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Indonesia's Involvement in the Paris Agreement on Low Carbon Development Agenda in Indonesia: A Social Legal Study

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Abstract

Indonesia's participation in the Paris Agreement has created opportunities for international cooperation that can support the progress of low-carbon development at the national level. The participation, along with the strong global commitment to help developing countries achieve their emission reduction targets under the Paris Agreement, brings several benefits for Indonesia in obtaining international support for climate change adaptation and mitigation, including climate finance, technology transfer, and capacity building. This research aims to analyse the strategic role of the Paris Agreement towards a low-carbon development agenda in the energy sector in Indonesia. This research is based on regime theory and neoliberal institutionalism paradigm as the theoretical framework for analysing the issues addressed. Furthermore, this research applies the literature study method by using sociolegal approach. The findings of this research indicate that the Paris Agreement has contributed to the progress of low-carbon development in Indonesia particularly in the energy sector. However, its implementation has been sluggish in meeting the targets for climate change mitigation and adaptation.
Keywords: *Paris Agreement, Low Carbon Development, Social Legal.*

Abstrak

Keterlibatan Indonesia dalam Perjanjian Paris telah menciptakan peluang kerja sama internasional yang dapat mendukung kemajuan pembangunan rendah karbon di tingkat nasional. Seiring dengan kuatnya komitmen global untuk membantu negara-negara berkembang mencapai target penurunan emisi di bawah Perjanjian Paris, kondisi ini membawa beberapa keuntungan bagi Indonesia untuk memperoleh dukungan internasional dalam adaptasi dan mitigasi perubahan iklim, termasuk pendanaan iklim, transfer teknologi, dan pengembangan kapasitas. Penelitian ini bertujuan untuk menganalisis peran strategis Perjanjian Paris terhadap agenda pembangunan rendah karbon di sektor energi di Indonesia. Penelitian ini didasarkan pada teori rezim dan paradigma institusionalisme neoliberal sebagai kerangka teoritis untuk menganalisis isu-isu yang dibahas. Selanjutnya, penelitian ini menerapkan metode studi pustaka dengan menggunakan pendekatan sosiolegal. Hasil dari penelitian ini menunjukkan bahwa Perjanjian Paris telah berkontribusi pada kemajuan pembangunan rendah karbon di Indonesia khususnya di sektor energi. Namun, implementasinya masih berjalan lambat dalam mencapai target mitigasi dan adaptasi perubahan iklim.
Kata Kunci: *Perjanjian Paris, Pembangunan Rendah Karbon, Sosio-Legal.*

Introduction

Global climate change has emerged as an increasingly urgent environmental issue demanding immediate action from all nations worldwide. Various anthropogenic activities including the burning of fossil fuels such as coal, natural gas, and oil (brown energy) in the energy sector, along with industrial production, transportation, deforestation, and land-use changes are the primary sources of rising greenhouse gas concentrations in the Earth's atmosphere.[1] These emissions have contributed to global temperature increases, destabilizing the climate system and triggering environmental problems associated with climate change. In general terms, climate change refers to significant shifts in climate elements such as temperature, precipitation, and cloud patterns over a comparable period of time. Under Indonesia's Law No. 32 of 2009 on Environmental Protection and Management (UU PPLH), climate change is defined as alterations in the Earth's climate system caused, directly or indirectly, by human activities that change the composition of the atmosphere globally, in addition to changes in natural climate variability observed over a similar time span.[2]

The impacts of climate change are wide-ranging, disrupting critical aspects of human life, including social, economic, health, food security, and environmental stability. In Indonesia, the effects are increasingly evident, manifesting in prolonged droughts, forest fires, landslides, and extreme rainfall that causes major flooding and disrupts agriculture.[3] One striking example is the rapid melting of ice glaciers at Puncak Jaya Wijaya (also known as Puncak Carstensz) in Papua. The Meteorology, Climatology, and Geophysics Agency (BMKG) estimates that these glaciers could disappear entirely before 2026 or even earlier due to the influence of El Niño.[4] Coastal areas, such as North Jakarta, are also experiencing significant land subsidence and face the threat of submersion by 2050 as sea levels rise, posing serious risks to coastal communities.[5]

Climate change is widely regarded as one of the most pressing environmental challenges, attracting the attention of nearly every country in the world. It is even listed among the most feared global risks in The Global Risks Report 2024 published by the World Economic Forum (WEF).[6] The negative externalities of climate change constitute a major threat to non-traditional security across various aspects of human life, representing a shared challenge for the future survival of the global population. Given its transboundary nature, climate change imposes burdens and risks on both developed and developing countries alike. Reports by the Intergovernmental Panel on Climate Change (IPCC), in collaboration with leading climate scientists, warn that without immediate and concrete action by the international community, the destructive consequences of climate change will become increasingly severe and dangerous for humanity.[7]

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[1] Putri Setiani, Sains Perubahan Iklim (Jakarta Timur: PT Bumi Aksara, 2020), 17.

