Eduvest – Journal of Universal Studies
Volume 5 Number 12, Desember, 2025
p- ISSN 2775-3735- e-ISSN 2775-3727

Indonesia's Energy Transition Norm Diffusion Under the UNFCCC Framework

Dian Khairiani
Universitas Indonesia
Email: dian.khairiani@ui.ac.id

ABSTRACT

The Paris Agreement, adopted by United Nations Framework Convention on Climate Change (UNFCCC) is the starting point for Indonesia's commitment to implementing various energy transition efforts to mitigate global climate change as a transnational crisis. This article analyses the process of energy transition diffusion as a norm that emerged from global discourse to be implemented in Indonesia. Jürgen Rüland's (2018) norm diffusion theory, which provided added values to initial thoughts by other scholars, is used to analyze that the diffusion of energy transition norms in Indonesia is not a linear process but is selective and negotiable, where global norms are modified to conform to national interests and domestic political dynamics. This study finds that Indonesia's energy transition norm diffusion is constrained by domestic political and socio-economic barriers, including entrenched fossil fuel interests, coal-dependent fiscal structures, electricity price sensitivity, regulatory fragmentation, and uneven institutional capacity. These factors shape a selective adoption process in which global energy transition norms are framed and localized to align with national development priorities rather than fully internalized as transformative commitments. This article argues that Indonesia has not fully adopted the energy transition norm in terms of total transformation, but it tends to be in the localization stage. Through this analysis, hopefully we can identify potential opportunities to accelerate the normative diffusion of energy transition in Indonesia.

KEYWORDS *Norm diffusion; Paris Agreement; energy transition; transnational; UNFCCC.*

INTRODUCTION

Norm diffusion refers to the process through which ideas, norms, and practices spread across borders and become institutionalized among different actors in the international system. According to Finnemore and Sikkink (1998), norm diffusion occurs through three stages: emergence; cascade; and internalization, reflecting how standards of appropriate behavior evolve and are accepted across societies (Finnemore & Sikkink, 1998). Practically, this process is not limited to states as single actors but also involves systematic and continuous engagement from non-state actors, including international institutions, multinational corporations, and civil society networks. The interconnectedness of these transnational actors is essential in transmitting global ideas into domestic political contexts, particularly concerning transboundary challenges such as climate change.

The UNFCCC, through its 21st Conference of the Parties (COP21) held at Paris in 2015, brought together 195 countries to agree on the outcomes of global negotiations to address climate change impacts, known as the Paris Agreement (UNFCCC, 2015). Indonesia's decision to sign and ratify the Paris Agreement through Law No. 16 of 2016 marked its formal commitment to supporting international climate governance and adopting low–greenhouse gas

(GHG) development strategies. A central strategy for reducing GHG emissions in the energy sector involves shifting from fossil fuels, such as coal, oil, and gas, to sustainable and renewable energy sources, including solar, wind, geothermal, and other new energy technologies. This process is widely recognized as the energy transition.

As a norm, the energy transition represents an emerging global standard of behavior, expected to guide actions at international, national, and local levels. Acharya (2004) emphasizes that the diffusion of global norms is not a linear transfer from one context to another but rather involves localization, in which local actors reconstruct global norms to fit domestic cognitive and institutional frameworks. Indonesia, endowed with significant potential for renewable energy, such as solar, geothermal, wind, biomass, and ocean energy, constitutes a crucial site of such norm diffusion and localization. Its commitment to the energy transition has been reinforced through the support of transnational actors under various frameworks, including the Just Energy Transition Partnership (JETP), the Asian Development Bank's Energy Transition Mechanism, the Southeast Asia Energy Transition Partnership, the Asian Infrastructure Investment Bank, the World Bank's Geothermal Resource Risk Mitigation Project, and other strategic collaborations. These partnerships further strengthen the implementation of energy transition policies inspired by global discourses and practices, aiming to achieve Indonesia's Net Zero Emissions (NZE) target by 2060 or sooner.

The diffusion of energy transition norms in Indonesia represents a continuous and cyclical process, beginning with the emergence of norms, followed by their dissemination, and culminating in practical localization efforts (Acharya, 2004). Despite Indonesia's strong commitment, abundant renewable potential, and transnational support, it has not reached a full transformation phase as of 2025. Accordingly, this article addresses a fundamental question: How and at what stage is Indonesia currently positioned in the diffusion of energy transition norms? This study argues that the diffusion of energy transition norms in Indonesia reflects a hybrid and negotiated process, in which global norms are adapted to align with national interests and domestic political dynamics. By analyzing this process, the study contributes to understanding the non-technical challenges that shape Indonesia's energy transition pathway.
Previous studies on Indonesia's energy transition have identified multiple structural and socio-political challenges. These include the country's heavy dependence on coal-fired energy for both power generation and export, persistent conflicts of interest, inconsistent regulations and policy frameworks, limited local capacity, funding constraints, and the need for institutional and regulatory reform. Despite international pressure and economic incentives to decarbonize, the State Electricity Company (PLN) remains locked into coal dependency due to entrenched political and economic interests. The government continues to prioritize maintaining low electricity prices, ensuring supply security, and preserving revenues from coal-related activities (Apriliyanti et al., 2024).

Some literature further highlights the socio-political barriers hindering Indonesia's energy transition. Conflicts of interest, regulatory inconsistencies, and weak institutional capacity create a significant gap between policy objectives and ground-level implementation (Sekaringtias et al., 2023). Other scholars emphasize the lack of inclusivity and transparency in the transition process, including unequal participation, bias toward specific interests, and the absence of a clear and impartial governance framework. These issues undermine equitable energy access, particularly for remote and underserved regions, where affordability and

accessibility remain key concerns (Setyowati, 2021)(Loy et al., 2024)(Nurhidayah et al., 2024)(Yuniza et al., 2024)(Muslim & Hastuti, 2024).

Policy misalignment, insufficient financial support, and limited investor incentives have also been identified as major obstacles to accelerating the energy transition (Adrian et al., 2023)(Nugroho et al., 2023). Moreover, inadequate community involvement, along with technical, financial, and governance shortcomings, have contributed to the failure of several renewable energy initiatives, most notably the Sumba Iconic Island (SII) project. Once envisioned as a national model for renewable energy development, the SII project's setbacks have weakened public trust and shifted the national discourse back toward conventional energy sources(Wibisono et al., 2024). To address these challenges, the Indonesian government plays a pivotal role in designing and implementing policies and market mechanisms that facilitate the acceleration of the energy transition (Jindal et al., 2024). In addition, government-led investments, both financial (Resosudarmo et al., 2023)(Kennedy, 2018)(Wong & Dewayanti, 2024) and technological (Najicha et al., 2023) are increasingly supported through bilateral and multilateral cooperation frameworks (Wijanarka & Dewi, 2024).

