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INDONESIA'S ENERGY TRANSITION POLICY IN THE PERSPECTIVE OF POLITICAL ECONOMY UNDER GEOPOLITICAL RISK

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Abstract: This study discusses Indonesia's energy transition policy amid geopolitical risks and global economic and political instability based on the perspectives of energy economics, power structures, economic dependence, and trade wars. Energy transition is proposed due to its increasing popularity as Indonesia promotes clean energy and aims to achieve net zero emissions by 2060 amid geopolitical issues and global economic and political instability. The selection of Indonesia's energy transition policy is to determine the significance and urgency of this policy from an economic policy perspective. This study analyzes Indonesia's energy transition policy from an economic policy perspective through the dimensions of power structures, economic dependence, and trade wars. This study uses a narrative literature review and adopts a research design to extract research data. The data comes from a review of relevant literature found based on predetermined keywords on the topic of the development of Indonesia's energy transition policy. Indonesia's energy transition policy amid the risk of geopolitical instability shows a dynamic that continues to change depending on geopolitical conditions, the international power structure, and ongoing trade wars. This study proves that the energy transition policy is driven by the Indonesian government's commitment to become an zero emission country. The international push for energy transition has an external influence on Indonesia's energy transition policy-making. In its energy transition policy, the Indonesian government faces a major dilemma, structural power challenges, economic/funding dependence, and the existence of national fossil fuels that frame the energy transition policy.
Keywords: Energy Transition, Geopolitics, Political Economy, Indonesia.

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INTRODUCTION

Geopolitical risks encompass the interaction of geographic position, economic interests, and political strategies in international relations that contribute to uncertainty and potential threats in both the international and domestic spheres[1]. Geopolitical risks affect energy systems that are in transition[2]. Energy transition involves shifts in energy security, geopolitical structures, energy power, energy justice, and energy governance[3] Geopolitical risks cause market turbulence, increasing uncertainty and disrupting policy implementation. Countries with resource-dependent economies and militarization face longer delays in transition[4]. Geopolitical threats such as war and terrorist acts disrupt supply chains and exacerbate price volatility, thereby hindering energy transition.[5] Geopolitical risks have varying impacts with heterogeneous effects[6] and tend to affect the economic growth of developing countries.[7]

[1] Zhuo Yang; Xiaohui Yuan; Jian Hu, Dong Liu & Wenguang Tang. The impact of the proportion of renewable energy consumption on geopolitical risks in the United States and the United Kingdom. *Energy Exploration & Exploitation*, 42 (2), pp.1958-1986, https://doi.org/10.1177/01445987241250268.

[2] Jim Krane & Robert Idel. 2021. More transitions, less risk: How renewable energy reduces risks from mining, trade and political dependence. *Energy Research & Social* Science, 82(1), pp.1-11, https://doi.org/10.1016/j.erss.2021.102311.

[3] Yu, Yang; Siyou Xia; Ping Huang; Juanxi, Qian, 2024. Energy transition: Connotations, mechanisms and effects. *Energy Strategy Reviews*, 52(1), pp. 11-13, https://doi.org/10.1016/j.esr.2024.101320.

[4] Zhimeng Zhu; Ahmed Imran Hunjra; Samar S. Alharbi & Shikuan Zhao, 2025. Global energy transition under geopolitical risks: An empirical investigation. *Energy Economics*, 145(108495), pp.1-16, https://doi.org/10.1016/j.eneco.2025.108495.

[5]Qiang Wang, Zhangchen Chen, and Rongrong Li, "Impact of different geopolitical factors on the energy transition: The role of geopolitical threats, geopolitical acts, and geopolitical risks," Journal of Environmental Management 352, no. 119962 (2024): 1-16, https://doi.org/10.1016/j.jenvman.2023.119962.

[6]Yihan Qin, Kiseok Hong, Jinyu Chen, and Zhuo Zhang, "Asymmetric effects of geopolitical risks on energy returns and volatility under different market conditions," Energy Economics 90, no. 104851 (2020), https://doi.org/10.1016/j.eneco.2020.104851.

[7]Shuai Wang, Jiapeng Wang, and Wu Wenfu, "Do geopolitical risks facilitate the global energy transition? Evidence from 39 countries in the world," Resources Policy 85, no. 103952 (2023), https://doi.org/10.1016/j.resourpol.2023.103952.

Geopolitical events are accompanied by shifts and adjustments in government policy that have implications for financial conditions.[8] The shift towards renewables can influence geopolitical positions. Increasing renewable energy capacity can reduce geopolitical risks and encourage international cooperation.[9] The global shift towards renewable energy shapes the geopolitical landscape, with countries that are advanced in renewable energy technology gaining geopolitical advantages. Meanwhile, fossil fuel-exporting countries such as Indonesia may face significant impacts.[10] Indonesia faces challenges due to its status as a lower-middle-income country, limited budget, and the realization of energy transition goals.[11] Meanwhile, the transition process is dominated by the global north or developed countries, limiting the political role, power, and interaction of the global south.[12]

Indonesia's energy transition policy is shaped by complex interactions between political, economic, and geopolitical factors. The country's high dependence on fossil fuels, especially oil and coal, presents a challenge for Indonesia to achieve net-zero emissions by 2060.[13] Indonesia's energy needs prioritize meeting national energy demands from conventional

[8]Xiaohui Gong and Jianxiong Xu, "Geopolitical risk and dynamic connectedness between commodity markets," Energy Economics 110, no. 106028 (2022): 1-15, https://doi.org/10.1016/j.eneco.2022.106028.

[9]Chi-Wei Su, Khalid Khan, Muhammad Umar, and Weike Zhang, "Does renewable energy redefine geopolitical risks?" Energy Policy 158, no. 112566 (2021): 1-10, https://doi.org/10.1016/j.enpol.2021.112566.

[10]Xiao Wang, Qingchun Liang, and Qicheng Xie, "Research progress on the geopolitical impacts of energy transition," World Regional Studies 33, no. 4 (2024): 31-44, https://doi.org/10.3969/j.issn.1004-9479.2024.05.20220115.

[11]Budy P. Resosudarmo, Jahen F. Rezki, and Yusuf 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.

[12]Abidah B. Setyowati and Jaco Quist, "Contested transition? Exploring the politics and process of regional energy planning in Indonesia," Energy Policy 165, no. 112980 (2022): 1-11, https://doi.org/10.1016/j.enpol.2022.112980.

