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Policy Brief

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Policy Paper III

UNLOCKING PRIVATE SECTOR INVESTMENT IN EGYPT'S RENEWABLE ENERGY TRANSITION – FROM STRUCTURAL ADVANTAGE TO SCALABLE DEPLOYMENT

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Executive Summary

Egypt's renewable energy sector stands at a critical inflection point where energy security, macroeconomic stability, and industrial competitiveness increasingly converge. The country possesses exceptional renewable resources, a growing industrial base, and strategic geographic positioning that together create a strong foundation for large-scale renewable energy deployment. However, despite the structural competitiveness of solar and wind energy compared to conventional gas generation on a levelized cost basis, private sector investment remains constrained by a combination of regulatory, financial, and system-level barriers.

At the same time, Egypt continues to face increasing reliance on imported LNG, mounting foreign exchange pressures, and growing exposure to European carbon-related regulations, particularly the Carbon Border Adjustment Mechanism (CBAM). In this context, accelerating renewable energy deployment is no longer solely an environmental or climate objective. It has become a strategic economic imperative directly linked to energy security, fiscal sustainability, industrial competitiveness, and long-term macroeconomic resilience.

1. Introduction

Egypt presents one of the most compelling renewable energy opportunities globally. The country benefits from exceptional solar irradiation levels ranging between 2,000 and 3,000 kWh/m^2 annually, positioning it among the world's strongest solar resource markets. The successful development of the 1.8 GW Benban Solar Park has already demonstrated Egypt's ability to attract large-scale renewable investment and deliver utility-scale projects under complex financing and implementation structures.

In parallel, Egypt possesses world-class wind resources, particularly in the Gulf of Suez region, where wind speeds average approximately 10.5 m/s. These conditions create strong opportunities for both utility-scale wind generation and future integrated renewable industrial application ns.

The country is also strategically positioned to become a future green hydrogen and green ammonia export hub serving European demand. Egypt's proximity to Europe, combined with increasing European decarbonization requirements, creates significant long-term potential for renewable-based industrial exports and energy carriers aligned with the EU's climate and industrial policies.

2. The Strategic Case for Renewables

Beyond the environmental rationale, renewable energy functions as a macroeconomic tool capable of addressing several of Egypt's structural economic challenges at once.

2.1. Reduced Reliance on Imported LNG

One of the most immediate strategic advantages of renewable energy deployment is its potential to reduce Egypt's dependence on imported LNG. This reliance has intensified due to declining production in the Zohr gas field and interruptions in gas imports from Israel. Consequently, Egypt's LNG imports surged from 2.79 million metric tons in 2024 to 8.92 million metric tons in 2025 and are forecasted to reach 11.14 million metric tons in 2026, a 24.9% increase over 2025 (MEES). With LNG imports costing approximately USD 7.5/MMBtu and solar tariffs approaching USD 0.015/kWh, renewable energy offers a practical solution for reducing foreign currency outflows and easing fiscal pressure related to fuel imports.

2.2. Foreign Exchange Benefits

Importantly, renewable assets increasingly function as both FX-generating and FX-saving infrastructure. By reducing fuel imports and enabling future exports of renewable energy and industrial products, renewables help strengthen Egypt's foreign currency position.

2.3. Supporting Industrial Competitiveness and CBAM

Renewables enhance Egypt's industrial competitiveness by supporting compliance with CBAM requirements and fostering the development of green industrial supply chains for exports to European markets. In 2024, average EU carbon prices ranged between €65 and €85 per ton of CO_2. Egypt's CBAM-exposed exports fluctuate from year to year; fertilizer exports to the EU, a major labor-intensive sector subject to CBAM, reached approximately $2.46 billion in 2022/23. Renewable energy mitigates CBAM exposure by lowering the carbon intensity of industrial production. Each megawatt of renewable energy reduces the carbon emissions of exported products, helping preserve access to the EU market.