Beyond government action, societal engagement remains critical for the diffusion and acceptance of energy transition norms. Public perception and behavioral willingness to adopt cleaner energy sources strongly influence the success of renewable energy initiatives. Empirical studies reveal that personal and subjective norms, as well as regulatory factors, significantly affect consumer intentions to adopt rooftop photovoltaic (PV) systems, while also driving demand for complementary services such as electrical maintenance, smart home consulting, and microloans (Pramana et al., 2024). Moreover, emerging research indicates that Generation Z contributes meaningfully to Indonesia's transition through pro-environmental behavior, shaped by their environmental awareness, concern, attitudes, and perceived behavioral control (Wijaya & Kokchang, 2023).

Collectively, existing scholarship on Indonesia's energy transition remains largely centered on implementation challenges, particularly policy misalignment, domestic conflicts of interest, and broader socio-political constraints. Several studies have also explored the roles of the state and other stakeholders in driving or constraining the transition process, yet empirical understanding of the normative and behavioral dimensions of this transformation remains limited. This article addresses this gap by analyzing how the energy transition has evolved as a global norm and how it has been diffused and localized through Indonesia's national policies and initiatives.

While existing studies on Indonesia's energy transition predominantly focus on policy misalignment, political economy constraints, and implementation failures, they rarely conceptualize the transition as a normative diffusion process shaped by domestic cognitive and institutional filters. The literature largely treats energy transition as a technical or governance challenge, leaving the normative mechanisms through which global climate commitments are interpreted, negotiated, and selectively adopted underexplored.

This study fills that gap by applying Jürgen Rüland's norm diffusion framework to Indonesia's energy transition under the UNFCCC, offering a systematic analysis of how global transition norms are framed, grafted, and pruned within Indonesia's domestic political economy. By doing so, it advances norm diffusion scholarship beyond compliance-focused

explanations and contributes empirically to debates on how developing countries navigate global climate norms without abandoning fossil-dependent development trajectories.

METHOD

This study employs a qualitative research design with a deductive approach, covering the period 2015–2025. Qualitative research involves the use of techniques and strategies to collect and analyze non-numerical data (Lamont, 2015). By integrating theoretical concepts with empirical evidence, qualitative methods enable researchers to assess whether the theories, generalizations, or interpretations applied to a phenomenon are logically consistent (Neuman, 2014). A deductive approach begins with an existing theoretical framework and proceeds to test its relevance and explanatory power in the context under study.

The research draws on both primary and secondary data. Primary data on Indonesia's energy transition were obtained from official documents, regulations, and policies issued by the Indonesian government and international institutions, including the Paris Agreement, Nationally Determined Contributions (NDC), Government Regulations, Presidential Regulations, and other related legal instruments. Secondary data, covering the diffusion of energy transition norms and the associated opportunities and challenges, were derived from reports by relevant ministries, agencies, and organizations, verified online data, and scholarly works accessed through books and peer-reviewed journals.

Data collection methods included document analysis, literature review, and online data retrieval. The collected data were organized according to the analytical indicators derived from norm diffusion theory. Data validity and reliability were ensured through triangulation by comparing information across multiple independent sources to assess consistency. Data reliability was ensured through systematic triangulation across three dimensions: source triangulation, temporal triangulation, and institutional triangulation. Policy documents and regulations were cross-checked against official statistical data, reports from international organizations, and peer-reviewed literature to verify consistency. Temporal triangulation was applied by comparing policy trajectories and discourse shifts across the 2015–2025 period to identify continuity and change in norm adoption. Institutional triangulation further mitigated bias by contrasting government narratives with independent assessments from multilateral institutions and academic sources.

The conceptual framework of this study builds on Jürgen Rüland's refinement of Acharya's (2004) norm localization theory. Rüland identifies four types of responses to norm diffusion i.e. total rejection, mimicry, localization, and total transformation (Rüland, 2018). These responses are dynamic and shaped by both systemic and actor-level dimensions, which can be analyzed through the degree of ideational change, modes of communication, identity transformation, and levels of political learning involved. A summary of Rüland's norm diffusion model is presented in Rüland's norm diffusion framework guided both data organization and analysis. Empirical materials were coded according to three analytical stages: framing, grafting, and pruning, allowing observed policies, regulations, and political responses to be systematically mapped onto diffusion mechanisms. This ensured that theoretical concepts were not applied retrospectively but functioned as analytical lenses structuring the interpretation of Indonesia's energy transition trajectory.

Table *1*. Rüland's norm diffusion framework guided both data organization and analysis. Empirical materials were coded according to three analytical stages: framing, grafting, and pruning, allowing observed policies, regulations, and political responses to be systematically mapped onto diffusion mechanisms. This ensured that theoretical concepts were not applied retrospectively but functioned as analytical lenses structuring the interpretation of Indonesia's energy transition trajectory.

Table 1. Modes of Norm Diffusion (Rüland, 2018)

		Actor Dimensions			
Mode of Diffusion	**Structural Dimension**	**Extent of Ideational Change**	**Mode of Communication**	**Extent of Identity Change**	**Degree of Political Learning**
Complete Rejection	Resilience of a regime	No change	No public discourse, or hegemonic discourse	No change	No or very limited political learning
Mimicry	External pressure	Change of formal structure, no change of norms and causal beliefs	No public discourse, or hegemonic discourse	No change	Limited political learning
Localization	External and internal pressure	Fusion of old and new norms	Public discourse with open contestation	Partial change	Considerable processes of political learning
Complete Transformation	External world, crises	Complete change of norms	Communicative action	Complete change	Strong processes of political learning

Cognitive Prior

Degree of Political Learning

RESULT AND DISCUSSION

The foundation of Indonesia's energy transition is deeply rooted in a series of global initiatives promoting energy efficiency and diversification. This trajectory can be traced back to the establishment of the UNFCCC during the 1992 Earth Summit, which subsequently produced the Kyoto Protocol at COP3 in 1997. The Protocol entered into force in 2005 as a legally binding agreement, marking a global milestone in the effort to reduce GHG emissions (United Nations, 1997), largely generated from fossil fuels such as coal and oil.

Domestically, Indonesia faced a sharp decline in national oil production, dropping to one million barrels per day, or 365 million barrels annually by 2004. This shift transformed Indonesia from a net oil exporter to a net importer (MEMR, 2012). The country's dependence on oil was thus considered a major risk to national energy security, reinforcing the urgency of diversifying energy sources.

The involvement of international financial institutions such as the World Bank and the Global Environment Facility through the Indonesia Renewable Energy Small Power Project in

1997 (World Bank, 1997) further contributed to regulatory and institutional development in Indonesia's clean energy sector. This initiative laid the groundwork for Law No. 30/2007 on Energy, which formalized the national commitment to energy diversification. Building on this, the National Energy Policy was established through Government Regulation No. 79/2014 and later updated under Government Regulation No. 40/2025, providing guidelines for integrated energy management.