[13]Anis Rahman, Paul Dargusch, and David Wadley, "The political economy of oil supply in Indonesia and the implications for renewable energy development," Renewable and Sustainable Energy Reviews 144, no. 111027 (2021): 1-14, https://doi.org/10.1016/j.rser.2021.111027.

resources.[14] Significant geopolitical risks hinder the energy transition by exacerbating price volatility, disrupting supply chains, and shifting policy priorities. Countries with strong renewable energy capacity and sound fiscal mechanisms are better able to mitigate the impact, while resource-dependent countries such as Indonesia face greater delays.[15]

The implementation of energy decarbonization policies by Indonesia's main trading partners, such as China, poses spillover risks that weaken payments and increase public debt, potentially leading to stranded carbon assets.[16] Geopolitical risks significantly increase high risks in energy.[17] The development of renewable energy projects is very difficult and can lead to collective financial closure to ensure that renewable energy can occur by chance.[18] Meanwhile, the geopolitical shift of resources from China and South Asia to Southeast Asia, particularly Indonesia, has resulted in increased emissions in the country.[19]

The government is committed to reducing carbon emissions through the Just Energy Transition Partnership in Indonesia. This was stated by the

[14]Asmara Massagony, Ram Pandit, and Ben White, "Political economy of energy policy in Indonesia towards net zero emissions by 2060," Energy for Sustainable Development 88, no. 101757 (2025): 1-15, https://doi.org/10.1016/j.esd.2025.101757.
[15]Zhu et al., "Global energy transition under geopolitical risks."
[16]Romain Gourdel, Irene Monasterolo, and Kevin Gallagher, "Climate transition spillovers and sovereign risk: Evidence from Indonesia," Energy Economics 143, no. 108211 (2025): 1-31, https://doi.org/10.1016/j.eneco.2025.108211.
[17]Qianxun Xie, Yi Bi, Yiming Xi, and Xiaoxiao Xu, "The impact of geopolitical risk on higher-order moment risk spillovers in global energy markets," Energy Economics 144, no. 108292 (2025): 1-21, https://doi.org/10.1016/j.eneco.2025.108292.
[18]Paul Simshauser, "Competition vs. coordination: Optimising wind, solar and batteries in renewable energy zones," Energy Economics 143, no. 108279 (2025): 1-19, https://doi.org/10.1016/j.eneco.2025.108279.
[19]Yida Yang, Hanfei Wang, and Peng Zhou, "The CO2 emission effects of global supply chain geographic restructuring on emerging economies," Energy Economics 143, no. 108255 (2025): 1-10, https://doi.org/10.1016/j.eneco.2025.108255.

Indonesian government during Indonesia's G20 presidency in 2022[20] and Indonesia's commitment under the Paris Agreement to reduce emissions by 32% by 2030.[21] Given the geopolitical situation, Indonesia is caught up in global energy transition policies but within an international structure that disadvantages Indonesia in the fossil fuel energy transformation. International demands for energy transition are not supported by domestic political and financial conditions, and Indonesia has become the main country in Southeast Asia for energy investment from East Asian and South Asian countries. Institutional and technical obstacles include the lack of comprehensive policies, insufficient funding, and inadequate coordination between Indonesian government agencies.[22]

Geopolitical risks hinder the adoption of renewable energy in Indonesia, and geopolitical instability can exacerbate the problem[23] with market turbulence, increased uncertainty, and policy implementation challenges. Vulnerability to geopolitics can disrupt Indonesia's supply chain. Geopolitical threats such as war significantly hinder energy transition, especially when geopolitical risks exceed a certain threshold.[24] Geopolitical

[20]M. Ridha Jazuli, Karen Roll, and Yacob Mulugatta, "A review of Indonesia's JETP through the dynamics of its policy regime," Global Policy 15, no. 5 (2024): 989-1006, https://doi.org/10.1111/1758-5899.13452.

[21]Umar Nugraha and Mohamad Satria Hermawan, "The Prospect and Challenge of Energy Transition Through Electric Vehicle Development in Indonesia: A Sustainable Development Perspective," in Sustainable Innovation for Industry 6.0, ed. A. Sharma et al. (New York: IGI Global, 2024), 364-388, https://doi.org/10.4018/979-8-3693-3140-8.ch018.

[22]Haryadi Ardiansyah, Endang Wahyuni, and Puput Ekadewi, "Bridging the Gap between Policy and Net-Zero Realization in Indonesia: An Outlook of Available Approaches," Journal of Physics: Conference Series 2828, no. 7 (2024): 1-10, https://doi.org/10.1088/1742-6596/2828/1/012003.

[23]Sofiane Hechmi, "Renewable energy dynamics in Southeast Asia: Analyzing the impact of CO2 emissions, geopolitical risk, tourism, and GDP through FMOLS and CCR estimation approach," International Journal of Innovative Research and Scientific Studies 8, no. 2 (2025): 4278-4288, https://doi.org/10.53894/ijirss.v8i2.6279.

[24]Christian Pambudi Prasetro, Arief Johari Effendi, and Mochammad Chaerul, "Is our energy system sustainable? Gap analysis of fuel supply and demand in Indonesia," IOP Conference Series: Earth and Environmental Science 1448, no. 1 (2025): 1-11, https://doi.org/10.1088/1755-1315/1448/1/012019.

threats pose significant barriers to energy transition. Global interactions, foreign investment, domestic policies, and global dynamics create a complex landscape for Indonesia's energy transition. Indonesia faces an energy transition trilemma.[2526] Therefore, this study aims to analyze Indonesia's energy transition policy amid domestic regulatory and funding constraints and global geopolitical issues from a political economy perspective.

CONCEPTUAL FRAMEWORK

Geopolitics

Geopolitics is a complex and dynamic field that integrates historical, geographical, and strategic elements in understanding international relations.[27] Geopolitics is understood as a deterministic causal relationship between geography and international relations that focuses on permanent competition, territorial expansion, and the military strategies of imperialist powers. Geopolitics began to show a degrading influence on state power and international affairs in general, with less emphasis on determinism and more on natural resource strategies, location, transportation routes, and chokepoints.[28] Critical geopolitics examines the discursive practices that shape the spatial understanding of international politics, emphasizing the

[25]Moekti Maulidia, Paul Dargusch, Peter Ashworth, and Fitrian Ardiansyah, "Rethinking renewable energy targets and electricity sector reform in Indonesia: A private sector perspective," Renewable and Sustainable Energy Reviews 101, no. 1 (2019): 231-247, https://doi.org/10.1016/j.rser.2018.11.005.
[26]Akihisa Mori, "Foreign actors, faster transitions? Co-evolution of complementarities, perspectives and sociotechnical systems in the case of Indonesia's electricity supply system," Energy Research & Social Science 69, no. 101594 (2020): 1-9, https://doi.org/10.1016/j.erss.2020.101594.
[27]Juan Pablo Gatica, "Geopolitics in the digital age: the U.S.-China competition through their narratives on digital technologies," Revista de Internet, Derecho y Politica 43, no. 1 (2025): 1-17, https://doi.org/10.7238/idp.v0i43.428663.
[28]Roman Vakulchuk, Indra Overland, and Daniel Scholten, "Renewable energy and geopolitics: A review," Renewable and Sustainable Energy Reviews 122, no. 1 (2020): 1-12, https://doi.org/10.1016/j.rser.2019.109547.

