Regulatory Review of the Electricity Market in Egypt:
Towards Crowding-in Private Sector Investment
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Executive Summary

This report provides an analysis of Egypt’s electricity sector policies, laws, and regulations in relation to crowding-in private sector participation in developing national electricity infrastructure. The report is part of the United Nations Economic Commission for Africa and RES4Africa Foundation joint program on *Regulatory Review of the Electricity Sector in Africa: Towards Crowding-in Private Sector Investment*.

Egypt entered a new and major phase of electricity sector reform in 2014, which is still ongoing, based on the principle of market restructuring and opening to competition. As often occurs, this new wave of reforms mainly originated from the electricity crisis the country suffered between 2010 and 2014. The reforms were also part of a larger macroeconomic reform plan negotiated with the IMF and the World Bank.

In subsequent years, the electricity policy and regulatory framework changed with the adoption of major strategic documents and legislation, which culminated in the adoption of a new Electricity Law in 2015. The law fundamentally restructured the governance of the electricity supply industry in Egypt. Law No. 87/2015, also known as the new Electricity Law, restructured electricity public service with the purpose of boosting private sector involvement and building a competitive electricity wholesale market. The direction set by this legislation was further strengthened by a new national energy policy in 2016 and the Integrated Sustainable Energy Strategy 2035 which provided strategic orientations for electricity infrastructure development.

Policy and regulatory reforms were adopted to guide progressive market restructuring and opening, which resulted in the establishment of an independent transmission operator in 2019, the empowerment of the national regulatory authority, the diversification of the electricity generation mix, the development of renewable energy capacity, the reform of electricity tariff system, as well as the elimination of subsidies. Overall, the comprehensive reform efforts targeting most of the key elements in electricity policies and regulations have relevance and implications for reinforcing market openness, attractiveness, and readiness towards private sector participation. These include changes in the energy strategy, market framework, competition, business models for private sector participation, tariffs regulation, provision of incentives, grid access, and connection, as well as electricity system operation. It is, therefore, not surprising that the policy and regulatory analysis conducted mostly confirms the ability of Egypt to shape its policy and regulatory framework to widen the scope and enhance the openness, attractiveness, and readiness of the electricity market to scale private sector investment across the market value chain.

However, ten years after the introduction of the new Electricity Law and taking into account that the law foresees the achievement of the transition towards a fully liberalized and unbundled electricity market by 2025, the electricity supply industry in Egypt is not yet profoundly different than it was a decade ago. State-owned generation and distribution companies, Egyptian Electricity Holding Company (EEHC) subsidiaries, are still dominating the generation and distribution services, while the new Electricity Law gives a monopoly on the transmission service to Egyptian Electricity Transmission Company (EETC), also a state-owned utility. Private sector participation is advancing on the electricity generation side, notably thanks to the success of the feed-in tariff rounds, the build-own-operate contracts with the EETC and a few embedded generation projects supplying energy to industrial consumers and
touristic projects. But market restructuring at the distribution and retail level has been slower than expected with multiple extensions of the transition period. Egypt is also confronted with structural challenges in moving towards full cost-reflectivity for electricity prices, despite major progress also on this side. As a result, the underpricing of electricity is preventing fair competition between market actors at the generation and retail levels, limiting optimal development of private sector participation in these markets.

The purpose of this regulatory review is to pinpoint the main strengths and gaps of the policy and regulatory framework currently in force related to private sector participation in the entire electricity market. It further aims to offer concrete recommendations for regulatory improvement and reform towards attaining a competitive, resilient, and sustainable electricity market.

The regulatory analysis is undertaken following a comprehensive UNECA and RES4Africa regulatory review methodology, which was developed with the participation of African and international regulatory experts. The approach enables three broader assessments: the degree of openness of the electricity market to the private sector based on an evaluation of the power sector structure and governance; the attractiveness of the market based on an assessment of sector economics, fair competition, and overall economic regulation; and the readiness of the market based on an assessment of technical regulations.

**Main findings related to the Generation segment**

Policy and regulatory frameworks governing the electricity generation market are effective in crowding-in private sector investments and enabling a conducive environment for electricity generators. Furthermore, the unbundling of transmission activities as well as the presence of a national regulator have further boosted the positive outcome of the analysis of the openness Dimension related to the generation segment. The generation market is also adequately attractive, as demonstrated by the participation of several independent power producers. However, the attractiveness of the generation market could be further enhanced both on incentives and economic regulation Topics. Electricity tariffs have not yet achieved full cost-reflectivity while technology-based incentives, such the ones for renewables, could benefit from the enactment of new executive regulation. The generation market is also largely ready in terms of technical regulation. Indeed, the availability of national transmission and distribution codes with clear rules for system operation, grid access, and the contractual relationship between system operators and system users supports the integration and secure operation of new infrastructure within the national electricity system.

**Main findings related to the Transmission segment**

Private sector participation in the transmission segment remains restricted. EETC is the sole owner and operator of the national transmission network. As a result, private sector participation in the operation of transmission assets is excluded, as no model such as concession or privatization is made available. Private entities can, however, take part in the construction of new transmission assets as engineering, procurement, and construction (EPC) contractors. Beyond the barriers in the openness Dimension, the analysis reveals an advanced stage of development of national policy and regulatory frameworks in most of the Topics covered by the attractiveness, and readiness Dimensions. The Electricity Law as well
as its Executive Regulation define principles and responsibilities for tariff determination and administration while EgyptERA is responsible for setting the rules and economic principles for tariff calculation. Furthermore, the national transmission grid code offers further regulatory clarity and predictability ensuring the stable and safe operation of electricity networks.

Main findings related to the Distribution segment

According to the provisions of the Electricity Law, the distribution segment is open to private sector participation. Distribution licenses are accessible to private entities wishing to distribute or sell electricity. Furthermore, the Electricity Law also provides for the full unbundling of the power sector. However, while vertical unbundling of transmission activities has already been implemented, distribution and electricity retailing services remain bundled. Furthermore, the restructuring of EEHC distribution subsidiaries, a key step in the market reform process, is experiencing delays thus explaining the moderate performance in the openness Dimension. Distribution license rights and obligations are well established by the Electricity Law as well as the rules for accessing licenses approved by EgyptERA. The law clarifies the contractual regulation and standardized distribution licenses to the benefit of interested private entities. Tariff policy principles, based on the true costs of electricity services, are well stated by the Electricity Law; however, the absence of clear and transparent rules for electricity distribution pricing, currently under review by EgyptERA, diminishes the attractiveness of this market segment to private investors. The readiness Dimension shows areas of strengths related mainly to the presence of the national distribution network code which covers all the main aspects related to the safe operation of distribution networks. In addition, third-party access to both the national transmission and distribution networks is permitted by the 2015 Electricity Law.

To enhance the Openness of the electricity market

1. Enforce policy updates and review their implementation periodically and ensure periodic updates of strategic documents for the energy sector.
2. Consider adopting specific electricity sector targets in dedicated legislation to strengthen enforceability and accountability.
3. Adopt license conditions and rules for new market participants (such as electricity traders and re-sellers) to facilitate market entry of electricity traders and other market intermediaries.
5. Further, implement the restructuring of distribution companies and the separation of retail and distribution activities to facilitate greater private sector participation.
6. Clearly define the phases for market opening, detailing: (1) the procedures required for complete liberalization of the market, along with the associated timeline; (2) the investment costs required for each phase; and (3) the standards of moving from one phase to another.
Executive Summary

- Pave the way for investments in merchant projects by facilitate access to electricity sale license, private-to-private power selling agreements and access to national grid infrastructure.
- Facilitate private capital flows towards the electricity distribution service and companies by allowing shared ownership of distribution assets.
- Provide clarity and improve predictability about procurement plans to potentially interested stakeholders by publishing medium-term tender schedules.
- Evaluate costs and benefits for the evolvement of market design towards the establishment of an electricity spot market.

To enhance the **Attractiveness** of the electricity market

- Adopt standard form for power purchase agreements (PPAs) differentiated by technology and approved by EgyptERA to facilitate contract negotiation.
- Unbundle electricity tariffs and define differentiated, transparent methodologies to set the price points related to electricity services – generation, transmission, and distribution – to stimulate competition and target incentives.
- Empower EgyptERA to approve final tariff decisions.
- Ensure a timely update of RE regulation (i.e. FiT levels, RE-dedicated tenders) to guarantee renewable energy deployment is aligned with national targets.
- Assess the feasibility of introducing a national carbon pricing mechanism to meet climate objectives and encourage sustainable energy development.
- Simplify the governmental procedures for providing guaranteed loans.
- Facilitate the use of the Central Bank of Egypt (CBE) convertibility guarantee for both large scale and small RE projects.

To enhance the **Readiness** of the electricity market

- Increase the transparency about system planning by the involvement of market participants along the process, also through public consultation process, and making the generation and transmission expansion plans accessible for interested parties.
- Complement the connection and operating rules with market rules.
- Introduce remuneration schemes for ancillary service providers, also to support the development of system flexibility sources with market-based mechanisms.

As Egypt takes further bold steps towards its energy sector regulatory reform, the UN Economic Commission for Africa and the RES4Africa Foundation remain committed to partner with Egypt in addressing any of the identified regulatory and policy gaps. They also commit to supporting regulatory capacity development, as well as any area of particular reform interest of Egypt towards greater openness, attractiveness, and readiness of the electricity market.
Introduction
Towards Crowding-in Private Sector Investment

Introduction

A cityscape of the downtown area of Cairo, capital city of Egypt - aerial view.

Photo credit: hadynyah/Getty Images.
1. Introduction

Recognition that energy plays a key role in facilitating socio-economic development, and that its insufficient provision impedes it, has brought energy to the forefront of national, regional, and global agenda. National sector development strategies in most of Africa reflect the need to expand energy access rapidly, facilitated through the implementation of Sustainable Development Goals (SDGs), particularly SDG7. African states have pursued the energy access agenda, devoted public finance for energy infrastructure and capacity expansion, and instituted measures to strengthen the energy sector.

Despite appreciable progress as a result of these measures, structural challenges remain within the electricity markets of Africa. Over 500 million people on the continent today lack access to electricity. Latest global SDG7 tracking reports warn that progress made so far is not on track to achieving universal access by 2030 and that nearly 90 percent of the population without access at the end of the decade will be residing in Africa, partly due to rapid population growth (IEA et al., 2020).

Financing energy development remains a key challenge. The cost of achieving the SDGs at large in the continent is estimated at about USD 1.3 trillion per year. Africa would require USD 32 billion per year through 2030 on universal electricity access-related investments (AfDB, 2019). According to the Infrastructure Consortium for Africa, 37 percent of infrastructure investments in the continent was undertaken by African governments in 2018, with the private sector accounting for 11 percent (ICA, 2018). Given the major infrastructure investment gap and the limited investment role of the private sector so far, addressing the crowding-in of private sector investment in the electricity market is crucial.

Towards the goal of crowding-in the private sector, feasibility (bankability) of projects, country risks, profitability (viability), and the legal/regulatory environment are often identified as key barriers. Indeed, the regulatory framework is crucial for attracting private investments. The Regulatory Indicators for Sustainable Energy (ESMAP, 2020) indicate that more than half of the global population lacking access to electricity remained in countries with weak regulatory frameworks by 2019. These regulatory challenges remain to be addressed.

The Egyptian electricity supply industry is transforming to attract new investments, improve competition, and progressively open new segments of the value chain to private actors. Despite all these legislative changes, a new impetus would be needed to reform the power sector. As Egypt plans to venture in the direction of market liberalization, future reforms of the policy and regulatory environment will play a pivotal role in succeeding in this transition and creating a competitive electricity market more open to private sector investment participation.

This regulatory review examines these and additional issues in-depth concerning the crowding-in of private sector investment in the electricity market of Egypt, from generation to networks and off-grid market segments. The goal is, through regulatory improvement and expected increase in private sector participation, to promote the achievement of SDG7.
goals and developing a resilient, competitive, diverse, and vibrant electricity market that will sustainably attract private capital to supplement public investment. This is particularly crucial in a post-COVID-19 environment where public resources are even more constrained due to priorities in public health and social protection, as well as economic recovery.
Country Overview
Electric power transmission on April 29, 2008 in Egypt.
Photo credit: Athanasios Gioumpasis/Getty Images.
2. Country Overview

Located in the northeastern part of Africa, the Arab Republic of Egypt is bordered by Libya to the west, Sudan to the south, and Israel to the east. Egypt has access to the Mediterranean Sea to the north and the Red Sea to the east.

Egypt is the world’s 30th largest country, and with a population of over 104 million in 2021, it is the third most populous country in Africa (World Bank, 2022). Amplifying the significance of the Nile River to the country, 95 percent of the total population is concentrated in only 5 percent of the total land area, along the Nile Valley and Delta (World Bank, 2017).

