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Issue brief Morocco: The road to a clean energy economy

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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 Morocco'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: Morocco's energy targets

Morocco has made significant commitments to global climate ambition in recent years, positioning itself as a regional leader. In September 2025, the nation announced its updated Nationally Determined Contribution (NDC) under the Paris Agreement, pledging a 53-percent reduction in greenhouse gas (GHG) emissions by 2035 compared to business as usual— conditional on international support—with an unconditional target of 21.6 percent.[2]

The revised commitments cover sixty-one measures across critical sectors such as energy, agriculture, transport, waste, land management and forestry, housing, and industry. Of these, thirty-four initiatives are to be funded domestically, while the remaining twenty-seven rely on international financial backing.

The kingdom has also established a long-term vision to support these goals through its 2050 Low-Emission Development Strategy (LT-LEDS), which guides longer-term action and lays out pathways to mid-century decarbonization. Meanwhile, its National Climate Adaptation Plan 2020–2030 (PCN 2030) breaks down broad climate goals into specific actions and programs for the current decade. Additionally, the National Sustainable Development Strategy (SNDD) ensures that Morocco's environmental efforts support its economic and social

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. "Contribution Déterminée au Niveau National CDN 3.0 du Maroc," Kingdom of Morocco, September 30, 2025, https://unfccc.int/sites/default/files/2025-10/MOROCCO%20NDC%203.0%20_30.9.25.pdf.

