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Issue brief Indonesia: Turning clean energy ambition into action

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Transforming energy systems in emerging markets and developing economies (EMDEs) to address climate change requires a significant increase in investment. However, existing initiatives to fund this transformation are wholly insufficient for these economies to generate clean energy at the scale required to meet rising demand while minimizing emissions. Several institutions have proposed a variety of investment structures to bridge this financing gap. This case study of Indonesia's energy sector—and others complementing a primary report—illustrates the potential for a guarantee-based mechanism to leverage private investment in EMDEs at a far greater multiple than other approaches currently being proposed.[1]

Overview: Indonesia's energy targets

Indonesia relies heavily on coal, oil, and natural gas, which together account for more than three-quarters of its total energy supply (Figure 1). Coal's share in total energy supply increased from 9 percent in 2000 to 35 percent in 2023 (Figure 2) due to a rapid rise in electricity demand in the country, which reflects Indonesia's economic growth in this period—gross domestic product (GDP) per capita increased from $763 in 2000 to nearly $5,000 in 2022.[2]

Coal has an even larger share in the country's electricity generation. In 2023, coal accounted for 69 percent of all electricity generation sources in Indonesia (Figure 3), an increase from 36 percent in 2000, while the share of oil and natural gas declined from 22 percent and 28 percent in 2000 to 2 percent and 12.9 percent in 2023, respectively. This dependency on coal has positioned Indonesia as one of the major coal producers globally, leading to significant carbon dioxide (CO_2) emissions. In 2022, the country's energy sector emitted more than 650 million tons of CO_2, with coal accounting for 58 percent of these emissions (an increase from 20 percent in 2000), underscoring the environmental challenges associated with Indonesia's energy mix (Figure 4).

Recognizing the imperative to transition toward more sustainable energy sources, Indonesia has set ambitious goals. It has committed to reducing greenhouse gas (GHG) emissions by 29 percent unconditionally by 2030, and 41 percent

1. Amin Mohseni-Cheraghlou and Frank Willey, "Scaling Up Private Capital for Climate Investment in Emerging Markets," Atlantic Council, June 16, 2025, https://www.atlanticcouncil.org/wp-content/uploads/2025/06/Scaling-up-private-capital-for-climate-investment-in-emerging-markets.pdf; Ian Callaghan, et al., "Guarantees 2.0: Meeting Climate Finance Needs in the Global South," Atlantic Council, September 18, 2023, https://www.atlanticcouncil.org/wp-content/uploads/2023/07/Guarantees-2.0_Meeting-Climate-Finance-Needs-in-the-Global-South_pdf.pdf.
2. World Bank, "GDP per capita (current US$) - Indonesia," World Development Indicators, https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=ID.