[2] Pasal 1 ayat (19) Undang-undang (UU) Nomor 32 Tahun 2009 tentang Perlindungan dan Pengelolaan Lingkungan Hidup

[3] Yunastiti Purwaningsih, Tri Mulyaningsih, Barokatuminalloh, Winny Perwithosuci, dan Ika Alicia Sasanti, *Adaptasi Perubahan Iklim dan Ketahanan Pangan* (Yogyakarta: Jejak Pustaka, 2022), 39.

[4] Rebecca Ratcliffe, "Indonesia's Tropical Eternity Glaciers Could Vanish within Years, Experts Say," *The Guardian*, August 25, 2023, https://www.theguardian.com/world/2023/aug/25/indonesia-tropical-glaciers-melting-el-nino

[5] Mayuri Mei Lin and Rafki Hidayat, "Jakarta, the Fastest-Sinking City in the World," *BBC News*, 13 Agustus, 2018, https://www.bbc.com/news/world-asia-44636934

[6] World Economic Forum, *The Global Risks Report 2024*, 19th ed. (Geneva: World Economic Forum, 2024), https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2024.pdf

[7] Intergovernmental Panel on Climate Change (IPCC), *Summary for Policymakers, in Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate*

Against the backdrop of escalating global environmental instability, the urgent threat of climate change has driven the international community to strengthen multilateral cooperation. A key milestone was achieved at the 21st Conference of the Parties (COP21) to the UN Climate Change Summit, held in Paris, France, in 2015, where the Paris Agreement was adopted. The Indonesian government remains committed to pursuing a cleaner, more sustainable, and climate-resilient future while maintaining positive national economic growth. This commitment is reflected in a range of national development planning documents, including the Low Carbon Development Indonesia (LCDI) framework, the National Medium-Term Development Plan (RPJMN), and the National Long-Term Development Plan (RPJPN), each of which places low-carbon development at the core of national policy.

This study offers a methodological advancement over prior research by employing a socio-legal approach to assess the implications of Indonesia's participation in the Paris Agreement for its low-carbon development agenda, particularly in the energy sector. As the largest contributor to Indonesia's greenhouse gas emissions, the energy sector plays a pivotal role in achieving national climate change mitigation targets aligned with the Paris Agreement. Government initiatives to reduce emissions in this sector are therefore critical to ensuring the overall success of the country's climate action strategies.

The primary objective of this study is to examine the contribution and strategic role of Indonesia's participation in the Paris Agreement in advancing its low-carbon development agenda, with a particular focus on the energy transition. In addition, the study explores the extent to which the Paris Agreement's multilateral cooperation framework comprising commitments from developed countries in the form of climate finance, technology transfer, scientific collaboration, and other forms of international support can strengthen national emission reduction efforts in line with the targets set out in Indonesia's Nationally Determined Contribution (NDC) document, with the ultimate aim of achieving Net Zero Emissions (NZE) by 2060.

Research Method

This research adopts a descriptive-qualitative approach using a literature review (documentary analysis) method. The type of legal research employed is socio-legal research, which examines and identifies how law operates in practice (law in action). In other words, this approach focuses on the behavior of individuals or groups in relation to the law. Socio-legal research situates legal phenomena within their broader social context, applying methodologies from the social sciences.[8] As an analytical framework, the study applies regime theory and the neoliberal institutionalist perspective from the field of international relations to explain the critical role of international institutions such as the United Nations (UN) through the United Nations Framework Convention on Climate Change (UNFCCC) in addressing the global environmental challenge of climate change.

Change, ed. Core Writing Team, H. Lee, and J. Romero (Geneva, Switzerland: IPCC, 2023), 1–34, https://doi.org/10.59327/IPCC/AR6-9789291691647.001

[8] Muhaimin, *Metode Penelitian Hukum* (Mataram: Mataram University Press, 2020), 80-84.