The fast-growing population is putting a strain on existing infrastructure and services. In 2017, 32.5 percent of the total population lived below the national poverty line (World Bank, 2018). Since the 2011 Revolution, political stability and economic growth are in the process of recovering.
2.1 Macroeconomic overview

The economy of Egypt has shown healthy growth since the early 2000s. The sectors of real estate and construction showed robust growth (17 percent), followed by growth in manufacturing industries (15 percent), trade (14 percent), agriculture and fishery (12 percent), and the extraction industry (10 percent), each contributing at 10 percent or higher to the national GDP (DG Trésor, n.d.). Furthermore, Egypt significantly benefits from its strategic position serving as a global gateway and trading routes through the Suez Channel. The utilization of Channel generated USD 7 billion in revenue in 2021 (DG Trésor, n.d.).

Despite external and internal crises affecting the economy, the GDP, which is the second highest in Africa in 2020/2021, has been growing constantly since the beginning of the century (World Bank, n.d.). After an initial shock to the economy in 2011, when the political uprising led to a regime change, the economy has been on a steady path of recovery. This has been achieved through macroeconomic reforms which led to improved fiscal accounts and increased resilience until the Covid-19 pandemic hit in 2020 significantly impacting, as shown in Figure 1, Egypt’s economy as a whole (World Bank, n.d.). Over that period, the country demonstrated an average growth of 3.74 percent with a pick at 5.56 percent before the 2020 COVID outbreak.

**Figure 1: GDP growth (% 2010-2021)**

![GDP growth graph](source: World Bank (n.d., accessed 2022))

Despite the constant growth of Egypt GDP, the effect of the various crises is highlighted by the evolution of the country’s GDP per capita. Indeed, the lower economic growth at the beginning of the 2010s, coupled with the steady population growth of around 2 percent per year, resulted in a stagnation of the GDP per capita during that period. From 2014 to 2020, economic growth surpassed population growth and resulted in significant gains in per capita income. In recent years, through per capita income continued to growth, the effects of the COVID-19 pandemic on the economy have dampened the rate of growth in per capita income.

**Figure 2: GDP per capita (constant 2015 USD, 2010-2020)**

![GDP per capita graph](source: World Bank (n.d., accessed 2022))
Country Overview

Debt-to-GDP

The share of debt of the Egyptian government has steadily increased in the beginning of the 2010s, reaching a peak in 2017, the year following the liberalization of the Egyptian pound exchange rate. After a slight decrease in the Debt-to-GDP ratio between 2017 and 2019, the public debt increased again as responses to the COVID-19 pandemic were developed.

Figure 3: Debt-to-GDP ratio (2010-2021)

Source: International Monetary Fund (n.d., accessed 2022)

Inflation and exchange rate stability

The exchange rate of the Egyptian pound was strictly managed until 2016, thus putting important stress on the foreign currency reserves of the Central Bank of Egypt (CBE). After the liberalization of the exchange rate by the Central Bank of Egypt in 2016, the Egyptian pound stiffly depreciated against the dollar (World Bank, 2017). The depreciation resulted in spiking inflation in 2017. As a result, the CBE has implemented more restrictive monetary policies, thus stabilizing inflation. Those policies allowed the CBE to reach its inflation target between 2019 and 2021 – 7 per cent inflation rate +/-2 per cent (World Bank, n.d.). However, the repercussion of the COVID-19 crisis combined with the global inflation – notably on wheat – resulting from the war in Ukraine is projected to significantly impact the country’s inflation rate in the upcoming years.

Figure 4: Inflation rate (% 2010-2020)

Source: International Monetary Fund (n.d., accessed 2022)

Business climate

The 2020 Ease of Doing Business index by the World Bank ranked Egypt 114th, with a relatively better score in the areas of protecting minority investors (57th) and dealing with construction permits (74th) (World Bank, 2020). The main areas of improvement included trading across borders, enforcing contracts, and paying taxes. Lengthy procedures and high costs associated with these activities are areas for further improvement of the business climate.
The investment law of 2017 ensures foreign investors receive equal treatment and grants them the right of residency for the duration of projects, protection against nationalization or the seizure of funds without a court order, and the right to transfer profits abroad.

2.2 Electricity sector overview

Increased electricity demand over the last decades, combined with the abundance of land and renewable energy resources led Egypt to commit to moving away from a currently fossil fuel-dominated energy mix to one primarily led by renewables.

Electricity consumption

National electricity consumption has experienced an overall growth of 9.89 percent between 2010 and 2020, growing from 143.74 TWh in 2010 to 157.97 TWh. However, the general demand has been volatile and has followed changing trends influenced by the dynamics of the different sectors (see Figure 5). As such, the decrease in consumption of the industry sector in 2011 – Egypt’s second pool of demand – has not resulted in an overall decrease in demand due to the increased electricity consumption of the commercial and residential sector on that year – the 3rd and 1st energy consumers of Egypt, respectively. The major overall reduction in consumption in 2015 and 2018 resulted from a significant decrease in the residential demand on those years. In 2020, the residential sector accounted for 41 percent of the total demand, followed by the industrial and commercial sectors accounting for 28 percent and 25 percent, respectively. The remaining electricity demand came from transportation and the agriculture and forestry sectors (IEA, n.d.).

Figure 5: Electricity consumption, total (TWh, 2010-2020)


Figure 6: Electricity consumption, per capita (kWh, 2010-2020)

Between 2015 and 2021, Egypt built over 3 GW of new renewable energy capacity, notably wind and solar PV, bringing the total installed renewable energy capacity (including hydropower) to about 5.9 GW by the end of 2020.

**On-grid installed capacity and electricity production**

The installed power capacity of Egypt is still heavily reliant on thermal sources. Almost 90 percent of its generation capacity, or 53 GW, relies on fossil fuels. To become a regional energy hub, Egypt has led multiple projects over a remarkably short period to build an additional installed capacity of 23 GW between 2015 and 2019, and it has additionally constructed several interconnectors with Jordan, Sudan, and Libya (IRENA, 2022). Investments in renewable energy were encouraged by the Government through multiple policy and regulatory measures. Between 2015 and 2021, Egypt built over 3 GW of new renewable energy capacity, notably wind and solar PV, bringing the total installed renewable energy capacity (including hydropower) to about 5.9 GW by the end of 2020. The most prominent renewable energy accomplishments in the power sector were the launch of Benban Solar Park (total of 1,465 MW), Assuit hydropower plant (32 MW), Kom Ombo Solar PV Plant (26 MW), and Gabal El-Zeit Wind Power Plant (580 MW).

![Figure 7: Installed generation capacity (MW, 2020)](source: World Bank Group (2022))

Renewable energy sources accounted for 12.4 percent of the 191 TWh produced in 2020. Natural gas is the most used thermal source representing more than 95 percent, or 161 TWh, of total electricity generated using fossil fuels. While hydro generation has stayed fairly stable in the past ten years, hovering just above 15 TWh, wind and solar power have taken an increasingly significant role in the Egyptian generation system accounting for 4.2 TWh and 4.5 TWh of electricity generation in 2020, respectively (IEA, n.d.).

![Figure 8: Electricity production (GWh, 2010-2020)](source: International Energy Agency (n.d., accessed 2022))
Access to electricity

Egypt had universal population access to electricity (100 percent) since 2016; and it was already well above 97 percent since the turn of the millennia (World Bank, n.d.). Therefore, the electrification rate does not play a major role as in other countries analyzed in the regulatory review of the electricity markets of African countries.

Electricity service quality and reliability

To support the growing generation capacity, the Egyptian Electricity Transmission Company (EETC) is working to strengthen the expansion of high-voltage grid infrastructure. To ensure grid reliability, 4,136 km of new lines, 31,875 MVA of transformer capacity, and 19 new substations at the 500 kV level have been added between 2015 and 2021. In 2020, the EETC has put around EGP 7.7 billion towards improving network efficiency and reducing losses.

Upgrades and expansions have also been implemented to the 220 kV and 66 kV networks and substations. However, distribution networks still needed improvements to increase the quality of supply. As a result, the Government is pushing forward with the restructuring of the distribution utilities and is encouraging private investment in this sector (Mazghouny & Co, 2022).

National utilities are also bringing forward projects to build regional infrastructure for energy trade. This is pursued by expanding interconnections with the neighboring countries through the existing projects between Jordan, Libya, Syria, Lebanon, and Sudan as well as through projects to be implemented with Saudi Arabia, Cyprus, Greece, and the Gulf Interconnection Authority (EEHC, 2022).

Off-grid electricity market

Considering the coverage of the interconnected network, expanding off-grid solutions is not at the center of the country’s ambition. However, there is a growing interest in developing mini-grids with embedded generation, notably RE technologies, to supply industrial and touristic districts and replace diesel or fossil-fuel-powered solutions with more cost-competitive and sustainable alternatives. New industrial projects, such as a 36MW solar hybrid plant coupled with 7.5MW battery storage to power the Sukari Gold Mines are currently under development (Recharge, 2021). Also, EgyptERA has recently awarded a license to private sector renewables developer Karm Solar to run a mini-grid supplying resorts and hotels in the Red Sea resort of Marsa Alam (AfricanEnergy, 2022).

2.3 Electricity sector governance and market structure

Overview of electricity sector reforms

This section presents a summary of key events in the history of power reforms in Egypt.

1962-1996: Nationalization and Institutional Integration

The 1960s marked the nationalization of Egyptian electricity companies which merged into three public authorities, namely the Generation Authority, the Electricity Transmission and
Country Overview

Distribution Authority, and the Authority for Project Implementation. In 1964, the Ministry of Electricity was created. In 1965, the existing market agencies were merged into a vertically integrated structure, the Egyptian General Establishment for Electricity.

In 1976, the Egyptian Electricity Authority (EEA) was created by Law No. 12/1976. The EEA replaced the Egyptian General Establishment for Electricity and was granted the exclusive right to generate, transmit, and distribute electric power throughout Egypt. Under Law No. 12, the EEA could propose tariffs following tariff guidelines approved by the Supreme Electricity Council and the Ministerial Committee, which required Cabinet approval. At the same time, the Office of Rural Electrification was created to drive electricity service expansion. Once access projects were completed, EEA took ownership of the assets.

In 1978, the EEA created seven geographic distribution companies, which in 1983 were separated from EEA control and merged into the newly created General Authority for the Distribution of Electric Power, which was placed under the direct jurisdiction of the Ministry of Electricity. In 1984, Law No.12 was amended to abolish EEA’s exclusive right to power generation. This represented the first step in the re-opening of the electricity market of Egypt to private sector participation, following two decades of complete state monopoly. The year 1986 marked the establishment of the New and Renewable Energy Authority (NREA). NREA’s role is to coordinate national efforts for introducing and expanding renewable energy technologies to Egypt and fostering energy efficiency.

In 1991, under Law No. 203, the distribution companies (DISCOs) of the General Authority for the Distribution of Electric Power were moved under a new entity, the Holding Company for the Distribution of Electric Power, placed under the jurisdiction of the Ministry of Public Enterprises Sector.

1996-2003: Slight opening to private participation in electricity generation and further institutional consolidation

The year 1996 saw another step towards the reform of electricity sector governance. Law No. 100/1996 was passed, modifying Law No. 12/1976, to allow private sector entities to produce electricity under the “build, own, operate, and transfer” model of concession agreements. Private generators would sell electricity to EEA under power purchase agreements (PPAs) and then transfer the assets to the public utility. The passing of this law marked a switch in the electricity market model of Egypt from a monopoly to a single-buyer model, where EEA acted as the sole purchaser at the wholesale level. As a result, three independent power producers (IPPs) entered the market and started operations in 2002/2003.

Another significant step in the evolution of the market was the establishment of the Electric Utility and Consumer Protection Regulatory Agency (EgyptERA) in 1997 via a Presidential Decree No. 326. EgyptERA became operational in 2001 and its mandate was to supervise the activities of electric power generation, transmission, distribution, and sale, in compliance with Egyptian laws and regulations.

Further consolidation and restructuring of institutions occurred in 1998 when the distribution companies were transferred from the Ministry of Public Enterprises back to the EEA, following Law No.18/1998, which modified Law No. 12/1976. They were then merged with the EEA’s generation companies, creating seven geographically vertically integrated companies within the EEA, while transmission remained as an independent company within the EEA.
In 2000, the EEA was corporatized and renamed the Egyptian Electricity Holding Company (EEHC), as a consequence of the enactment of Law No. 164/2000, amending Law No. 12/1976. The adoption of Law No. 164 also marked the functional unbundling of the generation, transmission, and distribution activities within EEHC: five generation companies; seven distribution companies; and one transmission company which was designated as the single buyer (and seller) of bulk electricity were created.

2003-2014: Return to the public sector model and stagnant reforms

The first decade of the 2000s saw a stall in energy and electricity reforms. No further attempts were made to involve the private sector and investments were supported through development finance and public money. Some structural imbalances appeared in the energy sector, from a sharp increase in domestic gas demand to the need to constantly raise energy subsidies, which reached about USD 6 billion in 2009.

The upspring and resulting political crisis in 2011, the change of government, and the political and economic instability in the years after also worsened the stability of the energy sector. Gas and electricity demand continued to increase, natural gas export declined, and investments in the oil and gas upstream sector diminished. The energy sector entered a period of crisis that culminated in the 2013-2014 frequent blackouts and power shortages urging the new Government to act.