Although these regulatory frameworks acknowledged the importance of alternative energy within the broader agenda of energy diversification, they did not explicitly articulate the concept of an energy transition. The emergence of a more normative and structured energy transition framework in Indonesia became evident only after the country ratified the Paris Agreement, signaling its commitment to the global climate agenda. The subsequent section analyzes in detail how the norm of energy transition has been diffused within Indonesia's national context.

The Emergence of Energy Transition Norms within Indonesia's Cognitive Framework

The emergence of energy transition norms in Indonesia is inextricably linked to global developments emphasizing the urgency of decarbonization and sustainable development. This process accelerated through the UNFCCC's role as a norm entrepreneur, culminating in the adoption of the Paris Agreement at COP21 on December 12, 2015. The Agreement served as a catalyst for building an international consensus on carbon emission reduction and the transition toward renewable energy. As a signatory, Indonesia demonstrated active engagement by committing to emission reduction targets and formulating sustainable energy policies.

However, Indonesia's decision to endorse the Paris Agreement, which targets significant GHG reductions, stood in contrast to its domestic energy trajectory at the time. In May 2015, President Joko Widodo launched the 35,000 MW Power Plant Development Program in Bantul as a part of the Nawa Cita initiative to achieve economic independence through strategic sectors, particularly energy sovereignty (Abdurrahman, 2015). According to Directorate General of Electricity, coal-fired power plants were expected to dominate this program, 56.97% of total planned capacity (MEMR, 2016). Data from Indonesian Central Statistics Agency (BPS) indicated that in 2015, the country generated 2.3 $GtCO_2e$ of GHG emissions across the energy, industrial processes, agriculture, forestry and land use, forest fires, and waste sectors (BPS, 2022). This made Indonesia the largest emitter in ASEAN and one of the top ten emitters globally (Parikesit, 2015). Between 2000 and 2019, Indonesia's GHG emissions increased at an average annual rate of 3.9% (UNFCCC, 2021).

The Ministry of Energy and Mineral Resources (MEMR) reported that Indonesia ranked among the world's largest fossil fuel producers, with total output reaching 6.9 million barrels of oil equivalent per day in 2015. The domestic energy supply remained heavily dependent on the power generation and industrial sectors, particularly coal (MEMR, 2016). The National Energy General Plan enacted through Presidential Regulation No. 22 of 2017, confirmed that 95% of Indonesia's primary energy mix in 2015 derived from fossil fuels. Within the electricity sector, coal-fired plants contributed 56.1% of total national generation.

These empirical conditions illustrate that Indonesia's ratification of the Paris Agreement occurred amid deep structural dependence on fossil fuels, which serve as both an economic backbone and a cognitive norm embedded in national energy policy. From a norm

diffusion perspective, this dependence reflects a deeply internalized belief system within Indonesia's policy framework. Despite this cognitive dissonance, Indonesia's commitment to implementing the Paris Agreement can be interpreted as a strategic effort to demonstrate seriousness in global climate mitigation while simultaneously attempting to untangle its fossil fuel dependency. The UNFCCC, leveraging the momentum of the Paris Agreement, has reinforced initiatives to accelerate Indonesia's energy transition through the expansion of low-emission and environmentally friendly energy sources.

The Adaptation of Energy Transition Norms in Indonesia: Framing, Grafting, and Pruning

According to Jürgen Rüland, the process of norm diffusion is neither linear nor deterministic. Instead, international norms undergo a complex process of adaptation as they enter domestic socio-political systems. In Indonesia's case, the diffusion of energy transition norms confronts a deep-rooted cognitive foundation of dependence on fossil fuels, particularly in the electricity sector. The adaptation of these norms can be analyzed through three stages: framing, grafting, and pruning.

In the framing stage, energy transition norms are shaped to align with local values and aspirations (Acharya, 2004). In Indonesia, framing operates by redefining the energy transition as an instrument of energy security, economic resilience, and development continuity rather than as a purely decarbonization-driven obligation. Framing enables new norms to gain legitimacy and political relevance. Although the term energy transition is not explicitly mentioned in the Paris Agreement, Indonesia has framed the energy transition as a key component of climate change mitigation. Article 4 of the Paris Agreement mandates countries to peak their emissions as soon as possible and subsequently reduce them to achieve carbon neutrality by the second half of the century. The shift from fossil-based to renewable energy sources forms the core of this strategy, given that fossil-fueled power generation produces substantially higher emissions, approximately 1,010 grams of CO_2e/kWh for coal-fired plants compared to zero operational emissions from renewables (NREL, 2021).

Indonesia's commitment under its NDC further illustrates this framing. In its First NDC (2016), Indonesia pledged to reduce GHG emissions by 29% through domestic efforts and up to 41% with international assistance by 2030, alongside achieving a renewable energy mix of 23% by 2025 and 31% by 2050. The Enhanced NDC (2022) raised these ambitions to 31.89% and 43.2% reductions, respectively, in line with the Long-Term Strategy for Low Carbon and Climate Resilience, targeting NZE by 2060 or earlier (Indonesia, 2022). It also mandated renewable energy targets in Presidential Regulation No. 22 of 2017 on the National Energy Plan. Regarding biofuels, Ministerial Regulation No. 12 of 2015 introduced the B-20 policy, later upgraded to B-30 by 2020, with a target of achieving full B-40 utilization by 2030. This acceleration indicates an effort to strengthen domestic renewable capacity while reducing GHG emissions.

Normatively, Indonesia's framing of the energy transition gained greater institutional structure with the G20 Energy Transition initiative launched in February 2022 by the Coordinating Ministry for Maritime Affairs and Investment and the Ministry of Energy and Mineral Resources. The initiative aimed to advance energy access, technology transfer, and sustainable financing, as three core pillars for a just global energy transition (Pribadi, 2022).

International actors such as the IEA, IRENA, and UN ESCAP supported this effort, framing Indonesia's transition as both a national and global responsibility aligned with the G20 Presidency theme, 'Recover Together, Recover Stronger'.

Further, during the 2022 G20 Bali Summit, Indonesia and the International Partners Group led by Japan and the United States, launched the JETP. This partnership commits to reducing peak emissions by 290 $MtCO_2e$, achieving a 34% renewable energy share by 2030, and reaching NZE by 2050 (JETP, 2023). Supported by institutions such as the ADB, IEA, World Bank, and UNDP, JETP also reinforces OECD countries' financial responsibilities under the Paris Agreement. Consequently, Indonesia's framing evolved from a purely environmental commitment to a strategy for enhancing energy independence, economic diversification, and equitable energy access.