role of ideology and identity.[29] Geopolitics integrates economic and strategic processes with physical geography.[30]

Geopolitics helps explain foreign policy choices by considering the interaction of economic, strategic, and physical contexts.[31] According to Rudolf Kjellen, geopolitics is a discipline that can be understood as the study of how geographical considerations influence the dynamics of power. Geopolitics is understood as the study of political decision-making and policy that takes geographical location into account.[32] The term geopolitics is used to describe the foreign policy issues of a particular country and explain the behavior of countries in international relations during the Cold War and post-Cold War periods.[33] In foreign policy, geopolitics helps identify geographical locations in terms of opportunities and challenges for political action.[34] Geopolitics is closely related to political economy, especially in the context of territory and state-capitalist relations.[35]

Energy policies vary greatly depending on geopolitics, stages of economic development, and resource wealth, making the realization of a fair and equitable global energy transition uncertain. Energy transition is

[29]Bostjan Rogelj, "Back to Europe - Geopolitical discourses about central and Eastern Europe inside institutions of European union," Dela 26, no. 1 (2006): 181-202, https://doi.org/10.4312/dela.26.181-202.
[30]Colin Flint, "Putting the 'geo' into geopolitics: a heuristic framework and the example of Australian foreign policy," GeoJournal 87, no. 1 (2022): 2577-2592, https://doi.org/10.1007/s10708-021-10387-5.
[31]Amir G. Sabet, "Geopolitics of a changing world order: US strategy and the scramble for the Eurasian Heartland," Contemporary Arab Affairs 8, no. 2 (2015): 163-180, https://doi.org/10.1080/17550912.2015.1018717.
[32]Sudhir Kumar Singh, Rakesh Singh Raj, and Radha, "The Geopolitical Significance of Afghanistan for India in Emerging World Order," in Emerging Dynamics of India-Afghanistan Relations (Singapore: Palgrave Macmillan Singapore, 2024), 31-48.
[33]Francis P. Sempa, Geopolitics: From the cold war to the 21st Century (New York: Taylor and Francis Inc., 2017), 1-124, https://doi.org/10.4324/9780203790816.
[34]Luigi Lonardo, "The Contribution of Geopolitics to the Study of EU Foreign Policy Illustrated Through the Example of Empires and Colonialism," European Foreign Affairs Review 27, no. 4 (2022): 445-462, https://doi.org/10.54648/EERR2022031.
[35]Shiri Potss, "Political economy," in The Wiley Blackwell Companion to Political Geography, 2nd Edition, ed. V. Mamadouh et al. (New York: Wiley, 2025), 305-321, https://doi.org/10.1002/9781119753995.ch18.

increasingly vulnerable to geopolitical risks that affect supply chains, market stability, and policy decisions.[36] Geopolitical risks significantly hinder structural energy transformation. Geopolitical concerns limit the smoothness of global energy transition by directly affecting supply and distribution, price volatility, and policy development. Geopolitics has a negative impact on energy transition.[37] Geopolitical uncertainty, inflation, and green energy consumption have a long-term relationship. High inflation has the potential to hamper transition and geopolitical uncertainty. Geopolitics raises issues that modify power relations between incumbents based on the dynamics of transition or conflict that arise between actors due to opposing representations of what a sustainable transition should be. In geopolitics, power relations are not always a given fact but are actively constructed social, political, and economic constructs.[38]

Political Economy

Political economy relates to understanding the dynamics of industrial capitalism and its social and political consequences. Political economy analyzes decision-making, behavior, and political institutions.[39] According to Adam Smith, the term political economy seeks to understand the economics of industrial capitalism, which emphasizes absolute profit. Political economy emphasizes the interdependence of the economy and the state.[40] Adam Smith emphasized a country's ability to produce goods and services that emphasize the specialization of goods that have absolute

[36]Zhu et al., "Global energy transition under geopolitical risks."
[37]Shulin Zhang, Riaz Shinwari, Shaoran Zhao, and Abd Alwahed Dagestani, "Energy transition, geopolitical risk, and natural resources extraction: A novel perspective of energy transition and resources extraction," Resources Policy 83, no. 1 (2023), https://doi.org/10.1016/j.resourpol.2023.103608.
[38]Angélique Palle, "Bringing geopolitics to energy transition research," Energy Research & Social Science 81, no. 1 (2021): 1-9, https://doi.org/10.1016/j.erss.2021.102233.
[39]Isidoro Mazza, "Political economy," in Handbook of Cultural Economics, Third Edition, ed. R. Towse and T. N. Hernández (United Kingdom: Edward Elgar Publishing Ltd., 2020), 430-440, https://doi.org/10.4337/9781788975803.00054.
[40]Manuel B. Aalbers, "Political economy," in Research Handbook on Housing, the Home and Society, ed. K. Jacobs et al. (Belgium: Edward Elgar Publishing Ltd., 2025), 78-94, https://doi.org/10.4337/9781800375970.00012.

advantages. International trade is an undeniable advantage of free trade compared to autarkic production.[41]

Political economy is important in understanding the interaction between state actors and macroeconomic policy. Global political economy, which emphasizes a country's international relations, will affect a country's national economy. In political economy, there are international markets and multinational companies that accumulate interests and dependencies between countries.[42] Political economy highlights the complexity and diversity of factors that influence a country's economic policy and also highlights national economic dependence and economic inequality issues.[43] Political economy has a close relationship with energy transition. The relationship between the economy and energy transition is multifaceted, involving various political, economic, and social dimensions. The relationship between energy transition and economic development between countries. In political economy, there are obstacles to energy transition, including lack of capital, weak governance, and inadequate legal structures, especially in developing countries.[44] The transition has significant geopolitical implications, affecting global power dynamics and trade relations. Energy transition affects the quality of life and labor productivity, which in turn affects political systems and economic structures.[45]

[41]Giacomo Ferraro Virgilio and María Elena López, "Peer-Reviewing the Classics," Journal of Social, Political, and Economic Studies 47, no. 3-4 (2023): 231-252.
[42]Spyros Roukanas, "Measuring Global Political Economy," in 11th International Conference on the Economies of the Balkan and Eastern European Countries, EBEEC 2019 (Bucharest: Springer Science and Business Media B.V., 2021), 119-133, https://doi.org/10.1007/978-3-030-57953-1_8.
[43]Spyros Roukanas, "Measuring Economic Development and the Impact of Economic Globalisation," Studies in Business and Economics 15, no. 3 (2020): 185-207, https://doi.org/10.2478/sbe-2020-0053.
[44]Ehsan Rasoulinezhad et al., "Determinants of energy transition in Asia," in The Handbook of Energy Policy, ed. F. Taghizadeh-Hesary and D. Zhang (Singapore: Springer, Singapore, 2023), 511-534, https://doi.org/10.1007/978-981-19-6778-8_23.
[45]Chien-Chiang Lee and Jun Yang, "Energy transition and economic development," Energy Policy (2019).