Figure 1: Indonesia's total energy supply, 2023

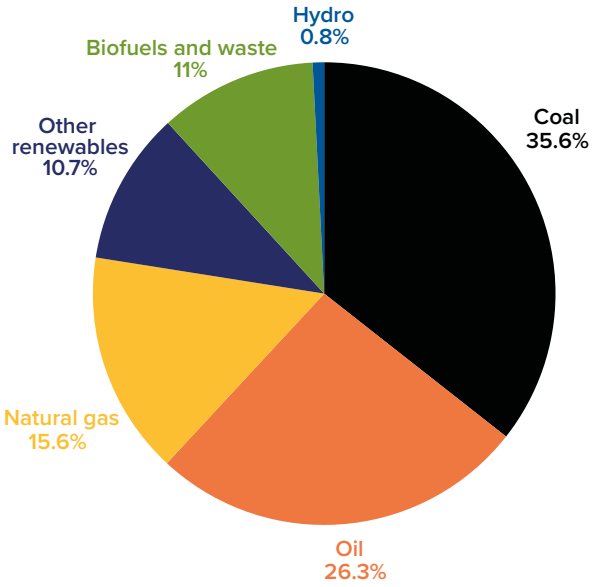


Figure 2: Evolution of Indonesia's total energy supply, 2000–2023

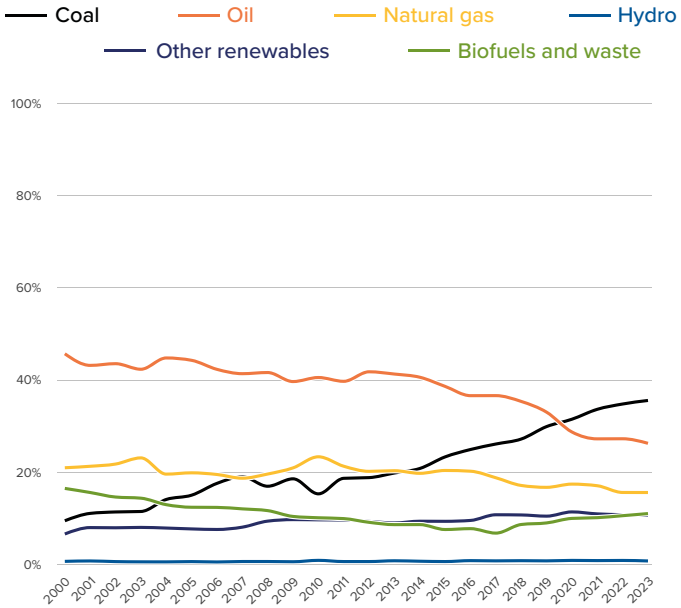


Figure 3: Indonesia's electricity generation sources, 2022

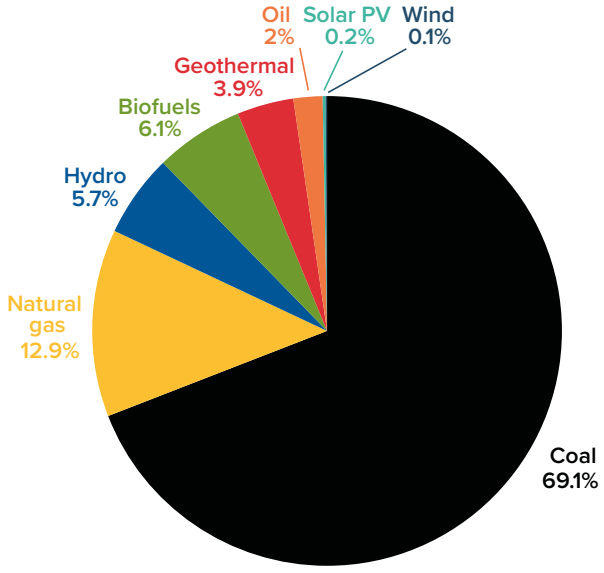


Figure 4: Evolution of CO_2 emissions in Indonesia by fuel, 2000–2022

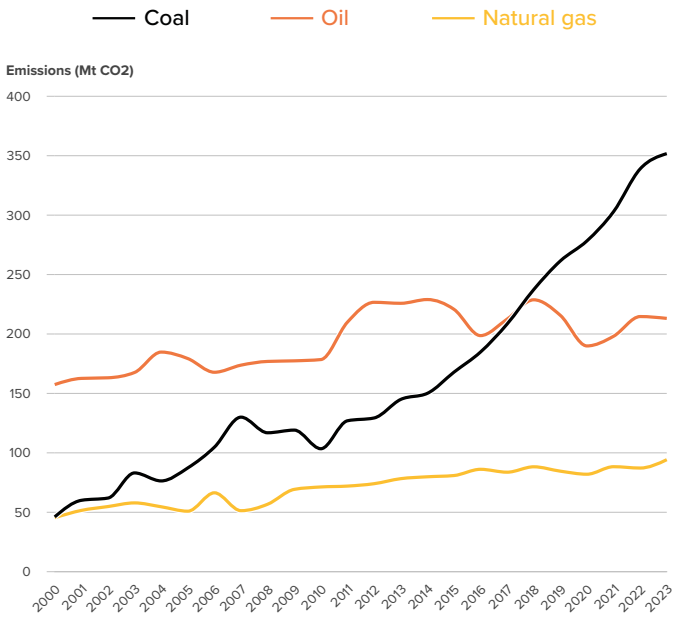


Figure 5: Share of modern renewables in Indonesia's final energy consumption (percentage), 2000–2021 (ranked seventy-first in the world)

