INVESTIA CAPITAL GROUP AUGUST 2026

Solar Energy in Egypt

Regional & Global Trends, Latest Developments, Incentives, and Industrial Applications

Egypt's Solar Potential

Egypt enjoys exceptional solar resources that position it among the most attractive markets for solar investment globally. The country receives immense direct normal irradiance (DNI), particularly in Upper Egypt and the Western Desert.

With an abundance of sunshine hours and vast tracts of available land, Egypt's solar potential is among the highest globally, ideal for utility-scale projects and distributed rooftop installations.

2,000–3,200 kWh/m²
Annual Solar Irradiance

>3,500 Hours
Annual Sunshine

41,700 km²
Land Allocated For Green Hydrogen/Solar

15–22%
Commercial Module Cell Efficiency

Egypt's High-Impact Solar Zones

Direct Normal Irradiance (DNI) Distribution

Upper Egypt (Aswan Region)

Highest Potential: 8-9 kWh/m²/day. Home to Benban Solar Park.

Western Desert

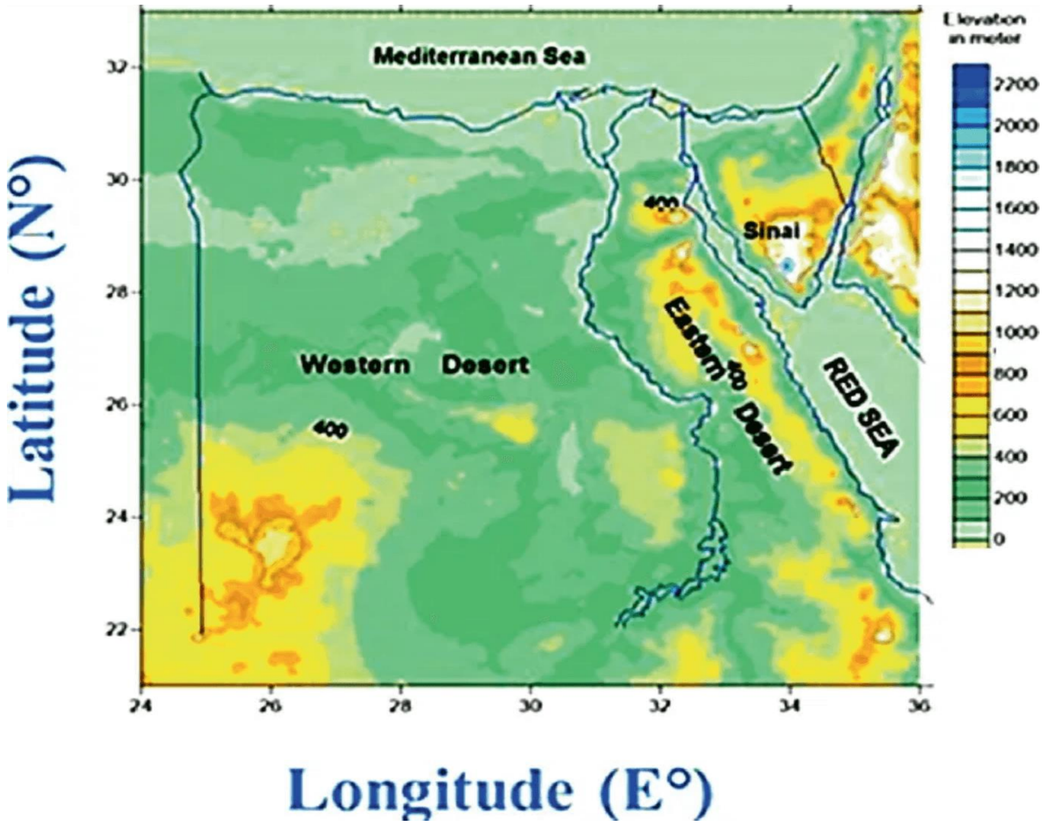
Excellent Potential: 7.5-8 kWh/m²/day. Vast land for utility-scale projects.

Eastern Desert & Sinai

Strong Potential: 7-8 kWh/m²/day. Near industrial zones and Red Sea coast.

Coastal Regions

Moderate Potential: 6-6.5 kWh/m²/day. Good for rooftop and distributed solar.



Source: Solar Radiation Atlas for the Arab Republic of Egypt 2023

Global Solar Energy Trends

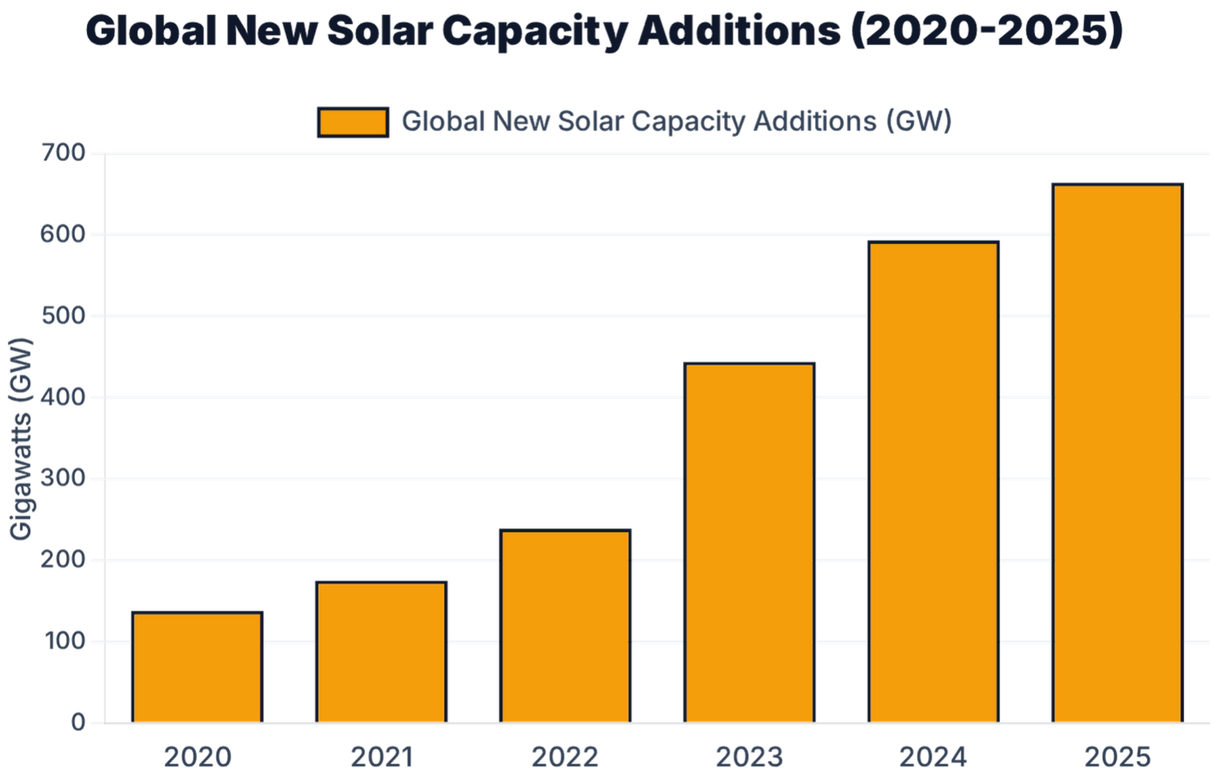
The global solar energy market experienced unprecedented growth in 2025, with a record 664 GW of new solar capacity installed worldwide—a 12% increase over 2024.

