustrating that energy transitions carry their own socio-environmental costs and contested outcomes. (Knuth et al., 2022; Sovacool, 2021). These studies collectively highlight that energy transitions often create new winners and losers, raising questions about the mechanism through which these are produced.

Knuth et al (2022) for instance, emphasizing the dual role of political ecology in the energy transition discourse. It not only critiques the distributional impacts and land struggles emerging from renewable infrastructure but also equips grassroots movements with conceptual tools to challenge entrenched power structures. Similarly, the spatial dimension of energy transitions in Indonesia calls for attention. Energy governance is not evenly distributed; instead, it is mediated by territorial logics shaped by shifting governance imperatives, instruments, and strategies. Therefore, territory should be seen not as a static outcome, but as an ongoing process shaped by political negotiations and administrative claims (Bridge & Gailing, 2020; Munro, 2021).

Overall, political ecology enables this research to move beyond evaluating policy effectiveness towards interrogating how transitions redistribute power, reconfigure extractive regimes, and reshape socio-ecological inequalities, it provides the conceptual tools to analyze not only what changes in the shift towards cleaner energy, but also what persists and who benefits from that persistence.

2.2 Energy Democracy; Justice, and Participation

Energy democracy has emerged as a powerful and increasingly popular framework that responds to the social and political shortcoming of conventional energy transition models. Rooted in social movements, particularly in the Global North, the concept has been used to critique the dominance of market-driven and technocratic approaches in renewable energy transitions. It aims to bring core democratic principles such as justice, participation, and power into energy systems, arguing that a just energy transition must go beyond technological change to include transformation in governance and power relations (Burke & Stephens, 2017; Feldpausch-Parker et al., 2021). In much of this literature, energy democracy is associated with grassroots mobilization, municipalization, and community-owned renewable projects that seek to decentralize authority and redistribute benefits (Van Veelen & Van Der Horst, 2018). As a conceptual framework, energy democracy embodies a vision of energy systems where access is equitable, benefits are widely distributed, and energy production and consumption do not harm people or the environment.

Despite its normative appeal, energy democracy has been criticized for its conceptual ambiguity. Scholars have noted that the term can refer both to democratic outcomes (e.g.,

equitable access to energy) and to democratic processes (e.g., participatory decision-making) (Van Veelen & Van Der Horst, 2018). This dual nature calls for more precise definition and clearer analytical frameworks. The procedural dimension of energy democracy refers to the mechanisms and institutions that allow for collective participation and decision-making in energy governance, while the substantive dimension focuses on the distributive outcomes of those decisions.

However, the normative architecture of energy democracy is built on political conditions that are not universally present. Many cases assume relatively strong local governments, institutionalized participatory mechanism, and civic space where community-led initiatives can meaningfully influence energy governance. These assumptions become less stable in highly centralized, state-driven systems such as Indonesia (Winanti & Mas'udi, 2022). Indonesia's energy sector remains dominated by state-owned enterprises, centralized planning logics, and entrenched coal-political alliances. In this context, democratization cannot be reduced to community-led initiative or municipal experimentation. The state is not merely a facilitator or regulator of energy markets, it is central actor in structuring extraction, infrastructure, and energy finance. As critics note, energy democracy literature often under-theorize state capacity and the political realities of countries where energy systems are deeply embedded in national development strategies (Winanti & Mas'udi, 2022).

Energy democracy is increasingly understood as both a normative ideal and a political struggle. As a normative vision, it imagines an energy system that is just, inclusive, and environmentally sustainable. As a political struggle, it acknowledges that technological change alone cannot resolve structural injustice, instead democratizing energy requires entrenched interest, redistributing power, and expanding meaningful participation. Thus, the translations of energy democracy into Indonesia exposes a tension between its normative vision and the structural realities of centralized energy governance. In this study, energy democracy is therefore not treated as empirical conditions already present in Indonesia, but as a contested horizon against which the contradictions of the country's energy transition can be assessed.

2.3 Green-Grabbing and the Reconfiguration of Extractivism

The concept of green grabbing extends the literature on land grabbing by incorporating environmental justification into processes of resource appropriation. While previous studies on land grabbing have highlighted factors such as the role of globalization (Margulis et al., 2013), state-led land governance (Wolford et al., 2013), and local resistance and political responses (Hall et al., 2015), green grabbing adds a new dimension: the instrumental use of environmental and climate-related goals to legitimize the acquisition of land and natural resources (Fairhead et al., 2012). This lens is particularly relevant to Indonesia's coal-dependent transition. As the state advances decarbonization commitments, therefore sustainability does not necessarily reduce extraction; rather it can reorganize authority over land, forest, and mineral resources under green rationales.