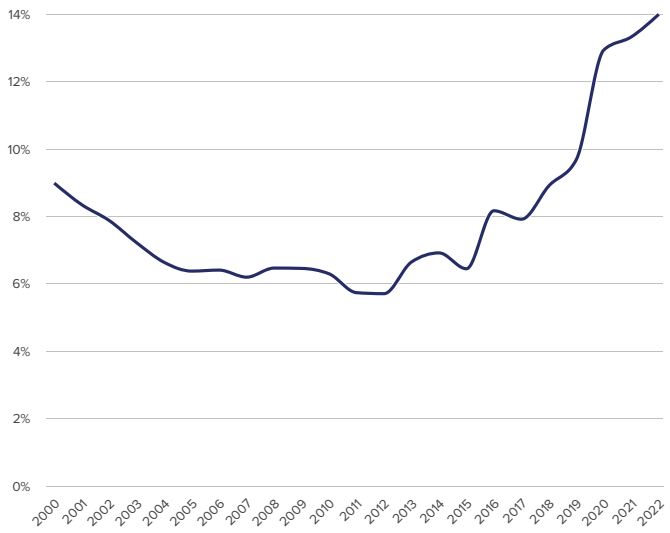
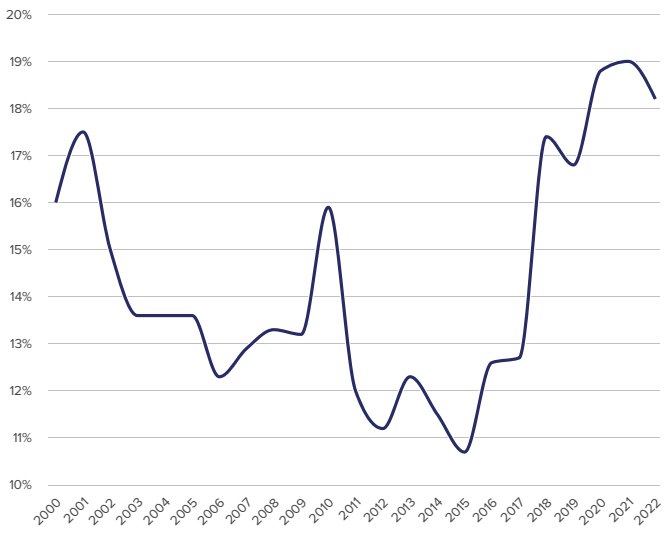


Figure 6: Renewables share of Indonesia's electricity generation (percentage), 2000–2022 (ranked 102nd in the world)



Source: "Indonesia—Countries & Regions," International Energy Agency, last visited March 29, 2026, https://www.iea.org/countries/indonesia.

conditionally with international support in its updated National Determined Contributions (NDCs) under the Paris Agreement.[3] In 2022, the country also signed a $20-billion Just Energy Transition Partnership (JETP)—an initiative backed by the Group of Seven (G7) to help developing countries reduce emissions. Through this program, Indonesia aims to cut its annual emissions from 300 million tons of CO_2 to 250 million tons and increase renewable energy's share of electricity production from 12 percent (in 2022) to 44 percent by 2030.[4]

Additionally, President Prabowo Subianto has articulated plans to retire all coal and fossil fuel power plants within the next fifteen years, replacing them with more than 75 gigawatts (GW) of renewable energy capacity.[5] These initiatives and other efforts will further increase the share of renewables in total energy supply and electricity generation (Figures 5 and 6).

