United Nations
Economic Commission for Africa

RES4AFRICA FOUNDATION

Summary Regulatory Review of the Electricity Market in Kenya:

Towards Crowding-in Private Sector Investment

This analysis is based on policies, laws and regulations adopted until April 2022. Therefore, the results will not consider and/or reflect the impact of policy and regulatory changes adopted thereafter.

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Analysis of Electricity Market Policy and Regulatory Framework

This report provides an analysis of Kenya'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*.

Kenya is the second largest economy in East Africa in terms of GDP and the first in terms of GDP per capita. The yearly GDP growth has been in the 5-6 percent range for the last ten years, up to the COVID-19 pandemic outbreak. As a consequence, national electricity demand has grown steadily driven by economic and population growth, but also by the commitment of the government to increase electrification. As a result, electricity access increased from 22 percent in 2010 to about 75 percent in 2021. To support this growth, Kenya had to invest in the development of its electricity infrastructure. It pursued the engagement of the private sector to mobilize investments. This effort succeeded in attracting private capital, which is reflected today by the nearly 30 percent of electricity generation capacity undertaken by independent power producers. One of the reasons behind this success was the ability to implement a comprehensive reform of the electricity sector policy and regulatory environment through multiple waves of reforms. Following the enactment of the Electric Power Act of 1997, Kenya embarked on fundamental reforms that led to the unbundling of generation from transmission and distribution services in the electricity market. KenGen assumed power generation functions, while Kenya Power manages power transmission and distribution services. This was the beginning of Kenya's path towards liberalization of the electricity market and the introduction of competition in the generation segment.

Kenya has made major progress in reforming its electricity sector. The power sector governance framework evolved constantly starting from the 1990s to reflect the evolution of market fundamentals, support the development of new technologies, and ensure reliable electricity supply to its growing economy. Policy and regulatory reforms were adopted to attract new investment, improve competition, and progressively open the electricity supply industry to private companies. The climax of this process has been marked by the adoption of a new Energy Act in 2019 which liberalized the electricity supply industry. The Act legally opened all market segments (generation, transmission, distribution, and off-grid) to private sector participation. Another decisive step in crowding-in private sector investment is the recent Public Private Partnership Bill, which came into effect in 2021. It lays the foundation of public-private cooperation in the financing, construction, development, operation, and/or maintenance of infrastructure and services. As a result, Kenya can be considered one of the most advanced electricity markets in Africa in terms of policy and regulatory effectiveness.

Kenya is, however, confronted with structural challenges that are still preventing its electricity sector from thriving, and private entities from successfully participating in electricity infrastructure development. Major barriers are related to, among others, insufficient and under-performing distribution networks, delays in advancing transmission assets development, and a perceived lack of clarity surrounding power purchase agreements from the perspective of independent power producers. The slower pace of solar and wind energy resource development is also indicative of some of the remaining policy and regulatory challenges. While universal electricity access remains a top national priority, success in reaching this target will partly depend on effectively crowding-in additional private sector investment.

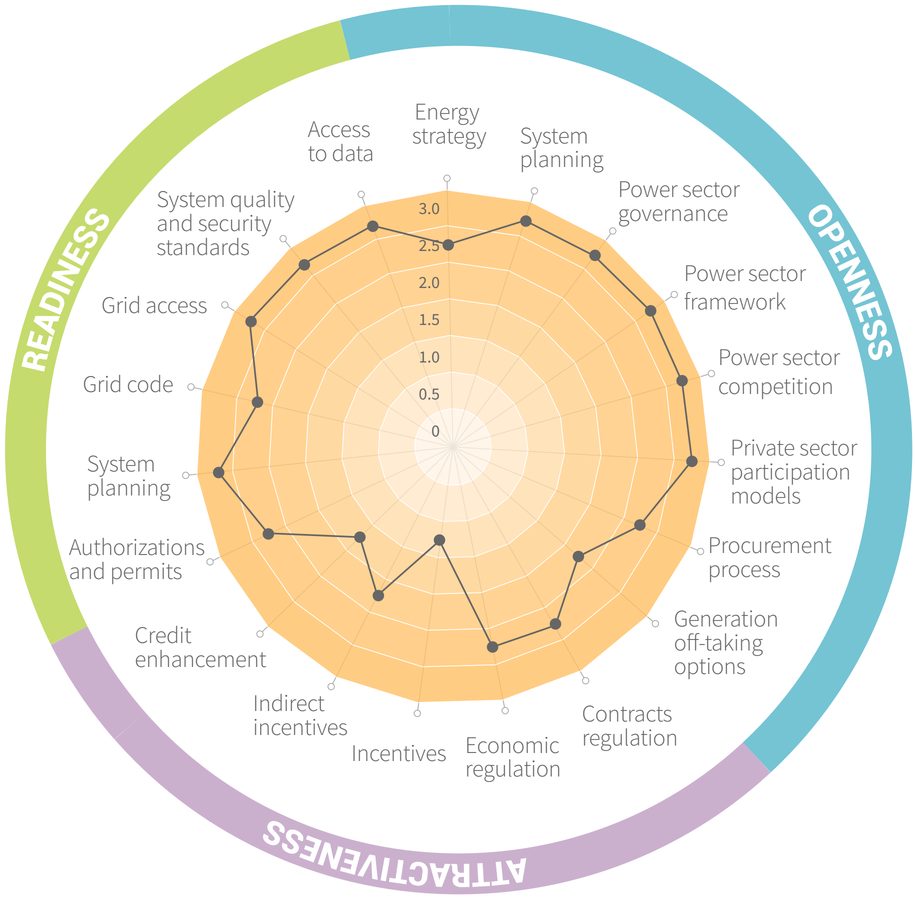
The purpose of this regulatory review is to pinpoint the main strengths and gaps of the policy and regulatory framework currently in force related to private sector participation in the entire electricity market. It further aims to offer concrete recommendations for further regulatory improvement and reform toward 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, across the value chain, to the private sector based on an evaluation of the power sector policies, strategies, 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