Green grabbing refers to the appropriation of land and resources in the name of environmental protection, climate change mitigation, or sustainability transition. It typically involves different array of actors including state agencies, NGOs, and multilateral donors that also make the relationship between contemporary green grab an advance capitalism (Neef et al., 2023). These processes are closely tied to territorialization, whereby the state and allied institutions assert authority over land through environmental governance mechanism (Vandergeest & Peluso, 1995). The state pursued this resource-control strategy through more centralized policies that restricted access to coal resources management. Centralized policies affected the centralized system governing how coal would be managed.

Unlike traditional land grabs, green grabs often occur through various strategies such as environmental policies that restrict local accesses to resources by using ‘green’ factor (Benjaminsen & Bryceson, 2012), or new carbon markets (Lyons & Westoby, 2014). Moreover, green grabbing is thus enabled by two interrelated trends. First, environmental protection has become a key precondition for accessing development. Second, the idea that by protecting and improving the environment in one place can be used repair sustainability problem created in other place (Fairhead et al., 2012; Scheidel & Work, 2018). Furthermore, Fairhead et al (2012) argue that the logic of green grabbing is valued upon the economy of repair. It means that this economy relies on market-based solutions such as pricing carbon or promoting alternative resources such as biofuel as compensatory mechanism for ecological damage, reinforcing a logic in which unsustainable growth “here” can be “repaired” by green interventions “there”.

In Indonesia context, green grabbing does not simply describe as only land acquisition, it captures how environmental narratives enable the reorganization of power, territory, and resource control. Therefore, the transition to cleaner energy may generate new forms of dispossession that comes from regulatory restructuring, green conditionalities, and the creation of new carbon-linked markets.

2.3 Theoretical Framework

This study draws on an integrated theoretical framework combining political ecology, energy democracy, and green grabbing to analyze the dynamics of Indonesia’s coal-dependent energy transition. While each framework originates from distinct scholarly traditions, together they offer a powerful lens for understanding how power, environmental narratives, and governance structures interact to shape the trajectory and social consequence of energy transition. Political ecology provides the structural foundation, green grabbing explains the discursive and territorial mechanism of transitions, and energy democracy offers normative and evaluative lens for assessing justice and participation.

Political Ecology provides the foundation orientation of the framework by emphasizing that environmental change, including energy transition, is inherently political. It interrogates how historical legacies, institutional arrangements, and uneven power relation shape access to resources and decision-making authority (Le Billon, 2001; Robbins, 2020). Political ecology thus highlight that energy transitions are not neutral technological shift but contested socio-political processes shaped by actors who seek to preserve or reorganize control over energy system. This perspective is valuable for examining how long-standing extractive structures, such as those surrounding coal, persist or evolve within new policy regimes and development priorities (Bridge & Gailing, 2020).

In this study, political ecology guides analysis of how coal-dependent governance structures persist within transition policies, authority distribution across national and subnational levels and power relation that shape whose interest are prioritized. However, political ecology alone does not fully explain how environmental rhetoric legitimize new forms of intervention. Nor does it provide a normative benchmark for evaluating democratic outcomes. For this reason, it is complemented by green grabbing and energy democracy.

To further understand how environmental narratives legitimize particular transition pathway, the framework incorporates insights from green grabbing. Green grabbing extends the broader land grabbing literature by examining how environmental and climate-oriented justifications are mobilized to support new form of appropriation (Fairhead et al., 2012; Scheidel & Work, 2018). It highlight the mechanism through which sustainability discourse legitimize regulatory change, territorialization, and the restructuring of extractive activities.

When applied to energy transitions, green grabbing helps explain how fossil fuel industries are reframed as components of a green future, enabling the expansion or rebranding of extractive activities under environmental rhetoric. While political ecology reveals the structural power, green grabbing illuminates how that power is rearticulated through “green” rationalities.

Complementing these approaches, energy democracy provides a normative and analytical lens for evaluating the justice dimensions of energy transitions. Energy democracy critiques market-driven and technocratic transition strategies and instead call for greater public participation, redistribution of benefits, and socio-environmental justice within energy systems (Burke & Stephens, 2017). The concept offering tools to assess whether transitions deepen democratic governance or entrench existing inequalities (Van Veelen & Van Der Horst, 2018)

By synthesizing these frameworks, this study contributes a critical framework for analyzing Indonesia’s energy transition. Taken together, these frameworks situate Indonesia’s energy transitions as a contested and uneven process. This integrated lens is essential for analyzing whether the transition represents a transformative shift towards sustainable and democratic energy futures, or a continuation of extractivism under green façade.

3. METHODOLOGY

This research employs a qualitative research design to examine the governance dynamics underpinning Indonesia’s energy transition. The study focuses on how policy narratives construct legitimacy, authority, and environmental justification, particularly in relation to coal and transition technologies. Rather than evaluating policy effectiveness, the analysis investigates how concept such as energy security, energy sovereignty, and green transition is framed and mobilized within governance processes. The analysis pays particular attention to policy narratives, framing strategies, and the ways certain interpretations are privileged while others are marginalized.