2.4. Subsidy Reform

Renewable deployment facilitates socially stable subsidy reform by reducing exposure to fuel price volatility and minimizing the need for abrupt tariff changes. By lowering the share of imported fuel in the power mix, renewables can help make electricity pricing more predictable and reduce fiscal pressure on the state.

2.5. Employment Creation and Economic Impact

The rollout of renewable energy projects is already contributing to job creation. For example, the Atum Solar Complex is projected to generate 850 direct jobs. According to a World Bank study, meeting Egypt's renewable energy and efficiency targets for 2030 could support the creation of 67,000 net jobs annually between 2020 and 2050.

3. Core Constraints to Private Investment

3.1. Barriers and Risk to Financing

Despite these strong fundamentals, investors continue to face systemic barriers that constrain deployment and increase project risk.

One of the principal challenges remains administrative and regulatory complexity. Licensing and permitting processes are fragmented across multiple authorities, often requiring repetitive documentation and extensive coordination between agencies. The lack of digital integration and streamlined approval mechanisms contributes to lengthy timelines for permitting, land allocation, and grid connection approvals.

Policy and market uncertainty also continue to impact investor confidence. Frequent regulatory adjustments, limited clarity surrounding corporate power purchase agreement (PPA) frameworks, and the dominant role of state-owned entities in the electricity sector reduce long-term market visibility for private developers and investors.

Financial and foreign exchange constraints represent another critical barrier. Renewable energy projects remain exposed to currency volatility, repatriation risks, and a high cost of capital (known as weighted average cost of capital, or WACC). In addition, limited access to long-tenor financing significantly affects project bankability and weakens the cash-flow competitiveness of renewable projects relative to conventional generation.

3.2. Financial Constraints to Bankability

Financial constraints represent a major barrier to renewable energy investment in Egypt. Many projects remain difficult to make bankable because of the following constraints.

- **Foreign exchange (FX) availability & repatriation risk:** Inability to hedge EGP beyond 12 months, trapped dividends, and the absence of reasonably priced local-currency project finance.
- **High cost of capital:** Despite low LCOE, upfront financing costs remain high. In developing countries, 9.5–15% of initial capital may need to be financed in the first year, compared with about 4.7–6.4% in developed markets (IEA).
- **Limited long-tenor financing:** Most local commercial banks offer renewable energy loans with tenors of only 5–7 years, whereas projects typically require 15–20 years.
- **Lack of standardized risk guarantees**: Smaller developers often lack access to readily available political risk or partial credit guarantees.

Grid and system limitations further constrain deployment. High-resource areas such as Upper Egypt continue to face grid congestion and limited transmission capacity, while the absence of sufficient storage and flexibility infrastructure reduces the system's ability to integrate increasing shares of intermittent renewable generation.

Additional challenges include complex land ownership and leasing procedures, insufficient infrastructure in remote desert areas, and contractual and legal risks linked to PPA bankability, enforcement mechanisms, and dispute resolution delays.

4. Bridging the Gap: From LCOE to Bankability (How to overcome the core constraints)

4.1. Egypt's Cash Flow Competitiveness Gap

Although renewable technologies are already cost-competitive on a levelized basis, this advantage does not automatically translate into bankable projects. As outlined in Section 3, high financing costs, foreign exchange exposure, and limited access to long-term financing continue to weaken project economics under prevailing market conditions.

The result is a cash-flow competitiveness gap: projects may appear attractive on an LCOE basis while remaining difficult to finance in practice.

Bridging this gap requires the deployment of targeted financial instruments and risk mitigation mechanisms. These include blended finance structures supported by European and international development finance institutions, foreign exchange hedging solutions, political risk guarantees, and broader credit enhancement tools capable of lowering financing costs and improving investor confidence.

4.2. Concrete Financial Instruments Recommended for Egypt

The following instruments are recommended to help improve the bankability of each project. They are shown in the table below, with their feature, structure, international experience and the requirements for Egypt.