However, Indonesia's ambitious path to achieving the net zero target by 2050 is fraught with challenges. The nation's entrenched reliance on coal, coupled with financial barriers, poses significant hurdles to the rapid deployment of renewable energy infrastructure. For example, while Indonesia possesses substantial geothermal potential, development has been sluggish due to financial and community challenges.[6]

Still, opportunities abound. Indonesia's rich renewable energy resources—including geothermal, solar, hydropower, and wind—offer a diverse portfolio for sustainable development. Strategic initiatives toward enhancing green infrastructure and fostering community engagement can facilitate the transition. Additionally, international collaborations, exemplified by the JETP, provide frameworks for financial and technical support. By addressing existing financial barriers and leveraging its renewable potential, Indonesia can make significant strides toward a sustainable and resilient energy future.

3. "Enhanced Nationally Determined Contribution," Republic of Indonesia, 2022, https://unfccc.int/sites/default/files/NDC/2022-09/23.09.2022_Enhanced%20NDC%20Indonesia.pdf.
4. "Global JETP Plans to Help Developing Nations Clean Up Power Sectors," Reuters, September 24, 2024, https://www.reuters.com/sustainability/climate-energy/global-jetp-plans-help-developing-nations-clean-up-power-sectors-2024-09-25/.
5. Victoria Milko, "Indonesia's Prabowo Plans to Retire All Fossil Fuel Plants in 15 Years, but Experts Are Skeptical," Associated Press, November 22, 2024, https://apnews.com/article/indonesia-coal-energy-transition-fossil-g20-cop-2d8fd110a855a37167d49211e65fc51d.
6. Victoria Milko, "Financial and Community Hurdles Slow Geothermal Energy Development in Southeast Asia," Associated Press, December 2, 2024, https://apnews.com/article/geothermal-energy-indonesia-philippines-climate-finance-6de912a0a2911f3cb96a875aac3c6c95.

Financing requirements and recent trends

To achieve its NDC targets and, ultimately, net-zero emissions, Indonesia has developed multiple strategic plans, particularly in the energy sector, under the Ministry of National Development Planning Indonesia, the Ministry of Energy and Mineral Resources, and other programs. While each plan has different pathways and targets, they reflect Indonesia's multi-stakeholder effort to reach net zero.

Estimates for the level of investment required for Indonesia to reach net zero are wide ranging. Indonesia's Ministry of National Development Planning suggests that the country would need between $700 billion and $1 trillion between 2031–2040 to support the country's Low Carbon Development Initiative.[7] A study by Kearney Global Management Consulting estimates Indonesia would need $2.4 trillion between 2022 and 2060, with 60 percent allocated to energy, 35 percent to transport, and the remainder to agriculture, forestry, and other land use (AFOLU), waste, and industrial processes and product use (IPPU).[8] Bloomberg's Net Zero Scenario suggests that the energy sector alone would require $3.5 trillion to reach net zero by 2050.[9] These figures highlight the significant financial challenge and the urgency of mobilizing private capital for Indonesia's low-carbon transition.

Indonesia has had some success securing funding through public and private financial institutions. Between 2015 and 2021, it attracted nearly $42 billion in climate finance, according to the "Landscape of Climate-Aligned Investment in Indonesia's Financial Sector" report by Climate Policy Initiative (CPI).[10] Multilateral development finance institutions (DFIs), bilateral DFIs, national DFIs, and climate funds provided approximately 50 percent of this financing, while private financial institutions such as commercial banks and institutional investors accounted for the other half. The investment is granted through different mechanisms, with 80 percent coming from market-rate debt, grants making up 2.5 percent, and the rest financed through equity and low-cost debt.

The renewable energy sector secured $16 billion (38 percent) of this total climate finance. AFOLU followed with $14 billion (34 percent), aiming to combat the country's highest-emitting sector.[11] Low-carbon transportation received 17 percent, supporting cleaner mobility, while the remainder went to waste, IPPU, and adaptation.

Public finance institutions prioritized renewable energy, energy efficiency, and green buildings as the main investment path, accounting for approximately 60 percent of their climate finance, mobilized dominantly with market rate loans. In contrast, private sector financing was heavily directed toward sustainable land use and natural resource management, which made up 54 percent, while investments in the energy sector, including renewable energy, energy efficiency, and green buildings, account for only 19 percent. This highlights a divergence in funding priorities between public and private entities.