The empirical material for this study was gathered through a structured qualitative document review conducted between June 2025 to October 2025. While interpretive in orientation, the review followed systematic search and screening principles to ensure transparency and breadth coverage. Adopting structured search procedures helps qualitative policy analysis avoid selective evidence and strengthens analytical reliability (Pradana et al., 2022)

Data for this study were collected entirely through comprehensive desk studies, systematically analyzing a diverse array of secondary sources. These sources, including academic literature, peer-reviewed journal articles, government policy analyses, reputable media reports, and publication from civil society organizations, were selected based on their direct relevance to Indonesia’s energy policy, the Jokowi administration’s initiatives, and documented cases of community impact. The analysis involved identify key themes, narratives, and policy instruments related to coal dependency, green grabbing, and community participation, critically examining how these are articulated and contested across different source types. This selection strategy enabled the analysis to capture both official policy positions and alternative perspectives emerging from civil society and affected communities.

Official government documents, including national energy planning reports (e.g, KEN, RUEN), ministerial regulations, presidential decrees, and public statements, were critically analyzed to identify formal policy rationales, the policy narrative surrounding “energy security” and “green” initiatives, and the institutional mechanism that shape coal’s persistence. This allowed for an examination of how state narratives align with or diverge from the principle of energy democracy and how ‘green grabbing’ is legitimized at the policy level.

After collection, documents were read iteratively and organized into an analytical corpus. The analysis proceeds through layered thematic coding. Initial reading identified themes such as energy security, green industrialization, transition technologies, and community participation. These themes were then interpreted through study's theoretical framework; political ecology was used to examine power relations and institutional authority, green grabbing to identify environmental justification and territorial restructuring, and energy democracy to evaluate participation and distributional justice. This theory-guided coding enabled comparison between policy framing and report impacts, highlighting how certain transition pathways become normalized while others are contested.

4. RESULTS

4.1 Historical and the Structure Drivers of Coal Persistence in Indonesia; Power and Governance Dynamics.

Coal governance in Indonesia has been shaped by evolving political regimes, regulatory reforms, and enduring structural dependencies that reveal the power dynamics underpinning the sector's persistence. This persistence reveals how deeply coal is embedded in Indonesia's political and development paradigm. Coal's endurance reflects a complex interplay of elite interest, state control, and political-economic imperatives. This section traces the historical trajectories and governance logics that have positioned coal as one of the central pillars of Indonesia's energy and economic landscape.

Indonesia's resource governance patterns were initially shaped by colonial extraction models, where natural resources primarily served foreign interest. After independence in 1945, Indonesia's government inherited these extractive structures but redirected them towards national development. During Suharto's New Order regime (1966-1998), the state consolidated control over natural resources through Law No.11 of 1967, establishing centralized authority over mining activities. The state played a pivotal role in promoting large-scale resource extraction to attract foreign capital, enacting pro-investment laws like Law No. 11/1967 on Mining (Resosudarmo, 2005). Although coal exploration remained limited until the 1980s, the regulatory framework laid the groundwork for a centralized licensing regime that aligns state authority with corporate interest.

The Asian Financial crisis of 1997 catalyzed dramatic institutional restructuring. Law No.22/1999 on Regional Government and Law No.25/1999 on Fiscal Balance devolved significant authority to district governments, including power to issue mining licenses (Fünfgeld, 2018; Warburton, 2023). The mining license authority moved to district governments, empowering local elites to issue extraction permits. Furthermore, Indonesia's government passed the Law No.4/2009 on Mineral and Coal Mining. This law granted local governments (provinces, regional level) the power to issue licenses for mining ventures within their regional territory and simplified the licensing regime.

This shift transformed subnational governments into powerful actors in coal governance, enabling them to capture rents from resource extraction and fund regional development, often at the cost of regulatory oversight (Resosudarmo, 2005). While this ostensibly aligned with democratization, it also fragmented regulatory authority and incentivized the proliferation of permits. Crucially, the shift undermined the legal protections previously extended to foreign investors, signaling a more nationalist orientation in resource governance. This turn toward resource nationalism intensified during the global commodity boom of the early 2000s. Indonesia's government sought greater domestic control over strategic sectors, imposing limits on foreign ownership and reinforcing local content requirements. Among all resource sectors, the mining industry became a focal point for nationalist intervention (Warburton, 2023). These

developments reflect how state power was recalibrated not from coal, but through transforming coal into vehicles for asserting sovereignty and redistributing rent among political elites.

However, by 2020, a sharp reversal occurred. Law No.3/2020 recentralized mining authority under the Ministry of Energy and Mineral Resources (MoEMR), undermining decentralization gains. The law enables automatic license renewals, removed concession limits, and mandated divestment of foreign shares which deepening state control while sustaining investor confidence. Alongside the Omnibus Law No.11/2020, which incentivized downstream coal industries with tax breaks 0% royalties for value-added coal use, these policies entrenched coal's centrality in the national development agenda justified through energy security and economic resilience narratives. These developments reflected a shift toward centralized control while preserving investor confidence and deepening coal's integration into national development strategy.