Cumulative global solar capacity now stands at approximately 3 terawatts DC (TWdc) and is projected to nearly triple to almost 8 TWdc by 2034.

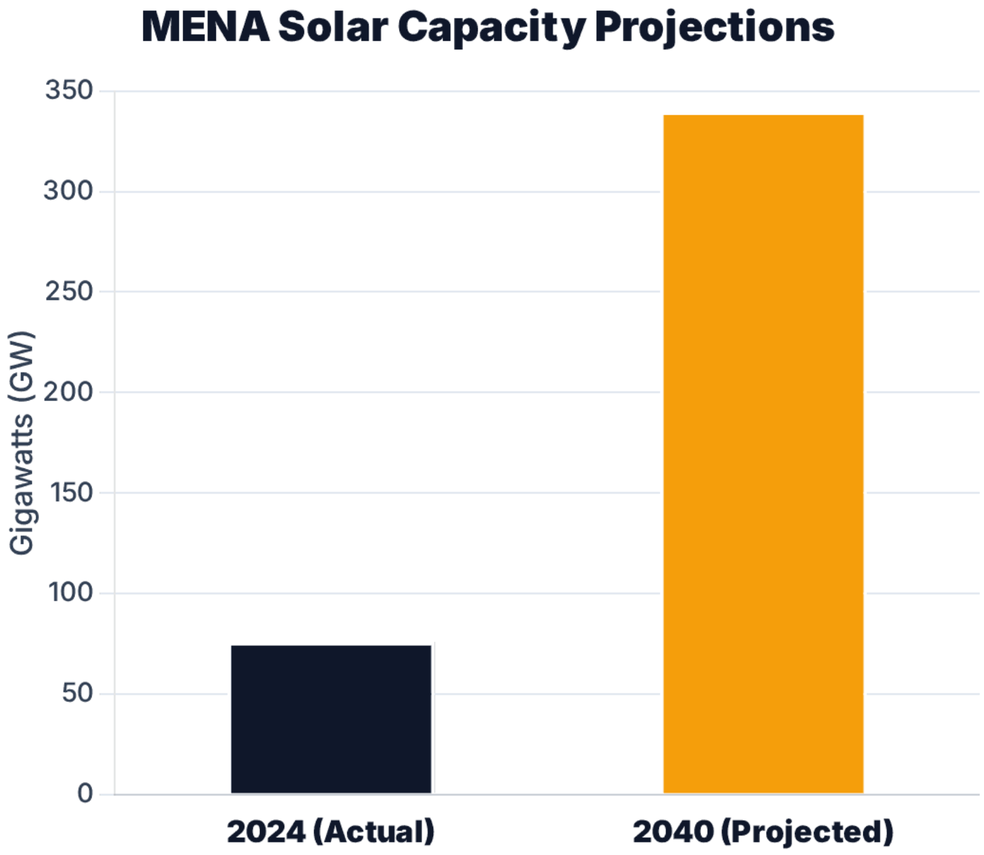
664 GW
NEW INSTALLATIONS (2025)

~3 TWdc
CUMULATIVE CAPACITY

~8 TWdc
PROJECTED CAPACITY (2034)



MENA Region Solar Growth



The Middle East and North Africa (MENA) region has emerged as the fastest-growing renewables market outside of China, adding nearly 15 GW of new solar capacity in 2025 alone.

Total MENA renewable capacity reached 43.7 GW by the end of 2025, driven by low-cost solar, competitive auctions, and rapid project growth.

43.7 GW
MENA RENEWABLES CAPACITY (2025)

~15 GW
NEW CAPACITY ADDED IN 2025

18.56%
MIDDLE EAST SOLAR MARKET CAGR (2026-2031)

Egypt's Renewable Energy Journey

Egypt's renewable energy sector has experienced remarkable growth since 2019, with installed capacity rising from under 6 GW to nearly 10 GW by 2025.

The 2024 energy crisis, marked by rolling blackouts and costly LNG imports exceeding $1 billion, served as a powerful catalyst for faster renewable deployment.

42%
RENEWABLES TARGET BY 2030

~20%
CURRENT GENERATION SHARE

2019–2020

Renewables ~10% of electricity mix; Benban Solar Park (1.5 GW) scaling up, becoming one of the world's largest solar complexes.

2021–2023

Capacity reached ~7 GW; ISES 2035 launched; NWFE mobilized $14.5B for green projects.

2024

Energy crisis accelerated renewables pivot; AMEA Power 500 MW plant inaugurated in Aswan.

2025–2026

Capacity reached 9.8 GW; renewables contribute ~20% of generation. Major interconnections planned.