METHOD

To answer the research questions, we conducted a narrative literature review using academic databases. A narrative literature review is a methodological approach that aims to build a comprehensive understanding and critical evaluation of knowledge relevant to a particular topic and has the potential to reveal weaknesses or question concepts, theories, or claims that warrant further study.[46] This method also aims to advance and contribute to the development of theory[47] and to study the most detailed description of the topic as possible as the most important goal. By using this method, we describe and explain the mapping of Indonesia's energy transition amid unstable geopolitical conditions.

Furthermore, it helps to understand why Indonesia is said to be a little dangerous if it makes an energy transition amid political struggles and trade wars between developed countries. Data was obtained from various academic databases: books, Google Scholar, journals, official reports, scientific reports, as well as credible websites and articles. Next, we searched for data relevant to the keywords: "Geopolitical Risk," "Energy Transition," "Political Economy," and "Indonesia." The sources identified in this review were filtered based on their relevance to the research question: "How is Indonesia's energy transition policy mapped amid geopolitical risks from a political economy perspective?"

The literature results were processed and presented using descriptive methods to provide an accurate picture of a particular phenomenon without manipulating or changing the variables under study. The purpose of the descriptive method is to present an objective and detailed picture of the situation or phenomenon under study. The results will explain the relationship between power, energy transition, and trade wars that influence Indonesia's transition policy to the mapping of Indonesia's energy transition

[46]Sebastian K. Boell and Dubravka Cecez-Kecmanovic, "On Being 'Systematic' in Literature Reviews in IS," Journal of Information Technology 30, no. 2 (2015): 161-173.
[47]Patricia Cronin, Frances Ryan, and Michael Coughlan, "Undertaking a Literature Review: A Step-by-Step Approach," British Journal of Nursing 17, no. 1 (2008): 38-43.

policy. Furthermore, the data can provide answers to research questions through the geopolitical landscape in mapping Indonesia's energy transition policy. In addition to answering research questions, this method aims to investigate various ways to determine the current energy transition mapping. As an interesting topic for discussion at this time, a narrative literature review will provide a variety of perspectives on the diverse capabilities of each party. Therefore, conducting a narrative literature review is more appropriate to help us achieve our research objectives.

RESULTS AND DISCUSSION

Energy Transition and Power Structures, Economic Dependence and Trade Wars

The current energy transition is inseparable from the transition of risks that will be faced by exporting countries, where gross domestic product (GDP) and fiscal revenue are greatly influenced by fossil fuel-based export-import activities, one of which is Indonesia.[48] Indonesia is one of the world's largest nickel producers (1.5 billion tons) along with other critical mineral resources that are highly influential in supporting future technological developments, such as copper (640 million tons), bauxite (927 million tons), and tin (1.2 billion tons).[49] The existence of these fossil resources is a priority for Indonesia in making policies that will greatly contribute to achieving Net Zero Emissions by 2060. The increasing commitment of countries to support energy transition, as well as the influence of political, social, and economic power structures, also have a significant impact and have become a topic of public debate because 23% of global emissions come from trade between countries, which causes emissions to shift. Therefore, in response to this phenomenon, several policies have been implemented, such as the Carbon Border Adjustment Mechanism (CBAM) issued by the European Union as a developed country with high

[48]Gourdel, Monasterolo, and Gallagher, "Climate transition spillovers and sovereign risk."

[49]Official Website of the International Trade Administration, "Indonesia Critical Minerals," September 27, 2023, https://www.trade.gov/market-intelligence/indonesia-critical-minerals.

environmental standards. This policy aims to limit carbon and impose additional costs on imported goods with high embedded emissions from countries that export goods to the European Union. According to data from the European Union's statistical office, the countries with the highest export values covered by CBAM to the European Union are China at 19.91 billion euros, followed by Turkey at 13.75 billion euros, Switzerland at 13.33 billion euros, Russia at 12.49 billion euros, and 11 other developing countries, including Indonesia, with a total export value of 76.02 billion euros.[50]

This CBAM that introduced by European Union aims to reduce carbon leakage by pushing import tariffs on carbon-intensive products such as aluminium, cement, iron and steel, hydrogen, fertilizers and electricity. This initiative reflects a growing trend among developed countries to promote and accelerate global decarbonization efforts. However, for developing countries like Indonesia, this policy present both opportunities and challenges. Based on Computable General Equilibirium (CGE) Model, the implementation of CBAM, the overall macroeconomic impact on Indonesia is very limited. Due to this policy, Indonesia's export decline by around 0,1%, GDP also decreases by only 0,0002% or the welfare drops by approximately USD 36 million as stated in table 1 below.[51]

Table 1. Impact of EU CBAM and Carbon Tax on Macroeconomic Indicators (%)

Indicators	1st Scenario	2nd Scenario
Trade balance, $ US million (change)	-268.826	-271.34
Welfare $ US million (change)	-36.2496	-35.2352
CPI (price index)	0.0115	0.0122
GDP	0.00020	0.00019
Investment	0.0833	0.0842
Volume of imports	0.014	0.0154
Volume of exports	-0.1014	-0.1021
Government expenditure	0.0074	0.0083
Household consumption	0.0071	0.008

[50]Xiaoyun Pan and Shujie Liu, "The development, changes and responses of the European Union carbon border adjustment mechanism in the context of global energy transition," World Development Sustainability 4 (2024): 100148, https://doi.org/10.1016/j.wds.2024.100148.
[51]Fauri Adinova, "Impact of EU CBAM on Indonesia" (2025).

In responding to those impacts happened to Indonesia's economy because of CBAM policy, Indonesia eventually implementing domestic climate policy strategies, developing national carbon markets, and supporting industry transition to low emission production. These strategies are realized through a presidential regulation No. 98 in the year of 2021 regarding the implementation of carbon economic value. It provides the legal basis for policy instruments such as carbon trading, result-based payment (RBP), and carbon taxes/levies that is adopted through Indonesian constitution No.7 in the year of 2021. Moreover, Indonesia government also applying low-emission technology investment and International advocacy. It is hoped that these regulations will integrate all of the sectors including societies, institutions, companies, and government to move together reaching the NZE goals while maintaining societies welfare in facing CBAM's impact.