The state's strategic prioritized of coal is embedded in Indonesia's energy planning documents, including the National Energy policy (KEN) and National Energy Plan (RUEN), which forecast coal providing over 30% of energy supply by 2025. This is tied to perceptions of coal as a cheap, abundant, and reliable domestic energy resources (Maulidia et al., 2019; Ordonez et al., 2021). To safeguard this role, the government implemented the Domestic Market Obligation (DMO), capping coal prices at USD 70 per ton for PLN, the state-owned utility, effectively subsidizing coal use to ensure "affordable" electricity prices. These policies bolster PLN's reliance on coal, reinforcing the political economy of state-controlled energy, where the Ministry of SOEs, MoEMR, and the Ministry of Finance collaborate to maintain an energy regime dominated by coal (Ordonez et al., 2021; Setyawati, 2023).

Jokowi's administration further expanded this structure through 35 GW fast-track electricity program, of which more than half is coal powered. Through Indonesia has pledged GHG emission reductions under the Paris Agreement, its expanding coal fired power plant by 254 plants in operation and 40 more under construction undermines these commitments (Ramdlaningrum, 2024). Notably, a growing share of new coal capacity now serves mineral processing industries tied to the electric vehicle (EV) supply chain, blurring the lines between green industrialization and fossil-fuel lock-in (Jong, 2025).

The persistence of coal is also driven by elite political alliances. In 2024, a controversial government regulation (PP) No.25/2024 amended prior mining laws to grant religious mass organizations preferential access to coal mining concessions without auction and removed the requirement for annual work plan submissions. While framed as welfare-oriented, these policies risk enabling unchecked extraction while weakening transparency and regulatory oversight (PWYP, 2024). The allocation of former PKP2B areas to mass organizations bypasses previously mandated routes via state owned enterprises (SOE), underscoring how regulatory instruments are increasingly used to consolidate political patronage.

In the same year, the MoEMR approved RKABs for 2024-2026 from 587 applications, with coal production targets reaching 922.14 million tones in 2024, 917.16 million tones in 2025, and 902.97 million tones in 2026. These figures do not include exploration licenses or new production from religious mass organizations. Notably, they far exceed the 400-million-tonne limit previously set by Presidential Decree No.22/2017 under the General National Energy plan (RUEN). The expansion signals a major seatback for Indonesia's energy transition commitments (PWYP, 2024).

President Prabowo Subianto (known as Prabowo) has maintained continuity with past policies while adopting green rhetoric. His administration emphasizes on utilizing domestic resources such as geothermal, coal, large hydro, and various crops without committing clearly regarding renewable energy. It looks still prioritize using off large-scale biofuel. Nonetheless,

Prabowo reaffirm coal-phase down ambition during the G20 summit in 2024 by stating a plan to retire all coal and other fossil fuel power plants and significantly boost renewable energy capacity within 15 years. Furthermore, the issuance of National Electricity General Plan (Rencana Umum Ketenagalistrikan Nasional or RUKN) rather than clearly scheme on coal-phase out, it much more discuss on the possibility converting CFPPs to new and renewable energy sources such as biomass, ammonia, and nuclear energy though retrofitting (Suharsono & Nugroho, 2025).

In sum, the persistence of coal in Indonesia reflects not just economic dependence, but a patterned political trajectory in which successive governance reforms have recalibrated coal's strategic role. From centralized control under the New Order, to decentralized authority after 1998, and back to recentralized consolidation under Law No.3/2020, each institutional shift altered the locus of authority without dislodging coal from the core of state power.

Rather than being a residual of past policy, coal has been repeatedly reconfigured as a strategic asset tied to energy security, fiscal stability, and political legitimacy. The historical trajectory of coal governance therefore demonstrated continuity through change: institutional reforms, whether framed as democratization or regulatory streamlining, have consistently persevered elite access to resource rents and entrenched coal within Indonesia's state-capital relations.

Seen in this light, coal persistence is not an unintended policy outcomes, but the product of adaptive governance that has reworked political control while sustaining extractive dependence.

4.2 Coal Rebranded as “Green”

Green Grabbing in Indonesia operates through two interlocking processes. First, state-led promotion of “green coal” project reframes coal expansion as part of a sovereign, low-carbon future. Second, the marginalization of local communities in decision making processes particularly in coal-rich region facilitates the expansion of these projects with minimal resistance.

The Indonesian government has actively rebranded coal as a strategic asset essential to achieving energy sovereignty, national development, and environmental goals. One example has been through co-firing technology, promoted by Indonesia State Electricity Company (known as *Pembangkit Listrik Negara* or PLN) to integrate biomass with coal-combustion thereby artificially inflating the renewable share of the national energy mix (IEEFA, 2021). Indonesia has centralized energy system in energy sector means that the generation, distribution, and transmission of electricity are controlled by PLN. Furthermore, PLN owns most of the assets for generation, the whole national grid transmission system and the end sale of electricity (Setiawati, 2023). By using co-firing technology, it makes aligns with Indonesia's broader ambition to shift towards cleaner energy while still utilizing its abundant coal resources.