Figure 1: Morocco's total energy supply, 2022

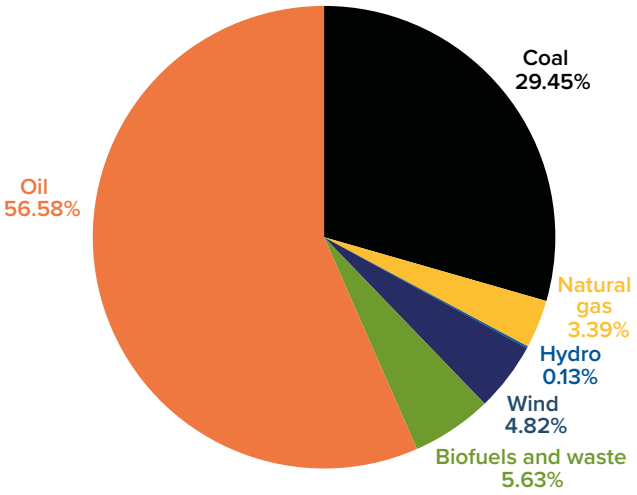


Figure 2: Evolution of Morocco's total energy supply, 2000–2022

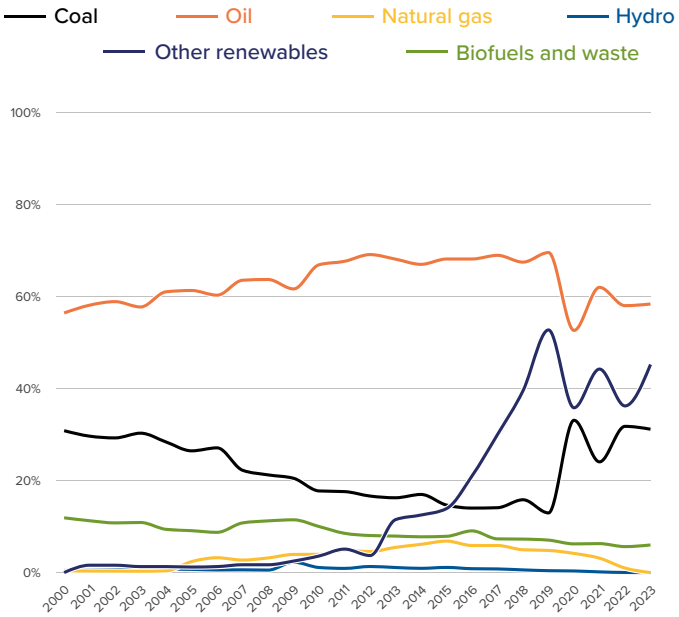


Figure 3: Electricity generation sources, 2022

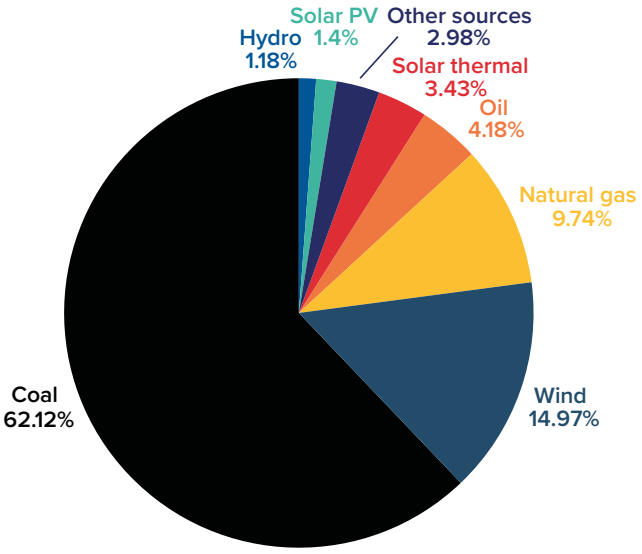
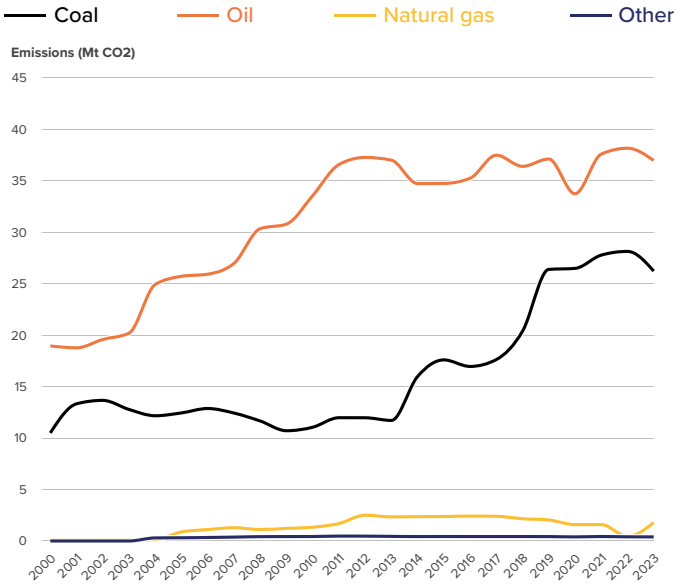


Figure 4: Evolution of carbon dioxide (CO_2) emissions by fuel, 2000–2022



Source: Chile, International Energy Agency.

Figure 5: Share of modern renewables in Morocco's final energy consumption (percentage), 2000–2021 (ranked ninety-ninth in the world in 2022)

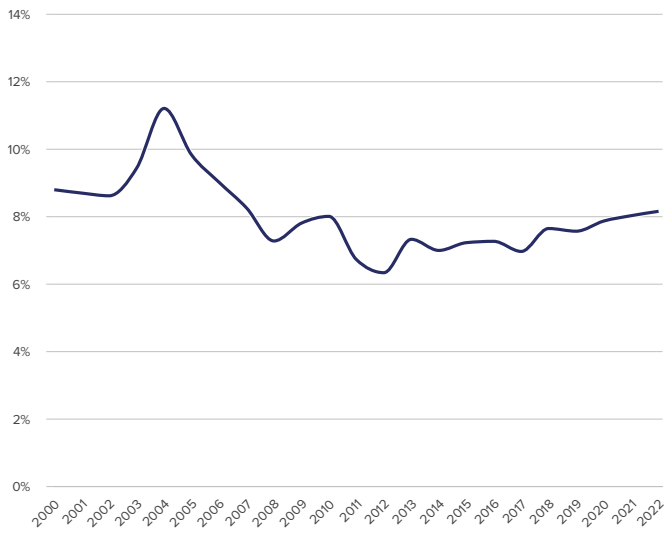
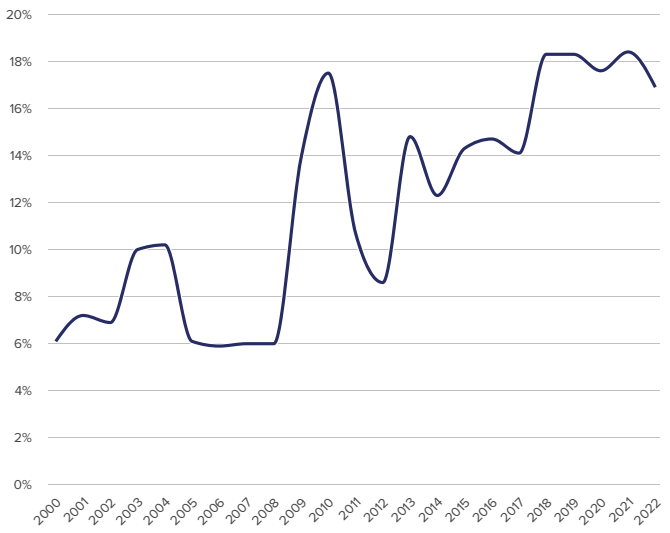


Figure 6: Renewables share of Morocco's electricity generation (percentage), 2000–2022 (ranked 104th in the world in 2022)



Source: "Morocco," International Energy Agency, last visited September 22, 2025, https://www.iea.org/countries/morocco.

priorities, keeping sustainability at the core of its development plans.