Nevertheless, during this period there was some preparation for future reforms. This mainly concerned the discussion around needed legal reforms to strengthen competition and enhance the business environment in the electricity market. Furthermore, it was during this period that Egypt was able to claim success in its campaign for near-universal electricity access, reaching a coverage rate of 99 percent. As a result, the Rural Electrification Authority (REA) was fully disbanded in 2012 and its assets were transferred to various electricity distribution companies.

From 2014 - to present: new reform efforts

The year 2014 saw a subtle but important shift in the approach of the Egyptian government to electricity sector reform. The new government committed to a comprehensive electricity sector reform program as part of a larger macroeconomic reform planned in partnership with the International Monetary Fund and the World Bank.

At first, Law No. 203/2014 was adopted as a crucial piece of legislation intended to provide a regulatory framework for the development of renewable energy projects and to encourage private sector involvement. In 2015, Egypt adopted Law No. 87/2015, also known as the new Electricity Law, designed to introduce several changes to foster sector liberalization, boost private sector involvement in electricity infrastructure investments, notably in new generation assets, and build a competitive market through extensive sector restructuring.

The direction set by these two major reforms was confirmed by the Integrated Sustainable Energy Strategy to 2035 (ISES), which was issued in 2016. The ISES, which remains until today the main energy policy document for the country, defines a new direction for the growth and development of the electricity industry and wider energy sector. It sets the following priorities:
Country Overview

- Enhancing energy security through diversification of supply and sustained development of renewable energy sources, intended to represent 42 percent of electricity generation by 2035;
- Improving energy and resource efficiency through further development of the national energy policy planning processes and the establishment of mandated authorities for monitoring progress against energy strategy objectives;
- Advancing institutional and corporate governance and transparency, regulating the roles of all market participants in the energy system, improving the performances of utilities and industry players, developing a fair and accessible energy market, encouraging private sector participation; and
- Enhancing the long-term financial sustainability of the energy sector and competitiveness of energy supply, benefitting from increased competition and private sector participation.

Both the ISES and the new Electricity Law considered various stages for reforming energy markets. The new Electricity Law provided for a three-year transition period for EETC to become a transmission system operator independent from generation and distribution and considered eight years to restructure the market into a competitive system. In 2016, the Electricity Law executive regulation (Decree No. 230/2016) was issued and initiated the restructuring of the Egyptian Transmission Company (EETC), which became the Transmission System Operator in 2019.

Institutions governing the electricity sector

The Egyptian electricity sector is governed by four main institutions: the Supreme Energy Council (SEC); the Ministry of Electricity and Renewable Energy (MERE); the Egyptian Electric Utility and Consumer Protection Regulatory Agency (EgyptERA); and the New and Renewable Energy Authority (NREA). These institutions oversee a range of market players operating in the power sector.

Table 1: Institutions governing the electricity sector

<table>
<thead>
<tr>
<th>Institution</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supreme Energy Council (SEC)</td>
<td>The Supreme Energy Council was established in 1979 by Prime Ministerial Decree No. 1093 and reformed in 2014. Chaired and constituted by the Prime Minister, it includes all relevant ministries and has the authority to review and approve national energy strategies and policies, monitor sector performance, and approve energy pricing policies and regulations as well as incentives for energy sector investments (including promotion of energy efficiency and renewable energy investments).</td>
</tr>
<tr>
<td>Ministry of Electricity and Renewable Energy (MERE)</td>
<td>The Ministry of Electricity and Renewable Energy was established in 1964 by Presidential Decree No. 147. Its goal is to provide electricity to all consumers in Egypt. To achieve this goal, the Ministry of Electricity: • Develops policies and master plans for the generation, transmission and distribution of energy, oversees their implementation, and supervises the activities of the electricity sector; • Establishes tariffs for the distribution and sale of electricity at different voltage levels for different purposes;</td>
</tr>
</tbody>
</table>
• Supervises the implementation of important electric power projects;
• Establishes a system for the collection of statistics and data relating to electricity; and
• Provides technical assistance, expertise, and advice to other countries on the electricity sector.

Egyptian Electric Utility and Consumer Protection Regulatory Agency (EgyptERA)
The Egyptian Electricity Utilities and Consumer Protection Authority was established in 2000 as an independent body to oversee all key players in the electricity sector and reorganized by the 2015 Electricity Law. Its objectives are to:
• Regulate, supervise and develop all activities related to the generation, transmission, distribution, and use of electricity;
• Guarantee the availability and quality of electricity, while ensuring reasonable prices;
• Protect the environment; and
• Encourage investment in the electricity sector, taking into account the interests of consumers and the main players in the electricity sector.

New and Renewable Energy Authority (NREA)
The New and Renewable Energy Authority, which is part of the Ministry of Electricity and Renewable Energy, plays a strategic role in the implementation of the renewable energy program of the government. The Authority can establish its own companies to operate and maintain renewable energy projects and may also partner with investors.

Market players
The national electricity holding company (EEHC) dominates the Egyptian electricity market. The country is also home to several IPPs and private distribution companies operating in parallel with EEHC. Most recently, the transmission operator (EETC), formally a joint stock company wholly owned by EEHC, was separated from the holding and became a new state-owned company operating as transmission system and market operator.

Table 2: Market players

| Egyptian Electricity Holding Company (EEHC) | The electricity sector is dominated by the state-owned Egyptian Electricity Holding Company which consists of 15 companies: six power generation companies (Cairo, Hydro Power Executive Board, East Delta, West Delta, Upper Egypt, and Central Delta Electricity Production Company) and nine power distribution companies (North Cairo, South Cairo, Alexandria, Canal, North Delta, South Delta, Beheira, Central Egypt, and Upper Egypt Electricity Distribution Company). The role of the EEHC is to:
| | • Oversee and monitor the activities of affiliated companies as an integrated economic unit;
| | • Coordinate planning and investment and manage finances for the sector;
| | • Develop five-year plans to meet the expected increase in demand by optimizing the use of available energy resources;
| | • Manage the implementation of projects to produce electricity from thermal power plants; |
Country Overview

• Improve the performance of the power sector to ensure sustainable electricity supply and facilitate economic and social development;
• Provide electricity to all customers through available resources at competitive and affordable prices; and
• Coordinate with the New and Renewable Energy Authority for generation and transmission planning required for renewable energy projects.

Egyptian Electricity Transmission Company (EETC)

EETC is a state-owned company operating as a transmission system and market operator. Previously owned by EEHC, EETC became independent following the passage of the Electricity Law. Its roles are to:
• Manage, operate, and maintain the transmission grid;
• Purchase electricity from generating companies according to demand and sell power to electricity distribution companies and other customers on ultra-high and high voltages;
• Cooperate with the EEHC to prepare technical and economic studies to meet electricity demand; and
• Implement electricity transmission projects approved by EEHC and interconnection projects approved by MoERE.

Independent Power Producers (IPPs)

IPPs are allowed to produce electricity for sale to the EETC and, since the adoption of the 2015 Electricity Law, sell to large eligible customers. Three IPPs (SidiKrir, EdF Suez, and Port Said), with a total generation capacity of approximately 2.5 GW, started operations in 2002-2003 under a 20-year-long power purchase agreement with the state-owned Egyptian Electricity Holding Company. Other IPPs have entered the market through the renewable FiT program.

Private Distribution Companies

Private electricity distributors are also permitted to develop, implement, operate, and maintain distribution networks within licensed geographic areas. Currently, there are about 33 companies that have licenses to distribute electricity in the country (REGlobal, 2022). However, EEHC remains in control of about 99 percent of the national distribution sector.

Electricity market model

At present, EEHC owns 92 percent of the installed generation capacity. Three private companies were established under BOOT contracts, and they account for 3.5 percent of installed capacity. These private companies have entered into Power Purchase Agreements (PPAs) with the EETC for 20 years. The remaining 4.5 percent of installed capacity relates to renewable energy sources (wind farms, solar PV, and concentrated solar power (CSP) owned by NREA and 39 private companies (all feed-in tariff solar PV plants), as well as other small IPPs).

The EETC is the national transmission and wholesale market operator since the adoption of the 2015 Electricity Law. It buys electricity from generation companies and resells it to distribution companies or other bulk customers connected to its grid. The EETC has direct contracts with about 150 large consumers connected to extra-high voltage and high-voltage networks. In addition, the EETC exchanges energy with neighboring countries through its existing interconnection network (Egypt is already directly connected to the networks of Jordan, Libya, and Sudan).
Distribution companies sell electricity directly to end consumers located in their geographic area. A license from EgyptERA is required to supply electricity.

About 90 small private generation/distribution companies are also licensed. Most of them are located in newly developed communities to serve a limited small number of customers on medium and low-voltage levels.

Following the dispositions of the 2015 Electricity Law, the market model is expected to continue its progressive evolution towards complete liberalization. The first phase of the evolution will see the coexistence of two markets working in parallel: one is the current regulated market, where non-eligible consumers will continue to pay regulated tariffs to distribution companies supplied by a public wholesaler (EETC); and the second is a new competitive market for eligible customers (at first the EHV and HV customers), having the right to freely choose their electricity suppliers based on bilateral direct agreements and negotiated electricity prices.

Customers on medium and low-voltage levels will gradually be moved from regulated to competitive markets during the next phases of market liberalization. The spot market for electricity is to be established at a later stage once the market has matured. The liberalization process will include the generation and distribution sectors; however, will not extend to the transmission system, which, by law, will remain government-owned and under the management of the public utility EETC.

The transition phase is still ongoing due to several challenges. The transition period has been extended due to some constraints. First, the full unbundling of the transmission company EETC has been delayed and only materialized in 2019. This represents a major step, as the EETC is now expected to also operate as an independent market operator and to function as a system planning institution. Second, the electricity tariff reform and the resolution of heavy subsidy and cross-subsidy between customer categories are still ongoing and represent a major obstacle to free competition among suppliers in the market.
2.4 Policies and regulations governing the electricity supply industry

The electricity market of Egypt is governed through numerous strategies, policy documents, and laws summarized in the next section (see Annex A for further information).

### Table 3: Energy sector strategies, policies, and plans

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Development Strategy (2016)</td>
<td>The Sustainable Development Strategy - Vision 2030, announced in February 2016, indicates the national desire to achieve a competitive, balanced, and diversified economy by 2030 to ensure sustainable development for all Egyptians in a protected environment. The strategy identifies a series of targeted development indicators to be achieved by 2020 and 2030 such as GDP real growth, inflation rate, unemployment rate, and so on. The strategy sets energy-related targets, including the achievement of a 32.5 percent renewable energy share in total electricity production by 2030.</td>
</tr>
<tr>
<td>Integrated Sustainable Energy Strategy (2016)</td>
<td>In 2016, the Egyptian government adopted the Integrated Sustainable Energy Strategy (ISES) 2035, which provided a new direction for the growth and development of the energy sector. It focuses on enhancing energy security through diversification of supply sources, improving energy efficiency, advancing corporate governance, and making the energy market more competitive and sustainable. ISES aims to generate 20 percent of national electricity generation from renewable sources (including solar, wind, concentrated solar power (CSP), and hydro) by 2022 and 42 percent by 2035. In addition, coal has been phased out of the energy mix and replaced by renewables.</td>
</tr>
<tr>
<td>National Climate Change Strategy for Egypt until 2050 (2022)</td>
<td>In 2022, the Ministry of Environment issued the National Climate Change Strategy until 2050. The strategy foresaw the integration of climate change dimensions into the general planning of all economic sectors. It details adaptation and mitigation measures to be implemented in all economic sectors until 2050. Particular attention is given to the energy, transportation, agriculture, and water management sectors. The strategy is also designed to outline policy measures meant to improve climate finance and infrastructure, enhance research in green technology, and raise awareness to help confront climate change.</td>
</tr>
</tbody>
</table>

2.4.1 Key laws and regulations for the electricity supply industry

**Foundational legislation**

Two major laws currently govern the functioning of the electricity market: the Electricity Law (Law No. 87/2015) and the Renewable Energy Law (Law No. 203/2014).

The new Electricity Law was published in July 2015 and regulates all electricity activities to establish a fully competitive electricity market where electricity generation, transmission, and distribution activities are fully unbundled. The law provides a legal framework conducive to private sector participation. It proposes structural reforms for establishing a fully competitive electricity market, unbundling ownership of generation, transmission, and distribution
activities. It further allows grid access to third parties without bias. The Law ensures the independence, competency, and accountability of the electricity regulatory agency. The 2015 Electricity Law provides for an initial period of eight years to develop and implement these measures, which have recently been extended to 2025.