The second stage is grafting, refers to embedding new norms into established local frameworks (Rüland, 2018). This process makes new norms compatible with pre-existing national values and priorities. Grafting is evident in how global transition norms are embedded within existing national planning instruments rather than introduced as standalone climate mandates. Indonesia's government, under Bappenas, integrated the global discourse on energy transition into the domestic development narrative, linking it with goals of energy security, green economic growth, and job creation in the renewable energy sector.

The grafting of energy transition norms becomes evident when global decarbonization commitments are embedded into Indonesia's existing national energy planning framework, most notably through the formulation of the National Energy General Plan (RUEN). The concept of energy transition was implicitly incorporated into the RUEN, setting targets for renewable energy contributions of 23% by 2025 and 31% by 2050. These goals were subsequently integrated into the 2020–2024 National Medium-Term Development Plan (RPJMN) as part of strategic projects under the 35 GW power plant program, with renewable energy as a key component. This positioning reflects a shift in policy orientation, treating energy transition not merely as an environmental agenda but as a driver of sustainable economic growth. From 2015 to 2019, Indonesia achieved significant progress, reaching an electrification ratio of 98.3% in 2018 through expanded grid infrastructure, small-scale renewable energy development, smart grids, and biofuel use, all aligned with energy transition objectives.

This institutional grafting reaches a more explicit regulatory stage with the issuance of Presidential Regulation No. 112 of 2022, which formally translates global energy transition principles into binding national electricity governance. The regulation covers renewable electricity procurement, PLN's renewable power purchasing mechanisms, fiscal and non-fiscal incentives, and the roadmap for coal power plant retirement. To operationalize these provisions, the Minister of Energy and Mineral Resources Regulation No. 10 of 2025 was issued, outlining the energy transition roadmap for the electricity sector. The regulation aligns with the National Electricity General Plan and provides criteria for coal plant retirement, balancing system reliability, tariff stability, and just transition principles. It also promotes the gradual adoption of renewable energy technologies, including carbon capture and storage, biomass co-firing, and green ammonia, while progressively phasing out conventional coal-based generation.

Accelerating coal phaseout represents a strategic pathway toward decarbonization and renewable energy expansion. The potential annual GHG reductions achieved through this process are calculated based on the average emissions of operating coal-fired power plants, as illustrated in Figure 1. As renewable energy capacity expands, the share of fossil fuel–based power plants is expected to decline gradually, leading to a significant reduction in GHG emission, as shown in Figure 2 Peak emissions from the power generation sector are projected to occur in 2037, reaching approximately 599 million tons of CO_2. Subsequently, total GHG emissions are expected to decline sharply, approaching net zero between 2038 and 2058, with NZE aimed to be achieved by 2060.

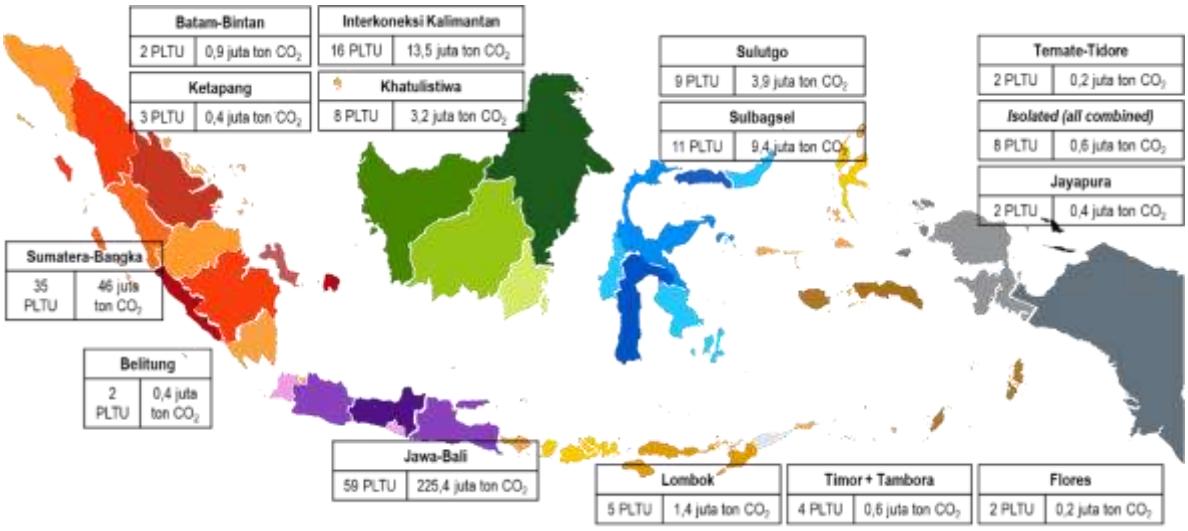

Figure 1. Average Annual GHG Emission Reduction Potential by Transmission System (Source: MEMR Regulation No. 10/2025)

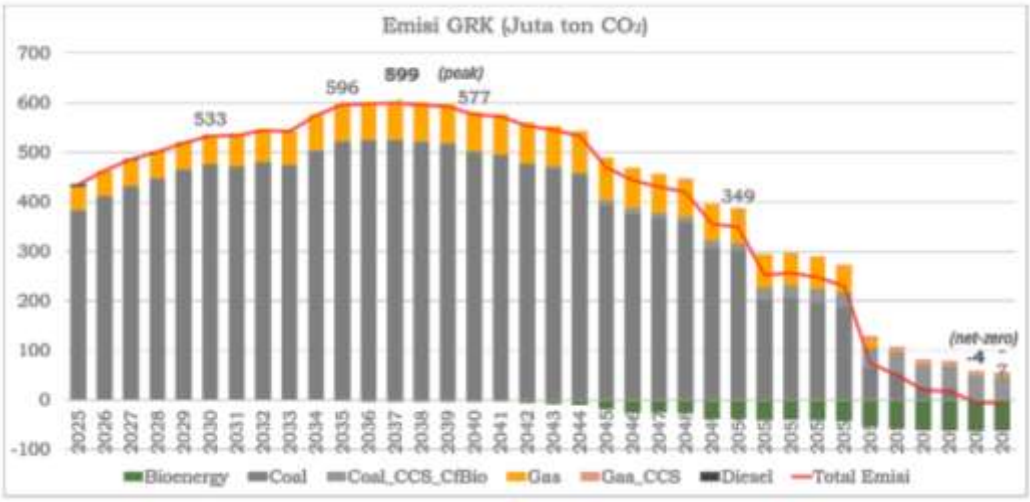

Figure 2. Projected GHG Emission Reduction from Power Plants 2025-2060 (Source: MEMR Regulation No. 10/2025)

Indonesia's proactive approach to developing regulatory frameworks and policies to accelerate the energy transition has been further reinforced by the issuance of Ministerial Regulation No. 2 of 2024 on PV rooftop connected to the electricity grid operated by Public Power Utility License (IUPTLU) holders. This regulation replaces Ministerial Regulation No.