Still, the nearly $42 billion in climate finance between 2015 and 2021 represents only about 15 percent of the estimated $285 billion needed to meet Indonesia's conditional 2030 NDC target.

To be sure, the government has developed additional financing tools. There's the JETP, which Germany now leads alongside Japan.[12] Under the JETP, fifty-four projects have secured funding commitments that total just above $1 billion as of March 2025.[13] Then there's Indonesia's green sukuk,

7. "A Green Economy for a Net-Zero Future: How Indonesia Can Build Back Better after COVID-19 with the Low Carbon Development Initiative (LCDI)," Ministry of National Development Planning (Bappenas), October 2021, 50, https://lcdi-indonesia.id/wp-content/uploads/2021/10/GE-Report-English-8-Oct-lowres.pdf.
8. Shirley Santoso, et al., "Indonesia's Pathway to Net Zero 2060," Kearney, 2024, 23, https://www.kearney.com/documents/291362523/302886403/Indonesias+pathway+to+net+zero+2060-PDF.pdf/7b5369f8-fb9a-0885-ebed-fa1041b24e1c.
9. "Net-Zero Transition: Opportunities for Indonesia," BloombergNEF, November 12, 2022, 34, https://assets.bbhub.io/professional/sites/24/BNEF-Net-Zero-Transition-Opportunities-for-Indonesia_FINAL.pdf.
10. "Landscape of Climate-Aligned Investment in Indonesia's Financial Sector," Climate Policy Initiative, December 2023, https://www.climatepolicyinitiative.org/wp-content/uploads/2023/12/Landscape-of-Climate-Aligned-Investment-in-Indonesias-Financial-Sector-CPI-December-2023.pdf.
11. Santoso, et al., "Indonesia's Pathway to Net Zero 2060," 8.
12. "Indonesia Just Energy Transition Partnership (JETP)," United Nations Development Programme, last visited September 9, 2025, https://www.undp.org/indonesia/projects/indonesia-just-energy-transition-partnership-jetp; Divya Karyza, "US Backs Out From JETP Leadership Role," *Jakarta Post*, February 1, 2025, https://www.thejakartapost.com/business/2025/02/01/us-backs-out-from-jetp-leadership-role.html.
13. Anita Nugraha and Ivy Yin, "Indonesia's Just Energy Transition Partnership to Continue Despite US Withdrawal: Official," S&P Global, March 25, 2025, https://www.spglobal.com/energy/en/news-research/latest-news/energy-transition/032525-indonesias-just-energy-transition-partnership-to-continue-despite-us-withdrawal-official.

the first of its kind.[14] It's similar to a green bond, but to comply with Sharia law, the buyer gets a share of equity in the project instead of interest. The $1.25-billion green sukuk finances were issued in 2022 to fund eligible green projects.[15] Bank Indonesia, the country's central bank, also participated in this instrument and issued SUVBI (foreign currency sukuk).[16] Additionally, the central bank supports green financing through macroprudential policies, including higher loan amounts to ease credit access for sustainable real estate and energy-efficient projects, and the Macroprudential Liquidity Incentive Policy (KLM), which offers a 0.5-percent reserve requirement reduction to boost lending in priority green sectors.[17]

Indonesia's Financial Services Authority (OJK) has also taken bold steps in recent years—requiring financial institutions to adopt sustainable finance and publish sustainability reports, promoting green bonds, and in September 2023, launching Indonesia's domestic carbon market.[18] In early 2024, OJK updated its green taxonomy to create a supportive environment to drive public and private investment. Another policy that was established is Presidential Regulation No. 112 of 2022, designed to accelerate the development of renewable energy by restricting the development of most new coal-fired power plants.[19]

Two special mission vehicles (SMVs) created by Indonesia's Ministry of Finance (MoF) also support infrastructure financing, including the energy transition sector.[20] PT Sarana Multi Infrastructure (PT SMI) is tasked with coordinating financing and accelerating the national energy transition program.[21] The Indonesia Infrastructure Guarantee Fund (IIGF) is tasked with mitigating risks in public-private partnerships (PPP) by providing guarantees.[22]

Still, despite these multiple initiatives, Indonesia faces a significant funding gap as it aims to achieve its transition goals for 2030 and beyond.