Egypt's Solar Capacity Expansion

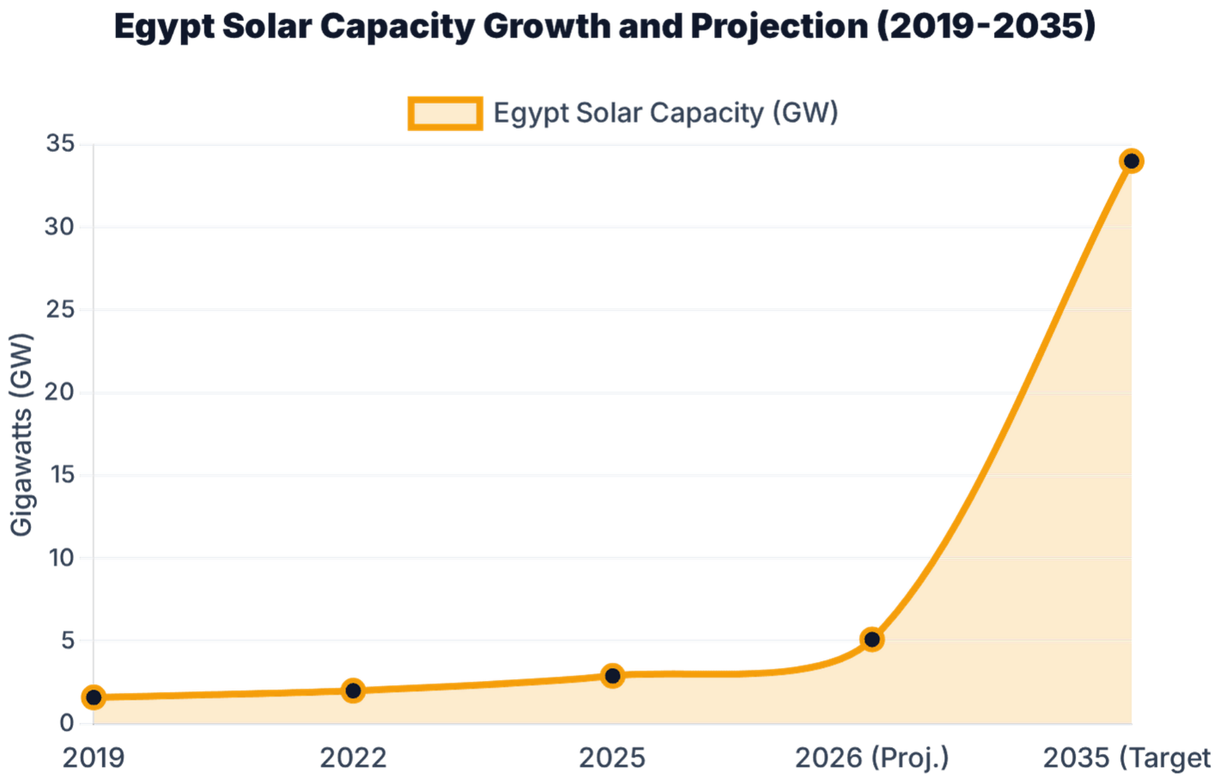
Solar energy is the fastest-growing renewable source in Egypt, with capacity expanding from approximately 1.6 GW in 2019 to nearly 3 GW by the end of 2025.

By 2035, Egypt's solar capacity is forecast to reach 34 GW, making solar the dominant renewable source in the country. Annual solar additions are expected to exceed 3.5 GW from 2029 onwards.

1.6 GW
CAPACITY IN 2019

5.1 GW
PROJECTED CAPACITY (2026)

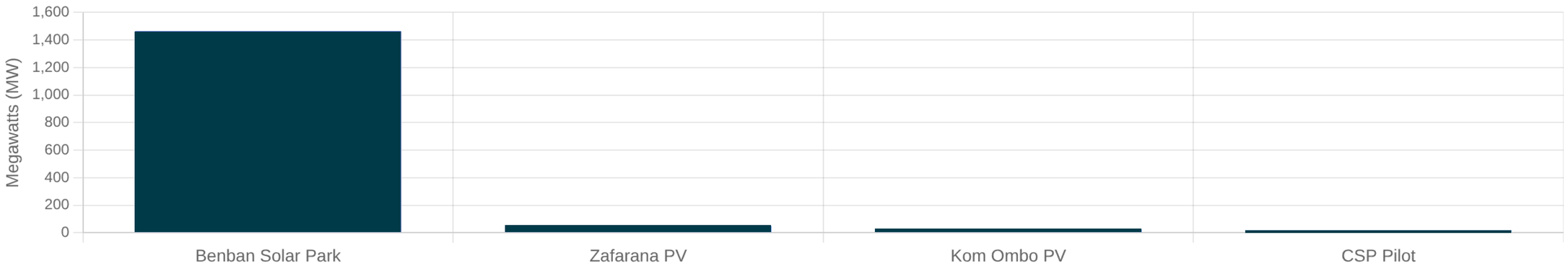
34 GW
TARGET CAPACITY (2035)



NREA 2025: Capacity and Generation Data

Key Operational Metrics from the New and Renewable Energy Authority

Major Solar Projects Capacity (MW)



5,840 MW
Total Installed Renewable Energy Capacity

30.7 Billion kWh
Total Renewable Electricity Sold in FY 2024/25

EGP 345.9 Million
NREA Net Surplus for FY 2024/25 (Demonstrating Financial Sustainability)