Meanwhile, since 2022, the United States has implemented the Inflation Reduction Act or IRA, which is an inflation reduction law with funding of nearly US$400 billion for clean energy technology, passed by President Joe Biden with the aim of demonstrating the United States' commitment to limiting greenhouse gas (GHG) emissions and improving air quality in every city, county, and state in the United States, as well as slowing the rate of climate change.[52] This policy has several provisions in the form of subsidies, incentives, grants, and loans and focuses on local production. It also has an impact on Indonesia and developing countries because it can reduce competitiveness in exporting mineral resources to the United States. Energy policies vary greatly depending on geopolitics, stages of economic development, and resource wealth, making the realization of a fair and equitable global energy transition uncertain. Energy transition is increasingly vulnerable to geopolitical risks that affect supply chains, market stability, and policy decisions.[53] Geopolitical risks significantly hinder structural energy transformation. Geopolitical concerns limit the smoothness of the global energy transition by directly affecting supply and

[52]Shubhangi Rajagopalan and Philip J. Landrigan, "The Inflation Reduction Act – implications for climate change, air pollution, and health," The Lancet Regional Health - Americas 23 (2023): 100522, https://doi.org/10.1016/j.lana.2023.100522.
[53]Zhu et al., "Global energy transition under geopolitical risks."

distribution, price volatility, and policy development. Geopolitics has a negative impact on energy transition.[54] Geopolitical uncertainty, inflation, and green energy consumption have a long-term relationship. High inflation has the potential to hinder transition and geopolitical uncertainty. Geopolitics raises issues that modify power relations between defense based on the dynamics of transition or conflict that arise between actors due to opposing representations of what a sustainable transition should be. In geopolitics, power relations are not always a given fact but are actively constructed social, political, and economic constructs.[55]

The energy transition, which is essentially oriented towards fossil fuels, towards renewable energy, not only drives technological transformation, but also places it as a contestative, socially structured, and complex process. Geopolitical tensions stemming from the military conflict between Russia and Ukraine, conflicts in the Middle East, and the trade war between China and the United States are driving uncertainty and potential threats to the global energy market, disrupting supply chains. Geopolitical conflicts will cause global oil prices to skyrocket, especially since military conflicts in the Middle East often target energy infrastructure, thereby slowing down or even reducing supply distribution. In addition, the conflict between Russia and Ukraine, along with economic sanctions, has ultimately forced many countries to seek alternative supplies and triggered a surge in energy market prices.[56] In 2018, the United States imposed high tariffs on imported products, particularly on more than US$550 billion worth of Chinese products. In response, China imposed similar tariffs on more than US$185 billion worth of US products, creating tension in the relationship between the two countries. Furthermore, the conflict escalated in 2025 when Trump imposed an additional 32% tariff on Chinese products. This conflict is not

[54]Zhang et al., "Energy transition, geopolitical risk, and natural resources extraction."
[55]Palle, "Bringing geopolitics to energy transition research."
[56]Rim Berahab, "The Energy Transition Amidst Global Uncertainties: A Focus on Critical Minerals," n.d.

merely a tariff dispute, but part of a contest between two major world powers, the impact of which is felt by trading partners such as Indonesia.[57]

The trade war between the United States and China has a major impact on Indonesia because Indonesia is still dependent on raw material exports to China and the United States, so the trade war will result in a decline in demand and reduce national economic growth. This condition has created a dilemma for Indonesia's position in the trade contest between the United States and China. Geopolitically, Indonesia has a strategic role as a mineral producer. Amid the US-China trade war, Indonesia should seize the opportunity to strengthen the country, especially in the management and export of mineral resources through national policies and regional and global cooperation. With its abundant mineral resources, especially nickel, Indonesia should be able to become a major supplier of raw materials for clean energy and green technology in the future.[58]

Sources: Mineral and Coal Mining Areas (Copy of Minister of Energy and Mineral Resources Decree Number 301 RPMBN 2022 to 2027, n.d.)

[57]Badan Penelitian dan Pengembangan, "Perang Dagang AS–Tiongkok: Dampak, Peluang, Tantangan dan solusi strategis bagi Indonesia," Kementerian Pertahanan Republik Indonesia, April 16, 2025.

[58]Safira Ayu Arsita, Gunawan Eko Saputro, and Susanto Susanto, "Perkembangan Kebijakan Energi Nasional dan Energi Baru Terbarukan Indonesia," Jurnal Syntax Transformation 2, no. 12 (2021): 1779-1788, https://doi.org/10.46799/jst.v2i12.473.

The map above shows the extent of Indonesia's mineral resource reserves. Indonesia has begun to diversify its energy sources and reduce its dependence on energy imports from countries with potential conflicts. Through its downstreaming policy, Indonesia is influencing the global electric vehicle (EV) supply chain to reduce emission levels. Downstreaming is a process of sustainable economic transformation to achieve economic sovereignty and create added value for products, thereby minimizing dependence on commodity prices. Through downstreaming, raw materials can be processed domestically and the value of these products can be increased.[59]

The above conditions show that Indonesia's transition policy follows the international political situation. In a trade war situation, the Indonesian government plays a role in promoting energy transition, but the presence of China and the US as investors promoting downstreaming and energy transition does not solve Indonesia's foreign debt dependence. Energy transition also requires substantial financing for Indonesia. In this situation, Indonesia is trying to take economic and political steps amid geopolitics, but the demands of the global power structure require Indonesia to carry out energy transition in various forms, both green energy development using fossil fuels managed using clean technology and other energies such as wind, geothermal, and so on, which require quite high costs.

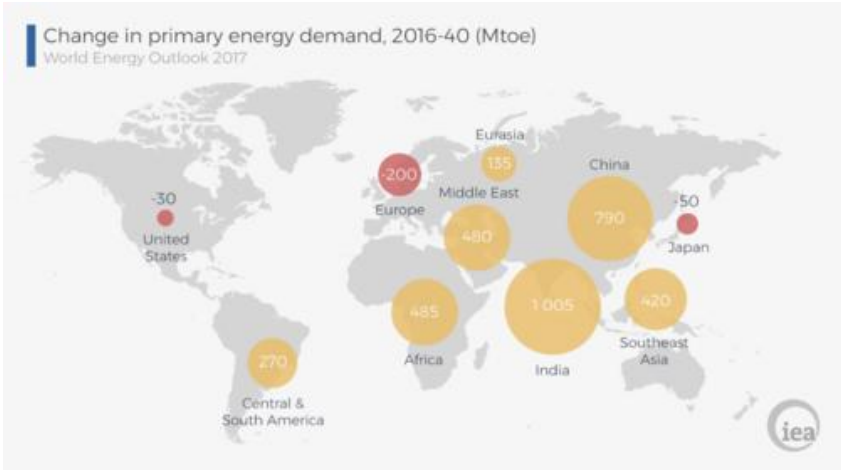
Geopolitical Mapping and Indonesia's Energy Transition

