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# Egypt Energy Sector

Market Report | 2022 Edition

By Informa Markets



# Summary

Topline energy stats for Egypt .....	03
Energy landscape in Egypt .....	04
Investing in Egypt .....	05
Foreign Direct Investment .....	06
Investments in the energy sector .....	07
National strategy for energy .....	08
2035 Integrated Sustainable Energy Strategy .....	09
Liberalisation of Egypt's electricity sector .....	10
Renewable energy .....	11
Solar energy .....	12
Wind energy .....	13
Contact us .....	14



# TOPLINE ENERGY STATS FOR EGYPT



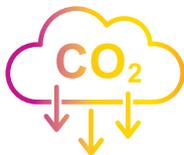
Energy sector represents 13.1% of overall GDP



Energy consumption per capita was at 0.97 toe, including 1 550 kWh of electricity (2019)



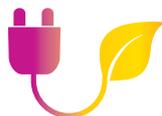
Households absorb 41% of energy consumption, followed by industry (29%) and services (20%) (2019)



CO<sub>2</sub> emissions from fuel combustion declined by 2% in 2019, to 237 MtCO<sub>2</sub>



Between 2022 and 2027, Egypt plans to install an additional thermal power plant and two clean coal technology power plants



Egypt needs EGP 2 trillion in climate-smart investments alone by 2030



20% of power generation from renewables by 2022 and 42% by 2035



Egypt to deliver 7.2 GW of wind power by 2022, 2.8 GW of solar CSP by 2027 and 700 MW of PV by 2027

# ENERGY LANDSCAPE IN EGYPT

As the most populous country in the Middle East, with 100 million citizens estimated in 2020, Egypt faces rising energy demand driven by rapid population growth and an expanding economy. This creates significant challenges in maintaining a steady and continuous supply of energy and opportunities for the sector's development.

According to the International Renewable Energy Agency (IRENA), renewable energy can help Egypt meet its energy needs and power sustainable economic growth and create jobs while achieving global climate and sustainable development objectives.

Speaking during the Energy Transition Council's (ETC) first working-level national dialogue with Egypt in February 2020, Egypt's Minister of Electricity and Renewable Energy, Dr. Mohamed Shaker El-Markabi explained that energy transition is a path towards the transformation of the global energy sector from dependence on fossil fuels to zero carbon.

He described how the disposal of carbon in the energy sector requires many urgent actions on a global scale to reduce carbon emissions and mitigate climate change. He added that this would be achieved through a number of measures, such as reducing energy costs generated from renewable energies.

## The maximum benefits from all forms of renewable and clean energy will also be driven through:



Achieving development in energy and electricity storage technologies



Increasing the use of electric cars and smart grid technology



Regional and international interconnection.

# INVESTING IN EGYPT

## Investment climate

Attracting investment, both foreign and domestic, is a priority for Egypt's government. In 2017, Egypt ratified a landmark investment law that will modernise and reduce barriers to how international companies invest and operate in Egypt.

According to the Arab Republic's General Authority for Investment and Freezones, Egypt's Investment Law allows companies incorporated under its umbrella to enjoy a set of incentives and prohibits nationalisation, confiscation and freezing of assets and government interference in the pricing of companies' products.

**Key achievements gained from reforms within Egypt's new Investment Law are:**



**Access to finance**



**Ease of starting a business**



**Investor protection**



**A competitive landscape**



**Governance**



**Equal opportunity & job creation**





# FOREIGN DIRECT INVESTMENT

The dynamic growth of the Egyptian economy (around 7% before the COVID-19 crisis), its strategic geographical position, low labour costs, skilled workforce, unique tourist potential, substantial energy reserves, sizeable domestic market and the success of the reforms undertaken by the authorities, including many privatisations, contributed to driving up FDIs.

- Inward investment flows stood at EGP 142.2 billion in 2019
- Egypt remained the largest FDI recipient in Africa in 2019, with a stock of EGP 2 Trillion
- In the first half of 2020, due to the economic effects of COVID-19, FDI flows declined by 57% to an estimated EGP 30 billion.

Source: UNCTAD's 2020 World Investment Report

Notwithstanding the current economic crisis due to COVID-19, the Egyptian government's economic reforms have improved macroeconomic stability and strengthened investor confidence in the country. The UK is by far the largest investor in Egypt, followed by Belgium, the USA and UAE. FDI is concentrated in the oil and gas industry (around three-quarters of total investments), followed by real estate, manufacturing, financial services and construction.



# INVESTMENTS IN THE ENERGY SECTOR

The International Finance Corporation (IFC) believes that EGP 2 Trillion are required to be brought into Egypt's energy sector in climate-smart investments by 2030. Egypt is expected to overtake South Africa in the next decade to become the largest electricity market in Africa.

“The country has pledged to produce 20% of its electricity consumption from low-carbon sources by 2022, with 12% coming from wind.”

In 2015, the Ministry of Petroleum said it would require an investment of around EGP 1.9 Trillion to revamp the energy sector by 2022, including EGP 394 billion in new investment. Gas development would make up around EGP 339 billion, or a third of spending.