More specifically, the 2015 Electricity Law:

- Fosters market liberalization by removing monopolies on distribution and introducing private sector participation in generation and distribution activities;
- Restructures EETC functions, converting it to an independent system operator;
- Provides for a gradual elimination of the single buyer market by allowing third-party access to the infrastructures owned by the Ministry of Electricity and unbundling ownership of the distribution system;
- Codifies the authorization and licensing framework, including licensing of electricity generation from renewable sources, by establishing the rights of the licensee in terms of exercising production, distribution, and transmission services, relevant rules about its termination or dispute resolution process;
- Encourages competition by promoting the introduction of a competitive end-user market and allowing a limited number of large consumers to contract directly with generators;
- With regard to renewable electricity generation, the law envisages that the private sector builds, owns and operates the projects and sells the electricity to the transmission company (EETC) under long term Power Purchase Agreements (PPA). Non-renewable energy-based IPPs could conclude bilateral purchase agreements with eligible consumers.

The 2015 Electricity Law shifts the energy market from a public monopoly to that of a regulated system and seeks to restructure the role of the EgyptERA in this reform process. The law declares EgyptERA to be an independent regulatory body with the following tasks:

- Issue permits and licenses for the establishment, management, operation, and maintenance of power generation and distribution projects and the sale of electricity;
- Establish economic rules and principles to calculate, within a fair and transparent framework, the tariffs for the sale of electricity to unqualified customers, the prices for the exchange of electricity in the organized market, and the prices for the use of the transmission and distribution networks;
- Establish principles of technical quality and other standards for service performance in the electricity sector;
- Establish rules and procedures, as appropriate, to develop and promote the production and use of electricity from renewable sources;
- Monitor the technical, financial, economic, and administrative efficiency of market participants to achieve sustainability and quality of service;
- Impose penalties for violations of the rules of free competition and the principles of transparency and equal opportunity, as provided for in the Electricity Law; and
- Settle disputes related to the operation and organization of the electricity sector.
EgyptERA also approves the contracts between service providers and customers in the regulated market. In general, it oversees contracts of either commercial or technical nature. Some of the contracts which are in place include Supply Contracts, Network Connection Contracts, and Network Access Contracts.

The new Electricity Law was followed by Executive Decree No. 230/2016. While the Decree does not change the general principles of the Law, it introduces detailed rules on the key aspect of market governance such as:

- The rules governing the determination of the tariffs, prices, and fees paid by various electricity players for various types of activities and services;
- The licensing regime for the generation and distribution of electricity;
- The system planning regulation; and
- The dispute settlement committee.

Related to the licensing regime, Decree No. 230/2016 states that the conditions for licensing shall be determined in dedicated Rules approved by the Board of Directors of EgyptERA, which are meant to define detailed and comprehensive conditions and procedures to administrate the licensing process.

In 2021, Law No. 70 was ratified, amending some of the provisions of the 2015 Electricity Law. The amendment extended the transition period for EEHC and the generation and distribution companies owned by it to 2025.

Another fundamental legislation that shapes the electricity market governance of Egypt is the Renewable Energy Law (Law No. 203/2014), enacted in 2014. The Law provides for four main mechanisms to achieve renewable energy goals:

- Competitive bidding: under this scheme, the New and Renewable Energy Authority is required to issue tenders for private companies to install renewable energy plants under engineering, procurement, and construction (EPC) contracts. The plants will be operated by NREA.

- Build, Own, and Operate model: competitive bidding managed by EETC to tender for private companies to develop renewable energy power plants under a BOO model and sell the electricity produced to EETC at terms and prices agreed between EETC and the investor.

- Feed-in Tariff mechanism: private sector investors are permitted to build, own and operate renewable energy power plants and sell the electricity produced to EETC or a licensed distribution company through a power purchase agreement in exchange for a pre-announced feed-in tariff. PPAs may not exceed 25 years for solar power projects and 20 years for wind power projects. Eligible developers must (i) establish a project company (or a special purpose vehicle (SPV)) in the form of a joint stock company (JSC) with a minimum capital of EGP 15 million, and ii) use a standard format template for PPAs.

- Bilateral purchase agreements: a trading scheme under which independent power producers can enter into bilateral contracts to sell electricity directly to consumers, wheeling electricity through the national network, subject to grid access charges (wheeling fees) through grid connection agreements.
Private producers of renewable electricity are guaranteed access to the transmission and distribution networks in a clear, transparent, and non-discriminatory manner. Grid connection costs are borne by the producer. EETC and distribution companies commit to purchase electricity produced from renewable energy sources or pay for it (take or pay) if the energy produced cannot be transmitted.

**Grid Codes and technical regulations**

EgyptERA has approved the Egyptian Electric Power Transmission Code and the Electricity Distribution Code. The Grid Code specifies the fundamental standards and requirements of the grid users that ensure the safe, efficient, and secure operation of the Egyptian transmission system. The Distribution Code specifies the requirements for the distribution level (medium and low voltage networks).

In 2017, a PV Code, as well as a Wind Code, were adopted. The Grid Code is the basic reference for Wind and PV codes, where they specify the minimum standards and requirements for each type of renewable energy power plant taking into account the voltage level at which the plant is connected.

Furthermore, EgyptERA has issued a series of periodical circulars containing rules and regulations to direct the generation, transmission, or distribution activities. These circulars contain either new regulations or modifications/clarifications of already existing regulations such as:

- Complete set of regulations for new connections/contracts for investment projects on medium and high voltage levels;
- Complete set of regulations for new connections/contracts for household and commercial activities on medium and low voltage levels;
- Customer code which explains billing of each type of consumption activity; and
- Regulations to be followed by electricity companies in the management of complaints.

The regulations, rules, codes, and tools mentioned above apply to all market participants without differentiating between ownership types, i.e., public or private entities. This approach assists in avoiding discrimination between different market participants and brings about fairness and equal treatment under the same regulatory framework.

**Tariff regulation**

The new Electricity Law states that electricity prices will be determined based on the cost of producing energy (or energy services) and its related variables, including energy transmission costs, inflation, fuel factors, and targets set by the recent subsidy reform. This is based on the calculation methodology developed by EgyptERA (EgyptERA, 2016).

Electricity prices are determined by a ministerial decree issued by the Minister of Electricity and Renewable Energy, and the current electricity prices are determined by Ministerial Decree No. 100 of 2020, which outlines the electricity prices for a five-year period starting in 2020/2021.
Decree No. 230/2016 provides more details on electricity tariffs administration, stating that EgyptERA is responsible to set the rules and economic principles for tariffs calculation, which include the tariff of electricity, the prices for the exchange of electricity between non-qualified members, and the use of network system charges. The rules have to be approved by the Prime Minister’s Cabinet and then published on the website of EgyptERA. Tariffs calculation rules can be revised by the initiative of EgyptERA or the Prime Minister, while also market participants have the right to ask for rules revision. EgyptERA is responsible for proposing final tariffs, including network charges which, after the approval by the Board of EgyptERA, are submitted to the Cabinet of the Prime Minister for consideration and approval, following which a ministerial decree would be issued and published in the Official Gazette. The Electricity Law of 2015 provides that if the Cabinet approves lower tariffs than the rates defined by EgyptERA, the state shall cover the difference on an annual basis.

Using the bracket system, electricity prices in Egypt vary depending on the type of feeding voltage level and consumer group, the amount of consumption, and the time of use (peak/off-peak periods). Residential tariffs are divided into seven blocks, ranging from a first block of 0.138 Egyptian pounds for consumption up to 50 kWh per month, to 1.35 Egyptian pounds for consumption over 1,000 kWh, paid at a flat rate for total consumption (IRENA, 2018).

In 2014, the Egyptian government announced a gradual liberalization of electricity prices over five years, to completely remove electricity subsidies by the end of the 2018-2019 fiscal year. This reform plan was adopted under Prime Ministerial Decree No. 1257/2014. After the free-floating of exchange rates in November 2016, the government decided to extend the duration of this liberalization plan, which was again extended due to the global outbreak of COVID-19 up to the fiscal year 2024-2025. Before this program, energy subsidies constituted over 20 percent of total government expenditure, and 6 percent of the GDP in the fiscal year 2012-2013. Between 2014 and 2018, energy subsidies dropped to 3.4 percent of GDP, subsequently declining to 0.3 percent of GDP in the fiscal year 2019-2020.

As of today, the regulatory framework for electricity tariffs setting, including and foremost for wheeling, is being revised by EgyptERA which is expected to publish new guidelines for the pricing of the different electricity sector services (Mazghouny & Co, 2022).

2.4.2 Other regulations for private sector participation

Private sector participation models

The Electricity Law of 2015 liberalizes the electricity market of Egypt and allows the participation of the private sector in the generation and distribution market segments through various types of contracts. The law restricts private participation only in the transmission service segment since it gives EETC the exclusive right to manage and operate the electricity transmission network.

Investors wishing to produce, distribute, or sell electricity must obtain a license from the Egyptian Energy Authority and establish an SPV in the form of a joint stock company. This license is granted for a maximum period of 25 years. It can be renewed for a similar period, or part thereof. EgyptERA is required to verify, on an annual basis, the permanent fulfillment of the requirements of the license and to issue to the licensee an annual certificate confirming the validity of such license.
Merchant investments are permitted by the existing legislation in the generation segment, which authorizes private off-takers to enter into agreements with private generation companies to secure the purchase of electricity from renewable energy sources. In practice, however, the use of this model is still in its early stages and is usually applied to energy-intensive industries, especially the cement sector, and some oil and gas companies in accordance with their mandates and renewable energy goals under the Paris Agreement.

**Procurement processes**

Law No. 67/2010 on Public-Private Partnerships (PPPs) regulates partnerships with the private sector in infrastructure projects, services, and public utilities targeting key areas of the country’s infrastructure. The law provides for the establishment of competent authorities for the management of PPP contracts administration. A Supreme Committee for PPP Affairs, chaired by the Prime Minister, is established with the main mandate of:

- Setting an integrated national policy for the PPP, and identifying the framework, objectives, mechanisms, and targeted scope of the projects;
- Endorsing the application of the PPP structure on projects of Administrative Authorities;
- Monitoring the allocation of financial funds to ensure the fulfillment of financial obligations resulting from the implementation of PPP contracts; and
- Issuing the rules and general criteria for the PPP and endorsing standard PPP contracts for use in different sectors.

A Public-Private Partnership Central Unit is also established within the Ministry of Finance to provide technical, financial, and legal expertise to the Supreme Committee for PPP Affairs and to lay out and follow-up procedures to tender and conclude PPP contracts and their execution.

The law allows PPPs for financing, constructing, equipping, and operating infrastructure projects and public services. PPP contracts may allow project companies to operate the project, and provide the service or the product to the Administrative Authority, or to whoever is specified by the Administrative Authority. The term of the contracts is 5-30 years, with the possibility of renewal. The minimum capital investment required is USD 18 million. Payments to the developer are subject to the issuance of an acceptance certificate released by the administrative agency (UNCTAD, 2010). The law and its executive regulations define tendering and awarding procedures and detail substantive provisions that must be included in the PPP contracts.

PPP regulatory framework has been completed in 2018 with the adoption of Law No. 182/2018 promulgating the Law Regulating Contracts Concluded by Public Entities. This law states new rules for managing public procurement processes and contract relationship between the private sector and governmental entities, or public authorities. The law foresees the possibility of direct agreements with providers of basic utilities (water, gas, electricity, and any other services of a similar nature, and services for which the government determines its price) in which the state has a controlling share.
**Country Overview**

**Incentives**

Investment Law No. 72 of 2017 (Investment Law) defines the general framework for investment incentives, including norms of import duties exemptions and tax discounts on investment costs. In connection with the continued support of the government for the power and energy sectors, especially renewable energy projects, it provides certain investment incentives and tax exemptions for these sectors.

The Investment Law Enforcement Rules (Enforcement Rules) issued under the Prime Minister’s Decree No. 2310 of 2017 states that the power and energy sectors include the design, construction, production, management, operation, and maintenance of power plants and power generation, regardless of their source, or distribution and sales network. The incentives provided to electricity or renewable energy projects are of three types: (i) general, (ii) special, and (iii) additional, as described below (Riad&Riad, 2021).

i. General incentives include, among others, the following:

- The application of a flat rate of 2 percent on the value of machinery and imported equipment required for the establishment of an electricity or renewable energy project;
- Exemption from project land registration fees; and
- Registration of company incorporation documents, loan agreements, and pledge agreements are exempted from stamp duty and notary fees for a period of 5 years from the date of registration of the company at the Commercial Registry.

ii. Special incentives, deductible from taxable net profits according to a forthcoming investment map that will identify investment areas as Sectors A and B, as follows:

- 50 percent discount for investment costs in sector A which covers the geographical areas most in need of development (underdeveloped areas); and
- 30 percent discount for investment costs in Sector B which covers all geographical areas outside Zone A and applies to projects engaged in certain activities including renewable energy projects and projects related to electricity production and distribution as decided by the Prime Minister.

iii. Additional incentives, provided to renewable energy and power projects at the discretion of the Cabinet and awarded by the Head of the General Authority for Investment and Free Zones (GAFI), including:

- The government bears all or part of the additional costs for public facilities allocated to the land once the project is operational;
- The government bears part of the cost of technical training for employees; and
- Free land allocation for certain strategic projects.
The new Value Added Tax, Law No. 67 of 2016, introduces VAT Exemption for electricity activities and the import of equipment. The Law states that the generation, transmission, sale, or distribution of electricity is exempt from VAT.

