

## **Egypt Renewable Energy Market, By Type (Hydroelectric Power, Wind Power, Bioenergy, Solar Energy, and Geothermal Energy) and End Use (Residential, Commercial, Industrial, and Others), By Region, Competition, Forecast and Opportunities, 2028**

Market Report | 2023-11-07 | 89 pages | TechSci Research

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### **Report description:**

The Egypt Renewable Energy Market achieved a valuation of USD 2.41 Billion in 2022 and is poised for robust growth in the foreseeable future, with an expected Compound Annual Growth Rate (CAGR) of 9.85% through 2028. Renewable energy encompasses energy sources that naturally replenish themselves and remain sustainable over time. Unlike finite fossil fuels, renewable energy derives from abundant resources like sunlight, wind, water, and organic matter. These sources harness the Earth's natural processes, converting them into usable power without depleting finite reserves or causing lasting environmental harm.

Solar energy involves capturing sunlight through photovoltaic cells or solar thermal systems to generate electricity or heat. Wind energy harnesses the kinetic energy of moving air via wind turbines, converting it into electrical power. Hydropower utilizes the gravitational force of flowing water to turn turbines and produce electricity. Biomass energy derives from organic materials such as wood, crop residues, and waste, which can be burned or converted into biofuels for energy production. Geothermal energy taps into the Earth's internal heat, using steam or hot water from underground to generate power.

Renewable energy technologies offer a multitude of benefits, including reduced greenhouse gas emissions, improved air quality, and decreased reliance on fossil fuels. As technology advances and economies of scale improve, renewable energy is becoming increasingly affordable and efficient, playing a pivotal role in the global transition toward a more sustainable and resilient energy future.

#### **Key Market Drivers**

Several key drivers are propelling the significant growth and development of Egypt's renewable energy market, reshaping the country's energy landscape towards sustainability and diversification:

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1. **Energy Security and Diversification:** Egypt's focus on reducing reliance on imported fossil fuels, particularly natural gas and oil, drives the adoption of renewable energy sources. Diversification enhances energy security and mitigates supply risks.
2. **Abundant Renewable Resources:** Egypt benefits from ample solar irradiance and wind resources, making solar and wind energy attractive options for power generation. The country's climate and geographic location favor the harnessing of these resources.
3. **Growing Electricity Demand:** Rapid population growth and urbanization have led to increased electricity consumption in Egypt. Expanding renewable energy helps meet rising energy demand sustainably without overburdening existing grid infrastructure.
4. **Environmental and Climate Commitments:** Egypt's commitment to international agreements like the Paris Agreement drives investments in renewable energy to reduce greenhouse gas emissions and address climate change.
5. **Government Policy and Incentives:** Egypt has implemented policies and incentives, such as Feed-in Tariff (FiT) schemes, net metering programs, and investment guarantees, to stimulate renewable energy development, attracting domestic and foreign investments.
6. **Economic Development and Job Creation:** Renewable energy projects drive economic growth by creating job opportunities in construction, operation, maintenance, and related industries, contributing to local employment and economic diversification.
7. **Private Sector Participation:** A conducive environment for private sector participation and investment has facilitated renewable energy project development in Egypt. Public-private partnerships (PPPs) have played a role in funding and implementing projects.
8. **Infrastructure Development:** Investments in renewable energy infrastructure, including solar and wind farms, support the modernization and expansion of the country's energy infrastructure.
9. **Energy Price Stability:** Renewable energy projects offer price stability compared to the volatility of fossil fuel prices, providing long-term predictability for energy costs.
10. **Global Energy Transition:** Egypt's renewable energy efforts align with the global shift toward cleaner and more sustainable energy sources, enhancing the country's international reputation and partnerships.
11. **Technological Advancements:** Advances in solar and wind technologies, energy storage, and grid integration solutions have enhanced the reliability, efficiency, and cost-effectiveness of renewable energy.
12. **Local Content and Manufacturing:** Egypt promotes local manufacturing and content in renewable energy projects, fostering opportunities for domestic industries and driving economic growth.