Unlocking capital: A guarantee facility to scale up private investment

Given that the renewable energy sector is a growing part of Indonesia's infrastructure sector, PT SMI and IIGF must consider providing guarantees for the country's renewable energy and energy transition sectors, spanning generation, transmission, and distribution. If complemented with other portfolio guarantee mechanisms such as the Emerging Market Climate Investment Compact (EMCIC) guarantee proposal, they can attract more foreign direct investment (FDI) and domestic private capital.

14. Joe Herbert, "Financing the Green Transition in Indonesia: A Challenge of Global Importance," Positive Money, December 9, 2024, https://positivemoney.org/global/update/financing-the-green-transition-in-indonesia/.
15. United Nations Development Programme (UNDP), "Indonesia's Green Bond & Sukuk Initiative," October 16, 2018, https://climatepromise.undp.org/research-and-reports/indonesias-green-bond-sukuk-initiative.
16. "Bank Indonesia Pioneers Green Sukuk for Global Economic Recovery," *Indonesia Business Post*, May 3, 2024, https://indonesiabusinesspost.com/2563/business-and-investment/bank-indonesia-pioneers-green-sukuk-for-global-economic-recovery.
17. "Macroprudential Liquidity Incentive Policy (KLM)," Bank Indonesia, last visited September 9, 2025, https://www.bi.go.id/en/fungsi-utama/stabilitas-sistem-keuangan/instrumen-makroprudensial/default.aspx.
18. "Regulation of the Financial Services Authority Number 51/POJK.03/2017 Regarding the Implementation of Sustainable Finance for Financial Services Institutions, Issuer Companies, and Public Companies," Financial Services Authority of the Republic of Indonesia, July 27, 2017, https://forestsandfinance.org/wp-content/uploads/2017/09/POJK-51-Unoffical-English-Translation-2017.pdf; "Regulation of the Financial Services Authority Number 60/POJK.04/2017 Regarding the Issuance and Requirements for Environmentally-Focused Debt Securities (Green Bond)," Financial Services Authority of the Republic of Indonesia, December 21, 2017, https://www.ojk.go.id/id/regulasi/Documents/Pages/Penerbitan-dan-Persyaratan-Efek-Bersifat-Utang-Berwawasan-Lingkungan-Green-Bond/SAL%20POJK%2060%20-%20Green%20Bond.pdf; "Regulation of the Financial Services Authority Number 14 of 2023 Regarding Carbon Trade through a Carbon Exchange," Financial Services Authority of the Republic of Indonesia, August 2, 2023, https://www.ojk.go.id/id/regulasi/Documents/Pages/Perdagangan-Karbon-Melalui-Bursa-Karbon/POJK%2014%20Tahun%202023%20-%20PERDAGANGAN%20KARBON%20MELALUI%20BURSA%20KARBON.pdf.
19. "Long-Awaited Presidential Regulation Signals Transition to Greener Energy in Indonesia," ABNR Counsellors at Law, October 6, 2022, https://www.abnrlaw.com/news/long-awaited-presidential-regulation-signals-transition-to-greener-energy-in-indonesia.
20. "Comprehensive Investment and Policy Plan (CIPP)," Just Energy Transition Partnership (JETP) Indonesia Secretariat, 2023, 161, https://jetp-id.org/storage/official-jetp-cipp-2023-vshare_f_en-1700532655.pdf.
21. "PT Sarana Multi Infrastruktur (Persero)," PT Sarana Multi Infrastruktur (Persero), last visited September 9, 2025, https://www.ptsmi.co.id/.
22. "PT Penjaminan Infrastruktur Indonesia (Persero)," PT PII (Indonesia Infrastructure Guarantee Fund), last visited September 9, 2025, https://www.ptpii.co.id/en.