“Investment in renewable energy capacity, currently set at around EGP 39.5 billion per year until 2030, needs to increase further.” - IRENA



# NATIONAL STRATEGY FOR ENERGY

## Vision 2030

Renewable energy has a central role in Egypt's Vision 2030, which aims to achieve a diversified, competitive and balanced economy within the framework of sustainable development.

### Energy strategic objectives to 2030 include:

Objective	Definition
Ensuring energy security	Providing the required energy while maintaining the aspired growth rates
Increasing the contribution of energy sector to the GDP	Increasing the share of energy sector to the GDP
Maximizing utilization of domestic energy resources	Increasing the energy production of local resources and maximizing its reliability
Enhancing rational and sustainable management of the sector	Working on the energy mix to reach international levels
Reducing the intensity of energy consumption	Reducing energy consumption rate for all sectors
Limiting the environmental impact of the sector's emission	Reducing the level of sector's emissions and pollutants

Part of Egypt Vision 2030 is to increase local content in all fields. The Ministry of Electricity and Renewable Energy (MOERE) succeeded in reaching 30% local content for wind farms in 2018 and was expected to increase the share to 70% by the end of 2020. The ministry was also expected to reach 50% local content for concentrating solar power (CSP) projects by the end of 2020.

# 2035 INTEGRATED SUSTAINABLE ENERGY STRATEGY

The Ministry for Electricity and Renewable Energy's 2035 Integrated Sustainable Energy Strategy (ISES 2035) establishes the necessary conditions to enable the increased development of renewables through the engagement of all sectors and confirms Egypt's ambition to become an energy hub between Europe, Asia and Africa by expanding grid interconnections across the Arab region and beyond.

Under this strategy, Egypt intends to increase the supply of electricity generated from renewable sources to 20% by 2022 and 42% by 2035:



**14%**

with wind providing



**2%**

with hydropower providing



**22%**

with photovoltaic (PV) providing

The strategy was modified to stretch to 2040, and one of its main pillars is to make renewables a priority and learn from past mistakes such as intensive reliance on natural gas to fire the plants. ISES 2035 includes the following strategic directions for the growth and development of the country's energy sector.

## **Enhancing energy supply security**

through diversification of energy supply and improving the sustainability of the energy value chain. Furthermore, ISES 2035 calls for enhancing international interconnections to allow access to less expensive resources and achieve a higher return on investments.

## **Ensuring the financial sustainability of electricity companies**

by ensuring the financial sustainability of electricity companies.

## **Improving institutional and corporate governance**

by emphasising the importance of independent energy sector regulatory bodies and enabling them to achieve policy objectives effectively.

## **Improving energy and resource efficiency**

(reducing 18% of overall energy demand by 2035) by requiring electricity utilities to increase their operational efficiency through upgrades to existing generation and transmission infrastructure and adopting new technologies.

## **Strengthening competitive markets and regulations**

by liberalising both the electricity and gas industries to attract investments needed for infrastructure expansion and improving both industries' performance through freer competition.

# LIBERALISATION OF EGYPT'S ELECTRICITY SECTOR

“ Egypt is working hard in the direction of promoting electrical interconnection projects, which plays an important role in enhancing energy security and increasing the use of renewable energy in the medium and long term. ”

**H.E. Dr. Mohamed Shaker El-Markabi, Minister of Electricity and Renewable Energy, Egypt**

Speaking before the House of Representatives in February 2021, Egypt's Minister of Electricity and Renewable Energy Mohamed Shaker said Egypt faced a significant crisis in its electricity sector in 2014, but the authorities implemented several projects to improve service. As part of this, three large stations were built in collaboration with Siemens, providing 14,000 MWs in energy.

The minister added that Egypt is currently working to establish centres to control the electrical network with investments of EGP 5.4 billion (US\$ 344 million), which come in addition to a global control centre at the New Administrative Capital (NAC); the electrical power plant is the largest of its kind in the world.

The power plant is cooled by air. It adds to Egypt's aspiration to export renewable energy to Europe through modern networks. Shaker said that the voltage network had a capacity of 500 kW but has been increased four-fold to 54,000 kW.

The King Abdullah Petroleum Studies and Research Center (KAPSARC) paper on the electricity sector liberalisation in Egypt describes how Egypt's government began to reform the electricity sector in 1996 to promote a bigger private sector role. It has gradually expanded efforts to improve the performance, governance and sustainability of the electricity industry.

In 2000, it took the first major step of corporatising the Egypt Electricity Authority (EEA) into several subsidiary companies under a common holding company. Soon after, the Egyptian Electric Utility & Consumer Protection Regulatory Agency (EgyptERA) became operational. Still, its powers as a regulator were largely limited to oversight and advisory while key tariff and subsidy decisions remained with the Cabinet of Ministers. The 2015 Electricity Law substantially increased EgyptERA's mandate and independence, making it responsible for regulating all activities ranging from electricity production to consumption.

According to the paper, price setting for both bulk supply and end-use consumption remain an important mandate, but EgyptERA is now required to play a more proactive role in market liberalisation and development.