Current legislation ensures a good degree of *openness* of the electricity generation market segment for private investors, underlining the ability of Kenya to adopt and implement sound legislation for the sector. Private generators can access the market through concessions, commercial models, or acquiring shares of publicly listed incumbents. However, further improvements of the regulatory environment towards greater openness are achievable by clarifying electricity *off-taking options*, notably with regards to corporate power purchase agreement business models, as well as improving access for private generators to a regional spot market. The generation market is also adequately attractive, as demonstrated by the participation of several independent power producers, partly facilitated by standardized contractual terms and provisions. The *attractiveness* of the generation market can further be enhanced through the launch of public auctions, particularly for renewables. Furthermore, market *attractiveness* will also be enhanced by addressing the current lack of credit enhancement instruments and public guarantees, such as concessional finance and sovereign risk guarantees, to private operators which impacts the cost of financing projects. The generation market is largely ready in terms of technical regulation. The Energy Act defines open access regime connection rules and allocation of connection costs, which are further codified and governed by the Grid Code.

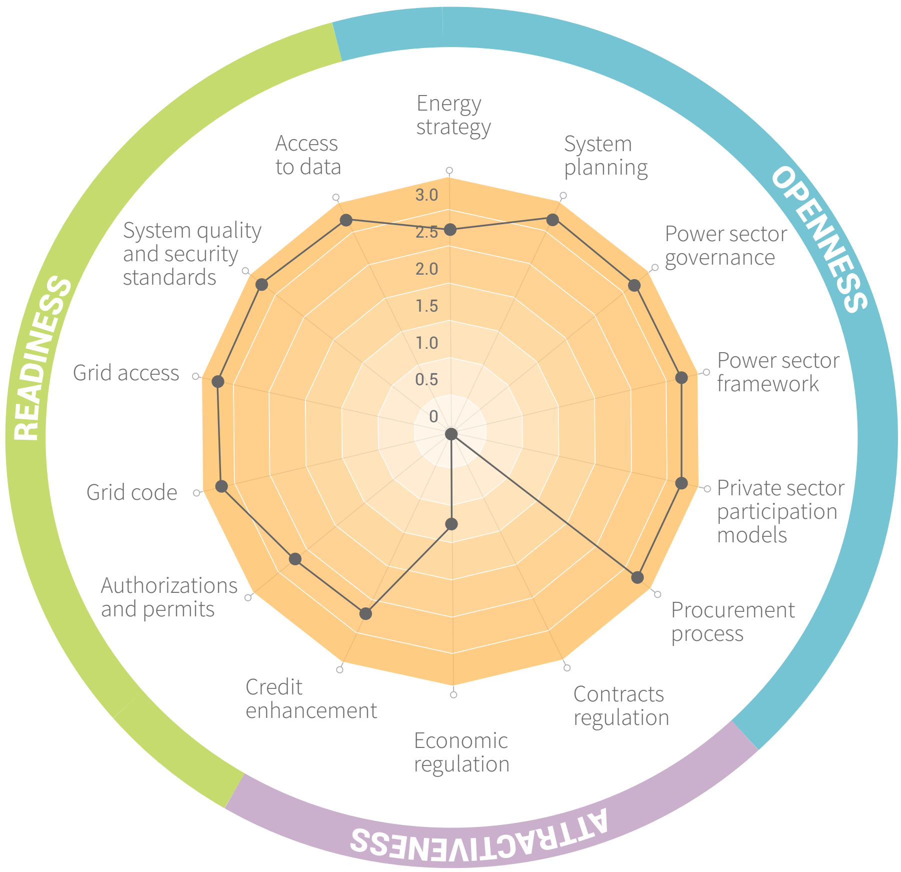
Figure 1: Overview of the generation segment