The global energy geopolitical map is still dominated by the dynamics of fossil fuel ownership, which has created and classified industrialized countries with capital as the "Global North" and developing countries with abundant resources as the "Global South." Fossil fuels also continue to fluctuate in line with their limited availability. The early to late 20th century was the golden age of the "Oil Era." This era was marked by the beginning of the use of oil from Persia (now Iran) as a substitute for coal fuel used by

[59]M. Hibatullah Barizi and Rafiq Triarda, "Rantai Pasokan Global dan Nasionalisme Sumber Daya Alam: Kajian Terkait Hilirisasi Nikel di Indonesia," Indonesian Journal of International Relations 7, no. 2 (2023): 312-338, https://doi.org/10.32787/ijir.v7i2.466.

the British Royal Navy during World War I.[60] This historical note marked the beginning of the separation between the Global North and Global South groups of countries, which continues to this day. Currently, global energy development is undergoing a transition towards a low-carbon system that has the potential to fundamentally disrupt the geopolitical order of energy. As recorded in history, every time an energy transition occurs, there is also a shift in the world's geopolitical order. From wood to coal to oil, each transition has always given rise to a new set of "winners and losers."[61] This shift opens up opportunities for Global South countries to change their geopolitical position in the global energy order. Global South countries, which have long been identified as owners of renewable energy resources, have the opportunity to gain new economic and political influence.

This statement is reinforced by predictions that global energy demand will soon be dominated by Global South countries.



Source: energipedia (retrieved September 2025) (IRENA, 2022)

The image shows predictions of global energy demand growth in 2040, with nearly 30% coming from India, China, Africa, and the Middle East, all of which are Global South countries. However, another major player is emerging from Southeast Asia, which is predicted to grow twice

[60]Manfred Hafner and Simone Tagliapietra, The Geopolitics of the Global Energy Transition (Springer, 2020), http://www.springer.com/series/8874.
[61]Hafner and Tagliapietra, The Geopolitics of the Global Energy Transition.

as fast as China.[62] This prediction opens up opportunities for countries in the Southeast Asian region, especially Indonesia, which is the largest country in the region, to take a major role in the global energy transition. On the international stage, Indonesia has positioned its ambitious commitment to achieve Net Zero Emissions (NZE) by 2060. This commitment is manifested through a number of policy initiatives that IRENA has summarized as evidence of ongoing commitment, such as:[63]

1. Government Regulation No. 78 of 2019 concerning Income Tax Facilities for Investment in Certain Business Fields or in Certain Regions, including Geothermal Energy
2. Ministry of Energy and Mineral Resources Regulation No. 49 of 2018 concerning Procedures for the Use of Rooftop Solar Power Generation Systems by National Power Plant customers, amended by Ministry of Energy and Mineral Resources Regulation No. 26 of 2021 concerning the Electricity Sale and Purchase Value to 100% (one to one) (Gol, 2021b)
3. Ministry of Energy and Mineral Resources Regulation No. 4 of 2020 concerning General Governance of Renewable Energy Utilization for Electricity Supply for Public Interest (Gol, 2020a).

These policies reflect optimism based on Indonesia's enormous potential to utilize its wealth of critical mineral resources in the energy transition towards Net Zero Emissions.

In 2022, President Jokowi officially issued a regulation on "Accelerating the Development of Renewable Energy for Electricity Supply" through Presidential Regulation (Perpres) No. 112 of 2022. The regulation stipulates provisions to encourage the construction of large-scale renewable energy power plants, both by the National Power Plant (PT. PLN) and the private sector. In addition, this regulation also prohibits the construction of coal-fired power plants, with the exception of national strategic projects, and provides fiscal and non-fiscal incentives that can encourage investment in new and renewable energy projects.[64] Despite its legal commitment,

[62]IRENA, "Estimating energy demand of the energy poor."
[63]IRENA, Indonesia Energy Transition Outlook (2022), www.irena.org.
[64]IRENA, Indonesia Energy Transition Outlook.

Indonesia's energy transition policy also faces crucial fiscal economic risks. This is because Indonesia remains the world's leading exporter of fossil fuels. It is noted that until the first half of 2025, Indonesia will still be the largest coal exporter, supplying 45% of the world's supply. However, the availability of exports has decreased by 21.09% due to declining global demand for coal.[65] These two contradictory phenomena show that despite Indonesia's high demand for coal in the global market, demand continues to decline due to the global energy transition. Therefore, the energy transition dilemma arises from the fundamental contradiction between external geopolitical opportunities and domestic political-economic dynamics. In addition, the mapping of the energy transition in Indonesia is still uneven and has not been fully implemented.

According Presidential Regulation No. 22 of 2017 concerning the National Energy General Plan, there are at least 7 (seven) potential new and renewable energy sources (RE) in this energy transition effort, namely, geothermal, hydro, mini micro hydro, bioenergy, solar, wind, and ocean waves. Based on the National Energy General Plan, a number of local governments have also set New and Renewable Energy (RE) mixes in their Regional Energy Master Plans. A total of 45% of provinces are targeting at least 23% of RE by 2025. As of 2023, South Sumatra and South Sulawesi provinces have exceeded their targets, reaching 24%. Meanwhile, Aceh province has only reached 11.08% of its 25% target for 2025 as of 2023.

[65]ESDM, "Detil Berita - Ditjen Minerba," 2025, https://www.minerba.esdm.go.id/berita/minerba/detil/20250811-indonesia-penuhi-45-kebutuhan-listrik-dunia-ekspor-batu-bara-capai-238-juta-ton.