# RENEWABLE ENERGY

The FDI Intelligence platform in the Financial Times published a joint article by Rania A. Al-Mashat, Minister for International Cooperation, and Sérgio Pimenta, Vice President of the Middle East and Africa at the International Finance Corporation (IFC), shedding light on the details of the green recovery in Egypt, and the efforts and policies applied by the government.

The article stated that Egypt had become a leader in transitioning towards a green economy by promoting a clear strategy headed towards renewable energy and environmentally friendly projects.

Recently, the Egyptian government approved the implementation of 691 environmentally friendly projects, including the electric train in Cairo and many renewable energy projects. The country also began issuing 'green star certificates' for hotels that implement environmental compliance policies.

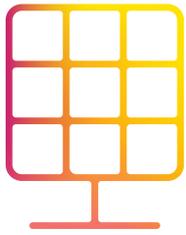


**Egypt succeeded in offering the first green bonds in the MENA region with a value of EGP 2.74 Trillion to finance the implementation of environmentally friendly projects.**



With the issuance of the Renewable Energy Law No. 203 of 2014, the government began publishing incentives to encourage the private sector's entry into the renewable energy field to support the country's green transformation strategy. As a result of these efforts, many initiatives emerged, such as the KarmSolar Company, the first private sector company specialised in energy production, was established. It obtained a license from concerned authorities which enabled Egypt to take its position as a leading country in MENA in terms of renewable energy.





# SOLAR ENERGY

Egypt is considered a “sunbelt” country with 2,000 to 3,000 kWh/m<sup>2</sup>/year of direct solar radiation. The sun shines 9-11 hours a day from north to south, with few cloudy days. The World Bank highlights that Egypt has excellent solar resources with electricity-generating potential estimated at 73,656 terawatt-hours (TWh).

According to the US International Trade Administration, the first solar thermal power plant was built in 2011 in Kuraymat. It has a total installed capacity of 140 MW, with the solar share of 20 MW based on parabolic-trough technology integrated with a combined-cycle power plant using natural gas. A 10 MW power plant has been operating in Siwa since 2015, and the remaining plants are expected to be implemented and operated consecutively.

## **Benban Solar Park**

The Financial Times highlights the Benban Solar Power Park project as a unique model of cooperation between relevant parties, including the government, the private sector and international financing institutions, to implement the largest solar energy park in the world. This includes 6 million solar panels on an area of 36 square kilometers and has been implemented by over 40 companies from across 12 countries. The Benban project contributes about 1.5% of the total electricity generated in Egypt.

The solar power park generates 1,500 megawatts of energy, which enhances Egypt’s sustainable energy strategy, supports the use of clean energy, reduces climate change, and reflects the government’s strong commitment to the transition towards a green economy.

## **Solar contracts won**

In December 2020, Egypt-based Enara Energy signed a deal with China’s Chint Electric to develop a sand-to-cell photovoltaics complex, which locally manufactures solar panels from silica-rich sand.

In February 2021, Infinity-E, the subsidiary of the Egyptian company Infinity Solar, announced plans to invest more than EGP 300 million to deploy 300 of its charging stations for electric vehicles in Egypt.

Earlier in 2021, Ecoppia, a pioneer and world leader in robotic solutions for photovoltaic solar, announced a new project in Benban solar park. This project in Benban will feature the light-weighted Ecoppia T4 solution, designed especially for Single Axis trackers.





# WIND ENERGY

Egypt enjoys excellent wind along the Gulf of Suez with an average wind speed of 10.5 m/sec. It is just one of 38 countries in the world with a published National Wind Atlas. Egypt's wind-generated power capacity is expected to reach 7 GW by 2022, making it an important contributor to the renewables energy mix.

According to EY, Egypt currently has about 500MW of wind-power plants in operation, plus three privately owned independent power producers (IPPs) with a generation capacity of 2.5GW. It also has about 1,340MW under development. The Government's renewable energy plan for 2015-2023 has a target of 3.2GW of government projects, including 1.25GW under Build Own Operate models and 920MW as IPPs.

## Wind contracts won

In October 2020, the New and Renewable Energy Authority (NREA) placed a 252 MW order with Vestas for the Gulf of Suez 1 wind project in the Gulf of Suez. Vestas has developed a solution that comprises the supply and installation of 70 V105-3.45 MW wind turbines in 3.6 MW Power Optimised Mode and a three-year Active Output Management 4000 (AOM 4000) service agreement, capable of maximising the project's annual energy production, while meeting the local tip-height restriction and the national grid code requirements.

Also, in October 2020, wind turbine maker Siemens Gamesa Renewable Energy SA delivered the first blades to the 250-MW West Bakr wind project in Egypt. The company will be bringing 96 units of SG 2.6-114 turbines and build the wind farm under a turn-key EPC contract with the project developer, Lekela Power. Once online, West Bakr will increase Egypt's wind power capacity by 18% and generate enough power to meet the consumption needs of over 350,000 homes.

In December 2020, AMEA Power, a subsidiary of Al Nowais Investments (ANI), signed an agreement with the Egyptian Electricity Transmission Company (EETC) for a 500MW wind power project in the Gulf of Suez and a 500MW solar PV project in the Aswan governorate.





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