Results dan Discussion

The Legal Framework of the Paris Agreement as a Global Effort to Address the Threat of Climate Change

The Paris Agreement is legally binding and applicable to all parties by implementing a hybrid legal approach, this approach is in the form of an international legal treaty, but provides flexibility for each party to determine nationally determined climate contribution targets through Nationally Determined Contributions (NDCs). The legal framework in the Paris Agreement upholds the principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC). This principle shows that all countries involved have a shared responsibility in addressing climate change, but are still differentiated based on the capabilities of each country. In addition, the Paris Agreement also emphasizes the principle of transparency and ambition mechanisms that are evaluated every five years through the global stocktake mechanism as stipulated in article 14 of the Paris Agreement.

Following a protracted process beginning with the COP17 meeting in 2011 that produced the Durban Platform and culminating in the COP21 climate negotiations in Paris, France, in 2015 the international community ultimately reached consensus on a new protocol, the Paris Agreement, after several years of unsuccessful attempts to secure a binding global accord.[9] Under the Paris Agreement mechanism, developed countries (the Global North) have mobilized collective commitments to strengthen global resilience to climate change. This includes providing assistance to all nations, particularly developing countries that are highly vulnerable to climate change, through financial assistance schemes (climate finance) and green technology transfers designed to accelerate the development of clean and renewable energy sectors, thereby stabilizing greenhouse gas emissions.[10]

The Paris Agreement is a legally binding instrument applicable to all parties, employing a hybrid legal approach: while it is an international treaty, it affords each party the flexibility to set its own nationally determined climate targets through Nationally Determined Contributions (NDCs). Its legal framework upholds the principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC), which affirms that all countries share responsibility for addressing climate change, but with obligations differentiated according to national capacities. Furthermore, the Paris Agreement underscores the principles of transparency and ambition, with progress evaluated every five years through the global stocktake mechanism established under Article 14.

The Paris Agreement, as a source of international law, was established through three stages: negotiation, signature, and ratification. It entered into force on 4 November 2016, after being ratified by at least 55 countries representing no less than 55% of global greenhouse gas emissions. The Agreement's primary objectives include mitigating climate change by limiting the increase in the average global temperature to well below 2°C above pre-industrial levels, and pursuing efforts to further limit the temperature rise to 1.5°C (Article 2.1a).[11]

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[9] John Vidal, Suzanne Goldenberg, dan Lenore Taylor, "How the Historic Paris Deal over Climate Change Was Finally Agreed," *The Guardian*, 13 Desember 2015, https://www.theguardian.com/environment/2015/dec/13/climate-change-deal-agreed-paris

[10] Fiona Harvey, "Paris Climate Change Agreement: The World's Greatest Diplomatic Success," *The Guardian*, 14 Desember, 2015, https://www.theguardian.com/environment/2015/dec/13/paris-climate-deal-cop-diplomacy-developing-united-nations

[11] Setyo Widagdo et al., Hukum Internasional dalam Dinamika Hubungan Internasional (Malang: UB Press, 2019), 57.

Beyond mitigation aimed at stabilizing global greenhouse gas concentrations, the Paris Agreement also calls for adaptation measures, actions to address loss and damage caused by climate change, capacity-building initiatives for developing countries that are particularly vulnerable to climate risks, and financial support mechanisms. Funding is provided through the Green Climate Fund (GCF), an international climate finance mechanism established under the UNFCCC, to assist developing countries in implementing mitigation and adaptation strategies while fostering a more environmentally sustainable and low-carbon economic pathway.[12]

Renewable Energy in Indonesia's Sustainable Development Goals

The energy sector is an essential driver of economic activity worldwide, serving as a fundamental necessity for human life. For Indonesia endowed with abundant natural resources, particularly substantial coal reserves transitioning to renewable energy presents unique challenges compared to countries without such resources. Historically, coal has been the primary commodity for electricity generation, making a shift toward cleaner alternatives more complex.[13] Nevertheless, growing public awareness of environmental preservation has elevated the urgency of transitioning to renewable energy, supported by various government regulations and energy policies. A survey conducted by Savanta for the We Mean Business Coalition, E3G, and Beyond Fossil Fuels, titled "Powering Up: Business Perspectives on Shifting to Renewable Electricity," revealed that 88% of corporate leaders in Indonesia support decarbonizing the energy sector and phasing out coal from the national electricity system by 2035 or sooner. Similarly, a 2025 Morgan Stanley survey found that nearly 90% of global individual investors are interested in sectors with sustainable values. The significance of environmental performance for corporate reputation and investment appeal is underscored by the 2010 Deepwater Horizon oil spill in the Gulf of Mexico, owned by British Petroleum (BP), which triggered widespread public backlash and a more than 50% drop in BP's stock value within two months due to the disaster's severe environmental impact.[14]