Yet, despite these commendable steps, Morocco faces challenges in making progress on the energy transition. Oil and coal account for 57 percent and 30 percent, respectively, of Morocco's total energy supply (Figure 1). This has implications for its economic stability because of volatility in global fossil fuel (especially oil) prices, as well as implications for environmental sustainability.

In recent years, Morocco has imported significant quantities of thermal coal, primarily from the United States, to fuel its power plants. In the first eight months of 2024, the United States exported a record 6.1 million metric tons of thermal coal to Africa, with Morocco the biggest recipient on the continent.[3] As shown in Figure 2, while the share of oil in Morocco's total energy supply has been declining steadily in the past decade, it has been replaced by an increased share of coal, accounting for nearly two-thirds of all fuels used to generate electricity in 2023 (Figure 3).

The consumption of imported fossil fuels contributes substantially to Morocco's GHG emissions, particularly from oil and coal, in the transportation and electricity generation sectors (Figure 4).

However, Morocco has been attempting a strategic shift toward cleaner energy sources to meet international climate commitments, as seen by the increasing share of renewables (mainly wind) in the electricity generation sector—from 6 percent in 2000 to 17 percent in 2022 (Figure 6). Renewables account for approximately 38 percent of the country's installed electricity capacity and Morocco aims to expand this share to 52 percent by 2030.[4]

Despite challenges that are hindering its efforts toward a complete transition—including infrastructure and grid integration, financial constraints, and social/community considerations—Morocco's renewable energy sector also presents significant opportunities.[5]

3. Gavin Maguire, "US Ships Record Volumes of Thermal Coal to Africa," Reuters, September 17, 2024, https://www.reuters.com/markets/commodities/us-ships-record-volumes-thermal-coal-africa-maguire-2024-09-17/.
4. "Morocco Country Commerce Guide," International Trade Administration, last updated July 31, 2025, https://www.trade.gov/country-commercial-guides/morocco-energy.
5. Sam Metz, "France Announces New Investments in Disputed Western Sahara," Associated Press, October 29, 2024, https://apnews.com/article/france-investments-macron-western-sahara-cc9eeb698ec6603f28f7f17d98b0ac70.

First, there are abundant renewable resources in the country. Morocco's geographic location offers high solar irradiance and strong wind corridors, providing a robust foundation for solar and wind energy projects. Second, Morocco's proximity to the European Union presents the country with an attractive export market for its renewable energy.[6] Partnerships with European nations already aim to develop renewable energy projects that can supply clean energy to Europe. Morocco, one the most water-scarce countries in the world, has also implemented renewable-powered desalination plants, such as the one in Agadir, which produces 275,000 cubic meters of water per day at reduced costs.[7] This approach demonstrates the potential of integrating renewable energy with critical infrastructure to tackle environmental challenges.[8]

By addressing infrastructural, financial, and social challenges, Morocco can continue to position itself as a leader in renewable energy development, fostering economic growth and contributing to global climate goals. Ernst & Young's normalized Renewable Energy Country Attractive Index (RECAI) ranks Morocco as the sixth most attractive country for renewable energy investment in the world.[9]

Financing requirements and recent trends

Morocco is leading North Africa's push toward clean energy, making major steps with new policies and investment plans.[10]

But reaching its goals will take significant funding. The government has estimated that implementing its NDC over the period from 2026–2035 will cost approximately $96 billion, with $60 billion allocated for mitigation actions and $36 billion for adaptation.[11]

Morocco has made impressive progress in securing climate finance, including by seeking support from multilateral development banks, international climate funds, and private investors. Institutions including the Green Climate Fund (GCF) and development banks such as the World Bank, African Development Bank (AfDB), and European Investment Bank (EIB) are already contributing to the country's energy transition. Still, the scale of funding required leaves a significant financing gap.[12]

According to the International Renewable Energy Agency (IRENA), the country's renewable energy plans alone will require $27 billion in investments between 2020 and 2040 under a standard scenario.[13] However, if Morocco fully integrates large-scale hydrogen production, the total investment will jump to $72 billion, plus an additional $8–10 billion for electrolyzer capacity by 2030 (or $20–22 billion by 2040 for double the capacity).