Within a green grabbing framework, co-firing exemplifies the “economy of repair” (Fairhead et al., 2012). Rather than reducing coal dependence, its re-labels coal industry as “green” and sustainable transition pathway. Therefore, it allows carbon-intensive systems to persist under revised accounting practices. Instead of “phasing-out” coal plants, existing assets are retrofitted to fit decarbonization narratives. Studies suggest that that by using co-firing technology framed as sustainable solution more likely to reinforcing carbon lock-in rather than accelerating transformative renewable transition (Apriliyanti & Nugraha, 2025).

Similarly, the government's push for coal gasification as part of promoting the “clean coal” narratives. This coal gasification converts coal into liquid or gas hydrocarbons such as coal gasification to dimethyl ether (DME). This initiative aims to add value to Indonesia's low

rank coal, which has seen declining demand as the global coal market matures. The government, through PT. Bukit Asam (PTBA) is exploring domestic markets for coal products to avoid the risk of stranded assets. A major project in this regard is the \$2.1 billion coal gasification plant in Sumatra, developed in partnership with American industrial gas company Air Products & Chemicals (APD) (IEEFA, 2022). This plant is expected to produce methanol and DME, reducing Indonesia’s reliance on liquefied petroleum gas (LPG) imports and providing cheaper alternatives for domestic energy needs. A similar \$2 billion coal-to-methanol project is underway in Kalimantan with Bakrie group. These ventures aim to revitalize Indonesia’s coal industry, attract foreign investment, and secure long-term economic benefits, particularly for PTBA and Pertamina (Indonesia’s SOE in oil sector), which stands to profit from reduced LPG import cost and a more stable domestic energy supply (IEEFA, 2022).

The state’s green grabbing strategy is further embedded in recent regulatory frameworks. Under the new Presidential Regulation in 2022, most these new coal plants – 13 GW, or 69%-, will be “captive” facilities designed to supply power directly to industrial and commercial operations rather than the national grid. These plants primarily support sector like aluminum smelting, nickel and cobalt processing, which the government is promoting to establish Indonesia as a major hub in the global electric vehicle (EV) and battery supply chains (Jong 2023). The regulations permit the development and operations of the new coal plants until 2050, if it provides integration with the industries focused on enhancing the added value of natural resources or the part of national strategic projects that significantly contribute to job creation and/or national economic growth (Jong, 2023).

In 2024, Indonesia added 1.9 GW of coal capacity with 80% of them were new captive coal plants. this number triple since 2019 from 5.5 GW to 16.6 GW with the fleet now comprises 130 plans of at least 30 megawatts each, with 21 more ongoing development (Jong, 2025)

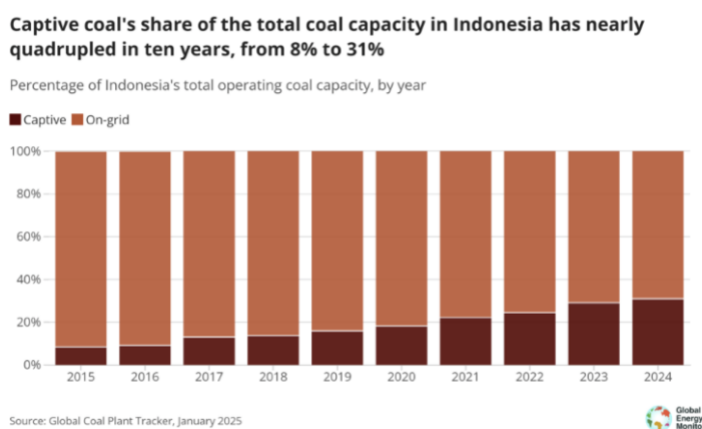


Figure 1. Indonesia Captive Coal

Source: (Global energy monitor, 2025)

Although Indonesia announced a moratorium on new coal-fired power plants (CFPPs) in 2022 as part of its Just Energy Transition Partnership (JETP). However, the moratorium comes with the loophole where the exempts plants already listed in national electricity plan and those serving strategic industries like mineral process like captive coal plants (Jong, 2025). This later become reason to continue flourish the expansion of Coal Fired Power Plan. Additionally, during the COP 29 in Baku, Indonesia’s representative emphasizing on adding 75 GW of new and renewable energy to grid but didn’t specifically mention coal-phase down scheme. The Indonesia’s government thus frames coal-power mineral processing as essential to securing Indonesia’s position in the global electric vehicle and battery supply chain, reinforcing coal’s strategic role despite its environmental cost.