As an archipelagic nation stretching from Sabang to Merauke, Indonesia possesses vast renewable energy potential. Hydropower resources are widely distributed across the country, while solar energy potential is abundant, particularly in East Nusa Tenggara (NTT), West Kalimantan, and Riau regions with high solar radiation levels. Wind energy potential, with speeds exceeding 6 m/s, is found in areas such as NTT, South Kalimantan, West Java, South Sulawesi, Aceh, and Papua, making them ideal for wind power development. The country's marine energy potential is also significant, particularly in Maluku, NTT, West Nusa Tenggara (NTB), and Bali, while geothermal resources located along the Pacific Ring of Fire are concentrated in Sumatra, Java, Bali, Nusa Tenggara, Sulawesi, and Maluku.[15]

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[12] Alessandro Antimiani, Valeria Costantini, Anil Markandya, Elena Paglialunga, and Giorgia Sforna, "The Green Climate Fund as an Effective Compensatory Mechanism in Global Climate Negotiations," Environmental Science & Policy 77 (November 2017): 49–68, https://doi.org/10.1016/j.envsci.2017.07.015.

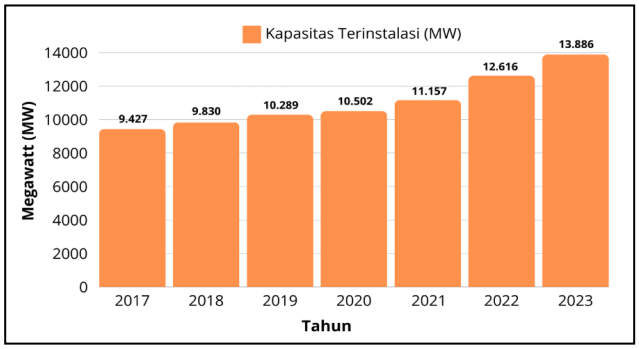
[13] Zhengyi Zhu, "The Future Is Green: Unlocking Indonesia's Renewable Energy Potential," *East Ventures*, Diakses pada 6 Mei, 2025, https://east.vc/news/insights/the-future-is-green-unlocking-indonesias-renewable-energy-potential/.

[14] Andy Fodor and John D. Stowe, "The BP Oil Disaster: Stock and Option Market Reactions," *Social Science Research Network*, 20 Desember, 2010, Available at SSRN: https://ssrn.com/abstract=1631970 or https://doi.org/10.2139/ssrn.1631970.

[15] ESDM, "Miliki Potensi EBT 3.686 GW, Sekjen Rida: Modal Utama Jalankan Transisi Energi Indonesia," *Kementerian Energi dan Sumber Daya Mineral*, 4 Februari 2023, diakses 9 Mei 2025,

The energy transition is a critical component of Indonesia's national energy diversification strategy, aimed at replacing conventional fossil fuels viewed as outdated, polluting, and environmentally destructive with cleaner, more sustainable energy sources. This transition not only mitigates environmental degradation but also reduces the economy's heavy dependence on fossil fuels, whose reserves are finite and projected to be depleted within the next few decades.[16]

Figure 1. Renewable Power Generation Capacity in Indonesia 2017-2023



Source: Renewable Energy Indonesia (REI), berdasarkan data Kementerian ESDM, 2024

According to a report issued by the Ministry of Energy and Mineral Resources (ESDM) and illustrated in Figure 1, the installed capacity of renewable energy-based power plants in Indonesia has demonstrated a consistent upward trajectory between 2017 and 2023. Beginning in 2017, the capacity of new and renewable energy power plants (PLT EBT) has shown continuous growth. In that year, the recorded installed capacity stood at 9,427 MW, which subsequently rose to 9,830 MW in 2018. This positive progression persisted in the following years, reaching 10,289 MW in 2019 and climbing further to 10,502 MW in 2020. A more pronounced increase was observed in 2021 and 2022, when the installed capacities achieved 11,157 MW and 12,616 MW, respectively. By the first semester of 2024, the additional capacity of PLT EBT had amounted to 217.73 MW, representing approximately 66.6% of the annual target of 326.91 MW. Nevertheless, the proportional contribution of renewable energy to the national energy mix has expanded at a relatively slow pace, with projections suggesting that by 2025 it will only reach approximately 13–14%.[17]

By 2024, roughly 80% of national electricity generation will still depend on fossil fuels, with coal alone accounting for 61.55% of total capacity. Even so, the role of renewable energy sources has continued to show encouraging signs of improvement. For instance, the installed capacity of solar power plants has grown by 800% over the past decade. Hydropower remains the dominant renewable energy resource in Indonesia, comprising around 8% of the total energy mix. Furthermore, Indonesia ranks second globally surpassed only by the United States in terms of installed geothermal capacity. In contrast, the expansion of renewable energy generation in the wind power sector remains notably limited. Although the yearly increase in renewable energy capacity offers an optimistic outlook for decarbonization and the broader

https://www.esdm.go.id/id/media-center/arsip-berita/miliki-potensi-ebt-3686-gw-sekjen-rida-modal-utama-jalankan-transisi-energi-indonesia

[16] Sukandarrumi, Herry Zadrak Kotta, dan Djoko Wintolo, *Energi Terbarukan: Konsep Dasar Menuju Kemandirian Energi* (Yogyakarta: Gadjah Mada University Press, 2015), 48.