Source: NREA Annual Report 2025

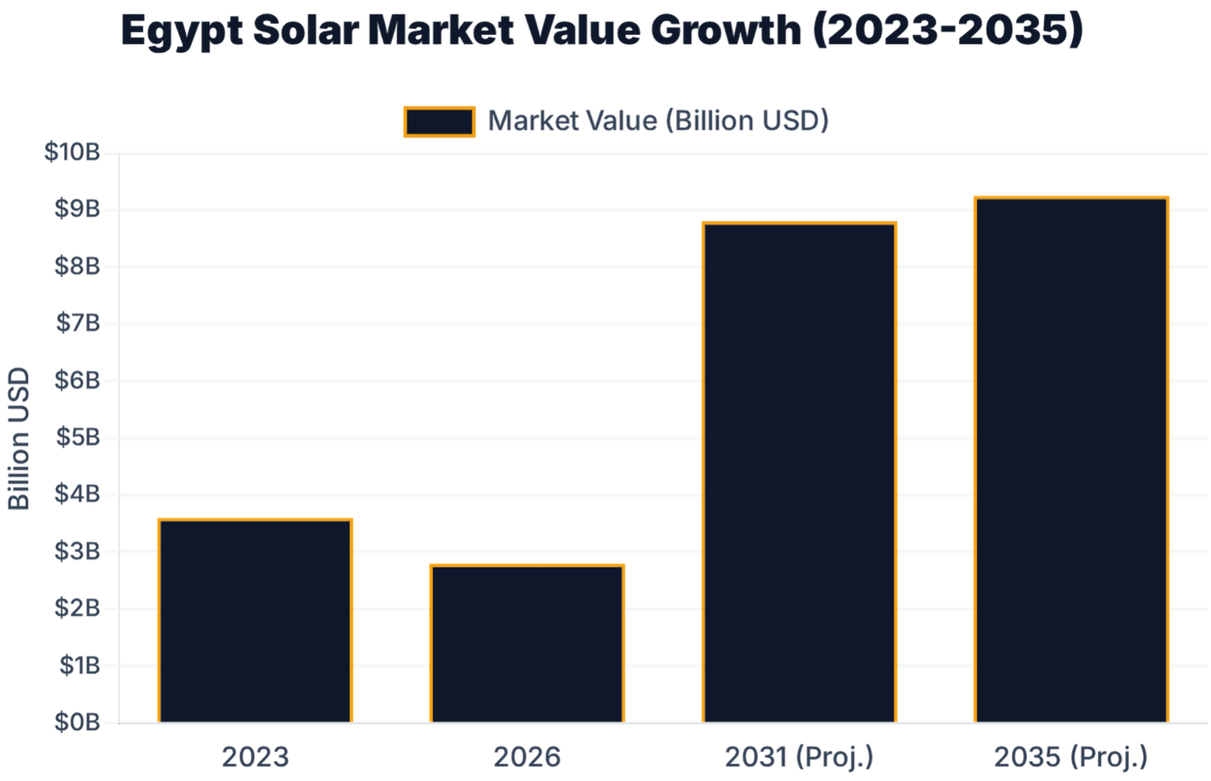
Egypt Solar Energy Market Growth

The Egypt solar energy market is experiencing strong financial growth, projected to expand to $9.25 billion by 2035.

This growth is driven by strong resource availability, improving project economics, and sustained policy support. The market encompasses both photovoltaic (PV) and concentrated solar thermal (CST) systems.

14.20%
COMPOUND ANNUAL GROWTH RATE

$9.25B
PROJECTED VALUE (2035)



Flagship Solar Projects

PROJECT	LOCATION	CAPACITY	STATUS
Benban Solar Park	Aswan	1.8 GW	Operational
AMEA Power Plant	Aswan	500 MW (+1 GW planned)	Operational (Dec 2024)
Scatec Obelisk	Qena	500 MW +200 MWh storage	Phase 1 Operational
Elite Solar Complex	Ain Sokhna	5 GW manufacturing	Operational

Egypt has developed several landmark solar projects that demonstrate its commitment to clean energy and position it as a regional leader.

Benban Solar Park remains one of the world's largest solar complexes and serves as the anchor for Egypt's solar ambitions.

Recent additions like the **AMEA Power plant** and **Scatec Obelisk** project highlight the shift toward utility-scale generation integrated with battery storage systems.

Egypt's Clean Energy Investment Surge

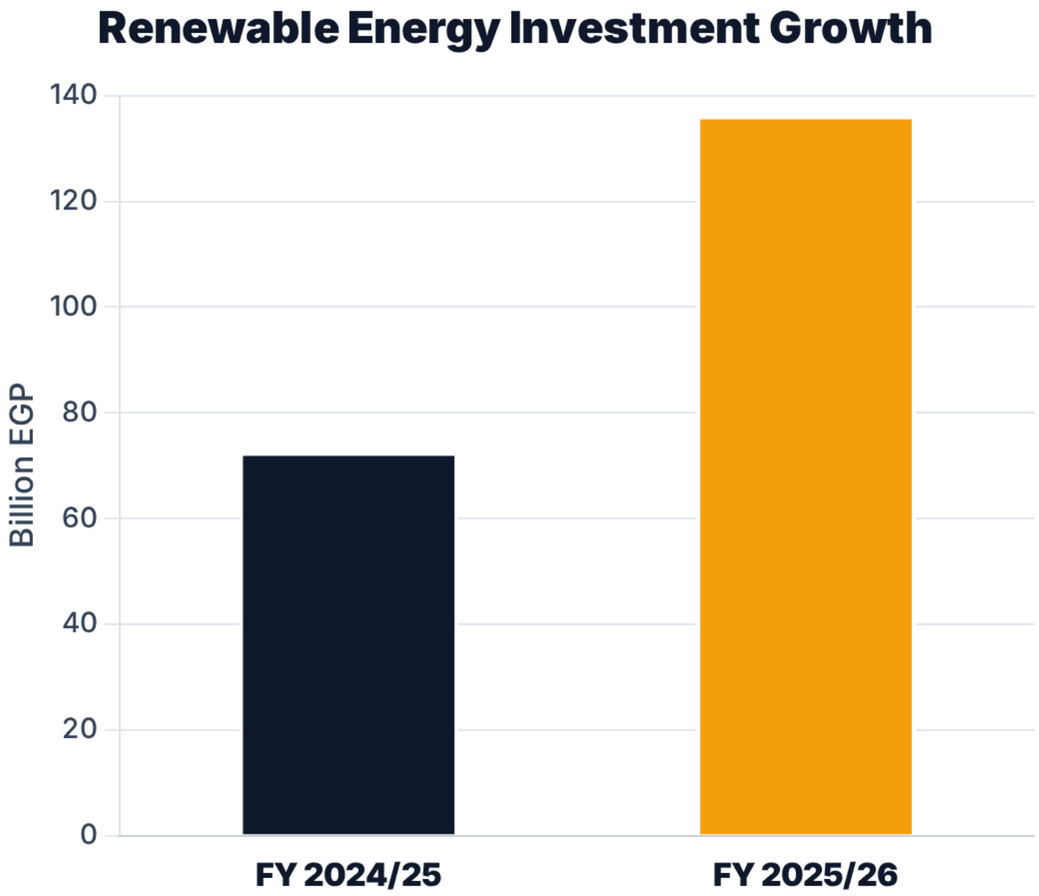
Egypt nearly doubled its renewable energy investments in FY 2025/26 to EGP 136.3 billion (approximately $2.8 billion), compared to EGP 72.6 billion in FY 2024/25.

The public sector accounts for 73% of total investments, while private sector participation stands at 27%, encouraged through land allocation, streamlined permits, and concessional financing.