A 5 percent VAT Reduction (instead of the standard rate of 14 percent) applies to all machinery and equipment needed to set up the facilities, whether imported or purchased locally. Furthermore, Decree No. 106 of 2017 regulates how the reduced VAT rate of 5 percent applies to machinery and equipment instead of the normal 14 percent rate (Riad&Riad, 2021).
Analysis of Electricity Market Policy and Regulatory Framework
Towards Crowding-in Private Sector Investment

Country Overview

Wind turbines in the Sinai Desert, Hurghada, Egypt.
Photo credit: Anton Petrus/ Getty Images.
3. Analysis of Electricity Market Policy and Regulatory Framework

UNECA and RES4Africa Foundation have developed a custom methodology to assess countries’ policy, legislative, and regulatory frameworks in their ability to encourage the participation of private sector investors. The approach encompasses the entire electricity supply industry value chain, covering the generation, transmission, distribution, and off-grid segments of the market.

3.1 UNECA and RES4Africa methodological approach

The methodology identifies three areas, referred to as Dimensions, under which policy, legislative, and regulatory elements are clustered. These Dimensions are as follows.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td><strong>Openness</strong></td>
<td>or power sector structure and governance. This Dimension covers policies, laws, and regulations meant to define energy policy and strategy priorities, market-entry, infrastructure planning, sector governance, market structures, and related considerations. These instruments combined provide an overall view of the openness of the electricity market to investors.</td>
</tr>
<tr>
<td><strong>Attractiveness</strong></td>
<td>or sector economics. This Dimension assesses policies, laws, and regulations that ensure the economic viability of electricity infrastructure investments, as well as fair competition among market operators. A review of these instruments provides an overall synthesis of the attractiveness of the electricity market to private sector investors.</td>
</tr>
<tr>
<td><strong>Readiness</strong></td>
<td>or sector maturity. This Dimension investigates technical regulations designed to ensure the implementation into, and efficient integration and management of electricity infrastructure within the energy system. A review of these elements of the Dimension provides an overall picture of the readiness of the electricity market to investors along the value chain.</td>
</tr>
</tbody>
</table>
Figure 10: Overview of the Topics assessed within each Dimension

Openness
- Energy strategy
- System planning
- Power sector governance
- Power sector framework
- Power sector competition
- Private sector participation model
- Procurement process
- Generation off-taking options

Attractiveness
- Contracts regulation
- Economic regulation
- Incentives
- Indirect incentives
- Credit enhancement
- Authorization and permits
- Grid code
- Grid access
- System quality and security standards
- Access to data

Readiness
- System planning
- Grid code
- System planning
- System quality and security standards
- Access to data
- Off-grid system integration
Each of these Dimensions is then disaggregated into three further levels, namely Topics, Indicators, and KPIs (key performance indicators).

- **Topics (1st Level)** define the main areas of policy and regulatory assessment (such as energy strategy, system planning, and grid code) specific to each of the dimensions. Topics are composed of Indicators. See Annex B for an overview of the Topics assessed.

- **Indicators (2nd Level)** cover single policy or regulatory elements (such as energy policy, Electricity Act, public PPAs, retail tariff structure, and grid connection). Each Indicator is composed of a series of KPIs.

- **KPIs (3rd Level)** are single elements, or specific questions, that provide a detailed understanding of Indicators, which in turn inform Topics.

*Figure 11: Methodological building blocks*

The methodology, cascading from the broader to the micro-level, enables proper assessment and understanding of the degree of openness, attractiveness, and readiness of electricity markets to private sector investors. This approach led to the formulation of a set of questionnaires – one for each segment of the electricity market, that is generation, transmission, distribution, and off-grid. Based on YES/NO questions, the approach enables the assessment of the policy, legal, and regulatory environment related to its fundamental attributes: clarity, predictability, transparency, and accountability.

The quantitative result from this methodological exercise is estimated by summing the positive (YES) answers to the detailed questions (KPIs). To reflect on the relative relevance of a particular KPI under a given Indicator, and to assess the impact that a particular Indicator has on its Topic, Indicators, and KPIs are subjected to relative weights on a scale system. The weights were reviewed and validated by a panel of African and international experts, and reflect the average input of the experts.

To compute the necessary quantitative results based on data input from countries, UNECA and RES4Africa developed the ROAR (Regulatory review of the openness, attractiveness, and readiness) tool. The ROAR tool computes results by country based on country data inputs and a defined weighting methodology.
The quantitative results, therefore, are presented at the Topics level and use a scoring system based on a 0 to 3 point scale, where 0 is the lowest score – indicating a lack of regulatory preparedness on the assessed Topic related to private sector investment participation – and 3 is the highest – indicating a full regulatory preparedness on the assessed Topic.

3.2 Main findings

The section below presents the quantitative results of the performed assessment of Egypt’s electricity policy and regulatory framework related to the crowding-in of private investors to the electricity market.

3.2.1 Generation segment

*Figure 12: Overview of the generation segment*

Overall, the openness, attractiveness, and readiness of the Egyptian electricity market for private investors is strong in most of the Topics assessed under the generation segment. This confirms the preparedness of the country regulatory framework in enabling private led investment in generation assets.
A deep dive into the Openness dimension

Figure 13: A deep dive into the Openness dimension for generation

Egypt presents a good regulatory performance related to energy strategy thanks to the presence of a set of strategic documents guiding the long-term evolution of the energy sector. The Integrated Sustainable Energy Strategy, adopted in 2016 and currently under review, sets policy priorities and targets for the development of the electricity industry and the wider energy sector. It sets quantitative targets for electricity mix and renewable energy development. The National Climate Change Strategy, adopted in 2022, details policy measures meant to guide the climate actions for all economic sectors up to 2050. When coupled with the Nationally Determined Contribution (NDC) of Egypt, also updated in 2022 and detailing national ambition for greenhouse gas (GHG) emission reductions, these policies and strategies provide clear long-term signals to interested investors about national priorities and the desired market trajectory.

Law No. 87/2015 assigned the planning task to the transmission operator, EETC, jointly with the Ministry of Electricity and Renewable Energy, allowing for three transitional years. Decree No. 230/2016 clarified some elements of system planning regulation and confirmed the responsibility of EETC in submitting an Expansion Plan on Production for a period of 5 years and an Expansion Plan on Transmission for a period of 10 years. Both plans should inform the preparation of a Supply Report and must be approved by the Board of EgyptERA, as well as by the Ministry and finally by the Cabinet of Ministers. However, the regulation does not clarify the mandatory disclosure and publication of these plans by EETC, and so far these plans have not been made available for interested market participants. Improvements in these areas will further enhance the performance achieved on this Topic.
### Power sector governance

Egypt has achieved excellent regulatory performance related to power sector governance. Indeed, the new Electricity Law was published in July 2015 and regulates all electricity activities to establish a fully competitive electricity market where electricity generation, transmission, and distribution activities are fully unbundled. The law provides a legal framework conducive to private sector participation and proposes structural reforms for establishing a fully competitive electricity market, unbundling ownership of generation, transmission, and distribution activities, allowing third parties grid access without bias, and assuring independence, competency, and accountability of the electricity regulatory agency. The 2015 Electricity Law provides for an initial period of eight years to develop and implement these measures, which have recently been extended to 2025. Full implementation of these regulatory reforms will advance competence in power sector governance.

### Power sector framework

With the promulgation of the new Electricity Law, EETC is given an autonomous status as a private joint stock company fully owned by the state and independent of all electricity sector companies and participants. Accordingly, EETC is no longer a subsidiary of EEHC and consequently acts as an independent system and market operator at the wholesale level. The unbundling of the transmission service segment is implemented, while the distribution and retailing services remain bundled. Egypt is yet to enforce the measure foreseen by the Electricity Law in this sense; thus explaining the moderate performance in this area.

### Power sector competition

As for the dispositions of the 2015 Electricity Law, the market model is expected to evolve towards complete liberalization. Eligible clients will be progressively allowed to freely choose their electricity suppliers based on bilateral direct agreements and negotiated electricity prices, starting with EHV and HV clients and then MV and LV clients. A regulated market for non-eligible clients will continue to exist during the transition period. Electricity market liberalization is still at the preliminary stage of implementation, which explains the moderate regulatory performance related to power sector competition. Few cases of direct selling from generators to private clients at high voltage levels exist, while some licensed private distributors operate private distribution networks and supply clients connected to them.

### Private sector participation model

The liberalization of the generation market following the 2015 Electricity Law provided a conducive environment for private sector participation in the electricity generation segment. Private actors are allowed to invest in generation plants via PPP and merchant models or as EPC contractors. The ability of the current regulatory framework to enable such models demonstrates good performance related to private sector participation models. However, private investors are not permitted to invest in state-owned companies -EEHC and EETC- which still dominate Egypt’s electricity sector.

### Procurement process

The regulatory framework concerning the procurement process is well-defined and supported by the 2010 Law on PPP (Law No. 67) and the Bidding Procedure Law of 2018 (Law No. 182). In addition to the clear PPP process for solicited proposals defined in Law No. 67, Law No. 182 of 2018 further improved the accessibility of BOOT, BOO, and EPC business models and opened the way for unsolicited competitive proposals. Two PPP agencies have been established: the Supreme Committee for PPP Affairs and the PPP Central Unit. The first agency oversees setting national PPP policies and allocating financial funds for PPP projects. The second provides technical, financial, and legal expertise to the Supreme Committee for PPP Affairs.
Generators have access to several routes to market for selling their electricity output, both centralized (PPAs with the public single-buyer) and decentralized (private PPAs, and self-consumption options). However, the regulatory performance of Egypt in generation off-taking options remains moderate due to the lack of a regional or domestic spot electricity market which has yet to be implemented.

A deep dive into the Attractiveness dimension

Figure 14: A deep dive into the Attractiveness dimension for generation

Egypt performs well in nearly all the Topics considered by the attractiveness Dimension, with some areas such as incentives and economic regulation require further regulatory improvement.

The analysis shows that there is good regulatory performance related to contract regulation. The market has been able to attract several IPPs in the generation market, mostly through the BOO model, which has long-term PPAs with EETC, acting as the national single-buyer. Contracts such as PPAs are not standardized and agreements are reviewed on a case-by-case basis. Agreements concluded in the context of electricity supply require the approval of EgyptERA. Failure to obtain EgyptERA’s approval would result in such agreements being considered null according to article 13 of the licensing rules issued by EgyptERA. Furthermore, prior approval by EgyptERA on the prices of selling/purchasing electricity to/from other licensees and consumers must be obtained.
The good regulatory performance in the area of economic regulation is a result of the 2015 Electricity Law which reinforced the role of EgyptERA in the tariffication process. The authority is responsible for the definition of the economic rules and formulae for the calculation of electricity tariffs, which it updates and publishes yearly. Tariff proposals are approved by EgyptERA Board and then approved by the decree of the MoERE. It is to be noted that any tariffs to be applied should be approved by EgyptERA regardless of whether the electricity is supplied to qualified or non-qualified customers. The 2015 Electricity Law states that electricity prices will be determined based on the true cost of electricity services, which led to a wide subsidies reform program. Despite the remarkable accomplishments in this area, electricity tariffs have not yet achieved full cost-reflectivity.

The Renewable Energy Law encourages private sector investment in renewable energy development by defining major regulatory incentives to achieve renewable energy goals. Both a Feed-in Tariff and competitive bidding for build, own, and operate (BOO) contracts are introduced by the law. It also includes competitive bidding for EPC contracts and the possibility for renewable energy IPPs to sell electricity directly to consumers through bilateral contracts. However, after the end of the second regulatory period of the Egyptian solar and wind FIT program, initiated by Prime Ministerial Decrees No. 2532/2016, the government has not issued any decrees approving a third stage other than concerning waste-to-energy projects. Furthermore, tender schedules are not available for BOO contracts. Other mechanisms such as green certificates and RES quotas are also currently not available in the market for private investors.

The analysis of the regulation covering indirect incentives available for generation investors confirms a high level of regulatory performance due to the measures detailed by the 2017 Investment Law and the 2016 VAT Law No. 67. The Investment Law defines the general framework for investment incentives, including norms on import duties exemptions and tax discounts on the investment costs. The Value Added Tax Law provides that the generation, transmission, sale, or distribution of electricity is exempt from VAT, and further introduces VAT reductions for imported equipment, notably equipment associated with renewable energy projects. A carbon emission pricing mechanism is not yet introduced in the market.

Investors in the Egyptian power generation market can benefit from several credit enhancement instruments. The Electricity Law and Law No. 14/2013 provide legislative guidance on sovereign guarantees provision. Concessional loans and insurance (i.e., political risk insurance) are also made available from international institutions.
A deep dive into the Readiness dimension

Figure 15: A deep dive into the Readiness dimension for generation

Overall, the review of the policies, laws, and regulations covering generation market regulatory readiness shows an excellent level of performance with some areas such as authorizations and permits, grid access, and system quality demonstrating peak regulatory performance.