26 of 2021, which had become outdated. Several key amendments were introduced to facilitate the implementation and expansion of rooftop solar PV systems in Indonesia while ensuring grid reliability and energy supply stability. Under this regulation, IUPTLU holders are required to establish a five-year rooftop solar development quota, enabling consumers to install PV rooftop systems according to their needs within the allocated capacity. In addition, IUPTLU holders must provide smart meters free of charge to rooftop solar customers, who are also exempted from capacity and parallel operation fees. Through this regulatory reform, the government aims to accelerate the energy transition by expanding public access to decentralized, solar-based electricity generation.

The process of embedding the energy transition into Indonesia's regulatory framework, however, has not proceeded without challenges. Since 2018, Commission VII of the House of Representatives has initiated the New and Renewable Energy Bill, which officially proposed on December 17, 2019, as part of the 2019–2024 National Legislation Program. The bill seeks to strengthen renewable energy governance and comprehensively regulate the national energy transition, encompassing government support mechanisms, institutional governance, and public participation. Moreover, the Bill is expected to enhance investor confidence and accelerate private sector participation in renewable energy development. Despite these intentions, deliberations on the Bill have not reach consensus by the end of President Joko Widodo's administration. Several contentious issues remain, including the inclusion of nuclear energy as a 'new energy' option requiring strict oversight, and waste-to-energy technologies, which may still produce significant GHG emissions. Furthermore, the proposed power wheeling scheme, allowing Independent Power Producers to sell electricity directly to consumers through PLN's transmission network, has sparked debate. While power wheeling could increase the renewable energy share in the national mix, it also raises concerns over price volatility and potential market instability. Consequently, the Bill ratification initially scheduled for the Commission VII Working Meeting on September 18, 2024, was postponed, with further deliberations deferred to the 2024–2029 legislative period (Purwanto & Mendrofa, 2024)

The next phase in Indonesia's energy transition adaptation process is pruning. In this context, pruning refers to the selective modification, adjustment, or rejection of certain elements of global energy transition norms due to political, economic, social, or technical considerations. One of the most prominent global norms is total decarbonization, often operationalized through coal phase-out or moratorium commitments. However, rather than pursuing a rapid coal exit, Indonesia has opted for a gradual reduction approach.

At COP26 in Glasgow (2021), Indonesia joined 23 other countries in signing the Global Coal to Clean Power Transition Statement, pledging to shift from coal to clean energy. Nevertheless, Indonesia formally objected to the statement's third clause, which called for halting new coal-fired power permits without carbon capture technology and ending state-financed coal projects. The government justified its objection by emphasizing that coal remains essential as a transitional and cost-efficient energy source, given the limited readiness of renewable infrastructure. Indonesia noted that faster phaseout could only occur with substantial international financial and technical assistance, as retiring coal-fired power plants entails high economic costs while renewable capacity remains underdeveloped (Kompas, 2021).

This position is reflected in Presidential Regulation No. 112 of 2022, which regulates the accelerated retirement of coal-fired power plants and prohibits the construction of new coal

plants. Yet, Article 3(4) provides several exceptions: coal-fired power plants already listed in the Electricity Supply Business Plan prior to the regulation's issuance; those integrated with resource-based downstream industries deemed vital to national strategic projects; and coal-fired power plants committed to reducing GHG emissions by at least 35% within 10 years of operation. These exceptions illustrate that, while Indonesia formally commits to coal reduction, it maintains regulatory flexibility to accommodate industrial down streaming and strategic economic priorities.

Furthermore, the government continues to emphasize coal down streaming as part of its energy transition strategy. According to the Director of Coal Business Development at the MEMR, coal utilization will persist in more sustainable forms through clean technologies and value-added processes, including its conversion into substitute fuels, gases, and feedstock for the chemical industry (ANTARA, 2023). Despite accelerating renewable initiatives, coal remains indispensable, particularly amid the global energy crisis of 2022, when global coal demand surged by 4% to reach a record 8.42 billion tons, driven primarily by Asia (IEA, 2023).

From an economic standpoint, coal constitutes a central pillar of Indonesia's fiscal and export performance. Between 2015 and 2022, BPS recorded a significant increase in coal export value, peaking at US$46.7 billion in 2022, representing 13–34% of total non-oil and gas exports (BPS, 2025). Indonesia's coal occupies a strategic position in the global supply chain, supported by high production capacity, proximity to Asian markets, and quality compatibility with conventional coal-fired power plants It also influences the Newcastle Coal Index and contributes to regional energy security. In 2023, Indonesia was the world's most flexible coal exporter, with nearly 500 million tons of export capacity, surpassing other major suppliers (IEA, 2023). Domestically, Indonesia is the largest coal consumer in ASEAN, accounting for 49% of 413 Mt total regional demand, used for electricity generation and industrial smelting, especially for nickel, cobalt, and aluminum processing in electric vehicle battery production.

These evidences underscores that Indonesia's pruning process has modified the global energy transition norm of full coal elimination into a localized version aligned with Indonesia's cognitive, economic, and strategic realities. While maintaining coal's role in its energy mix and export economy, Indonesia has begun deploying clean coal technologies, including biomass cofiring, supercritical and ultra-supercritical boilers to enhance combustion efficiency, and the Continuous Emission Monitoring System to enable real-time emission tracking in large-scale coal-fired power plants. These selective modifications demonstrate that Indonesia does not reject the energy transition norm, but strategically prunes its most disruptive elements. Coal phase-out commitments are reinterpreted through exceptions, technological substitutions, and delayed timelines, allowing Indonesia to maintain economic and political stability while remaining normatively aligned with global climate discourse.

Indonesia's Response to the Diffusion of Energy Transition Norms

After having the three stages of the adaptation process, Indonesia's response to the diffusion of energy transition norms can be examined through two analytical dimensions: structural and actor-based (Rüland, 2018). The interaction between these dimensions helps identify Indonesia's diffusion model, whether it takes the form of total rejection, mimicry, localization, or full transformation.

From a structural perspective, Indonesia's response is shaped by various pressures influencing the norm diffusion process, including domestic regime resilience, external coercion, a combination of internal and external pressures, and global crises. Since the normative introduction of the energy transition in Indonesia, no clear indication of domestic regime resistance has emerged. This stance aligns with Indonesia's consistent adherence to the principle of common but differentiated responsibilities, which has been upheld from the Kyoto Protocol to the Paris Agreement. Although Indonesia, as a non-Annex I country, is not legally bound to specific emission-reduction targets, it nonetheless recognizes the importance of reducing GHG emissions through energy transition measures as a contribution to global climate mitigation efforts. Indonesia's commitments under its NDC serve as a form of external pressure, driving domestic regulatory and institutional reforms to support the implementation of emission-reduction strategies.