Collectively, these drivers contribute to the growth of Egypt's renewable energy market and its commitment to building a more sustainable and environmentally friendly energy sector.

#### Supportive policies and Regulations are Likely to Propel the Market

Egypt has implemented several supportive policies and regulations to encourage the development of its renewable energy market. These policies aim to attract investments, promote sustainability, and accelerate the adoption of clean energy sources.

Here are some key supportive policies and regulations in Egypt's renewable energy market:

**Feed-in Tariff (FiT) Program:** Egypt introduced a FiT program to provide fixed tariffs and long-term contracts for renewable energy producers. This program guarantees stable payments for electricity generated from renewable sources, encouraging project development and attracting investors.

**Renewable Energy Law (Law No. 203/2014):** This law outlines the legal framework for promoting and regulating renewable energy projects in Egypt. It establishes the basis for private sector participation, licensing, land use, and financial incentives.

**Renewable Energy Strategy:** Egypt's New and Renewable Energy Authority (NREA) formulated a comprehensive strategy to achieve a target of 20% renewable energy in the electricity mix by 2022 and 42% by 2035. The strategy outlines specific targets, technology preferences, and regulatory measures.

**Net Metering and Wheeling:** The Egyptian Electricity Transmission Company (EETC) introduced net metering and wheeling regulations that allow consumers to generate their own renewable energy and feed excess electricity into the grid. Excess energy is credited for future use.

**Investment Guarantees:** The government offers investment guarantees and protections for renewable energy projects to enhance investor confidence and reduce risks associated with political and regulatory changes.

**Land Allocation:** Special zones and areas have been designated for renewable energy projects to streamline land allocation processes and facilitate project development.

**Tax Incentives:** Renewable energy projects can benefit from tax incentives, including exemptions or reductions in customs duties

and taxes on equipment and components.

**Green Bonds and Financing Support:** The government has explored mechanisms such as green bonds and financial support to facilitate renewable energy investments and project financing.

**Public-Private Partnerships (PPPs):** The government has encouraged private sector participation through PPPs to develop, finance, and operate renewable energy projects, fostering collaboration between public and private entities.

**Local Content Requirements:** In some cases, projects may be subject to local content requirements, encouraging the use of domestically manufactured components and supporting local industries.

**Environmental and Social Impact Assessments:** Regulations mandate the assessment of potential environmental and social impacts of renewable energy projects to ensure sustainable and responsible development.

**Simplified Approval Processes:** Streamlined administrative procedures and approval processes aim to expedite project development and reduce bureaucratic hurdles.

#### Key Market Challenges

The renewable energy market in Egypt faces several challenges that can impact its growth and development. These challenges range from technical and regulatory issues to financial and operational considerations. Here are some key challenges faced by Egypt's renewable energy market:

**Grid Infrastructure and Integration:** Integrating intermittent renewable energy sources like solar and wind into the existing grid infrastructure can be complex. Ensuring stable and reliable grid operation while accommodating variable generation poses technical challenges.

**Financing and Investment:** Securing adequate financing for renewable energy projects, particularly in a volatile economic environment, can be challenging. Attracting both domestic and foreign investments is essential for the sector's growth.

**Policy and Regulatory Stability:** Consistency in policies, regulations, and incentive structures is crucial to providing a stable environment for investors. Changes in regulations or uncertain policies can create uncertainty and deter investments.

**Land Use and Permitting:** Identifying suitable land for renewable energy projects and obtaining the necessary permits can be time-consuming and involve complex administrative processes.

**Technical and Operational Capacity:** Building and maintaining the technical expertise required for the design, construction, operation, and maintenance of renewable energy projects is essential for their successful implementation.

**Storage Infrastructure:** As the share of intermittent renewables grows, the need for energy storage solutions to manage fluctuations in generation and demand becomes increasingly important. Developing cost-effective storage infrastructure presents a challenge.

**Lack of Awareness and Knowledge:** Raising awareness about the benefits of renewable energy among the public, policymakers, and stakeholders is crucial for fostering support and driving market growth.