<table>
<thead>
<tr>
<th>Authorizations and permits</th>
<th>The rules for access to land, water rights, construction permits, and environmental permits are defined and are accessible to private actors. The current legislation defines dedicated issuing institutions for all relevant permits and authorizations. Currently, the investment centers act as a one-stop shop for the application and issuance of permits and authorizations; thus explaining the excellent performance of Egypt in the authorizations and permits Topic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>System planning</td>
<td>Law No. 87/2015 assigns the planning task to the transmission operator, EETC, jointly with the Ministry of Electricity and Renewable Energy. Decree No. 230/2016 calls on EETC to submit medium and long-term plans such as an Expansion Plan on Transmission for a period of 10 years. As discussed under the generation market segment, disclosure and publication of the plans by EETC and their availability to interested market participants constitute areas of further improvement.</td>
</tr>
<tr>
<td>Grid code</td>
<td>The presence of a national transmission grid code issued by the national regulatory authority has provided regulatory clarity related to grid management. The market benefits from the presence of the technical rules indispensable to ensuring a stable and safe operation of electricity networks, covering electricity dispatch, network connection, and quality of supply.</td>
</tr>
</tbody>
</table>
Egypt has achieved excellent regulatory performance related to grid access. Indeed, the 2015 Electricity Law ensures that the Transmission Service Operator (TSO) is under an obligation to allow third-party access to its transmission network in a fair, transparent, and non-discriminatory manner. Furthermore, the Egyptian Electric Power Transmission Code defines the procedure to be followed by grid users to submit a Connection Application to enter into Connection Agreements and Transmission Agreements with the TSO. All connection rules and allocation of connection costs are aspects governed by the Grid Code, providing clarity on grid access.

System quality and security standards are clarified under the Egyptian Electric Power Transmission Code. The Code provides the necessary regulatory guidance to ensure system quality and security in the operation and use of the network.

Egypt also ensures the availability of its socio-economic and basic electricity market data through annual reports. While the aggregated financial statement of the national utility is available, EEHC does not disclose the balance sheets of its subsidiaries, thus reducing the transparency and accessibility of relevant market data. Addressing data accessibility gaps will further improve market transparency to private actors.

### 3.2.2 Transmission segment

*Figure 16: Overview of the transmission segment*
As stated by the 2015 Electricity Law, EETC shall be exclusively responsible for the activity of electricity transmission and network operation. In general, the analysis of the policy and regulatory framework for the transmission segment confirms the current inability of the private sector to invest in this market – see private sector participation models. Beyond the consequent barriers mostly concentrated in the openness Dimension, the analysis also confirms an advanced stage of development of national policy and regulatory frameworks in most of the Topics covered by the attractiveness, and readiness Dimensions.

A deep dive into the Openness dimension

Figure 17: A deep dive into the Openness dimension for transmission

The analysis of the policy and regulatory Topics included in the openness Dimension confirms good performances in some areas, such as energy strategy. On the opposite, Topics more directly linked to transmission market opening to private sector participation and market restructuring such as power sector framework and private sector participation models perform poorly due to the current inability of the private sector to invest in this market segment.

The 2015 Electricity Law governs electricity supply services. The moderate performance in this regulatory area, differentiated from the results related to the generation market segment, is explained by the current restrictions on private sector participation in the transmission market segment. The transmission market currently remains an exclusive domain of EETC, a state-owned company operating as a transmission system and market operator, under provisions of the Electricity Law enacted in 2015.
As indicated, the operation of the transmission service is the exclusive responsibility of EETC. As a result, private sector participation in the investment and operation of transmission assets is excluded. Currently, concession or privatization models are not made available to private actors. However, the private sector can participate in EPC contracts procured by EETC. Overall, there is poor regulatory performance related to private sector participation models for the transmission segment of the electricity market.

The satisfactory regulatory performance related to procurement is the consequence of PPP Law No. 67 as well as bidding procedure law No. 182. However, no defined PPP model is made available for transmission infrastructure development. Electricity Law of 2015 stipulates that EETC and EEHC-owned distributors are allowed to contract external contractors for the extension of the network through EPC contracts and competitive tenders.

A deep dive into the Attractiveness dimension

Figure 18: A deep dive into the Attractiveness dimension for transmission

Overall, the regulatory performance related to the attractiveness the transmission market segment is very satisfactory. However, the Topic of credit enhancement could represent an area of improvement.

The Electricity Law 2015 does not foresee a licensing regime for network operation and transmission activity, which is the exclusive responsibility of the state-owned utility EETC. The rights and obligations of EETC are defined by the Electricity Law (article 26 and following) which motivates the good performance of this Topic. But the country has not instituted a transparent contractual framework to manage its relationship with EETC. The Electricity Law states that EETC is responsible of defining the technical requirements which apply to the entities wishing to be interconnected with or use the transmission network, the
rules which encourage raising the efficiency, validity, the economics of use and the development of the transmission system, the rules and fundamentals of operating the electricity transmission system and the rules and fundamentals of evaluating the performance of its services. These rules must be then approved by EgyptERA.

The excellent performance in economic regulation is due to the clarity provided related to network tariff regulation, as defined in the Electricity Law and Decree No. 230/2016. EgyptERA is responsible for setting the rules and economic principles for tariff calculation, including transmission charges. Tariff calculation methodology is approved by the Cabinet of the Prime Minister and then published on the website of EgyptERA. Decree No. 230/2016 defines the rules for tariff methodology review. EgyptERA is responsible for proposing final tariffs, including network charges which, after the approval of the Board of EgyptERA, will be issued by ministerial decree. Such decree is then published in the Official Gazette. Tariffs, including network charges, are updated every year.

The good regulatory performance related to credit enhancement is due to the possibility of providing concessional lending as well as governmental guarantees for transmission investments. However, these instruments are only accessible by the public transmission operator.

Overall, the regulatory framework demonstrates readiness in the key regulatory areas of the transmission market segment for potential private-sector players. While aspects of readiness related to authorizations and permits, system quality and security standards, and access to data
are already discussed (see Generation – Readiness), this section focuses on the grid code and grid access Topics.

| Grid code | The presence of a national transmission grid code issued by the national regulatory authority enabled the provision of regulatory clarity related to the grid code Topic. The market benefits from the presence of the technical rules which are crucial to ensuring a stable and safe operation of electricity networks. |
| Grid access | Egypt also achieves an excellent performance in the Topic of grid access. Indeed, the 2015 Electricity Law states that the Transmission Service Operator is under an obligation to allow third-party access to its transmission network in a fair, transparent, and non-discriminatory manner. Furthermore, the Egyptian Electric Power Transmission Code defines the procedure to be followed by grid users to submit a Connection Application to enter into Connection Agreements and Transmission Agreement with the TSO. All connection rules and allocation of connection costs are aspects governed by the Grid Code, providing clarity on grid access. |

### 3.2.3 Distribution segment

Figure 20: Overview of the distribution segment

The regulatory review of the policy and regulatory framework dedicated to the distribution segment in Egypt presents relative openness and attractiveness of this market segment to private sector investors and confirms a high degree of market readiness.
The openness to the private sector in terms of investment in, and operation of, electricity distribution services is ensured by the 2015 Electricity Law which codified a licensing regime for electricity distributors and opens them to private entities, as confirmed by the excellent results in power sector governance Topic. The readiness Dimension shows areas of strengths related mainly to the grid code and grid access, and system quality and security standards. Regulatory gaps in the dimensions of openness and attractiveness require further attention. In particular, the power sector framework, private sector participation models, contract regulation, and credit enhancement present significant obstacles.

A deep dive into the Openness dimension

Figure 21: A deep dive into the Openness dimension for distribution

Overall, the regulation of the distribution market shows a moderate degree of openness. On the other hand, the power sector framework and private sector participation models are major regulatory challenges, and therefore require further regulatory improvements.

Per the Electricity Law of 2015, the distribution segment is open to private sector participation. Investors seeking to distribute or sell electricity must obtain a license from the EgyptERA and establish an SPV in the form of a joint stock company. This license is granted for a maximum period of 25 years. It can be renewed for a similar period or part thereof. Decree No. 230/2016 explicitly states that no permit may be granted to any licensee to establish a distribution grid within a grid area belonging to or operated by other companies with a valid permit or license in such area. However, one distributor may use the grid of another distributor to supply a customer, provided that it pays network charges. The possibility for private parties to invest and operate distribution assets as well as the clarity regarding the license requirements explain the excellent performance of Egypt in this Topic.
With the promulgation of the 2015 Electricity Law, the power sector framework has pursued the restructuring of the electricity market. While vertical unbundling of transmission activities has already been implemented, distribution and energy retailing services remain bundled; thus, explaining the moderate performance under this Topic. The Electricity Law foresees, however, the possibility for customers to choose to buy electricity from any licensee and Decree No. 230/2016 regulates how the relationship between distributors will be handled in the future competitive market, without risking to duplicate distribution network infrastructures.

The 2015 Electricity Law opened the electricity distribution segment to the private sector. Several private distributors are licensed and operate private distribution networks serving their clients connected to the network. Private sector participation is allowed through a license model, or through EPC contracts with EEHC for network construction works, demonstrating good performance related to private sector participation models. However, forms of privatization or partial divestiture from public distribution companies, operating almost the entire distribution network, are not currently foreseen.

Although the infrastructure procurement process benefits from the existence of a general framework governing PPPs, models such as BOO or BOOT are not extended to distribution, similar to transmission. Furthermore, public tendering has not been used so far for procuring new distribution assets. Electricity Law of 2015 permits EETC and EEHC-owned distributors to contract external contractors for the extension of the network through EPC contracts and competitive tenders.

**A deep dive into the Attractiveness dimension**

*Figure 22: A deep dive into the Attractiveness dimension for distribution*
The good performance in **contracts regulation** is explained by the presence of distribution licenses defining the rights of the licensees in terms of exercising the distribution service and collecting fees related to its services, as codified in the 2015 Electricity Law. The licenses do also specify relevant rules related to the termination of the license, dispute resolution process, and frequency of payments. However, elements such as the governance for modifications due to regulatory changes are still missing.

The performance in **economic regulation** related to the distribution service is motivated by the absence of a transparent methodology for distribution charges calculation. The Electricity Law 2015 states that electricity prices will be determined based on the cost of electricity supply and its related variables and EgyptERA is working on revising the rules for electricity services pricing.

Few **credit enhancement** instruments are available for distribution investors but concessional lending. This explains the low score achieved by the country for this Topic.

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### A deep dive into the Readiness dimension

**Figure 23: A deep dive into the Readiness dimension for distribution**

Overall, the analysis confirms the very good performances in readiness Dimension also relative to the distribution segment. The section below focuses on the key findings of the readiness Dimension in the key areas of **grid code** and **grid access** Topics. For a more complete review of all Topics, also refer to the Generation-Readiness and Transmission-Readiness sections.
Grid code

Egypt scores very well in grid code Topic thanks to the presence of a national distribution network code issued by the national regulatory authority. The distribution code covers all the main aspects related to the safe operation of distribution networks, such as connection rules for generators and final customers, planning of distribution networks, grid operation, and quality and reliability standards. Complementary regulations, such as wind and solar PV codes and a customer code that explains the code of billing of each type of consumption activity, complete the technical regulation for distribution companies.

Grid Access

Egypt also achieves an excellent performance in the Topic of grid access. Indeed, the principle of third-party access to national transmission and distribution network is defined by the 2015 Electricity Law. EgyptERA also approved a complete set of regulations for new connection/contracts for household and commercial activities on medium and low voltage levels, defining the rules for allocating the costs of connection and the contractual framework for accessing and using the grid. Thus, explaining the high score achieved.

3.2.4 Off-grid segment

Egypt reached the goal of universal electricity access in 2016. Therefore, the expansion of off-grid solutions is not central to the energy sector ambitions of the country. As a result, the off-grid market segment does not play as large a role as it does in other countries where a similar regulatory assessment is undertaken by UNECA and RES4Africa. Therefore, a regulatory review of the off-grid market segment is not included in this report.

Notwithstanding this, several mini-grid projects are currently being developed to supply industrial and touristic sites and private investors have shown interest in such projects, especially when coupled with embedded renewable generation facilities (AfricaEnergy, 2022).
Conclusions and Recommendations
Towards Crowding-in Private Sector Investment

Analysis of Electricity Market Policy and Regulatory Framework

Aerial view Solar farm an alternative source of energy in Egypt.

Photo credit: Alextov/ Getty Images.
4. Conclusions and Recommendations

Egypt entered a new and major phase of electricity sector reform in 2014, a process that is still ongoing based on the principles of market restructuring and competition. As is often the case, the wave of reforms mainly originated from the electricity crisis the country faced between 2010 and 2014. The reform was part of a larger macroeconomic reform plan negotiated with the IMF and the World Bank. In the subsequent years, the electricity policy and regulatory framework changed significantly with the adoption of new policies, strategies, and legislation. At first, Law No. 203/2014 was adopted as the main piece of legislation meant to provide a regulatory framework for the development of renewable energy projects and to encourage private sector investment. In 2015, Egypt adopted Law No. 87/2015, also known as the new Electricity Law, designed to restructure electricity public services, boost private sector investment, and build a competitive electricity wholesale market. The direction set by these two major legislations was confirmed by a new national energy policy in 2016, the ISES 2035, which also provided orientations for electricity infrastructure development.