Taken together, co-firing, gasification, and captive coal plants reveal how Indonesia's energy transition does not simply coexist with coal expansion rather it actively rearticulates it. These initiatives align closely with the mechanism of green grabbing: environmental narratives legitimize regulatory exceptions, market-based innovations revalorize fossil assets, and strategic industrialization justified territorial consolidation.

Rather than representing a contradiction between green transition and coal persistence, these cases demonstrate how coal is repositioned within sustainability discourse. Environmental and sovereignty narratives function not to displace extraction, but to organize and extend it. In this way, Indonesia's coal sector exemplifies adaptive fossil governance, rather than dismantling extractive power.

4.3 Marginalizing Communities in the name of Energy Transition

While coal is framed as “green” at the policy level, its social and ecological cost remains borne by local communities in extraction and industrial zones. These communities are frequently excluded from consultation processes, and their resistance often disregarded or actively repressed. Previous study highlight the emerge recognizing vulnerable stakeholder dan marginalized community especially in the local regions with income-dependency on fossil fuel industry are important for more inclusive energy transition (Sekarintias et al., 2023). Additionally, to become more inclusive in energy transition, it also highlights adaptation beyond economic and investment perspective within the policies, including such as protection labor and local communities (Taufik et al., 2024).

One key case is Morowali, central Sulawesi, where the nickel industrial complex developed by PT Indonesia Huabao Industrial Park (IHIP) has triggered community protest. Since the national policy push for nickel down streaming the local community have experienced land dispossessions, inadequate compensation, and coastal area degradation. Through the local civil society group named Forbes (*Forum Ambunu Bersatu*), they have demanded that IHIPP to take responsibility for environmental pollution, provide compensation to affected residents, and realize their promises regarding CSR, empowerment of local workers, and provision of infrastructure. They also demanded a restructuring of IHIP's management to favor local empowerment. HIP developed nickel industrial estate in West Bungku Subdistrict, in Morowali, which was completed and began operating in 2023. The Project includes the construction of a smelter, CFFs and other supporting facilities with a total investment of Rp. 14 trillion. The 20,000 hectares of land for this project includes several villages such as Wata, Tondo, Ambunu, Topogaro, Upanga, Larobenu and Wosu (Salman, 2025).

The Ecological consequences of these developments are stark. In Wosu, respiratory illness rates have surged since the IHIP lant began operating. According to data from Wosu's *Pusat Kesehatan Masyarakat* (Puskesmas) revealed that cases of upper respiratory tract infection (ISPA) have continued to increase since the IHIP began the business. In 2021 there were 735 cases, in 2022 there were 1,200 cases, while in 2023 there were 1,148 cases (Salman, 2025). The IHIPP project has also triggered agrarian conflicts with local communities since they have taken their land without sufficient transparent process. Moreover, the local communities protested the company's use of farm roads as hauling roads without their consent. Instead, the company claimed ownership of the road based on a Memorandum of Understanding (Mou) with the Morowoli Regent, which the community did not know anything regarding the decision-making processes (Salman, 2025). This tension highlighting the lack of community participation in key decisions.

The pattern of nickel-coal under the green projects environmental degradation is similarly evident in Kolaka, Southeast Sulawesi, where coal-fired power supports another nickel industrial complex. Here, the industrial buildup had transformed the area into what

scholars call a “sacrifice zone”, a landscape systematically degraded for the sake of benefits delivered somewhere else (Hasanah & Gerry, 2025).

Beyond the intertwined between coal using and the nickel industry. Within the coal industry itself protest and challenging also happen during the processes of increasing the CFFS, especially in Sumatra Island. Currently, there are 33 units CFFS operates in Sumatra Island. Monitoring conducted by the civil society coalition *Sumatra Terang untuk Energi Bersih* (STuEB) across nine major plants, including; Nagan Raya (Aceh), Pangkalan Susu (North Sumatra), Ombilin (West Sumatra), Tenayan Raya (Riau), Keban Agung (Lahat), Sumsel 1 (South Sumatra), Teluk Sepang (Bengkulu), Semaran (Jambi), Sebalang and Tarahan (Lampung) documented 47 violations of environmental management (Wijaya, 2025). These findings illustrate persistent regulatory gaps and environmental harm associated with coal operations, further challenging the legitimacy of coal’s position within Indonesia’s so-called green transition.

Marginalization is not limited to material dispossession but also involves narrative erasure. The Sorik Marapi geothermal Power Plant in Sibanggor Julu Village, Puncak Sorik Marapi Subdistrict, Mandailing Natal, North Sumatra continues to take victims. Even so, the plant owned by PT Sorik Marapi Geothermal Power (SMGP) is still running until now without punishment. In February 2024, 75 residents of Sibanggor Julu Village had to be rushed to the hospital due to poisoning. It is suspected that they were exposed to hydrogen sulfide (H₂S) gas from the well opening test of the Sorik Marapi geothermal power plant project (Bagaskara, 2025). Marginalizing local communities’ voices also happen in PTLP Poco Leok, where the local communities weren’t involved in decision-making and the community felt no need for the industry happen on their territorial, but unilaterally the PTLP Poco Lecok business continued to run (Bagaskara, 2025).