Morocco has been trying to mobilize resources toward these needs. Over the past decade, it has been one of Africa's top recipients of climate finance. In 2023, Morocco ranked among the top ten African countries for climate finance inflows, alongside much larger economies such as Egypt, South Africa, and Nigeria.[14] This includes funding from multilateral climate funds, development bank loans, and private investment into clean energy. Within the Middle East and North Africa region, Morocco alone attracted nearly half (48 percent) of all climate-related funding approved by major climate funds from 2003–2023, totalling more than $750 million.[15]

6. "Four Reasons Why Morocco Is Becoming a Renewable Energy Powerhouse," Columbia University School of Professional Studies, November 20, 2023, https://sps.columbia.edu/news/four-reasons-why-morocco-becoming-renewable-energy-powerhouse.
7. Yusuf Khan, "How a Moroccan Fishing Town Could Hold the Key to Water Stress in a Warming World," *Wall Street Journal*, September 4, 2024, https://www.wsj.com/articles/how-a-moroccan-fishing-town-could-hold-the-key-to-water-stress-in-a-warming-world-16c3b5f0.
8. "Four Reasons Why Morocco Is Becoming a Renewable Energy Powerhouse."
9. "Renewable Energy Country Attractiveness Index (RECAI), 63rd Edition," Ernst & Young, June 2024, https://www.ey.com/content/dam/ey-unified-site/ey-com/en-gl/insights/energy-resources/documents/ey-gl-recai-63-report-06-2024.pdf.
10. "North Africa's Power Shift: Renewable Energy Development and Energy Security," Middle East Institute, December 2024, https://mei.edu/north-africas-power-shift-renewable-energy-development-and-energy-security/.
11. "Contribution Déterminée au Niveau National CDN 3.0 du Maroc."
12. "Kingdom of Morocco," Green Climate Fund, last visited September 22, 2025, https://www.greenclimate.fund/countries/morocco.
13. "The Renewable Energy Transition in Africa," Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH and International Renewable Energy Agency, March 2021, 66, https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2021/March/Renewable_Energy_Transition_Africa_2021.pdf.
14. "New Report Finds That Climate Financing to Africa Grew by 48% to US$44 Billion in 2021/2022 but Still Only a Quarter of What Is Required to Realise Its 2030 Goals," FSD Africa, October 24, 2024, https://fsdafrica.org/new-report-finds-that-climate-financing-to-africa-grew-by-48-to-us44-bn-in-2021-2022-but-still-only-a-quarter-of-what-is-required-to-realise-its-2030-goals/.
15. Charlene Watson, Liane Schalatek, and Aurélien Evéquoz, "Climate Finance Regional Briefing: Middle East and North Africa," Climate Funds Update, April 2024, https://climatefundsupdate.org/wp-content/uploads/2024/04/CFF9-2024-ENG-MENA-DIGITAL.pdf.

One of the country's flagship climate finance projects is the Noor Ouarzazate Solar Complex, the world's largest concentrated solar power (CSP) plant, with a total capacity of 580 megawatts (MW). Noor I (160 MW) began construction in 2013 and was commissioned in 2016, with a $537 million investment solely financed by the AfDB.[16] Noor II (200 MW) and Noor III (150 MW) were completed in 2018, with a $2-billion investment funded 80 percent by debt and 20 percent by equity. The Moroccan Agency for Sustainable Energy (MASEN) secured the debt from international institutions, including the World Bank, AfDB, Agence Française de Développement, Clean Technology Fund, European Commission, European Investment Bank, and Germany's Kreditanstalt für Wiederaufbau.

Authorities have also introduced several initiatives to enhance the investment landscape, including the Mohammed VI Investment Fund, designed to attract foreign direct investment, improve governance within state-owned enterprises, and stimulate employment growth.[17] The country is also preparing a national green taxonomy to align financial flows with sustainability objectives.[18]

Beyond renewables, the nation is positioning itself as a key player in green hydrogen. In 2024, Morocco launched the "Morocco Offer" a strategy to attract investment in green hydrogen by allocating up to 1 million hectares for renewable projects, providing tax incentives, and streamlining investor selection.[19] By 2030, the nation could generate 1.2 million tons of green hydrogen each year, supplying approximately 4–5 percent of the expected global market demand.[20] However, large-scale production requires heavy electrolyzers and renewable power investment, alongside solutions to Morocco's existing water scarcity, as electrolysis is water intensive.