EMCIC is designed to unlock $100–500 billion in private capital over the next decade to accelerate green energy and nature-based investments in EMDEs. Structured as a large-scale loan guarantee facility, EMCIC would offer institutional investors credit guarantees that cover up to 80 percent of non-currency risks across portfolios of climate-related projects. These risks, which are common to all energy projects to varying degrees, include regulatory and revenue risks, transmission bottlenecks and curtailment, price volatility, and permitting and environmental challenges. The lender will need to evaluate each project's specific risks to its portfolio and seek guarantees only for those projects for which the risks fit within parameters established by EMCIC.

The compact's primary goal is to elevate these investments to "investment grade" status in the eyes of internal credit committees, significantly reducing perceived risks and facilitating greater private capital flows into promising renewable energy markets such as Indonesia. EMCIC would be funded by a coalition of sovereign governments from high-income economies with strong economic ties to emerging markets, alongside support from major foundations and sovereign wealth funds.

EMCIC guarantees could also help jumpstart the geothermal industry in Indonesia, which the Association of Southeast Asian Nations (ASEAN) has said will be a key energy resource in Southeast Asia but would benefit from blended finance schemes.[23] Although the World Bank's loan and grant schemes are well suited for exploration drilling, EMCIC could shift risk from developers onto wealthy countries for investments in proven geothermal technologies, attracting private investors at a higher leverage rate and larger scale than loans and grants can provide.[24] Unlike standard concessional loans and grants, the EMCIC guarantee mechanism offers a highly leveraged means by which advanced-economy governments can contribute to Indonesia's JETP and energy goals.

EMCIC has several distinguishing features in comparison to other guarantee mechanisms and facilities. First, it would not require sovereign guarantees from the countries where investments are made, which is a common barrier to project bankability in emerging market countries that often have existing indebtedness and cannot further strain their sovereign balance sheet with guarantees.[25] Instead, it would shift due diligence responsibilities onto prequalified investors, who would be required to manage diverse, standards-compliant investment portfolios across multiple markets. Second, EMCIC would provide comprehensive coverage of all risks except for currency risks, for which it will rely on market-based currency hedging operations. Many existing facilities only cover certain risks on projects (see table 1). Third, EMCIC presents a user-friendly, scalable model that reduces barriers for private investors who are unfamiliar or inexperienced with blended finance transactions while upholding robust environmental and social safeguards. EMCIC would pre-qualify private investors to use the guarantees based on a set of standards that are similar to existing standards governing climate investment-driven facilities. However, after pre-qualifying investors, the EMCIC facility would not perform due diligence itself. Instead, private investors would carry out their own due diligence, while the facility would perform spot checks on projects within each investor's portfolio to verify compliance with established standards and key performance indicators.

By filling a crucial gap in the global financial architecture, EMCIC has the potential to catalyze a major shift in private capital toward climate solutions in Indonesia and other EMDEs focused on energy transition. Given their lower risk profiles, projects involving carbon capture, geothermal energy, wind, and solar photovoltaics, as well as the retirement of coal power plants in favor of natural gas, should be prioritized within EMCIC-guaranteed portfolios in Indonesia. EMCIC could play a central role in strengthening these partnerships to advance Indonesia's clean energy objectives and ensure alignment with its long-term renewable energy roadmap.

23. Milko, "Financial and Community Hurdles Slow Geothermal Energy Development in Southeast Asia"; "8th ASEAN Energy Outlook," ASEAN Centre for Energy, September 26, 2024, https://aseanenergy.org/publications/the-8th-asean-energy-outlook.
24. "Indonesia: Scaling Up Geothermal Energy by Reducing Exploration Risks," World Bank Group, press release, September 26, 2019, https://www.worldbank.org/en/news/press-release/2019/09/26/indonesia-scaling-up-geothermal-energy-by-reducing-exploration-risks.
25. Mohseni-Cheraghlou and Willey, "Scaling Up Private Capital for Climate Investment in Emerging Markets."