EGP 136.3B
FY 2025/26 INVESTMENT ALLOCATION

73% / 27%
PUBLIC / PRIVATE SECTOR SHARE

$14.5B
NWFE MOBILIZED FOR GREEN PROJECTS



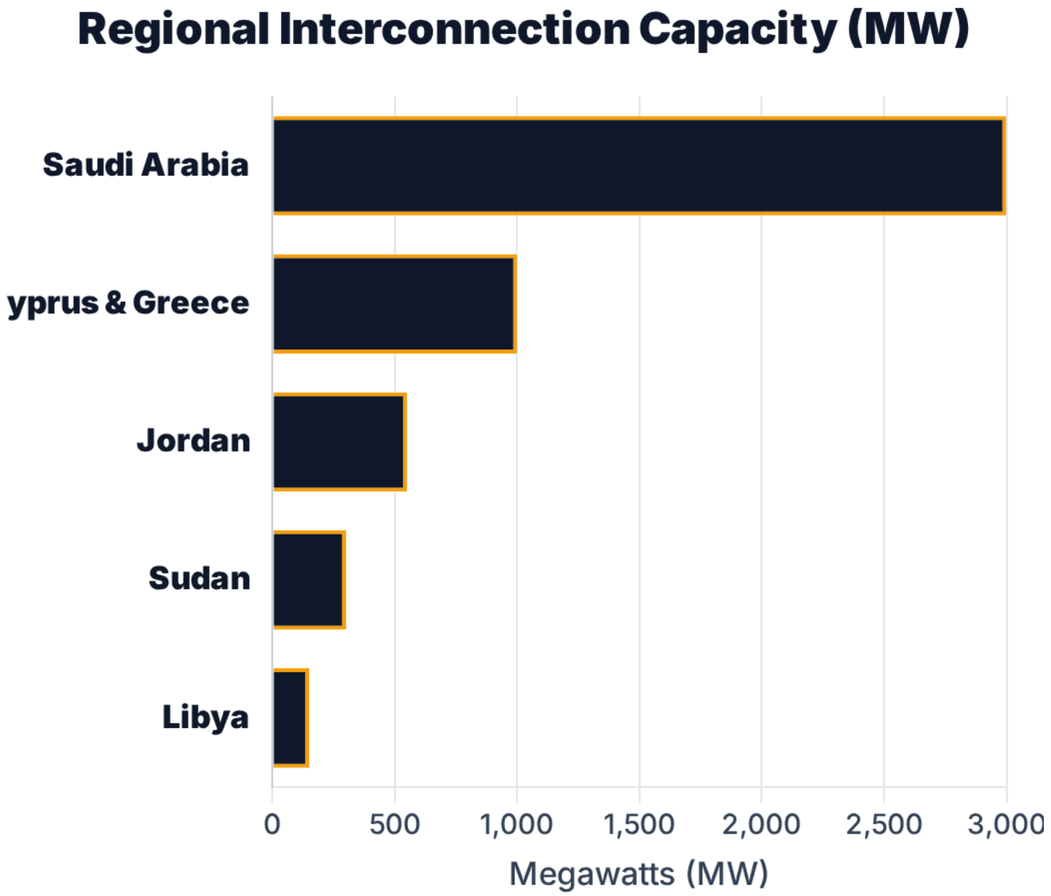
Egypt as a Regional Energy Hub

Egypt is positioning itself as a regional energy hub through an ambitious electricity interconnection strategy, aiming to reach 3,900 MW of export capacity by 2026.

A landmark 1,650 km undersea cable project with Cyprus and Greece will connect Egypt to European electricity markets, complementing links with Arab and African neighbors.

3,900 MW
EXPORT CAPACITY TARGET (2026)

1,650 km
UNDERSEA CABLE TO EUROPE



Incentives and Policy Framework

Egypt has developed a comprehensive incentive framework to attract investment in renewable energy, significantly reducing project costs and streamlining approvals.

These policies are designed to encourage both domestic and foreign private sector participation, ensuring the profitability and viability of solar and wind energy projects across the country.

8.40 cents/kWh

FEED-IN TARIFFS (20-50 MW SOLAR)

50% / 30%

TAX DEDUCTIONS (ZONE A / ZONE B)

2%

CUSTOMS DUTIES ON RE EQUIPMENT

Single-Step

GOLDEN LICENSES FOR PERMITS

35% – 55%

CASH REBATES FOR FOREIGN INVESTMENT

Discounted

GOVERNMENT LAND ALLOCATION

Green Hydrogen Strategy

Egypt's National Low-Carbon Hydrogen Strategy, launched in 2024, positions the country as a future global hub for green hydrogen exports, powered by hybrid solar-wind sites.

Law 2 of 2024 provides extensive financial incentives for green hydrogen projects, supported by a massive 41,700 km² land allocation.

- **Tax & VAT Exemptions**

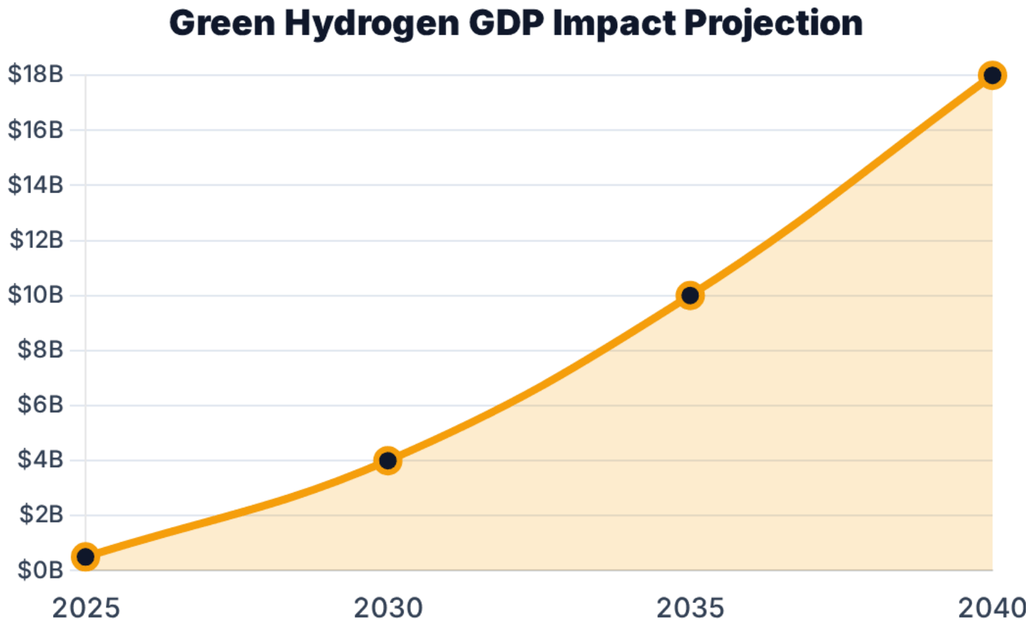
  33–55% tax refunds, VAT exemptions on imports, and 0% VAT on exports.

- **Golden License**

  Single-step approval process for eligible green hydrogen projects.

- **Fee Discounts**

  30% discount on port usage fees; 25% discount on industrial land fees.



$18 Billion

PROJECTED GDP UPLIFT (2040)

>100,000

NEW JOBS CREATED

Household Sector Solar Adoption

Egypt encourages residential solar deployment through feed-in tariff mechanisms and net metering systems, allowing homeowners to offset electricity bills by exporting unused energy to the grid.