Regulatory reforms have encouraged self-generation of renewable energy, raised private generation limits, and expanded the ability of independent power producers to sell excess power to distribution operators and integrate renewables into low- and medium-voltage grids, among other incentives.[21] A 2015 net-metering scheme further supported solar and wind by allowing producers to sell up to 20 percent of their annual surplus to the high-voltage grid. These policies have helped open Morocco's energy market and accelerate its clean energy transition.

Morocco is also trying to equip its workforce with the skills needed for the renewable energy and industrial sectors through hands-on training and certification in key industrial zones, using initiatives such as the African Academy for Industrial Training.[22] Reducing labor mismatches and minimizing project delays help de-risk private investment and ensure a smoother transition to a sustainable economy.

Despite these gains in mobilizing climate finance, the country lacks a formal system for tracking climate-related public expenditures, as existing budget classifications do not differentiate climate spending.[23] This lack of transparency makes it difficult to monitor and optimize investments effectively. In a 2024 report by the Climate Policy Initiative, Morocco was identified as a country facing growing fiscal challenges with rising debt levels, leading to credit rating downgrades.[24] This financial pressure might make it harder for Morocco to attract large-scale climate investments, underscoring the need for a wider range of funding sources and creative financial solutions to support its energy transition and climate resilience plans.

16. "Noor Ouarzazate Solar Complex," Power Technology, March 6, 2020, https://www.power-technology.com/projects/noor-ouarzazate-solar-complex/.
17. Manal Shehabi, "Just Energy Transitions? Lessons From Oman and Morocco," Carnegie Endowment for International Peace, May 30, 2024, https://carnegieendowment.org/regions/oman.
18. Khalid Azizuddin, "Morocco to Introduce ISSB-style Disclosure Rules for Banks in 2025," Responsible Investor, March 18, 2024, https://www.responsible-investor.com/morocco-to-introduce-issb-style-disclosure-rules-for-banks-in-2025.
19. Hannah Fabri, "Strategy for Ramping Up the Moroccan H2 Sector Published," International PtX Hub, March 2024, https://ptx-hub.org/strategy-for-ramping-up-the-moroccan-h2-sector-published/.
20. "The Renewable Energy Transition in Africa," 66.
21. Ibid., 62.
22. Michaël Tanchum, "Renewable Energy and Morocco's New Green Industries Can Expand Women and Youth Employment through Sustainable Development," Middle East Institute, December 9, 2024, https://mei.edu/publication/renewable-energy-and-moroccos-new-green-industries-can-expand-women-and-youth/.
23. Abel Bové and Rabah Ounissi, "Climate Change Institutional Assessment Framework: Morocco," World Bank, May 2023, 22, https://thedocs.worldbank.org/en/doc/114ddeee175075258d629a28271c8de4-0280012023/original/TK-Note-Morocco-CIAA-CCDR-may23.pdf.
24. Chavi Meattle, et al., "Landscape of Climate Finance in Africa: 2024," Climate Policy Initiative, October 2024, 56, https://www.climatepolicyinitiative.org/wp-content/uploads/2024/10/Landscape-of-Climate-Finance-in-Africa-2024.pdf.

Unlocking capital: A guarantee facility to scale up private investment

While Morocco's financial institutions support some climate projects, they require stronger capitalization, risk-sharing mechanisms, and access to international funding to scale their impact. Morocco could adopt a financing framework like the Emerging Market Climate Investment Compact (EMCIC) to address these challenges, enabling its national development banks (NDBs) to strengthen their financial base, mitigate investment risks, and attract greater private and international capital.

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. EMCIC is envisioned to 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 is well suited to bolster private investment in clean energy projects in Morocco. Rising debt levels in the country limit sovereign guarantee issuances, so the lack of such a requirement as a backstop to the EMCIC guarantee make EMCIC an attractive alternative to World Bank and MDB lending. EMCIC guarantees could be particularly effective for small to medium-sized solar facilities—as opposed to the mega-scale projects that Morocco is building to attract large international financial institutions—and would allow private investors to become more comfortable with Morocco's investment and development environment for clean energy projects, with higher initial protection on losses.

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.

Implementing such a framework would allow Morocco's development banks to secure long-term financing from multilateral institutions, utilize blended finance tools, and provide de-risking instruments like loan guarantees. By combining the available financial tools of NDBs and multilateral development banks with EMCIC's risk-sharing capabilities, Morocco can close its financing gap and speed up its transition to a low-carbon economy. EMCIC-guaranteed projects in Morocco should prioritize investments in concentrated solar power plants, solar-powered water desalination plants, and green hydrogen production, helping the country achieve its maximum potential in green energy production and access to reliable water sources.

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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He holds a PhD in economics, an MA in international development, and a BS in electrical engineering.

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About the center

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