Table 1: A comparison of proposed and active guarantee facilities

Guarantee provider	Eligible projects			Risks covered						Leverage	Funding	Target capitalization
	Clean energy	Nature-based / adaptation	SDG-aligned / other development goals	Project execution / construction	Political	Credit / default	Commercial / performance	First-loss / equity	Currency			
Proposed/In-Progress												
EMCIC	✓	✓	✗	✓	✓	✓	✓	✓ (anticipated)	✗	~1:10	5–10 developed countries	~$10B (proposed facility)
BRICS Guarantee Platform	✓	✗	✓	✗	✓	✓	✗	✓ (possible)	✗	~1:10	Existing NDB balance sheet	NDB capital: $100B authorized
The Green Guarantee Company	✓	✗	✗	✗	✗	✓	✓	✗	✗	~1:10	FCDO, GCF, NSIA, USAID / Prosper Africa, Norfund	$100M+ initial target
Active												
MIGA Guarantees	✓	✗	✗	✓	✓	✓	✓	✗	✗	~1:5–10	World Bank Group resources	$2.8B subscribed capital; targeting $20B annual issuance by 2030
IFC Guarantees	✓	✗	✗	✓	✓	✓	✓	✗	✗	~1:4–8	IFC balance sheet / blended finance	$40.9B total capital (June 2025)
iTrust Guarantee (RELP)	✓	✗	✗	✓	✗	✓	✓	✗	✗	TBF	Private investors	TBF
EFSD+	✓	✗	✓	✗	✓	✓	✓	✗	✗	~1:10	EU budget / EIB / DFIs	€60B target by 2027
African Development Bank Guarantees	✓	✗	✗	✓	✓	✓	✓	✗	✗	~1:6–8	AfDB capital base / donor trust funds	$318B authorized capital (2024)
DOE Loan Guarantee Program	✓	✗	✓	✓	✗	✓	✓	✗	✗	~1:10–15	US Federal appropriations	$290B loan authority through 2026
PIDG (GuarantCo)	✓	✓	✓	✓	✓	✓	✓	✗	✓	~1:3–10	UK, Netherlands, Switzerland, Australia, Sweden, Germany, Canada, IFC	~$1.5B in guarantees issued to date
Africa GreenCo	✓	✗	✗	✓	✗	✓	✓	✗	✓	~1:10	InfraCo Africa, IFU, GuarantCo backing	$27M GuarantCo guarantee facility
Infracredit (Nigeria)	✓	✗	✓	✓	✗	✓	✓	✗	✗ (local currency only)	~1:5–8	NSIA, GuarantCo, KfW, AFC, AfDB, InfraCo Africa	~~₦~~15B ($35M) initial capital
Asian Development Bank (ADB)	✓	✓	✓	✓	✓	✓	✓	✗	✓	~1:5–10	ADB capital / donor funds	$165B authorized capital (2024)
Asian Infrastructure Investment Bank (AIIB)	✓	✓	✓	✓	✓	✓	✓	✗	✗	~1:5–8	AIIB capital base	$100B authorized capital
IDA (World Bank)	✓	✓	✓	✓	✓	✓	✓	✗	✗	~1:5–10	IDA donor contributions	$93B IDA20 (2022-2025)
IBRD (World Bank)	✓	✓	✓	✓	✓	✓	✓	✗	✗	~1:5–10	IBRD capital / borrowings	$283B subscribed capital
European Investment Bank (EIB)	✓	✓	✓	✓	✓	✓	✓	✗	✗	~1:8–12	EIB capital / EU budget backing	€248.8B subscribed capital (2023)
Export-Import Bank of the United States	✓	✗	✗	✓	✓	✓	✓	✗	✗	Varies	US Government backing	$135B statutory exposure cap

Legend: ✓ = Covered/Eligible; ✗ = Not covered/Not eligible; **TBF** = To be finalized; **—** = Information not available; **Active** = Currently operational; **Proposed** = Under development; Leverage ratios indicate typical mobilization of private capital per dollar of guarantee/funding.

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About the center

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