Table 1. List of proposed financial instruments for renewable energy projects

Instrument	Feature	Structure	Duration	International Experience	Estimated Size Needed for Egypt
Local Currency Liquidity Facility	Enable local banks to lend in EGP at 8–10% instead of 15–18%. Aimed at Mid-sized renewable developers (20–200 MW)	DFI-backed partial credit guarantee covering 50% of principal and interest. Triggered if off-taker defaults on payment or grid cannot provide to off-taker.	15–20 years	South Africa's Renewable Energy Independent Power Producer Procurement Programme REIPPP local currency facility; IFC's local currency facility in Kenya and Nigeria	$300–500 million equivalent in EGP
Volume Risk Backstop	Protect project revenues if corporate off-taker defaults or curtails	Government or DFI guarantee covering 70–80% of expected annual revenue	5–7 years (declining)	India's SECI model (Solar Energy Corporation of India); Kenya's utility volume guarantee for Lake Turkana Wind	$100–200 million in guarantees
Foreign Exchange Partial Risk Guarantee	Cap EGP depreciation pass-through to project tariffs, insulating foreign firms from FX exposure	(Multilateral Investment Guarantee Agency) MIGA, DFC, or EBRD guarantee limiting EGP/USD losses to a specified band (e.g., maximum 20% tariff adjustment per year)	10–15 years	MIGA's currency hedging products (e.g., Pakistan, Bangladesh); World Bank partial risk guarantees for currency	$200–300 million guarantee capacity
Long-Tenor DFI Blended Finance	Lower WACC for the first 5–7 years of a long-tenor	DFI provides a low-interest loan (or grant) alongside commercial	5-7 years	Bloomberg NEF blended finance case studies (e.g.,	$200–300 million

Instrument	Feature	Structure	Duration	International Experience	Estimated Size Needed for Egypt
	(15–20 year) facility	bank loans. The DFI takes the first losses if the project struggles, which makes commercial banks more willing to lend at lower interest rates (300-500 basis points lower) and for longer periods.		GET FiT Zambia, Norfund facilities)	concessional tranche

Source: ECES Research

Many of these instruments already exist in Egypt, but only on a limited and insufficient scale. A formal request to a DFI typically takes up to three months, followed by another three to six months to sign MOUs with commercial banks. A pilot project can then take up to one year to launch and around 18 months to scale fully.

5. Unlocking Scale through Private Sector Participation

Scaling renewable energy deployment in Egypt requires moving beyond traditional sovereign offtake structures toward greater private sector participation and market diversification.

5.1. Solar and Wind – Mature Renewables

A critical enabler will be the establishment of a bankable corporate PPA framework that allows industrial and commercial consumers to directly procure renewable energy. Transparent wheeling arrangements, clear grid access rules, and incentives for self-generation will be essential to unlocking this market segment.

- **Standardized model PPA:** A standardized model PPA would reduce negotiation time and legal costs for both producers and off-takers. Ideally, a clear legal framework should be established by the end of 2026.
- **Clear wheeling charges:** Electricity wheeling charges should be transparent and clearly disclosed, rather than treated as hidden costs added on top of tariffs. They should be published alongside tariff rates, with a recommended cap of $0.005/kWh.
- **Dispute resolution mechanism:** To strengthen investor confidence, PPA agreements should include a clause allowing for international arbitration.

- **Net metering and self-generation rules:** Clear and simple rules should govern off-grid generation systems below 10 MW, allowing factories to offset grid consumption with on-site solar.
- **Equal grid access:** Corporate-PPA projects and utility-scale projects should be subject to the same, non-discriminatory grid access rules, with neither category receiving preferential treatment.

At the same time, increasing renewable penetration requires parallel investments in system flexibility and infrastructure modernization. Renewable energy must increasingly provide not only energy generation but also contribute to system stability and flexibility. This will require accelerated deployment of battery energy storage systems (BESS), transmission upgrades, grid modernization, and advanced dispatch optimization systems. Having these interventions will also help generate revenue. Power companies can buy cheap solar during the day and sell it at higher prices during the evening.