While high upfront installation costs and limited financing options remain significant barriers, energy subsidy reforms and rising electricity prices are gradually making solar power more cost-competitive for households.

Broader adoption will require additional financing support, low-interest green loans, tax incentives, and simplified licensing procedures.

3–5 kWp

TYPICAL RESIDENTIAL SYSTEM SIZE

30–70%

POTENTIAL ELECTRICITY BILL OFFSET

Net Metering

AVAILABLE GRID EXPORT MECHANISM

High Upfront Costs

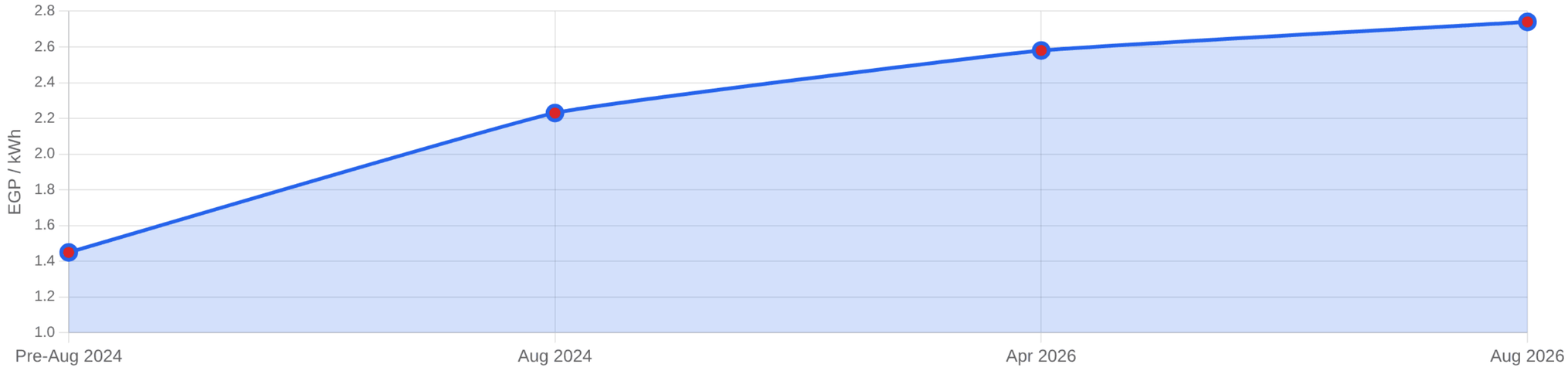
PRIMARY BARRIER TO ADOPTION

Rising Electricity Costs: The 2024-2026 Tariff Escalation

Accelerated Subsidy Phase-Out Drives Up Grid Electricity Prices

Top Residential Tier (>1000 kWh) Rate Evolution

EGP per kWh



Aug 2024:
Tariffs hiked >40% across household, commercial, and industrial sectors.

Apr 2026:
Tier 7 residential increased to EGP 2.58/kWh; commercial up ~20%.

Aug 2026:
Structural reform: top tier moved to flat-rate billing at EGP 2.74/kWh.

Sources: EgyptERA, Reslink Energy, Egypt Independent

Solar Economics for Households: Payback Under 5 Years

Standard 5 kW Rooftop System

Capital Investment

~EGP 150,000

Annual Generation

8,000 - 9,000 kWh

Payback Period

4 to 5 Years

The "Tariff Bracket Effect"

Offsetting Expensive Units First

Solar reduces grid consumption starting from the highest tier (EGP 2.74/kWh).

Monthly Savings

A household spending EGP 4,000/month can save EGP 2,500–4,000/month.

Flat-Rate Penalty Avoidance

August 2026 flat-rate billing for Tier 7 increases the value of solar.

Source: Reslink Energy

Industrial Sector Solar Adoption

The industrial sector is a major opportunity for solar in Egypt. Factories are among the largest electricity consumers, so energy costs heavily impact production.

The EU's Carbon Border Adjustment Mechanism (CBAM), fully effective by 2027, pressures manufacturers to decarbonize to keep export competitiveness.

Solar adoption lowers operating costs and helps meet international environmental standards while behind-the-meter systems avoid long grid interconnection queues.

KEY TARGET SECTORS

Ceramics, Cement, Glass, Steel, Chemicals, Building Materials

15–30%

ENERGY SHARE OF TOTAL PRODUCTION COSTS

CBAM Compliance

ESSENTIAL FOR MAINTAINING EU EXPORTS

20–40%

POTENTIAL SAVINGS ON ENERGY COSTS

Shams Al-Sinaa: Economic Impact Analysis

Transforming the Industrial Sector through the "Sun of Industry" Initiative

SCALE OF THE INITIATIVE

- **7,000 Factories:** Represents approximately 10% of Egypt's licensed factories.
- **1,000 MW Target:** Massive distributed capacity addition within a two-year timeframe.
- **7 Million m^2:** Utilization of idle industrial rooftop space (avg. 150 kW per factory).

ENERGY SUBSTITUTION

- **Gas Offset:** 1,000 MW of solar generates ~1,500 GWh/year, offsetting roughly 500 million m^3 of natural gas.
- **Grid Relief:** Eases pressure on the national grid during peak daytime industrial operations.
- **Resource Reallocation:** Frees up natural gas for lucrative LNG exports or industrial feedstock.

INDUSTRIAL COMPETITIVENESS

- **Cost Reduction:** Shields manufacturers from volatile energy prices and lowers production costs.
- **Export Readiness:** Enhances compliance with the EU's Carbon Border Adjustment Mechanism (CBAM).
- **Value Chain:** Promotes localization of renewable energy component manufacturing.

"Transitioning toward clean energy to boost the competitiveness of Egyptian industry in local and global markets."

Industry Sun Initiative

Egypt launched the **"Shams Al-Sinaa" (Industry Sun)** initiative, targeting the installation of 1,000 MW of rooftop solar capacity across approximately 7,000 factories nationwide in its first phase.

The initiative requires nearly 7 million square meters of usable rooftop space, representing approximately 10% of Egypt's certified industrial base.

Participating factories will develop action plans to reduce natural gas and electricity consumption through collaboration with energy efficiency service companies.