The influence of international organizations, particularly in the areas of financing and technology transfer, also contributes significantly to external pressure in Indonesia's energy transition process. This reflects the Paris Agreement's mandate requiring developed countries to provide financial assistance, technology transfer, and capacity building to support developing countries' mitigation actions. Mechanisms such as the Green Climate Fund and Climate Investment Funds encourage Indonesia to establish robust national policy frameworks that ensure renewable energy project viability and compliance with social and environmental safeguards, including local community participation and risk management. Accessing these funds necessitates systemic regulatory changes and strong government involvement in aligning national and international policy frameworks.

Additional external pressures arise from Indonesia's participation in the JETP. The JETP's financial structure comprising grants, concessional loans, and blended private financing requires Indonesia to commit to reducing coal dependence, developing a coal retirement roadmap, and reforming energy sector governance. Similar pressures also stem from the World Bank, Asian Development Bank, and other multilateral financial institutions, which, through results-based financing, demand greater transparency, electricity tariff reform, and improved investment conditions for renewables to meet global climate mitigation objectives. In parallel, technology transfer institutions such as the IEA, IRENA, and UNDP have pushed Indonesia to liberalize energy markets and accelerate low-carbon technology adoption.

Beyond external factors, internal pressures have made the energy transition an increasingly urgent national priority. The persistent reliance on fossil fuels has driven significant growth in carbon emissions, exacerbating environmental degradation. Over the past two decades, Indonesia's total emissions have trended upward, with occasional fluctuations (see Figure 3). Projections from Low Carbon Development Indonesia (LCDI, 2024) estimate that emissions from the energy sector alone will reach 1.4 $GtCO_2e$ by 2030, reinforcing the necessity for a rapid and comprehensive energy transition. This trajectory highlights a linear correlation between fossil fuel consumption and emission growth, demonstrating that Indonesia's energy transition is not only a response to external expectations but also an internal imperative for environmental and economic sustainability.

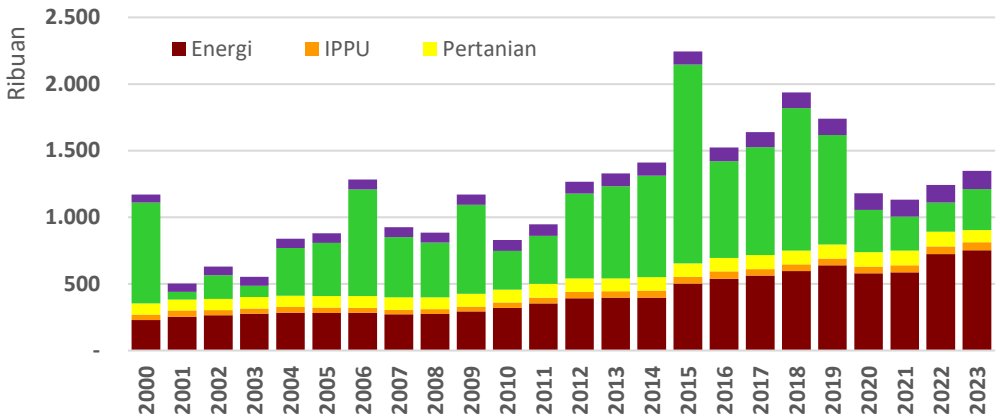

Figure 3. Indonesia's GHG Emission Trends from Various Sectors 2000-2023 (Signsmart, 2024)

The energy transition generates dynamics not only within structural dimensions but also across actor-based processes, manifested through shifts in ideas, communication mechanisms, identities, and political learning. Indonesia's response to the diffusion of energy transition norms demonstrates a notable ideational shift, reflected in growing collaboration with transnational actors. Several renewable energy-based power generation projects have been launched nationwide. One flagship initiative is the Cirata Floating Solar Power Plant, with a capacity of 192 MWp, developed as a National Strategic Project in partnership with the United Arab Emirates through PLN Nusantara Power and Masdar. As the largest floating solar power plant in Southeast Asia and the third largest globally, the project reduces carbon emissions by 214,000 tons annually and represents Indonesia's commitment to achieving NZE by 2060 (PLN, 2023). This development marks a fundamental ideational shift, as coal-fired plants previously dominated Indonesia's electricity system. Public interest in rooftop solar PV has also grown significantly. Installed capacity rose from 80 MWp in 2022 to 141 MWp in 2023. Under MEMR Regulation No. 2/2024 on Rooftop Solar PV Systems, government and industry sources reported a surge in rooftop PV uptake, reflected in expanded PLN quota allocations for 2024–2028 and rapid growth in customer registrations, indicating a substantial percentage increase in market interest (Syaharani, 2025).

Communication patterns surrounding the energy transition have expanded substantially. Although no single law governs energy transition, Presidential Regulation No. 112/2022 and MEMR Regulation No. 10/2025 explicitly adopt the term. The phrase "energy transition" has become increasingly prevalent in academic discussions, policy debates, and public discourse. According to Brandwatch data, its usage grew from 346 mentions in 2017 to over 79,000 in 2022 (Muamar, 2023). Through this evolving discourse, Indonesia has sought to construct an international image as a state committed to global climate action while pragmatically maintaining its coal exports to preserve political and socioeconomic stability. This partial transformation is evident in policies promoting renewable energy across regions. Since 2021, Indonesia has developed four energy-independent villages powered by renewables: Kamanggih in NTT, Andungbiru in Probolinggo, Urutsewu in Boyolali, and Seriwe in NTB (GNFI, 2021). These initiatives coexist with ongoing coal exploration in major producing regions, highlighting the country's dual-track approach to energy development.

At the subnational level, the Bali Provincial Government declared on August 4, 2023, its commitment to the *Nangun Sat Kerthi Loka Bali* vision, a Universal Development Planned Toward a New Era of Bali. The program emphasizes low-carbon development, clean energy self-sufficiency, battery-based electric vehicles, and broader support for achieving Bali's Net Zero Emissions target by 2045. The declaration operationalizes Governor Regulation No. 45/2019 on Bali Clean Energy and has received support from international organizations such as Bloomberg Philanthropies, the ClimateWorks Foundation, the Institute for Essential Services Reform, New Energy Nexus Indonesia, ViriyaENB, and WRI Indonesia (Kasih, 2023).

The diffusion of energy transition norms provides key lessons for Indonesia, notably the internalization of global ideas through cross-sectoral collaboration with transnational actors. The energy transition thus emerges as an arena for discourse and power contestation, where learning occurs through negotiation and interest alignment. Indonesia's involvement in the JETP illustrates not only its commitment to accelerating the energy transition but also its intent to build a resilient market and supply chain ecosystem for renewable energy technologies.