Across Morowali, Kolaka, Sumatra, and geothermal sites in North Sumatra and NTT, a consistent structural pattern emerged. First, projects are justified through national energy security, green industrialization, or decarbonization narratives. Second, decision-making authority is concentrated at higher administrative levels, limiting meaningful local participation. Third, environmental and health burdens are spatially concentrated in extraction and industrialization zone, while economic and political benefits accrue to state actors, corporations, and national development agenda.

These collective cases illustrated how communities are not only stripped of land health but also of their voices in decision-making. Moreover, the very possibility of positioning coal as part of a green transition relies on rendering invisible the voices of communities who experience its negative impacts. Green grabbing thus involves not only the appropriation of land and resources, but also the appropriation of narrative space. It unravels the constrained realization of energy democracy in Indonesia’s centralized energy system; procedural inclusion remains limited, and substantive justice uneven. Thus, marginalization is not incidental to the energy transition. It is structurally embedded within governance arrangements that prioritize industrial expansion and sovereign development over community-centered transition pathways.

5. DISCUSSION

5.1 Political Ecology: Reconfiguration, Not Transformation

Political ecology argues that environmental change is shaped by historically embedded power relations, institutional interest, and uneven access to resources (Le Billon, 2001; Robbins, 2020). The findings from Indonesia illustrate these dynamics clearly. Coal’s persistence is not simply the product of technical constraints or energy demand but in

entrenched political-economic alliances involving the state, political elite's and corporate actors.

In Indonesia, the continued reliance on coal is embedded in the political economy of resource governance (Ordonez et al., 2021). Coal has emerged as a central node in the nexus of state interest, regional patronage systems, and oligarchy capital. However, what political ecology uncover is not only the material persistence of coal, but also consistence of state narrative that frame coal as indispensable to “energy sovereignty”, “national resilience”, and “strategic industrial development”. For example, policy documents and official statements frequently emphasize the need to “optimize domestic resources” to secure affordable energy and strengthen Indonesia's position in global supply chains. Under the Just Energy Transitions Partnership (JETP), the government simultaneously pledge emissions reductions while affirming that coal plants serving “strategic national industries” would remain optional. This dual framing construct coal not as an obstacle to transition, but as a necessary instrument of it.

Applying a political ecology lens makes visible the roles of key actors in shaping the trajectory of coal-based energy development. Particular attention must be given to transition interventions framed as supporting sustainability but which, in practice, deepen existing power asymmetries. This raises central questions about whether the political structures surrounding coal are being dismantled or merely reconfigured to align with green industrial ambitions (Wijaya & Sinclair, 2024).

The result indicate that Indonesia's transition is shaped by highly centralized authority, regulatory restructuring, and elite alliances, patterns that align with political ecology's emphasis on the political nature of environmental governance. These dynamics underscore that the transition is not a neutral or inevitable shift toward decarbonization but a contested processes shaped by actors who benefit from the continuity of extractive structures.

5.2 Green Grabbing: The Repackaging of Extractivism in Green Terms

Green grabbing provides insight into how environmental narratives are used to justify resource appropriation and territorial control (Fairhead et al., 2012; Neef et al., 2023). This logic is clearly visible in Indonesia's transition, where coal is reframed as part of a green future through discursive strategies such as biomass co-firing, “clean coal” technologies, gasification, and carbon offsetting.

Rather than being positioned as declining sector, coal is incorporated into climate policy through developmental language. Government planning documents repeatedly emphasize the need to “optimize domestic energy resources” and maintain “energy sovereignty and affordability” while pursuing decarbonization targets. Within the Just Energy Transition Partnership framework, coal plants supplying “strategic national industries” are exempted from retirement schedules. Through this framing, coal is not treated as a contradiction to transition but enabling condition.

This means on two consequences. First the narrative on policy documents performs a legitimizing function. By embedding coal within sovereignty, industrialization, and transition discourse, continued extraction becomes pragmatic necessity rather thana political choice. This resulting on shifting the debate away from whether coal should persist towards how it can be made compatible with sustainability.

Second, the counter narrative surrounding emerging effected communities are recast as localized or short-term concerns relative to national development strategies priorities. Environmental harms become framed as manageable trade-offs, while structural critiques of extarctivism are displaced by technical discussions of emissions efficiency and carbon accounting. In this sense, green discourse does not merely accompany extraction, it reorganizes the terms under which extraction becomes politically acceptable.

These dynamics align with Fairhead et al (2012) notion of the “economy repair”, in which environmental harm is justified through compensatory green measures elsewhere. Indonesia’s continued coal dependence is sustained by domestic elite coalitions but also by global financial structures and energy demand, particularly from China and India demonstrating how geopolitical and market forces shape the transition (Scheidel & Work, 2018). Therefore, transition strategies risk entrenching rather than transforming extractive logic: coal is not “phase-out”, but re-authorized under a sustainability rationale.