Primary Energy Mix Targets for 2025 and 2050 based on the Regional Energy Master Plan for each province in Indonesia

No	Province	2025 (in %)				2050 (in %)			
		Crude	NG	Coal	RE	Crude	NG	Coal	RE
1	Aceh	46.5	19.5	8.5	25.5	38.7	15.3	4.7	41.3
2	South Sumatera	45.8	17.88	12.34	23.98	29.13	14.22	6.73	49.91
3	West Sumatera	RUED attachment not found							
4	Riau	19.53	28.32	20.93	31.22	7.16	25.33	20.44	46.64
5	Jambi	34.08	10.37	31.56	24	21.46	9.09	29.46	40
6	South Sumatera	31.69	25.54	21.72	21.06	33.24	20.69	23.51	22.56
7	Bengkulu	42	6	15	37	24	3	21	52
8	Lampung	27	16	21	36	17	18	18	47
9	Kepulauan Riau	19.45	28.36	20.97	31.22	7.03	25.62	20.72	46.63
10	Kepulauan Bangka Belitung	42.15	16.87	23.76	17.21	23.93	16.1	29	30.97
11	DKI Jakarta	28	48.6	19.1	4.4	15.4	42.3	17.9	24.4
12	West Java	30	25	20	17	17	25	30	20
13	Central Java	78			21	71			28
14	DI Yogyakarta	74	17	-	9	66	20	-	15
15	West Java	21.88	41.95	24.04	12.15	13.04	54.74	8.46	23.76
16	Banten	24.9	20.5	43.3	11.2	11.5	33.7	38	16.8
17	Bali	29.3	56.23	3.32	11.15	45.05	34.85	0	20.1
18	West Nusa Tenggara	Regional Energy General Plan attachment not found							
19	East Nusa Tenggara	54	10	12	24	31	14	16	39
20	West Kalimantan	9.1	14	48.4	28.4	5.8	28.3	30.7	35.1

21	Central Kalimantan	46	14	22	17	22	23	9	46
22	South Kalimantan	Regional Energy General Plan attachment not found							
23	West Kalimantan	50.15	25.22	12.24	12.39	29.52	29.45	12.31	28.72
24	North Kalimantan	20.96	7.15	15.94	55.95	14.11	5.08	4.16	76.65
25	North Sulawesi	30	13	19	38	8	17	8	67
26	Gorontalo	36.8	21.2	26.6	15.4	16.5	32.1	13.5	37.9
27	Central Sulawesi	5.14	12.29	52.06	30.51	5	35.4	17.51	42.09
28	West Sulawesi	42	6	6	46	29	4	3	65
29	South Sulawesi	Regional Energy General Plan attachment not found							
30	South East Sulawesi	Regional Energy General Plan attachment not found							
31	Maluku	Regional Energy General Plan attachment not found							
32	North Maluku	Regional Energy General Plan attachment not found							
33	Papua	Regional Energy General Plan attachment not found							
34	West Papua	62	27	7	4	38	39	10	13
35	South Papua	Regional Energy General Plan attachment not found							
36	Central Papua	Regional Energy General Plan attachment not found							
37	Papua Pegunungan	Regional Energy General Plan attachment not found							
38	Southwest Papua	Regional Energy General Plan attachment not found							

Renewable Energy (RE)
Coal
Natural Gas (NG)
Crude

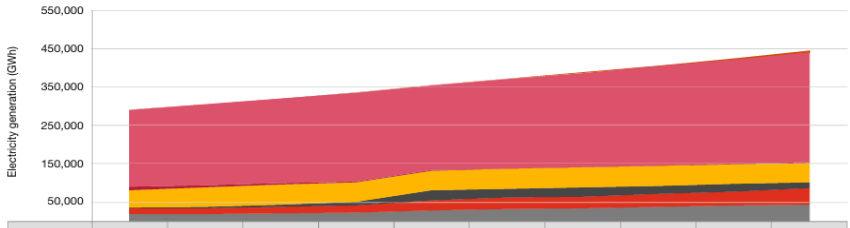
The energy mix targets also illustrate the dependence of each region and the management of natural resources owned by each province. For example, in Central Sulawesi, coal is still the main energy resource, as seen from the primary energy mix target for 2025, which is still more than 50 percent. Even by 2050, a number of provinces in Indonesia still have targets for fossil fuels, petroleum and coal that dominate primary energy in their regions. This means that carbon lock-in has occurred at the subnational level, creating significant structural barriers to the national energy transition.[66] Ultimately, the regional development agenda prioritizes the exploitation of existing resources rather than switching to renewable energy in line with national and global commitments.

It is also mentioned that dependence on fossil fuels poses at least three significant systemic threats: (1) the risk of depletion of proven petroleum reserves, assuming no substantial new discoveries; (2) escalation and volatility of prices caused by demand exceeding production capacity; and (3) greenhouse gas pollution from the combustion of fossil fuels, which is a major driver of anthropogenic climate change.[67] Despite facing real systemic threats, provincial and district governments still depend on coal royalties, which are also a vital source of Local Own-Source Revenue. This fiscal dependence gives rise to what is known as the subnational resource curse.[68]

The relationship of dependency between local governments and fossil fuel resources creates a strong network of protection among the elite. In this system, politicians with financial interests in the mining sector receive regulatory and licensing concessions from local government officials. As a result, national interests that prioritize energy transition are increasingly

[66]Daniel Kaufmann and Isaac Rock, "Close to home: The critical importance of subnational governance in oil, gas, and mining," Brookings Institution, 2016, https://www.brookings.edu/articles/close-to-home-the-critical-importance-of-subnational-governance-in-oil-gas-and-mining/.
[67]Ainur R. Wardhana and Wida H. Marifatullah, "Transisi Indonesia Menuju Energi Terbarukan," J. Tashwirul Afkar 38, no. 02 (2020): 274-275, http://tashwirulafkar.net/index.php/afkar/index.
[68]Osmel Manzano and Juan David Gutiérrez, "The subnational resource curse: Theory and evidence," Extractive Industries and Society 6, no. 2 (2019): 261-266.

sidelined. Meanwhile, the Indonesian government is also facing global pressures, such as falling coal prices and international agreements based on green energy or climate change. This gap between commitment and reality is also clearly illustrated in the following projections for national power generation until 2030.



Fuel Type	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Renewables Potential	-	-	-	-	-	534	1,765	2,545	3,585	5,246
Import	954	-	-	-	-	-	-	-	-	-
Coal	198,103	209,128	219,795	231,446	220,032	233,074	244,352	257,953	27,094	284,637
Oil	9,326	5,622	4,069	1,839	1,417	1,432	1,502	1,606	1,697	1,805
Gas	45,464	50,914	50,953	52,489	51,485	51,956	53,233	53,513	54,945	56,282
Other Renewables	612	271	271	243	74	80	82	88	95	94
Geothermal	15,849	16,571	18,009	18,875	26,785	30,550	31,441	34,380	36,173	43,215
Hydro	18,750	18,629	20,531	22,454	28,291	31,802	33,615	3,735	41,574	44,256

Source: General Plan for Electricity Supply 2021–2030, p. V-97

As shown in the figure, the sharp contradiction with Indonesia's legal commitment in the RUEN, which targets a 23% share of renewable energy in the energy mix by 2025, is increasingly far from reality. Even in the previous energy mix targets for each province, there are still many regions that are targeting an RE energy mix of less than 20% by 2025. The projections in the figure also show an increase in the share of coal-fired power plants, which are becoming increasingly dominant, but also show that the total energy resources from RE in 2025 are projected to be only around 17%, far below the 23% target.