Main findings related to the Transmission segment

The regulatory environment demonstrates outstanding development related to transmission market *openness* and *readiness*, while regulatory improvement is required to enhance market *attractiveness*. The Energy Act 2019 opens the transmission service to any entity under the condition of obtaining a license from the Energy and Petroleum Regulatory Authority, without differentiating between public and private operators. Procurement rules are well established, and supported by clear laws, including in a competitive environment for selecting projects for implementation through public-private partnership models. The national transmission grid code, which follows international best practices, offers further regulatory clarity and predictability. Furthermore, grid access is well defined by the Energy Act, which provides a mandatory connection by the transmission service operator to all licensed entities. *The attractiveness* of the transmission market to private investment will be improved by developing a contractual framework that defines the rights and obligations, as well as performance requirements and payment terms for potential private sector investors.

Figure 2: Overview of the transmission segment



Main findings related to the Distribution segment

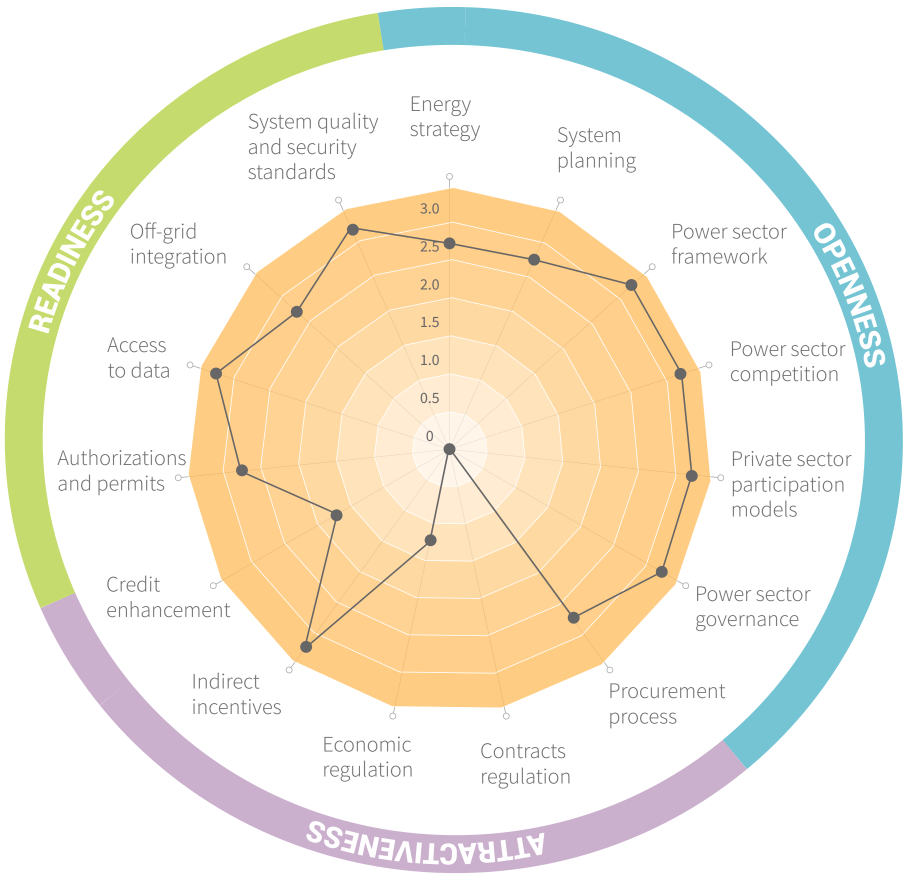
Kenya benefits from a dedicated distribution grid code, enhancing market *readiness*, though it does not currently define rules for evaluating distribution investments. The National Electrification Strategy completes the picture of planning for electrification expansion. Although private sector participation in the distribution segment has not occurred yet, the Energy Act 2019 permits entities to access distribution licenses. *Attractiveness* of the distribution market to private sector participation could further be enhanced by clearly outlining the rights and obligations of the distributor in distribution licenses, especially with regards to standards of performance, metering, billing and payments, complaints and dispute resolution, and setting electricity tariffs. Although credit enhancement instruments, notably multilateral guarantees, can be made available for distribution investors, government support through dedicated public guarantees and revenue escrow agreements are not available for private sector distribution investments.