Overall, Indonesia's response reflects adaptive localization rather than full transformation. Domestic dynamics indicate selective norm adoption, where global energy transition standards are integrated into national frameworks through regulatory reforms, fiscal incentives, and development planning, while the core cognitive foundations of fuel-based energy policy remain intact. Empirically, this pattern aligns with Rüland's localization model, in which norm diffusion is driven by combined external and internal pressures but mediated through partial ideational change and selective political learning. Although expanding public discourse and regulatory adaptation indicate considerable learning, the persistence of fossil fuel cognitive priors constrains deeper identity transformation. This explains why Indonesia advances ambitious transition rhetoric and institutional reforms without abandoning coal as a developmental anchor, confirming Rüland's argument that norm diffusion in non-Western contexts is negotiated rather than transformative.

CONCLUSION

The diffusion of the energy transition norm in Indonesia has unfolded through a complex adaptation process rather than automatically, as global discourse under the UNFCCC and the 2015 Paris Agreement gradually influenced national implementation. Using Jürgen Rüland's norm diffusion framework, this study finds that Indonesia remains in the localization stage due to its cognitive dependence on fossil fuels and limited pruning of conflicting norms such as coal reliance. Adaptation occurs through framing climate change within national narratives and grafting renewable energy targets into existing policies. While Rüland's framework effectively explains how new norms are mediated by actors within institutional and cognitive constraints, it overlooks regional variations and structural inequalities that shape differing local perceptions of energy transition. Thus, future research should emphasize regional and community-level analyses to better understand how the energy transitions.

To accelerate Indonesia's energy transition beyond the localization stage, several policy actions are necessary. First, regulatory consolidation is required to reduce fragmentation and provide long-term certainty for renewable energy investment, particularly through the timely

ratification of the New and Renewable Energy Bill. Second, coal phase-down strategies must be coupled with targeted fiscal reforms that gradually reduce dependency on coal revenues while reallocating incentives toward renewables and grid modernization. Third, energy transition financing should prioritize just transition mechanisms, including retraining programs and regional economic diversification in coal-producing areas. Finally, greater subnational empowerment is needed to enable provinces and communities to act as norm carriers, ensuring that energy transition norms are not only nationally adopted but socially internalized.

This work was supported by the *Lembaga Pengelola Dana Pendidikan* (LPDP) through scholarship. The author wishes to express sincere gratitude to Dwi Ardhanariswari Sundrijo, Ph.D., and Dr. Phil. Yandry Kurniawan of the Master's Program in the Department of International Relations, University of Indonesia, for their valuable guidance and insightful feedback throughout the research process.

REFERENCES

Abdurrahman, S. (2015, May 4). *Siaran Pers Nomor 25/SJI/2015: Peluncuran Program Pembangunan Pembangkit 35.000 MW.* Kementerian Energi Dan Sumber Daya Mineral. https://www.esdm.go.id/id/media-center/arsip-berita/peluncuran-program-pembangunan-pembangkit-35000-mw

Adrian, M. M., Purnomo, E. P., Enrici, A., & Khairunnisa, T. (2023). Energy transition towards renewable energy in Indonesia. *Heritage and Sustainable Development*, *5*(1), 107–118. https://doi.org/10.37868/hsd.v5i1.108

ANTARA. (2023, December 15). *Kementerian ESDM: Produk hilirisasi batu bara perlu dioptimalkan.* ANTARA. https://www.antaranews.com/berita/3873369/kementerian-esdm-produk-hilirisasi-batu-bara-perlu-dioptimalkan

Apriliyanti, I. D., Nugraha, D. B., Kristiansen, S., & Overland, I. (2024). To reform or not reform? Competing energy transition perspectives on Indonesia's monopoly electricity supplier Perusahaan Listrik Negara (PLN). *Energy Research and Social Science*, *118*. https://doi.org/10.1016/j.erss.2024.103797

BPS. (2022, July 28). *Emisi Gas Rumah Kaca menurut Jenis Sektor (ribu ton CO2e), 2000-2019.* Badan Pusat Statistik. https://www.bps.go.id/id/statistics-table/1/MjA3MiMx/emisi-gas-rumah-kaca-menurut-jenis-sektor--ribu-ton-co

BPS. (2025, July 24). *Ekspor Batu Bara Menurut Negara Tujuan Utama, 2012-2024*. Badan Pusat Statistik. https://www.bps.go.id/id/statistics-table/1/MTAzNCMx/ekspor-batu-bara-menurut-negara-tujuan-utama--2012-2023.html

GNFI. (2021, May 10). *Wujud Nyata dari SDGs, Inilah 4 Desa Mandiri Energi di Indonesia*. Good News from Indonesia. https://www.goodnewsfromindonesia.id/2021/05/10/wujud-nyata-dari-sdgs-inilah-4-desa-mandiri-energi-di-indonesia

IEA. (2023). *Coal 2023, Analysis and forecast to 2026.* https://www.iea.org/reports/coal-2023

JETP. (2023). *CIPP 2023*. Just Energy Transition Partnership. https://id.jetp-id.org/cipp

Jindal, A., Shrimali, G., Gangwani, B., & Lall, R. B. (2024). Financing just energy transitions in Southeast Asia: Application of the Just Transition Transaction to Indonesia, Vietnam, and Philippines. *Energy for Sustainable Development*, *81*. https://doi.org/10.1016/j.esd.2024.101472

Kasih, N. N. (2023, August 4). *Koster Deklarasikan Bali Emisi Nol Bersih 2045*. Radio Republik Indonesia. https://rri.co.id/denpasar/daerah/308397/koster-deklarasikan-bali-emisi-nol-bersih-2045

Kennedy, S. F. (2018). Indonesia's energy transition and its contradictions: Emerging geographies of energy and finance. *Energy Research and Social Science*, *41*, 230–237. https://doi.org/10.1016/j.erss.2018.04.023

Kompas. (2021, November 9). *"Gas Pol" Pensiunkan Batu Bara.* Kompas. https://jeo.kompas.com/gas-pol-pensiunkan-batu-bara

Lamont, C. (2015). *Research Methods in International Relations* (First). SAGE Publications.