[17] REI. Data Energi Terbarukan. Diterbitkan 18 September 2024. https://renewableenergy.id/data-energi-terbarukan/

transition toward clean energy, the present achievements still fall short of meeting the commitments outlined under the Paris Agreement. At present, the combined share of wind and solar energy represents only about 0.2% of the national energy mix, a figure significantly lower than the global average of 13%. Overall, the proportion of renewable energy in Indonesia's total energy composition encompassing geothermal, bioenergy, solar, wind, and hydropower is expected to reach merely 14.5% in 2024.[18]

The Strategic Role of Indonesia's Participation in the Paris Agreement on Low Carbon Development in the Energy Sector

The adoption of the Paris Agreement represents a pivotal milestone in multilateral diplomacy on climate change, marking the conclusion of years of negotiations that had persistently reached stalemates.[19] This landmark accord establishes a collective global commitment to avert the risk of an intensifying climate crisis by keeping the rise in global average temperatures well below 2°C and striving to limit it to 1.5°C above pre-industrial levels. Legally binding and applicable to all member states, the Paris Agreement nevertheless preserves the principle of differentiated shared responsibilities, tailored to each nation's capacities.[20] In alignment with its objectives, the Government of Indonesia has embedded numerous ecological and sustainability principles within its low-carbon development framework. Confronted with the complexity of global climate threats which demand joint action through multilateral cooperation Indonesia has reaffirmed its dedication to the global agenda for stabilizing emissions under the Paris Agreement. The country's participation underscores the government's resolve in contributing to global efforts to counter climate change. Indonesia officially signed the accord on April 22, 2016, during the High-Level Signature Ceremony convened by the United Nations in New York, USA.[21] To grant the Agreement binding legal authority domestically and to prepare the necessary internal regulations for its execution, Indonesia ratified it through Law No. 16 of 2016 on the Ratification of the Paris Agreement to the United Nations Framework Convention on Climate Change. Effective from October 25, 2016, this legislation provides the legal foundation for implementing commitments under the Paris Agreement, including drafting and executing national climate action plans via the Nationally Determined Contribution (NDC).[22] In fulfilling its global obligations, Indonesia has pledged to reach carbon neutrality or net-zero emissions by 2060 or earlier, supported by international cooperation mechanisms.

National initiatives aimed at mitigating and adapting to climate change are of urgent importance, given Indonesia's status as one of the nations most susceptible to its adverse impacts. A 2021 report titled Climate Risk Country Profile: Indonesia, jointly published by the World Bank Group (WBG) and the Asian Development Bank (ADB), identifies Indonesia as

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[18] Viktor Tachev, "Renewable Energy in Indonesia – Current State, Opportunities and Challenges," Energy Tracker Asia, June 9, 2024, https://energytracker.asia/renewable-energy-in-indonesia/

[19] Charlotte Streck, Paul Keenlyside, and Moritz von Unger, "The Paris Agreement: A New Beginning," *Journal for European Environmental & Planning Law 13* (2016): 3–29, https://doi.org/10.1163/18760104-01301002.

[20] Daniel Bodansky, "The Legal Character of the Paris Agreement," *Review of European, Comparative & International Environmental Law* 25, no. 2 (2016): 142–150, https://doi.org/10.1111/reel.12154

[21]Kornelius Purba, "Countries Sign Paris Agreement," *The Jakarta Post*, 23 April 2016, https://www.thejakartapost.com/news/2016/04/23/countries-sign-paris-agreement.html

[22] Undang-Undang (UU) Nomor 16 Tahun 2016 tentang Pengesahan Paris Agreement To The United Nations Framework Convention On Climate Change

highly vulnerable to the consequences of climate change. This vulnerability is underscored by the fact that Indonesia ranks fifth globally in terms of population residing in low-lying coastal zones. Furthermore, the report notes that due to a combination of factors including political dynamics, geographic characteristics, and social conditions Indonesia is positioned 97th out of 181 countries in the 2020 ND-GAIN Index.[23] The Notre Dame Global Adaptation Initiative (ND-GAIN) Index serves as a comprehensive global benchmark for assessing a nation's vulnerability and readiness in confronting the risks associated with climate change, particularly in terms of adaptation capacity.[24]