Overall, these new laws and related executive regulations completed a comprehensive reform effort targeting most of the key elements in electricity policies and regulations which have a fundamental role in reinforcing market openness, attractiveness, and readiness towards private sector participation. The reforms touched on important regulatory areas such as the energy strategy, market framework and competition, private sector participation business models, tariffs, incentives, grid access and connection, and system operation. It is, therefore, not surprising that the regulatory review confirms Egypt as a good example of policy and regulatory reforms meant to crowd in private sector investment in electricity infrastructure.

Both the ISES 2035 and the new Electricity Law considered reforming the electricity market and defining a gradual path towards market liberalization. The Electricity Law provided a three years transition period for EETC to become a transmission system operator independent of generation and distribution, which was implemented in 2019. It further considered eight years to restructure the electricity market organization into a competitive market structure. In 2021, Law No. 70 amended the 2015 Electricity Law and extended the transition period for liberalizing the electricity market to 2025.

However, despite the ongoing reform, the market share of state-owned companies is still dominant. Over 90 percent of the installed generation capacity is controlled by the State entity EEHC and, through its distribution subsidiaries, EEHC controls almost the totality (around 99 percent) of distribution networks and electricity retailing services. Similarly, EETC has a monopoly over the transmission market segment. Private sector participation is mainly active in the generation market segment, through build-operate contract models with the EETC, and a few IPPs with corporate PPAs, as well as embedded generation projects supplying energy to industrial consumers and tourism projects. Private sector participation is expected to increase due to the ongoing reform process. To date, progress remains limited in terms of an increasing share of private investors in national generation and network infrastructure capacity development.

The period since 2014 signals a truly new phase of energy sector reform in Egypt, which can be characterized as more ambitious and thoughtful. It will be important to institutionalize and sustain the reforms. Much will depend on how energy sector institutions will handle conflicts.
between different interest groups and on the institutional insistence on implementing the dispositions foreseen by the New Electricity Law. Enacting additional regulatory measures will also be needed to ensure successful market liberalization.

This regulatory review acknowledges all the efforts put in place by the Government of Egypt in the last three decades to ensure the safety, reliability, and competitiveness of the national electricity service. The assessment helps to pinpoint policy and regulatory areas where further improvements and reforms could bring the system to a higher regulatory standard to ensure reliable, affordable, and sustainable electricity for all and reap all the benefits from the increased participation of the private sector in delivering on the national energy sector targets of Egypt.

### 4.1 Takeaways from the regulatory review

**Related to the Openness of the electricity market**

- The analysis confirms the ability of current policies and regulations in ensuring an adequate degree of market openness for interested private investors in generation assets. This is particularly evident in the energy strategy, power sector governance, power sector competition, private sector participation models, and procurement process Topics, where the analysis indicated strong regulatory performances. Such results are to be considered in light of the presence of long-term sector targets, defined in strategic policy documents, as well as the establishment of a clear legal framework and operational regimes for electricity generators conducive to private sector participation. The unbundling of transmission activities and the presence of a national regulator with a strong mandate over the licensing, economic, and technical regulation for the power sector are other elements that explain the positive outcome of the analysis of the openness Dimension related to the generation segment. However, some areas of improvement remain, notably concerning the system planning, power sector framework, and generation off-taking options. As Egypt is undergoing a transitional phase to liberalize its electricity market, timely implementation of reforms, such as the restructuring of its distribution segment, and clarity about the timeline and phases for market opening, which still lacks important pieces such as the eligibility rules for qualified customers, remain to be addressed. Finally in terms of off-taking options, the electricity trade potential is limited by the lack of interconnection capacity and of an integrated regional spot market.

- Private sector participation within the transmission segment remains restricted as the entire transmission network is, according to the Electricity Law, owned and operated by EETC. Consequently, the analysis of the policy and regulatory framework for the transmission segment confirms the current inability to effectively crowd in private sector participation in this market, except as EPC contractors for EETC. This withstanding, the review confirms the good regulatory performances related to energy strategy, system planning, and power sector governance due to the presence of a set of strategies guiding the long-term evolution of the energy sector, the presence of the Electricity Law and the new role of EETC as independent network and market operator, also functioning as central planning authority.
Current legislation ensures a good degree of openness in the electricity distribution market for private investors. The Electricity Law 2015 allows the private sector to operate in the distribution segment, subject to the issuing of a license. This is reflected in the outstanding performance in power sector governance. However, even if the Electricity Law opened the electricity distribution segment to private participation, forms of privatization or partial divestiture from public distribution companies, operating almost the entire distribution network, are not foreseen, thus explaining the moderate performance in the private sector participation model. Similarly, even if the Electricity Law provided for the establishment of a fully competitive electricity market, distribution and energy retailing services remain bundled, leaving room for improvement to advance the power sector framework. The market is also supported by a strong procurement process due to the existence of a general framework governing PPPs. Furthermore, the Electricity Law permits EETC and EEHC to work with external contractors for the extension and development of the network infrastructure.

**Related to the Attractiveness of the electricity market**

Egypt has made considerable efforts in addressing attractiveness to support the economic viability of electricity generation investments, as reflected by the effective provision of contracts regulation, indirect incentives, and to some extent economic regulation. Agreements concluded in the context of electricity supply through PPAs with EETC consider all clauses in alignment with international best practices and the bankability requirements of private investors. However, the standardization of contracts is an area of further improvement related to contracts administration. Clear economic regulation for final electricity tariffs is in place, with a defined administration process, transparent methodologies, and a well-defined tariff review procedure. However, while EgyptERA is responsible for tariff methodology determination and calculation, the final decision on tariff levels is at the ministerial Cabinet level. Tariffs are still bundled and do not yet fully reflect the true cost of electricity services. Investment incentives, such as duties exemptions and tax levies, are well-defined and coordinated by dedicated legislation. This is also the case for technology-based incentives such as renewable energy development. The options related to available mechanisms for direct incentives can benefit from further review, in line with market realities.

The Electricity Law 2015 does not foresee a licensing regime for network operation and transmission activity; however, states the rights and obligations of EETC as a network and market operator. Furthermore, the country has not instituted a transparent contractual framework to manage its relationship with EETC. The Electricity Law as well as its Executive Regulation (Decree No. 230/2016) clearly defines the principles of tariff determination and responsibilities for their definition and administration. EgyptERA is indeed responsible for setting the rules and economic principles for tariff calculation while tariff calculation methodology is approved by the Prime Minister’s Cabinet and then published on the EgyptERA website. Decree No. 230/2016 defines the rules for tariff methodology review and tariffs are updated every year. These measures demonstrate outstanding regulatory performance related to economic regulation. Credit enhancement such as concessional lending and governmental guarantees for transmission investors are potentially available; however, to date, they have only been accessible by the public transmission operator.
The review of relevant regulations for the distribution segment confirms a moderate degree of attractiveness to crowd-in private investment. Standardized distribution licenses are available. The opening of distribution licenses to private operators, while still constrained by the current market share of EEHC distribution subsidiaries, resulted in several private companies investing and managing private distribution networks to supply industrial and tourism facilities and new residential compounds. The Electricity Law 2015 provides that electricity prices will be determined based on the cost of electricity supply; however, the absence of clear and transparent rules for electricity distribution pricing, currently under review by EgyptERA, diminishes the attractiveness of this segment in the eyes of private investors. Similarly, private participation in future asset expansion may benefit from the availability of credit enhancement instruments such as concessional lending.

**Related to the Readiness of the electricity market**

The review demonstrates regulatory readiness in areas such as grid access, system quality, security standards, grid code, as well as authorization and permits. Egypt has approved technical regulation of the international standard that supports the integration and secure operation of new infrastructure within the national electricity system. Related to networks, regulatory clarity is provided as a result of national transmission and distribution codes with clear rules for system operation, grid access, and the contractual relationship between system operators and system users. Specific codes for the connection of PV and wind plants have also been adopted by EgyptERA. Open access regime to national networks is established within the law and clear rules and contractual framework are established to manage the relationship between network operators and users. System planning regulation is also well defined, with clear responsibilities and mandated authorities; however, the lack of transparency around it affects the outcome of the analysis on this Topic.

The national transmission grid code issued by the national regulatory authority is essential to the readiness of the transmission segment. This ensures the stable and safe operation of electricity networks. Furthermore, EgyptERA has adopted a PV code and a Wind code as well as a complete set of regulations for the new connections. Moreover, the TSO is under an obligation to allow third-party access to its transmission network, which is a key pillar in raising regulatory performance related to grid access.

The national distribution network code establishes the basic rules, procedures, requirements, and standards that must govern the operation, maintenance, and development of the electricity distribution systems in Egypt. Furthermore, complementary regulations such as wind and solar PV codes and a customer code complete the technical regulation for distribution companies. Crucially, following provisions of the Electricity Law, an open-access regime for all network users has been established. EgyptERA defines connection agreement requirements and general principles for connection charges. However, EEHC does not disclose data about the quality of electricity supply from its distribution subsidiaries, reducing access to data.
4.2 Recommendations

To enhance the *Openness* of the electricity market

The electricity sector benefits from policy and strategic guidance provided by the 2016 Integrated Sustainable Energy Strategy and the 2022 National Climate Change Strategy for Egypt until 2050. However, timely implementation of targets and the monitoring and evaluation of progress remains a challenge and, therefore, could be addressed by:

1. Instituting periodic review of strategies by law to ensure timely updates of sector strategic documents;
2. Introducing formal and rigorous monitoring and evaluation of policy targets, and mandating dedicated implementing authorities to enhance accountability;
3. Transcribing specific electricity sector targets in dedicated legislation to strengthen enforceability and accountability.

The 2015 Electricity Law reforms sector governance towards the development of an open electricity market which remains, however, yet to be fully established. EgyptERA is meant to play an important role in supporting such transformation and overseeing the future competitive market. Key regulations are needed to support the governance of the competitive market and encourage private sector participation in new services. These regulatory provisions must be in place before market opening. Towards this end:

1. Adopt specific license conditions and rules for new market participants (i.e., electricity traders/re-sellers) to facilitate market entry of energy traders and other market intermediaries;
2. Adopt specific market-related regulations such as market operator rules, eligibility rules for qualified customers, and last resort rules;
3. Extend the mandate of EgyptERA to cover market surveillance and monitoring of market performance to ensure the protection of customers and fair competition.

With the promulgation of the 2015 Electricity Law, Egypt is restructuring its power sector framework. As mandated by the law, the vertical unbundling of transmission activities has already been implemented, while the restructuring of distribution companies and unbundling of distribution and retailing services has been delayed. Therefore, in compliance with the 2015 Electricity Law and Decree No. 230/2016 norms:

1. Progress with the restructuring of distribution companies and the separation of retail and distribution activities to facilitate private participation in these market segments.
The 2015 Electricity Law mandates the establishment of an open and competitive electricity market towards full liberalization. While the law foresees a transitional period up to 2025, a clear timeframe to complete the full unbundling and transform EETC in the Market Operator is still lacking. Several reforms will be required to establish a competitive electricity market at the wholesale and retail levels. In this regard, the authorities need to:

- Clearly define the phases for market opening, detailing the procedures required for complete liberalization of the market, establishing an associated timeline, outlining the investment costs required for each phase, and putting in place the standards for moving from one phase to another.

Private sector involvement has increased in the generation market, mainly through concession models, while it is still limited in the distribution sector and remains restricted in transmission. To improve the participation of private sector:

- Pave the way for investments in merchant projects by facilitating access to electricity sale licenses, private-to-private power selling agreements, and access to the national grid infrastructure;
- Evaluate the potential of emerging PPP models to support the development of network infrastructure such as through Independent Power Transporters, which enable private entities to finance, build, and operate transmission lines under the control of the national system operator;
- Facilitate private capital flows towards the electricity distribution service and companies by allowing shared ownership of distribution assets.

Egypt has a framework to lead the public procurement of energy infrastructure based on the 2010 Law on PPP (Law 67) and the Bidding Procedure Law of 2018 (Law 182). While quite developed from a legal and institutional perspective, the procurement process could be further improved in terms of predictability about procurement plans by:

- Providing clarity and improved predictability about procurement plans to potentially interested stakeholders by publishing medium-term tender schedules.

Generators have access to several routes to market for selling their electricity both to centralized (PPAs with the public single-buyer) and decentralized (private PPAs, and self-consumption options) parties. The evolution towards more advanced market forms, such as spot markets on a national or regional power exchange, would represent an opportunity to increase market flexibility for investors. It would also offer an opportunity for better-exploiting electricity export potential. Therefore,

- Support the development of national and regional electricity spot markets to further expand off-taking options to investors in the Egyptian electricity market.
Conclusions and Recommendations

To enhance the Attractiveness of the electricity market

Egypt has been able to attract significant private investments in generation assets and distribution market segments due to well-structured and bankable contracts such as PPAs and DSAs. However, national regulation of electricity services-related contracts could be further improved by:

- Adopting a standard form for PPAs differentiated by technology, and other contracts, approved by EgyptERA to facilitate contract negotiations;
- Establishing a transparent contractual framework to manage the role of EETC as a national transmission and market operator.