PRIORITY SECTORS

Ceramics • Sanitary Ware • Cement • Steel • Glass • Chemicals

1,000 MW

TARGET ROOFTOP SOLAR CAPACITY

~7,000

PARTICIPATING FACTORIES

~7M m²

ROOFTOP SPACE REQUIRED

~150 kW

AVERAGE CAPACITY PER FACTORY

Up to 25%

NATURAL GAS REDUCTION TARGET

Up to 15%

ELECTRICITY REDUCTION TARGET

Egypt's Energy Trade Balance

The Impact of Natural Gas Dynamics on the Balance of Payments (BOP)

The Structural Shift

Consumption Profile

Total natural gas consumption is ~6 billion cubic feet per day (bcf/d), with roughly **65% burned in electricity-generation plants**.

Historical Deficit

Egypt transitioned from a hydrocarbon external surplus of $5.1B in FY 2009/10 to a deficit of $3.6B in FY 2015/16 due to rising demand and mature fields.

Energy Dependency

Oil and gas still represent 89% of Egypt's total energy supply (2024), making the economy highly sensitive to fossil fuel dynamics.

Current BOP Pressures

The LNG Import Bill

During deficit periods, LNG imports heavily burden the BOP. In FY 2016/17, 118 LNG cargoes cost approximately **$2.2 to $2.5 billion**.

2025-2026 Import Surge

To meet growing deficits, Egypt is ramping up imports, chartering multiple Floating Storage Regasification Units (FSRUs) at Ain Sukhna and Damietta.

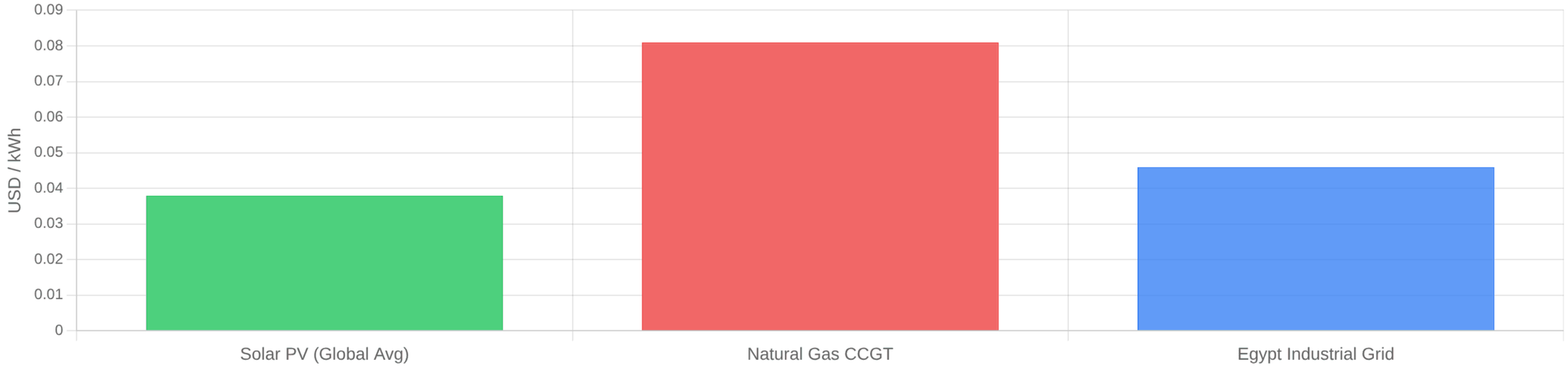
Strategic Import Deals

In August 2025, Egyptian firms struck a $35 billion deal with the Leviathan field partners to secure long-term natural gas supplies.

Solar Economics for Industry: The LCOE Advantage

Levelized Cost of Energy Comparison Drives Industrial Adoption

LCOE Comparison (USD/kWh)



Global Cost Leadership

IRENA (2024) shows utility-scale Solar PV LCOE around $0.034 - $0.043/kWh, well below new Gas CCGT costs.

The Egyptian Industrial Case

On-site solar reduces factory energy costs given Egypt's high solar resource and current industrial tariff.

Hedging Against Volatility

Solar provides a long-term (25-year) fixed-cost hedge versus expected tariff hikes and fuel volatility.

Sources: IRENA 2024, Fraunhofer ISE, EgyptERA

Fiscal Impact: Subsidies and Budget Pressure

How Solar Energy Alleviates Strain on the State Budget

THE FISCAL BURDEN

$2.26 Billion

Projected energy subsidies for the 2026/27 fiscal year, representing a massive drain on public finances.

Cost Recovery Challenges

Historically, cost recovery in the power sector has struggled, forcing the government to subsidize the gap between imported fuel costs and domestic electricity tariffs.

Vulnerability to Shocks

Reliance on imported natural gas and LNG exposes the national budget to global energy price volatility and currency fluctuations.

THE SOLAR RELIEF

Zero-Fuel Generation

Every megawatt of solar deployed replaces gas-fired generation, permanently removing the associated fuel cost and subsidy requirement from the state budget.

Budget Predictability

Solar energy provides long-term price stability, insulating the fiscal budget from international hydrocarbon market shocks.

Institutional Financial Health

As seen with NREA's EGP 345.9 million net surplus in 2024/25, expanding renewable portfolios strengthens the financial sustainability of state energy institutions.

Economic Impact of Solar Substitution

Quantifying the Financial Benefits of Transitioning from Gas to Solar

$1.5B - $2.5B

ANNUAL IMPORT SAVINGS

By achieving energy self-sufficiency through solar, Egypt can eliminate the need for costly LNG imports, which historically peaked at $2.4 billion annually, directly improving the Balance of Trade.

Export Revenue Multiplier

MONETIZING FREED NATURAL GAS

Every cubic meter of gas saved from domestic power generation can be redirected to LNG export terminals (Idku and Damietta) or used as high-value feedstock for the petrochemical industry.

~$150M+

DIRECT SUBSIDY RELIEF

The 1,000 MW Shams Al-Sinaa initiative alone can offset roughly 500 million m^3 of natural gas annually, providing over $100-150 million in direct subsidy relief to the state budget.

CBAM Compliance

PROTECTING INDUSTRIAL EXPORTS

Transitioning factories to solar power reduces the carbon footprint of Egyptian manufactured goods, ensuring continued, penalty-free access to European markets under new environmental regulations.

Encouraging Industrial Solar Adoption

To accelerate industrial solar adoption in Egypt, a multi-faceted approach is required, combining financial incentives, regulatory reforms, and technical support.

These strategies aim to overcome existing barriers, reduce upfront costs, and ensure that industrial facilities can seamlessly integrate solar energy into their operations.

FINANCIAL

Green loans, tax credits, and accelerated depreciation schedules.

REGULATORY

Expanded net metering, Golden License, and standardized PPAs.

INFRASTRUCTURE

Grid connection guarantees and shared storage in industrial zones.