5.3 Energy Democracy: Procedural and Substantive Justice in the Transition

Energy democracy provides a framework for evaluating whether energy transitions promote participation, justice, and redistribution (Burke & Stephens, 2017; Feldpausch-Parker et al., 2021). The Indonesian case shows significant deficits in both procedural and substantive justice. Moreover, applying energy democracy to Indonesia requires acknowledging the country’s highly centralized governance model, where state-owned enterprises and regulatory institutions maintain dominant roles in energy planning (Winanti & Mas’udi, 2022). In this context, democratization of energy governance cannot rely solely on community-led initiatives. Instead, it requires restructuring state-society relations and confronting entrenched political interests.

In Indonesia, procedural justice is undermined by limited transparency, minimal community participation, and restricted access to decision-making processes. Participation often occurs after key planning choices have already been made, limiting public engagement to consultation rather than co-determination. Communities in mining and industrial regions face restricted access to information, limited avenues for contestation, and asymmetrical bargaining power in negotiations with state and corporate actors.

Substantive injustice is evident in the unequal distribution of environmental harms including pollution, land loss, and health risks that borne disproportionately by communities in extractive zones, industrial corridors, and areas targeted for renewable infrastructure. Even renewable and downstream industrial projects reproduce this uneven geography, situating cost locally and benefits elsewhere. The distinction is critical. Expanding consultation procedures alone would not resolve inequality if fiscal dependence on coal revenues and centralized infrastructure planning remain intact. Conversely, redistributive compensation without participatory authority leaves communities structurally vulnerable to future projects.

In this study, energy democracy is conceptualized as both a normative vision and a political struggle. It seeks not only renewable energy expansion but also the democratization of governance and the recognition of community rights with the goals remain largely unrealized in Indonesia’s current transition trajectory.

6. CONCLUSION

This study has shown that while the discourse of energy democracy suggests a move towards inclusive, just energy futures, in practice, Indonesia’s transition is shaped by green grabbing and elite-driven policies that reinforce historical injustices. Political ecology reveals that coal persistence is not merely technological or economic, but embedded in alliances among state institutions, domestic elites, and global market. Consequently, energy democracy in Indonesia remains an aspirational goal, undermined by both coal dependence and emerging green closures.

The analysis identifies two interrelated processes through which green grabbing operates in Indonesia. First, state-led processes green coal projects, chiefly through the emphasizing coal as the part of energy security, sovereignty discourse, and green industrialization. Second,

the marginalized voice from the affected communities enables the expand of the coal project under the green grabbing schemes. These two process- state led green justification and local silencing are not separate, but interdependent. The legitimacy of coal-based energy transition policies relies on displacing and erasing counter-narratives from those most directly affected. Through nationalistic discourse of energy sovereign and “added value”, the state positions coal as a patriotic resource. Green grabbing, in this sense, is not simply about resource extraction, it is also about narrative enclosure: the power to define what counts as green, just, or necessary. By aligning coal projects with green objectives and global supply chains, the state and its allies secure both domestic legitimacy and international financing, while reproducing extractive geographies and deepening socio-environmental inequalities.

The finding suggest that energy transition policy cannot rely solely on technological substitution or investment expansion. Three implication comes with it; first, transition governance must move beyond consultation toward binding participation mechanism prior to project approval. Second, fiscal and regulatory reforms should redistribute transition benefits to extraction-affected regions rather than concentrating them at national and industrial levels. Third, decarbonization strategies must distinguish genuine “phase-out” pathways from practices that extend fossil infrastructures under sustainable development. Without this changes, climate policy risks reinforcing rather than reducing structural dependence on coal.

While this study offers important insights into the political dynamics shaping Indonesia’s energy transition, several limitations must be acknowledged. First, the study relies primarily on secondary data and policy analysis, which limits the ability to capture the full complexity of on-the ground community experiences and localized contestations. Second, although the study map national -level policy and discourse, the diversity of Indonesia’s subnational political contexts means that local variations in governance, enforcement, and community agency may be underrepresented. Finally, the analysis focuses on coal and nickel as central cases; future research may benefit from incorporating other energy and mineral sectors to examine whether similar forms of green grabbing and democratic exclusion occur elsewhere in Indonesia’s transition landscape.

Author Contribution

The author was solely responsible for conceptualization, data collection, analysis, and writing of the manuscript.

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AI Use Statement

The author used a generative AI tool (Grammarly) to assist with language editing and improving clarity of expression. The AI tool was not used to generate data, conduct analysis, or develop original scholarship arguments. All interpretations, arguments, and conclusion are the author’s own responsibility.

Data Availability Statement

All data supporting the findings of the study are available from the corresponding author upon reasonable request.

Conflict of Interest Declaration

The authors declare no conflict of interest.

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