The 2015 Electricity Law reinforced the electricity tariff regulation by enhancing the role of EgyptERA in the tariff administration process. It establishes cost-reflectivity as the guiding principle for the national tariff policy. Despite the remarkable accomplishments in this area, the tariff reform process is yet to be finalized and should continue in the direction of achieving cost-reflectivity, transparency on tariff calculation methodologies, and periodicity for tariff adjustments and costs review. In this regard, additional reforms could support this effort:

- Unbundling electricity tariffs and defining differentiated and transparent methodologies to set the price points related to electricity services – generation, transmission, and distribution – to stimulate competition and target incentives;
- Enhancing the power of EgyptERA in approving final tariff decisions.

The Renewable Energy Law encourages private sector investment in renewable energy by defining regulatory incentives such as feed-in tariffs and dedicated competitive bidding for renewables under BOO contracts. However, since the end of the second regulatory period of the national FiT program for wind and solar energy, renewable energy regulation has not been updated. Furthermore, there is no public schedule for renewable energy tenders. Indeed, the authorities could consider to:

- Ensure a timely update of renewable energy regulation (i.e., FiT levels, renewable energy-dedicated tenders, etc) to ensure renewable energy deployment is aligned with national targets;
- Evaluate the introduction of a renewable energy quota and/or green certificates for defined electricity customer categories (i.e., qualified customers) that encourage them to procure a percentage of their electricity consumption from renewable sources;
- Assess the feasibility of extending FiT regulation to all renewables-based technologies, including the ones not covered by the first two regulatory rounds such as biomass, rooftop PV, and others.
Current investment legislation defines the general framework for investment incentives, including norms on import duties exemptions and tax discounts on investment costs. Generation, transmission, sale, or distribution of electricity are exempt from VAT. Furthermore, VAT reductions are foreseen for imported equipment, notably equipment associated with renewable energy projects. To further strengthen the system of indirect incentives:

- Explore the feasibility of introducing a mandatory national carbon pricing mechanism to support sustainable energy and clean technologies development.

Access to credit enhancement instruments is mostly limited to investors in generation assets which could benefit from sovereign guarantees provision, concessional loans, and insurances (i.e., political risk insurances) made available through international institutions. However, the country could benefit from reforms that can improve the investment de-risking landscape for investors, including through:

- Simplifying the procedures for providing guaranteed loans;
- Facilitating the use of the Central Bank of Egypt convertibility guarantee for both large scale and small RE projects;
- Create a specialized funds for RE projects in cooperation with international donors that can offer better financial terms and derisking products for RE investors.

**To enhance the Readiness of the electricity market**

The electricity system planning process is well-regulated by the law which defines clear responsibilities over this process and clear regulatory oversight. However, market transparency is yet to be guaranteed. In this regard:

- Increase transparency in system planning through the participation of relevant stakeholders, through the public consultation process, and by publicly availing generation and transmission expansion plans to interested parties;
- Institutionalize the usage of cost-benefit-based analytical approaches to evaluate and prioritize investments in infrastructure expansion and grid reliability.

The transmission and distribution codes, issued by the national regulatory authority, establish clear technical rules indispensable to ensuring the stable and safe operation of electricity networks, covering system operation, network connection, and quality of supply. The establishment of a fully open and competitive wholesale market, as foreseen by the Electricity Law, would require to:
Conclusions and Recommendations

- Complement the connection and operating rules with market rules;
- Introduce remuneration schemes for ancillary service providers to enhance system security and flexibility through market-based mechanisms.

The aggregated financial statement of the national utility is publicly available. However, EEHC does not disclose the balance sheets of its subsidiaries. To enhance transparency and increase market confidence:

- Increase market data sharing by introducing mandatory disclosure of financial data and balance sheets of all public utilities and electricity market operators.

4.3 Way forward

The review of policies, laws, and regulations of Egypt relevant to the electricity supply industry confirms the good results achieved by national authorities in reforming the regulatory environment towards greater private sector participation. Egypt has made major progress in reforming its electricity sector since the adoption of the 2015 Electricity Law, meant to create an open and competitive electricity market. Policy and regulatory reforms were adopted to move on with market restructuring, through the establishment of an independent transmission operator, with the empowerment of national regulatory authority, the diversification of the electricity generation mix, and the development of RE, as well as with the reform of electricity tariff system and the elimination of subsidies. As a result, the electricity supply industry is undergoing a substantial transformation to attract new investments, improve competition, and progressively open new segments of the value chain to private actors. Despite all these legislative changes, the electricity supply industry in Egypt is not yet looking profoundly different today from a decade ago in terms of the dominance of public utilities and the limited role of private sector participants.

As Egypt plans to continue in the direction of market liberalization, future reforms of the policy and regulatory environment will play a pivotal role in succeeding in this transition and creating a competitive electricity market fully open to private sector contribution. Towards this end, this regulatory review evaluated the openness, attractiveness, and readiness of the current national policy and regulatory framework across the value chain. Areas of strength, as well as areas of further improvement, have been identified, and key recommendations are offered to support Egypt in achieving its goals. Towards this end, this regulatory review offers constructive identification of areas of reform and policy and regulatory enhancement for a competitive, resilient, and sustainable electricity sector. Economic recovery and long-term sustainable growth will continue to require a reliable electricity supply to thrive.

The UN Economic Commission for Africa and the RES4Africa Foundation remain committed to supporting Egypt in addressing any of the identified regulatory and policy gaps, investing in necessary regulatory capacity development, as well as any area of particular reform interest of
Egypt towards greater openness, attractiveness, and readiness of the electricity market. They also call on the development community, NGOs, ISOs, national organizations, and the private sector to play their constructive role in supporting the efforts of the Government of Egypt in this reform process, guided by its public institutions, aimed at economic transformation and the achievement of SDG7 goals.
References


**Acronyms**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AfDB</td>
<td>African Development Bank</td>
</tr>
<tr>
<td>BOO</td>
<td>Build, Own, Operate</td>
</tr>
<tr>
<td>BOOT</td>
<td>Build, Own, Operate, and Transfer</td>
</tr>
<tr>
<td>CBE</td>
<td>Central Bank of Egypt</td>
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<tr>
<td>CSP</td>
<td>Concentrated Solar Power</td>
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<td>DISCOs</td>
<td>Distribution Companies</td>
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<tr>
<td>DSA</td>
<td>Distribution Service Agreement</td>
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<tr>
<td>EEA</td>
<td>Egyptian Electricity Authority</td>
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<td>EEHC</td>
<td>Egyptian Electricity Holding Company</td>
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<tr>
<td>EgyptERA</td>
<td>Egyptian Electric Utility and Consumer Protection Regulatory Agency</td>
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<tr>
<td>EETC</td>
<td>Egyptian Electricity Transmission Company</td>
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<td>EGP</td>
<td>Egyptian Pound</td>
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<tr>
<td>EHV</td>
<td>Extra High Voltage</td>
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<td>EISS</td>
<td>Energy, Infrastructure, and Services Section of UNECA</td>
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<tr>
<td>EPC</td>
<td>Electric Power Code</td>
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<tr>
<td>EPTC</td>
<td>Electric Power Transmission Code</td>
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<tr>
<td>ESMAP</td>
<td>Energy Sector Management Assistance Program, the World Bank</td>
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<tr>
<td>FiT</td>
<td>Feed-in Tariff</td>
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<tr>
<td>GAFI</td>
<td>General Authority for Investment and Free Zones</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GHG</td>
<td>Greenhouse Gas</td>
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<tr>
<td>ICA</td>
<td>Infrastructure Consortium for Africa</td>
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<tr>
<td>HV</td>
<td>High Voltage</td>
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<tr>
<td>IEA</td>
<td>International Energy Agency</td>
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<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
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<tr>
<td>IPPs</td>
<td>Independent Power Producers</td>
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<tr>
<td>IRENA</td>
<td>International Renewable Energy Agency</td>
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<tr>
<td>ISES</td>
<td>Integrated Sustainable Energy Strategy</td>
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<tr>
<td>JSC</td>
<td>Joint Stock Company</td>
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<tr>
<td>KPIs</td>
<td>Key Performance Indicators</td>
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<tr>
<td>LV</td>
<td>Low Voltage</td>
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<tr>
<td>MoERE</td>
<td>Ministry of Electricity and Renewable Energy</td>
</tr>
<tr>
<td>MV</td>
<td>Medium Voltage</td>
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<tr>
<td>NDC</td>
<td>Nationally Determined Contribution</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<tr>
<td>NREA</td>
<td>New and Renewable Energy Authority</td>
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<tr>
<td>PDCs</td>
<td>Private Distribution Companies</td>
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</tbody>
</table>
Acronyms

PPAs | Power Purchase Agreements
PPP | Public-Private Partnership
PV | PhotoVoltaic
RE | Renewable Energy
REA | Rural Electrification Authority
RES4Africa | Renewable Energy Solutions for Africa
ROAR | Regulatory review of Openness, Attractiveness, and Readiness
SDGs | Sustainable Development Goals
SEC | Supreme Energy Council
SPV | Special Purpose Vehicle
TSA | Transmission Service Agreement
TSO | Transmission Service Operator
TWh | Terawatt hour
UNCTAD | United Nations Conference on Trade and Development
UNECA | United Nations Economic Commission for Africa
VAT | Value Added Tax
## Annexes

### Annex A: Policies, Plans, and Regulations

<table>
<thead>
<tr>
<th>Policy/Plan/Regulation</th>
<th>URL</th>
</tr>
</thead>
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### Annex B: An overview of the Topics assessed

<table>
<thead>
<tr>
<th>Openness</th>
<th>Attractiveness</th>
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</thead>
<tbody>
<tr>
<td><strong>Energy Strategy</strong></td>
<td>The existence and characteristics of energy and climate policies.</td>
</tr>
<tr>
<td><strong>System Planning (also Readiness)</strong></td>
<td>The existence and characteristics of plans for generation expansion, network development and electrification.</td>
</tr>
<tr>
<td><strong>Power Sector Governance</strong></td>
<td>The existence of an Energy Act or Law defining the operational regime of market agents, and the existence and role of an energy regulatory authority.</td>
</tr>
<tr>
<td><strong>Power Sector Framework</strong></td>
<td>The degree of unbundling of generation, transmission, and distribution services.</td>
</tr>
<tr>
<td><strong>Power Sector Competition</strong></td>
<td>The Openness of the electricity market to competition.</td>
</tr>
<tr>
<td><strong>Private Sector Participation Model</strong></td>
<td>The number of available models for private parties to participate in the power sector.</td>
</tr>
<tr>
<td><strong>Procurement Process</strong></td>
<td>The characteristics of PPP procurement policy, competitive tenders, and solicited/unsolicited proposals.</td>
</tr>
<tr>
<td><strong>Off-taking Options (for Generation)</strong></td>
<td>The existence of a spot market or single-buyer as well as the regulatory characteristics of private PPAs and captive generation.</td>
</tr>
<tr>
<td><strong>Contract Regulation</strong></td>
<td>The structure and characteristics of public PPAs, TSAs, DSAs, and standard retail contracts for off-grid operators.</td>
</tr>
<tr>
<td><strong>Economic Regulation</strong></td>
<td>The structure and definition of the retail and network tariff.</td>
</tr>
<tr>
<td><strong>Incentives</strong></td>
<td>The existence of instruments incentivizing private investors to operate in the power sector (e.g., FiT, capacity payments, green certificates, RES quotas).</td>
</tr>
<tr>
<td><strong>Indirect Incentives</strong></td>
<td>The existence of policies or instruments indirectly incentivizing private investors to operate in the power sector (e.g., carbon pricing, result-based financing, tax relief).</td>
</tr>
<tr>
<td><strong>Credit Enhancement</strong></td>
<td>The existence of lending agreements or guarantees that reduce risk or costs for private investors entering the power sector.</td>
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<tr>
<td>Category</td>
<td>Description</td>
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<tr>
<td>Authorizations and Permits</td>
<td>The existence and characteristics of permits needed for the construction of assets in the power sector (e.g., land &amp; water rights, construction, and environmental permits)</td>
</tr>
<tr>
<td>System Planning</td>
<td>The existence and characteristics of the network development plan.</td>
</tr>
<tr>
<td>Grid Code</td>
<td>The characteristics of the grid code (e.g., the existence of rules for system operation and connection).</td>
</tr>
<tr>
<td>Grid Access</td>
<td>The existence of third-party access and the characteristics of grid connection and operation agreements.</td>
</tr>
<tr>
<td>System Quality and Security Standards</td>
<td>The existence of quality and security standards for transmission network planning and operation.</td>
</tr>
<tr>
<td>Access to Data</td>
<td>The public availability of data related to electricity sector performance.</td>
</tr>
<tr>
<td>System Integration (for Off-Grid)</td>
<td>The existence and characteristics of regulation for grid arrival.</td>
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</tbody>
</table>