Recognized as a significant source of international law, the Paris Agreement was formulated through three consecutive phases: negotiation, signing, and ratification. It entered into legal force on November 4, 2016, after ratification by 55 countries collectively accounting for at least 55% of global greenhouse gas emissions. The principal aim of the Agreement is to address climate change by keeping the rise in the average global temperature well below 2°C above pre-industrial levels, while striving to further restrict the increase to 1.5°C above those levels, in accordance with Article 2.1(a). In addition to mitigation actions intended to stabilize global greenhouse gas concentrations, the Paris Agreement urges each member state to engage in adaptation measures, devise mechanisms to address and recover from climate-related loss and damage, strengthen the adaptive capacity of developing nations at heightened risk through targeted capacity-building efforts, and extend financial support.

The Paris Agreement reflects new dynamics in global climate governance after the end of the Kyoto Protocol, which also brings significant contributions to the direction of Indonesia's national policy in responding to climate change issues that require global multilateralism to reduce emissions in the energy sector. Since joining the Paris Agreement, the Indonesian Government has committed to reducing greenhouse gas emissions through the Nationally Determined Contributions (NDC) mechanism which comprehensively outlines Indonesia's transition agenda towards a low-carbon and climate-resilient future. The provisions in Article 4, paragraph 2 of the Paris Agreement require each party to prepare, communicate, and increase the contribution (NDC) they wish to achieve.[25] Parties involved in the Paris Agreement must pursue mitigation policy measures at the domestic level to achieve the long-term goal of net zero emissions. In 2016, the Indonesian government submitted the Nationally Determined Contribution (NDC) document to the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) as a concrete manifestation of Indonesia's commitment to reducing emissions. The Indonesian government has set an emission reduction effort in its NDC of 29 percent with its own efforts (unconditionally), and is trying to reduce emissions by 41 percent with international support (conditionally) by 2030. Furthermore, in 2022, Indonesia will again strengthen its climate action commitment through the Enhanced NDC report which targets a reduction in domestic emissions to 31.89 percent with its own efforts (unconditionally)

[23] World Bank Group and Asian Development Bank, *Climate Risk Country Profile: Indonesia* (Washington, DC: WBG and ADB, 2021).

[24] Notre Dame Global Adaptation Initiative. "Rankings." *University of Notre Dame*. Diakses 12 Mei 2025. https://gain.nd.edu/our-work/country-index/rankings/

[25] United Nations Framework Convention on Climate Change (UNFCCC), Adoption of the Paris Agreement, FCCC/CP/2015/L.9/Rev.1 (Paris: UNFCCC, 2015), https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf

and 43.20 percent with international support (conditionally) from the business as usual scenario by 2030.[26]

In the Paris Agreement, developed countries are bound by an obligation to provide financial support to developing countries in achieving the goals of the Paris Agreement. Article 9 of the Paris Agreement document contains guidelines on climate finance as part of a joint effort to face the challenges of the global climate crisis.[27] The Paris Agreement has opened up many opportunities for climate cooperation between the Indonesian Government and global strategic partners, both bilaterally and multilaterally. International support related to climate is considered to be an alternative solution to the limited allocation of state funding in funding climate change adaptation and mitigation projects, which often become obstacles to the implementation of low-carbon projects at the national level.[28] So practically, the implementation of the Paris Agreement can be said to be more than just a binding international legal instrument in relation to emission reduction efforts, but can also be a global climate diplomacy platform that explicitly provides economic opportunities that should be utilized by Indonesia in order to bridge the interests and challenges of low-carbon development at the national level that requires large funding resources.[29]

In this context, Indonesia's participation in the Paris Agreement is a strategic policy step that can strengthen global climate diplomacy and open up opportunities for broader cooperation to address domestic challenges and ensure the success of the domestic low-carbon development agenda in the energy sector. With the abundance of renewable energy resources, it shows that Indonesia has a strategic geographical location to develop a clean and renewable energy system that can support the low-carbon development agenda and overcome the threat of climate change. The potential for renewable energy sources that are available and very abundant in Indonesia include geothermal energy reserves, where around 40 percent of the total global geothermal potential is in Indonesia. In addition to having enormous geothermal potential, Indonesia is also recorded as the country with the largest solar power absorption in the ASEAN region. With an average solar radiation intensity of 4.8 kWh/m²/day, this means that Indonesia has a solar energy potential of 112,000 GWp or ten times greater than the solar energy potential in Germany. However, the abundance of this potential has not yet been fully managed and utilized by the government. According to the Executive Director of Traction Energy Asia, Tommy Pratama, Indonesia has a total clean energy potential of 3,687 gigawatts (GW). Unfortunately, until 2024, in terms of utilization, it is still very limited, reaching only around 12.6 GW or equivalent to 0.3 percent of the total renewable energy potential available.[30]