TECHNICAL

Energy audit programs and system design assistance.

CAPACITY BUILDING

Training programs for technicians and engineers.

INTERNATIONAL

CBAM compliance support and green export certification.

Electricity Mix Targets and Progress

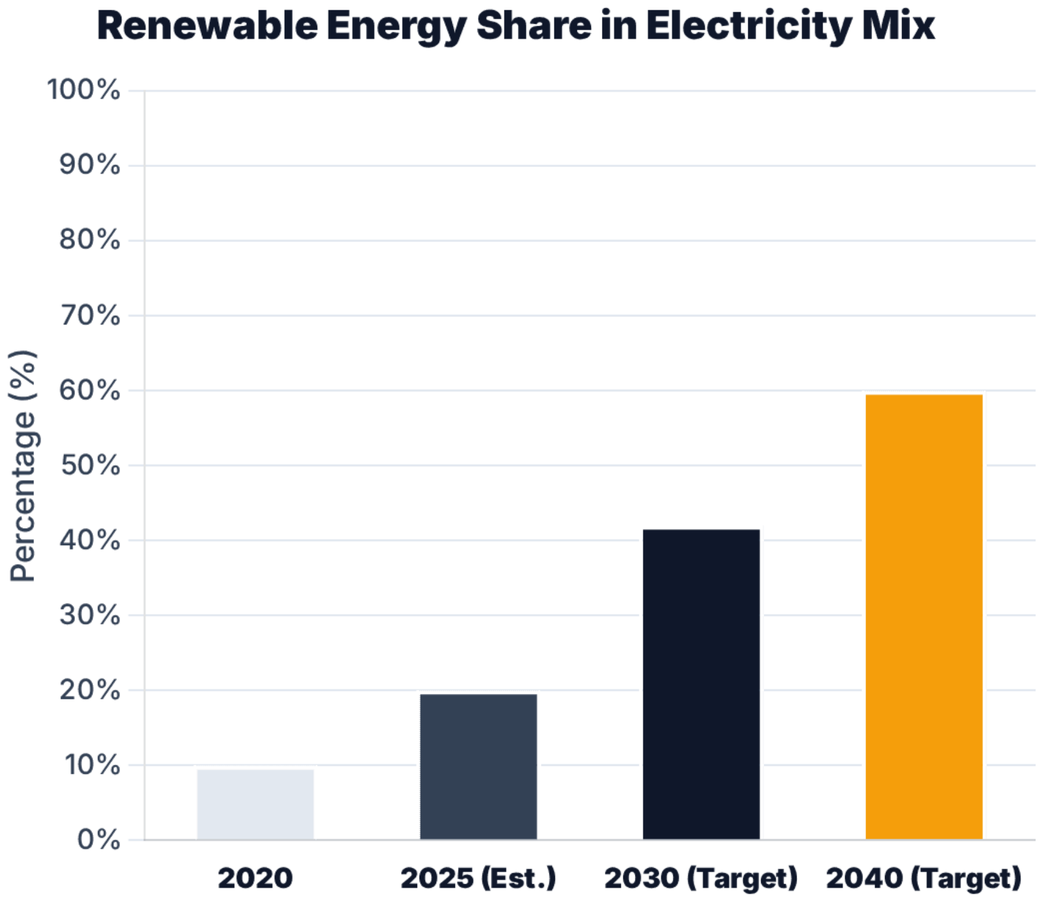
Egypt has aggressively revised its renewable energy targets upwards in response to domestic energy needs and global decarbonization trends.

Initially aiming for 42% renewable energy by 2035, the government accelerated this target to 2030. Recently, an even more ambitious goal was set: achieving a 60% renewable share in the national electricity mix by 2040.

~20%
CURRENT SHARE (2025 EST.)

42%
TARGET SHARE BY 2030

60%
TARGET SHARE BY 2040



Natural Gas Context

Egypt's solar energy expansion is strategically and economically linked to its natural gas sector. The two resources share a highly complementary relationship in the national energy ecosystem.

By aggressively replacing gas-fired power generation with utility-scale and distributed solar energy, Egypt can redirect valuable natural gas resources away from domestic electricity production and toward more lucrative economic avenues.

Every megawatt of solar capacity installed directly translates to natural gas saved, optimizing the national resource portfolio.

LNG EXPORT REVENUE

Freeing up natural gas allows Egypt to increase Liquefied Natural Gas (LNG) exports, generating critical foreign currency reserves.

INDUSTRIAL FEEDSTOCK

Secures reliable gas supplies for heavy industries, petrochemicals, and fertilizer production, supporting domestic manufacturing.

ENERGY SECURITY

Diversifying the energy mix reduces vulnerability to natural gas supply fluctuations and international price volatility.

Challenges and Outlook

KEY CHALLENGES

GRID & STORAGE LIMITS

Integrating massive intermittent solar capacity requires significant upgrades to grid infrastructure and large-scale battery storage investments.

CURRENCY & FINANCING

Foreign exchange fluctuations and high interest rates can impact the bankability of projects reliant on imported components.

REGULATORY BOTTLENECKS

While utility-scale projects enjoy streamlined processes, small-to-medium industrial and residential installations still face complex licensing.

STRATEGIC OUTLOOK

Despite these hurdles, Egypt's trajectory is overwhelmingly positive. Driven by strong government commitment, international financing, and the urgent need to optimize natural gas exports, the country is rapidly transforming into a clean energy powerhouse.

29 GW

RENEWABLE ENERGY TARGET BY 2031

60%

RENEWABLES SHARE OF ENERGY MIX BY 2040

Summary and Key Takeaways

01

UNMATCHED SOLAR POTENTIAL

Egypt possesses world-class solar irradiance and vast land availability. Coupled with comprehensive financial incentives, tax deductions, and Golden Licenses, the country offers a highly attractive environment for both utility-scale and distributed solar investments.

FOUNDATION FOR GROWTH

02

AGGRESSIVE EXPANSION TARGETS

Driven by the need to optimize natural gas usage and meet rising demand, Egypt has accelerated its renewable targets, aiming for 42% by 2030 and 60% by 2040. The industrial sector, spurred by CBAM and energy costs, is a massive growth vector.

ACCELERATED EXECUTION

03

STRATEGIC REGIONAL HUB

Beyond domestic consumption, Egypt is leveraging its solar capacity to become a regional energy exporter. Through ambitious cross-border electricity interconnections and a pioneering Green Hydrogen strategy, Egypt is securing its geopolitical energy future.

GLOBAL POSITIONING

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