In addition to the high dependence of a number of regions in Indonesia on fossil resources, Indonesia also faces limitations in the integration of renewable energy, which requires investment in transmission infrastructure and energy storage technology. Without increased investment in this sector, it will clearly hamper the potential of RE, resulting in limited optimization

of the national energy composition.[69] The consumption of fossil-based primary energy and low investment in EBT are the main obstacles to achieving a sustainable energy transition. A scientific study on national energy security, primary energy use, and the role of renewable energy has proven that the ups and downs of EBT's position in Indonesia still depend heavily on the three components mentioned above, with a clarity level of 89.36% (R2).[70] Therefore, the government should begin to formulate appropriate strategies to overcome dependence on fossil fuels and accelerate the energy transition through investment, not only by enacting legal regulations that are still in line with national energy needs. However, it must also be supported by concrete technical programs that can be executed systematically, with implementation adjusted to the conditions of each region in Indonesia.

Geopolitical Risks to Indonesia's Energy Transition

Referring to the concepts of geopolitics and political economy, Indonesia's renewable energy transition is heavily influenced by global demands and local policies that continue to rely on fossil fuels. The energy transition is not only about reducing carbon emissions and minimizing fossil fuel consumption but also about transforming Indonesia's economic development structure. As a fossil energy-producing country with a diverse composition ranging from coal, natural gas, and petroleum to renewable energy Indonesia faces a significant challenge. The share of renewable energy use remains relatively low. The country is caught in a major dilemma in its energy transition: while fossil energy contributes significantly to domestic economic growth, shifting to renewables requires substantial financial resources. At the same time, Indonesia's national budget allocation remains heavily concentrated in other development sectors. Consequently, it is unsurprising that many regions continue to

[69]Nizar Ibnu Santoso, "Accelerating electric energy transition in support of green economy," Journal of Energy and Environment 10, no. 1 (2023): 65-78.
[70]Herman Wahyudi et al., "The Relationship between Primary Energy Consumption, Energy Security Index, Share of Renewable Energy and the Energy Transition in Indonesia," International Journal of Energy Economics and Policy 15, no. 5 (2025): 645-653, https://doi.org/10.32479/ijeep.20444.

depend on fossil fuels, as renewable energy development demands high financial investment and adaptation costs.

In the field of political economy, the notion of energy transition is highly complex. The political economy framework emphasizes the dynamic relationship among actors, their objectives, and the policy-making context. In Indonesia's policy formulation, there are two main goals: for the government, energy utilization policies focus on meeting domestic energy demand and increasing fiscal revenue through energy resource management; for corporations, maximizing profits remains the primary objective. Although the government acknowledges that achieving the 2025 clean energy target of 23% and realizing Net Zero Emissions (NZE) by 2060 requires balancing economic, social, and environmental goals.[71]

At the national level, Indonesia's high economic inequality must be addressed to support energy transition policies. Moreover, Indonesia's dependence on foreign funding and investors, due to limited financial capacity and technology imports, further complicates the process—while the benefits of renewable energy are yet to be distributed proportionally. Geopolitical contexts also continue to shape energy development and transition in Indonesia. Geopolitical risks significantly hinder the structural transformation of the energy sector. Geopolitical tensions disrupt the smooth progress of the global energy transition by directly affecting supply and distribution chains, price volatility, and policy development. Geopolitics has a negative impact on energy transition.[72] Geopolitical uncertainty, inflation, and green energy consumption have long-term interrelations, where high inflation potentially slows down the transition and intensifies geopolitical risks.

Geopolitics manifests in three significant ways: the slowdown of economic growth, increasing concerns over energy security, and changes in the global

[71]Massagony, Pandit, and White, "Political economy of energy policy in Indonesia."

[72]Zhang et al., "Energy transition, geopolitical risk, and natural resources extraction."

energy supply landscape. Geopolitical uncertainty hampers Indonesia's economic development both at the macro and micro levels, especially due to the country's dependency on foreign financing and technology imports amid inflation driven by unstable global political conditions. These challenges delay Indonesia's progress toward achieving Net Zero Emissions by 2060 as a response to global energy transition goals. From the perspective of the Just Energy Transition, Indonesia's economic inequality must underpin its energy transition policies. This aligns with the global political economy perspective, which highlights the interconnection between economics and energy transition particularly Indonesia's limited capital to develop renewable energy in the short term. Indonesia's energy transition is constrained by the high costs of adopting renewable technologies and the need for innovations to convert fossil energy into green energy. Consequently, many regions in Indonesia still depend on fossil energy due to its availability and the high adaptation costs of renewable alternatives. Additionally, trade wars exacerbate uncertainty in energy supply and market stability.

According to Roukanas (2020), political economy highlights the complexity and diversity of factors influencing a country's economic policies, as well as national economic dependence and inequality, including the impacts of trade wars.[73] In political economy terms, trade wars can lead to vulnerability to energy price shocks and increased import costs. Therefore, from a political economy perspective, Indonesia's energy transition policy amid geopolitical risks and trade war dynamics must aim to reduce dependence on fossil energy imports while strengthening renewable energy development. There is a clear interconnection between geopolitics and political economy that influences Indonesia's energy transition. Furthermore, domestic political-economic factors also shape the nation's capacity for energy adaptation and transition, as reflected in the continued reliance on fossil fuels across many Indonesian provinces.

[73]Roukanas, "Measuring Economic Development and the Impact of Economic Globalisation," 185-207.

CONCLUSION

Indonesia's energy transition shows constantly changing dynamics and is heavily influenced by geopolitical conditions and international pressures (such as the 2060 NZE commitment and the Paris Agreement). The Indonesian government has shown optimism through a number of ambitious policies and regulations (Presidential Regulation No. 112/2022, etc.), but their implementation is influenced externally by global forces. Indonesia faces a major dilemma due to the fundamental contradiction between global commitments (Net Zero Emissions/NZE 2060) and domestic political-economic realities. High fiscal dependence on fossil fuel exports and royalties (especially coal) at the national and subnational levels creates significant carbon barriers and structural barriers. This dependence gives rise to a "subnational resource curse" and a network of elite protection, often sidelining the transition agenda.

There is a sharp gap between the renewable energy mix (EBT) targets in the National Energy General Plan (RUEN) and Regional Energy General Plan (RUED) and the actual realization projections (Electricity Supply General Plan/RUPTL 2021–2030). Projections show that the share of EBT in 2025 will still be well below the 23% target, while the share of coal-fired power plants will actually increase and dominate in many provinces. This is exacerbated by limitations in investment in transmission infrastructure and EBT storage technology. Overall, Indonesia's energy transition policy is framed by challenges of power structures, economic dependence, and openness (to investment and global demands), which put the country at a disadvantage in the fossil fuel energy transformation, where international demands are not fully supported by domestic regulatory and funding conditions.

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