5.2. Green Hydrogen – Nascent Sector

Green hydrogen development also requires a transition from strategic vision to commercial execution. Egypt has built one of Africa's largest project pipelines, with national strategy targets of 1.5–3.2 million tons of green hydrogen annually by 2030 and the government seeking roughly USD 40 billion of investment in the sector by 2030 (Samodien). The flagship 100 MW Egypt Green project at Ain Sokhna — developed by Scatec, Fertiglobe, Orascom Construction, and the Sovereign Fund of Egypt — began its first green ammonia exports in early 2026. Yet despite a pipeline of roughly 39 announced projects, only about 13% were backed by binding contracts as of late 2025 (Eren). While the sector presents significant long-term opportunity, it continues to face substantial challenges related to high capital expenditure requirements, limited offtake visibility, and immature market structures.

- **EU-backed offtake guarantees**: Lack of investment in green hydrogen is partly due to no guarantee of a long-term buyer. The EU is a major importer of renewable hydrogen and ammonia and having an offtake agreement will stimulate investment.
- **Pilot project zones (pre-permitted land, water, and grid access)**: Establishing pilot zones with pre-arranged permits, water supply, and grid connections can reduce early-stage development costs for green hydrogen projects, which often require initial investments of more than $500 million. By lowering the cost and complexity of permitting, financing, and supporting infrastructure, these zones allow developers to direct more capital toward core project assets.

- **Launch pilot HPA framework:** A standardized Hydrogen Purchase Agreement (HPA) framework with bankable terms must be introduced with clear legal guidelines to support early project development.
- **Government as anchor off-taker**: Government-owned fertilizer companies (e.g., KIMA, Abu Qir) commit to purchasing green ammonia for domestic use. This will guarantee long-term buyers for private investors.

Together, these measures — EU-backed offtake, pre-permitted pilot zones, a bankable HPA framework, and government anchor demand — would move green hydrogen from strategic vision toward financeable projects.

6. Policy Recommendations

The previous sections show that Egypt's renewable energy ambitions rest on solid foundations, yet the gap between potential and realized investment remains shaped by, financial, and structural barriers. Closing that gap requires sharpening and coordinating the tools already within reach. The recommendations below intended to strengthen investor confidence and accelerate bankable deployment.

- Accelerating renewable deployment and attracting large-scale private investment will require coordinated policy and regulatory reforms.
- Regulatory reform should focus on establishing a centralized one-stop-shop for investors, fully digitalizing permitting and approval processes, and creating a unified renewable energy regulatory framework capable of reducing complexity and increasing predictability.
- From a financial perspective, Egypt should expand DFI-backed financing instruments, introduce foreign exchange risk mitigation mechanisms, and enable greater availability of local currency financing for renewable projects.
- Market design reforms should include the implementation of a clear corporate PPA framework, the introduction of private-to-private electricity trading mechanisms, and the reduction of barriers limiting private sector participation in the electricity market.
- Infrastructure investment must prioritize transmission upgrades, energy storage deployment, and integrated long-term system planning to ensure that renewable deployment is matched by sufficient grid readiness and operational flexibility.
- Finally, renewable energy policy should be strategically linked to Egypt's broader macroeconomic priorities, including LNG displacement, foreign exchange savings, and alignment with European initiatives such as the EU Global Gateway. Quantifying

FX savings per gigawatt of renewable deployment would strengthen the economic case for accelerated implementation.

7. Conclusion

Egypt possesses all the core fundamentals required to become a regional renewable energy hub. However, moving from potential to scalable deployment will depend on reducing financial and regulatory barriers, enabling greater private sector participation, and aligning energy policy with broader macroeconomic objectives.

The strategic opportunity is increasingly clear. Renewable energy is no longer simply a lower-cost source of electricity generation. It is becoming an essential pillar of Egypt's long-term economic resilience, energy security, industrial competitiveness, and global positioning within the emerging low-carbon economy.

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