Figure 3: Overview of the distribution segment

Main findings related to the Off-grid segment

The Kenya National Electrification Strategy provides clear off-grid targets, aiming to electrify 1,105,000 households located further than 15 km from Kenya Power services by 2022, which amounts to around 2 million connections. However, the targets are yet to be translated into national law and integrated into a comprehensive system development plan. Private sector participation in the off-grid market segment is allowed through engineering, procurement and construction, and portfolio concession models as well as merchant models implemented through the KOSAP program. The governance of the off-grid market is also defined by the presence of the Rural Electrification and Renewable Energy Corporation, whose mandate has been expanded from a sole electrification agency to also spearheading green energy development in general by the Energy Act of 2019. Off-grid operators must report the quality and reliability of service, which are in line with main grid standards, to the KEBS. The technical off-grid standards also need to adhere to the main grid standards as defined in the grid code. Currently, mini-grids can be integrated into the grid as small power distributors and small power producers, or sell their assets to the utility in the event of main grid arrival. *Attractiveness* of the market to private sector participation will be improved with the official adoption of the Draft Energy Mini-grid Regulations as well as by finalizing the rules, or guidelines, for contracts between off-grid operators and their clients which are currently under development. Although there are currently no government guarantees in place, the public funds from KOSAP will be used to provide incentives through results-based financing and debt facilities.

Figure 4: Overview of the off-grid segment



Recommendations

To enhance the *Openness* of the electricity market

Energy strategy

- To strengthen energy policy and strategy implementation capacity:
  - Back electricity sector targets with the adoption of relevant legislation to strengthen enforceability.
  - Define implementation roadmaps aligned with timelines and designated delivery agencies;
  - Set procedures and a reporting mechanism to continually monitor progress against policy targets.

Private sector participation model

- To encourage private sector participation in the electricity distribution market:
  - Designate exclusive distribution areas/regions to be potentially run by private entities.
  - Define rules and procedures for awarding in a determined area the right to operate distribution services by a private entity.

Procurement process	To strengthen the public procurement framework relevant for electricity infrastructures development: • Implement public tenders for awarding the right to operate electricity transmission and distribution services in designated areas, or for designated assets, to allow private sector participation through a fair and transparent process. • Provide clarity and predictability to investors by publishing medium-term tender schedules.
Generation off-taking options	Adopt regulation that defines the eligibility criteria for the "eligible consumers" category to facilitate a direct selling of electricity from generators to consumers, including through the development of regulation enabling corporate power purchase agreements. Support the establishment and operationalization of the East Africa Power Pool spot market, and enable the participation of generation investors in the regional open market.

To enhance the *Attractiveness* of the electricity market

Contracts regulation	Standardize and adopt contract templates (power purchase agreements, transmission and distribution service agreements, off-grid power supply agreements, and others) to improve contract administration and reduce transaction costs to investors.
Economic regulation	To achieve full cost-recovery for electricity services: • Adopt cost reflective electricity tariffs. • Disclose the tariff methodology including network charges. • Undertake periodic tariff review and revision, and mandate the regulator for its implementation.
Incentives	Pursue the implementation of competitive auctions by: • Launching a pilot auctions program, including renewable energy. • Adopting and publishing plans for tender rounds.
Indirect incentives	Study the feasibility of introducing carbon pricing to support the development of sustainable energy in Kenya. Review the utility of results-based financing to support electrification programs.

Credit enhancement

- To de-risk private investments in electricity infrastructure development:
  - Pursue public risk mitigation facilities.

To enhance the *Readiness* of the electricity market

Authorizations and permits

- Streamline investment processes by establishing a one-stop-shop/single window for application and issuance of all permits for energy projects.

System planning

- Improve national planning capacity to provide medium- and long-term pictures of the direction of the electricity market to market participants.

Off-grid system integration

- To enable private sector investment in off-grid electricity capacity:
  - Adopt the proposed Draft Energy (Mini-grid) Regulation to provide regulatory clarity to investors.
  - Adopt clear rules on commercial options for mini-grid businesses, related to business continuity or exit, in the event of main grid arrival to reduce risks and encourage long-term investment.

As Kenya takes further bold steps towards its energy sector regulatory reform, the UN Economic Commission for Africa and the RES4Africa Foundation remain committed to partnering with Kenya 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 Kenya towards greater *openness, attractiveness*, and *readiness* of the electricity market.

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