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[26] ROI, *Enhanced Nationally Determined Contribution*, United Nations Framework Convention on Climate Change (UNFCCC), 23 September 2022, https://unfccc.int/sites/default/files/NDC/2022-09/23.09.2022_Enhanced%20NDC%20Indonesia.pdf.

[27] United Nations Framework Convention on Climate Change (UNFCCC), Adoption of the Paris Agreement, FCCC/CP/2015/L.9/Rev.1 (Paris: UNFCCC, 2015), https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf

[28] Adi Budiarso, ed., *Kebijakan Pembiayaan Perubahan Iklim: Suatu Pengantar* (Bogor: IPB Press, 2019), 40.

[29] Florian Weiler, Carola Klöck, dan Matthew Dornan, "Vulnerability, Good Governance, or Donor Interests? The Allocation of Aid for Climate Change Adaptation," *World Development* 104 (April 2018): 65–77, https://doi.org/10.1016/j.worlddev.2017.11.001

[30] Hilda B. Alexander, "Indonesia Baru Manfaatkan 0,3 Persen Potensi Energi Bersih yang Dimiliki," *Kompas*, 16 Januari 2024, https://lestari.kompas.com/read/2024/01/16/090000386/indonesia-baru-manfaatkan-03-persen-potensi-energi-bersih-yang-dimiliki?page=all.

Figure 2. Development of RE share realisation over the year

Year	RE share	
	Target (%)	Realization (%)
2018	11.6	8.6
2019	12.2	9.2
2020	13.4	11.2
2021	14.5	12.2
2022	15.7	12.3

Source: ESDM, 2023

Figure 2 shows that during the period 2018 to 2022, the achievement of new, renewable energy (EBT) in Indonesia has consistently not been able to meet the targets set by the government. In 2022, for example, the government targeted a share of renewable energy of 15.7% in the national energy mix, but only 12.3% was achieved.[31] Failure to meet the set target signals that the challenges in achieving the renewable energy target are still quite large, so more ambitious efforts are needed to encourage the use of clean energy more optimally. According to data from the National Energy Council (DEN), until 2023 the national energy mix will still be dominated by the use of fossil energy, especially from coal sources, while electrification of new renewable energy sources will only contribute 13.09% of the total national energy mix. The percentage of renewable energy realization has increased by 0.79% compared to the previous year. Even so, this achievement is still below the target level that has been set for 2023, which is 17.87%.[32] According to the Institute for Essential Services Reform (IESR) report entitled "Indonesia Energy Transition Outlook 2023", there are at least several main challenges that cause the low utilization of renewable energy in Indonesia. First, related to limited funding. Second, related to regulations that are still inconsistent and regulatory uncertainty. Third, minimal investment realization. Fourth, dependence on fossil fuels. Finally, related to the accessibility of renewable energy, especially for people living in remote areas.[33]

Amidst domestic fiscal limitations, it is not easy for Indonesia to take steps to meet the target of realizing renewable energy and achieving the long-term goal of Net Zero Emissions (NZE) by 2060. The success of the government's efforts to accelerate the energy transition also depends heavily on international support, both in the form of funding schemes, technology transfer, and strategic partnerships.[34] However, in fact, until 2024, the source of global climate finance agreed by the global north countries as a follow-up to the Paris Agreement is still considered relatively small, far from the amount needed by developing countries. At the 29th Conference of the Parties under the UNFCCC framework held in Baku, Azerbaijan on 11-22

[31] Climate Transparency, *Policy Assessment: Renewable Energy Development in Indonesia's Power Sector*, 30 Januari 2024, https://www.climate-transparency.org/wp-content/uploads/2024/01/Implementation-Check-Renewable-Energy-Development-in-Indonesia-2024.pdf

[32] ESDM, "Pemerintah Kejar Tingkatkan Bauran EBT," *Kementerian Energi dan Sumber Daya Mineral*, 18 Januari 2024, diakses 9 Mei 2025, https://www.esdm.go.id/id/media-center/arsip-berita/pemerintah-kejar-tingkatkan-bauran-ebt

[33] Tobias Utomo Budiman, Elvita Trinawati, dan Osan Ramdan, *Menjaga Nusantara Tetap Hijau* (Jakarta: PT. Elex Media Komputindo, 2024), 86.