**Capacity Building:** Developing a skilled workforce with expertise in renewable energy technologies, project management, and operation is vital for the sector's success.

**Competition with Conventional Energy:** Renewables often need to compete with conventional energy sources that might receive subsidies or have established market dominance, affecting the cost competitiveness of renewable projects.

**Economic Considerations:** Economic constraints and competing budget priorities may impact the allocation of resources to renewable energy projects.

**Transmission Constraints:** Expanding renewable energy capacity in certain regions may require substantial upgrades to transmission infrastructure to facilitate the efficient transfer of electricity.

**Environmental and Social Considerations:** Balancing renewable energy development with environmental and social considerations, such as land use, wildlife conservation, and community engagement, presents challenges.

**Local Industry Development:** Developing a local supply chain for renewable energy equipment and components can enhance economic benefits but may face initial barriers in terms of capacity and capability.

**Project Delays:** Delays in project development, construction, and commissioning can impact the timely delivery of renewable energy capacity.

#### Segmental Insights

##### Solar Energy Insights

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The Solar Energy segment established its dominance in the renewables energy market in 2022 and is projected to maintain its position throughout the forecast period. Egypt has one of the highest solar irradiance levels globally due to its location in the sunbelt region. This makes solar energy a viable and attractive option for electricity generation. Egypt has set ambitious renewable energy targets as part of its national energy strategy. The government aims to generate 20% of its energy from renewable sources by 2022 and 42% by 2035, with a significant portion coming from solar. Egypt's FiT program has attracted significant investment in the solar sector. Fixed tariffs and long-term contracts provide investors with revenue predictability, making solar projects financially viable. Large-scale solar projects, often in the form of solar parks or photovoltaic (PV) farms, have been developed across the country. These projects contribute to grid stability and help meet increasing electricity demand.

#### Residential Insights

The residential segment established its dominance in the renewable energy market in 2022 and is projected to maintain its position during the upcoming years. Egypt's net metering program allows residential consumers to install solar PV systems and feed excess electricity back into the grid. Consumers receive credit for the excess energy, which can be used during periods of low solar generation. Rooftop solar installations provide homeowners with greater energy independence, reducing their reliance on the grid and mitigating the impact of power outages. Residential solar installations contribute to reducing greenhouse gas emissions and promoting environmental sustainability. Homeowners can take an active role in combating climate change by adopting clean energy solutions. Incentives such as tax exemptions and subsidies for solar equipment and installations can make renewable energy solutions more financially attractive for residential consumers.

#### Regional Insights

Upper Egypt has the highest solar radiation potential in the country, with an average of 6.5 kWh/m<sup>2</sup>/day. This makes it an ideal location for solar power plants. The government has identified Upper Egypt as a priority region for renewable energy development, and a number of solar power plants are already under construction or in the planning stages. Also, the Sinai Peninsula is the second-largest share of Egypt's renewable energy market. The Sinai Peninsula also has good solar radiation potential, with an average of 5.5 kWh/m<sup>2</sup>/day. The government has also identified the Sinai Peninsula as a priority region for renewable energy development, and a number of solar power plants are already under construction or in the planning stages.

#### Key Market Players

- Orascom Construction Industries
- The New and Renewable Energy Authority (NREA)
- SkyPower Ltd
- Energy Egypt
- Schneider Electric Egypt
- Siemens AG
- Infinity Energy
- Green Energy International
- Siemens Gamesa Renewable Energy SA

#### Report Scope:

In this report, the Egypt Renewable Energy Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

#### Egypt Renewable Energy Market, By Type:

- Hydroelectric Power
- Wind Power
- Bioenergy
- Solar Energy
- Geothermal Energy

#### Egypt Renewable Energy Market, By End Use:

- Residential
- Commercial
- Industrial

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□□Others

Egypt Renewable Energy Market, By Region:

□□Nile valley and delta

□□Eastern Desert

□□Western Desert

□□Sinai Peninsula

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Egypt Renewable Energy Market.

Available Customizations:

Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

2.□Detailed analysis and profiling of additional market players (up to five).

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