LCDI. (2024). *Energi*. Low Carbon Development Indonesia. https://lcdi-indonesia.id/grk-energi/

Loy, N., Rachmawati, I., Issundari, S., & Seosilo, J. (2024). Barriers to Indonesia's Energy Transition. *The Indonesian Journal of Planning and Development*, *9*(2), 1–13. https://doi.org/10.14710/ijpd.9.2.1-13

MEMR. (2016, September 8). *Clean Coal Technology untuk PLTU Yang Ramah Lingkungan.* Kementerian ESDM RI. https://www.esdm.go.id/id/media-center/arsip-berita/clean-coal-technology-untuk-pltu-yang-ramah-lingkungan

Muamar, A. (2023, October 20). *Mengawal Transisi Energi di Indonesia Lewat Pemberitaan yang Berwawasan dan Berbasis Sains*. Green Network. https://greennetwork.id/ikhtisar/mengawal-transisi-energi-di-indonesia-lewat-pemberitaan-yang-berwawasan-dan-berbasis-sains/

Muslim, P. A., & Hastuti, I. S. (2024). Analyzing Indonesia's Sustainable Energy Transition Through The Just Energy Transition Partnership (JETP). *Journal of Indonesian Social Sciences and Humanities*, *14*(1), 2024. https://ejournal.brin.go.id/jissh

Najicha, F. U., Mukhlishin, Supiandi, Saparwadi, & Sulthani, D. A. (2023). The Shaping of Future Sustainable Energy Policy in Management Areas of Indonesia's Energy Transition. *Journal of Human Rights, Culture and Legal System*, *3*(2), 361–382. https://doi.org/10.53955/jhcls.v3i2.110

NREL. (2021). *Life Cycle Greenhouse Gas Emissions*. https://www.nrel.gov/docs/fy21osti/80580.pdf

Nugroho, H., Widyastuti, N. L., & Rustandi, D. (2023). Is Indonesia Really Prepared for The Energy Transition? An Analysis of Readiness for Regulations, Institutions, Finance, and Manpower Aspects. In *Indonesia's Energy Transition Preparedness Framework Towards 2045*. Penerbit BRIN. https://doi.org/10.55981/brin.892

Nurhidayah, L., Alam, S., Utomo, N. A., & Suntoro, A. (2024). Indonesia's Just Energy Transition: The Societal Implications of Policy and Legislation on Renewable Energy. *Climate Law*, *14*(1), 36–66. https://doi.org/10.1163/18786561-bja10047

Parikesit, A. G. (2015, November 30). *Sepuluh Negara Penghasil Emisi Karbon Dioksida Terbesar*. CNN Indonesia. https://www.cnnindonesia.com/internasional/20151130171044-137-94992/sepuluh-negara-penghasil-emisi-karbon-dioksida-terbesar

PLN. (2023, November 12). *Siaran Pers: Jadi Pembangkit EBT Skala Besar, PLTS Terapung Cirata Mampu Kurangi 214 Ribu Ton Emisi Karbon Per Tahun.* PLN.

https://web.pln.co.id/media/siaran-pers/2023/11/jadi-pembangkit-ebt-skala-besar-plts-terapung-cirata-mampu-kurangi-214-ribu-ton-emisi-karbon-per-tahun

Pramana, P. A. A., Hakam, D. F., Tambunan, H. B., Tofani, K. M., & Mangunkusumo, K. G. H. (2024). How Are Consumer Perspectives of PV Rooftops and New Business Initiatives in Indonesia's Energy Transition? *Sustainability (Switzerland)*, *16*(4). https://doi.org/10.3390/su16041590

Pribadi, A. (2022, February 10). *Siaran Pers: Luncurkan Transisi Energi G20, Indonesia Ajak Capai Kesepakatan Global Percepatan Transisi Energi*. Kementerian ESDM RI. https://www.esdm.go.id/id/media-center/arsip-berita/-luncurkan-transisi-energi-g20-indonesia-ajak-capai-kesepakatan-global-percepatan-transisi-energi

Purwanto, N. P., & Mendrofa, A. Y. J. (2024, September). *Penundaan Pengesahan RUU EBET*. DPR RI. https://berkas.dpr.go.id/pusaka/files/isu_sepekan/Isu%20Sepekan---III-PUSLIT-September-2024-235.pdf

Resosudarmo, B. P., Rezki, J. F., & Effendi, Y. (2023). Prospects of Energy Transition in Indonesia. *Bulletin of Indonesian Economic Studies*, *59*(2), 149–177. https://doi.org/10.1080/00074918.2023.2238336

Rüland, J. (2018). *The Indonesian Way*. Stanford University Press.

Sekaringtias, A., Verrier, B., & Cronin, J. (2023). Untangling the socio-political knots: A systems view on Indonesia's inclusive energy transitions. *Energy Research and Social Science*, *95*. https://doi.org/10.1016/j.erss.2022.102911

Setyowati, A. B. (2021). Mitigating inequality with emissions? Exploring energy justice and financing transitions to low carbon energy in Indonesia. *Energy Research and Social Science*, *71*. https://doi.org/10.1016/j.erss.2020.101817

Signsmart. (2024). *Sistem Investasi Gas Rumah Kaca Nasional*. Signsmart Kementerian Lingkungan Hidup Dan Kehutanan.

Syaharani, M. (2025, December 18). *Makin Diminati, Kapasitas Terpasang PLTS Atap Naik 508 Kali Lipat Sejak 2018*. KataData. https://katadata.co.id/berita/energi/6943c47c3f12e/makin-diminati-kapasitas-terpasang-plts-atap-naik-508-kali-lipat-sejak-2018

UNFCCC. (2015). *Paris Agreement*. https://unfccc.int/sites/default/files/english_paris_agreement.pdf

UNFCCC. (2021). *Long-Term Strategy for Low Carbon and Climate Resilience 2050 (Indonesia LTS-LCCR 2050)*. https://unfccc.int/documents/299279

Wibisono, H., Lovett, J., Chairani, M. S., & Suryani, S. (2024). The ideational impacts of Indonesia's renewable energy project failures. *Energy for Sustainable Development*, *83*. https://doi.org/10.1016/j.esd.2024.101587

Wijanarka, T., & Dewi, N. N. C. L. (2024). Peran Pemerintah Indonesia dalam Mendorong Transisi Energi melalui South-South and Triangular Cooperation. *Indonesian Journal of International Relations*, *8*(2), 286–312. https://doi.org/10.32787/ijir.v8i2.498

Wijaya, D. I., & Kokchang, P. (2023). Factors Influencing Generation Z's Pro-Environmental Behavior towards Indonesia's Energy Transition. *Sustainability (Switzerland)*, *15*(18). https://doi.org/10.3390/su151813485

Wong, R., & Dewayanti, A. (2024). Indonesia's energy transition: Dependency, subsidies and renewables. *Asia and the Pacific Policy Studies*, *11*(2). https://doi.org/10.1002/app5.391

Yuniza, M., Salim, D., Triyana, H., & Triatmodjo, M. (2024). Revisiting just energy transition in Indonesia energy transition policy. *Journal of World Energy Law and Business*, *17*(2), 118–127. https://doi.org/10.1093/jwelb/jwad032