[34] Budy P. Resosudarmo, Jahen F. Rezki, dan Yuventus Effendi, "Prospects of Energy Transition in Indonesia," *Bulletin of Indonesian Economic Studies* 59, no. 2 (2023): 149–177, https://doi.org/10.1080/00074918.2023.2238336

November 2024, an important agreement was produced in terms of increasing climate finance known as the Baku Finance Goal (BFG). However, the agreement from this meeting has caused mixed reactions. For developed countries, the results of the agreement from the 29th COP are considered a positive achievement, they praise the BFG as a "start of a new era of climate finance" and are considered "insurance policy for humanity".[35] On the other hand, from the dimension of developing countries, it is disappointing. In this meeting, developed countries committed to mobilizing climate finance of USD 300 billion per year by 2035, so that the figure is still far below the target of USD 1.3 trillion proposed by developing countries.[36]

The weak implementation of the Paris Agreement in encouraging countries to make emission stabilization efforts is inseparable from its nature as a 'hybrid legal form'. In the context of the Paris Agreement, hybrid legal form refers to the dual legal form of Nationally Determined Contributions.[37] This term means that the existence of NDCs has a dual or hybrid legal status in the legal structure of the Paris Agreement. First, the procedural aspect which is legally binding. Second, the substantive aspect which is not binding because it does not have the legal force to achieve a certain action. "Meanwhile, the second sentence of the same article states that "Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions." This sentence does not create an obligation to achieve results (obligation of result), but only an obligation to undertake certain climate efforts or actions (obligation of conduct). This means that the state party is considered to have fulfilled its obligations as long as it can be proven that the state has made ambitious efforts to take proportional steps according to their national capacity, even though at the implementation level these efforts have not been achieved. This is also reinforced in Article 4 paragraph 3 of the Paris Agreement which applies the principle of shared responsibility but is differentiated based on the capacity of each country.[38] Based on these provisions, it can be understood that the implementation of the Paris Agreement basically does not have direct consequences to pressure state parties to achieve certain climate targets, because it still considers the different national capacities of each country.

Conclusion

Indonesia's strategic participation in the Paris Agreement constitutes a pivotal step in advancing international cooperation and fostering strategic alliances to mobilize global support in the form of climate finance, technology transfer, scientific research, and capacity strengthening at the national level. The Agreement, ratified by almost all member states of the international community, has catalyzed the development of a highly prospective global market, particularly in the clean energy sector. With its considerable endowment of natural resources, Indonesia holds a comparative advantage to harness this momentum for economic expansion, notably through the diversification of exports, and to consolidate its role as a significant actor

[35] Andreas Rogal, "Baku's COP29 Legacy: A New Era in Climate Finance or Too Little, Too Late?" Euronews, November 25, 2024, https://www.euronews.com/my-europe/2024/11/25/bakus-cop29-legacy-a-new-era-in-climate-finance-or-too-little-too-late

[36] Jayanty Nada Shofa, "Indonesia Remains Hopeful of $20 Billion JETP Climate Funding Despite US Exit," *Jakarta Globe*, 25 Maret, 2025, https://jakartaglobe.id/business/indonesia-remains-hopeful-of-20-billion-jetp-climate-funding-despite-us-exit.

[37] Benoit Mayer, "International Law Obligations Arising in Relation to Nationally Determined Contributions," *Transnational Environmental Law* 7, no. 2 (2018): 251–75, https://doi.org/10.1017/S2047102518000110

[38] United Nations Framework Convention on Climate Change (UNFCCC), Adoption of the Paris Agreement, FCCC/CP/2015/L.9/Rev.1 (Paris: UNFCCC, 2015), https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf

in the global clean energy landscape. Notwithstanding these opportunities, a pronounced gap persists between Indonesia's renewable energy potential and its actual deployment. The pace of renewable energy development remains comparatively slow, predominantly due to fiscal limitations impeding the energy transition process. Concurrently, the realization of international support continues to fall substantially short of the level required. Developed states, particularly those in the Global North expected to extend assistance and address fiscal deficits at the national level have yet to demonstrate commitments commensurate with the urgency of the challenge. Moreover, the structural attributes of the Paris Agreement, notably the 'hybrid legal form' of Nationally Determined Contributions (NDCs), have further contributed to the suboptimal commitments of both developed and developing parties in fulfilling the Agreement's objectives.

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