Summary Regulatory Review of the Electricity Market in Ethiopia:

Towards Crowding-in Private Sector Investment
This analysis is based on policies, laws and regulations adopted until June 2021. 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 Ethiopia’s electricity sector policies, laws, and regulations in relation to crowding-in private sector participation in developing national electricity infrastructures. 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.

The electricity market of Ethiopia is undergoing changes. This is demonstrated by shifts in the organization and structure of the electricity market, major leaps in generation capacity expansion, network development, improvement in electricity access, and a degree of openness to the private sector. Acknowledging these positive steps, the electricity market today is also constrained by challenges, including the financing of infrastructure development. Public investment was the prime vehicle to finance Ethiopia’s power sector development. However, such a form of financing remains insufficient compared to the growing electricity demand resulting from economic growth and access expansion, and the investment demand to meet capacity expansion goals. Expanding the scope of investment and finance requires broadening the policy and regulatory space for private sector participation. A prime challenge to the effective participation of the private sector in the electricity market remains the sector regulation.

This report examines the regulation of the electricity market in-depth concerning the crowding-in of private sector investment in generation, networks, and off-grid assets. The goal is to encourage private sector participation in the market through addressing regulatory impediments towards the achievement of SDG7 goals. It further aims to support the development of a resilient, competitive, diverse, and vibrant energy sector in Ethiopia. Such measures are expected to sustainably attract private sector investment for sector development, supplementing scarce public sector resources. This is particularly crucial in a post-COVID environment where public resources are even more constrained due to priorities in public health and social protection, as well as public spending on economic recovery and revival.

It is expected that this report will contribute, through its rigorous regulatory analysis and recommendations, towards the ongoing reform process in the electricity market of Ethiopia, which is aiming to achieve the following goals: (1) development of a sustainable electricity market; (2) planning and promotion of efficient investments in generation and networks to meet security of supply and enable exports; (3) deliver a reliable and quality electricity supply to support economic growth; and (4) achieve financial sustainability in the electricity value chain through cost-reflective and affordable tariffs.

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 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

Related to the openness of the electricity market, the generation segment of the market features areas of strength in the areas of procurement (guided by a PPP law), generation planning with an investment plan, transparency related to planning information, and aspects of market governance related to instituting a regulator coupled with a credible dispute resolution mechanism following the adoption of the New York Convention. However, the market faces challenges arising from the power sector framework, limited off-taking options under the single-buyer model, the exercise of limited private sector participation models, and limited track record of effective private sector engagement.

Related to the attractiveness of the electricity market, Ethiopia demonstrates regulatory strength in the areas of contract regulation, particularly standardization of PPAs, credit enhancement, possibility of guarantees and concessional loans, revenue escrow agreements, as well as provision of certain incentives such as foreign currency-denominated contracts. However, private generation investors should expect to participate in an environment with less cluster of incentives. Furthermore, economic regulation around tariff levels, though under review and adjustment, remains a major impediment to the attractiveness of the market. Related to the readiness of the electricity market, the permitting and authorization process is well developed, specially related to environmental approval, which is supported by clear and publicly available procedures facilitated by a one-stop-shop. However, land, water and construction permitting process has key challenges. The power sector is also guided by a network development plan, through a master plan which includes a transmission expansion plan, as well as a system integration study. The readiness of the market is constrained by grid access, availability of a grid code (a draft code is now developed, but not yet adopted), quality and security standards (draft developed), and to a limited degree clarity in the system planning.

Figure 1: Overview of the generation segment
Main findings related to the Transmission segment

The transmission and distribution segments of the market, though features network development and investment plan, offers narrow scope for international private sector participation through the power sector framework, and further faces the challenges of limited private sector participation models. The national private sector is permitted in transmission operation. The international private sector is restricted in such operation, unless it is related to the import and export of electricity, through a joint venture model. In the transmission segment, the grid code remains a major impediment (a draft code is already developed), since it is not yet in place. Adopting the grid code is expected to close key gaps.

Figure 2: Overview of the transmission segment

Main findings related to the Distribution segment

Similar to the transmission segment, the distribution segment features network development and investment plan but offers narrow scope for international private sector participation. The limitations in accessing distribution licenses and the restriction on international private sector participation on distribution assets investments, reduce the openness of the distribution segment. In the key area of contract regulation, there is no standard distribution service agreement (DSA), along with performance requirements, indexation, dispute resolution, and termination provisions. For distribution investment, potentially through a joint venture, multilateral guarantees may be available, along with concessional lending. However, revenue escrow agreements, and government guarantees are not available to investors. These limitations constrain the attractiveness of the Ethiopian distribution market to private
investors. Related to the grid code, the adoption of the draft grid code is expected to address key challenges, including rules for system operation rules and metering services. Draft quality and security standards are developed, even though not yet adopted. These regulatory gaps today constrain the overall readiness of the distribution segment of the market to crowding-in private sector investment.

**Figure 3: Overview of the distribution segment**

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**Main findings related to the Off-grid segment**

The off-grid segment of the market offers better options through private sector participation models; however, challenges in power sector framework, power sector governance, and system planning limit openness to private sector participation. The off-grid market is relatively more attractive related to incentives and credit enhancement opportunities. However, similarly faces challenges of contract regulation standardization and economic regulation. The off-grid market similarly demonstrates challenges of system quality and security standards, though a draft standard is completed. A new (2021) approved Off-grid Directive providing better clarity on off-grid system integration related to grid arrival.

On the basis of these and other detailed assessments, the following measures are recommended to reform and improve the regulatory environment for the electricity market of Ethiopia towards enhancing the openness, attractiveness, and readiness of the market to private sector investment.
To enhance the **Openness** of the electricity market

1. **Address the lack of formal review procedure with established targets, ensure public access to such information, and schedule planned investments to improve the openness of the Ethiopian electricity market.**

2. **Address the lack of publicly available regulatory decisions (transparency).**

3. **Reform the lack of sufficient independence of the regulator from political authorities (such as autonomous mode of appointment of leaders and board members).**

4. **Resolve the lack of sufficient financial independence of the regulator and enforceability of its decisions.**

5. **Acknowledging the broader space for national private investors to participate in network investment, review mechanisms and consider the enabling of the participation of international private parties to invest in, or operate, transmission and distribution assets beyond current import/export-related models.**

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*Figure 4: Overview of the off-grid segment*
### Summary Regulatory Review of the Electricity Market in Ethiopia

1. **Incorporate clear generation and renewables targets, their formal review procedure, and a monitoring framework during the next policy and strategy development window.**

2. **Reform transmission and distribution services unbundling, separation of transmission assets management from system operation, and wholesale and retail market competition constraints to facilitate effective private sector participation.**

3. **Address regulatory barriers on off-taking by enabling the adoption of models such as private (corporate) PPAs, or mechanism for two private parties to negotiate power transactions, and self-consumption coupled with a net metering regulation.**

4. **Expand the regulatory space for alternative electricity generation models, such as merchant generation (including off-grid) and concessions, to enhance the openness of the electricity market to generation investors.**

5. **Institute better scheduling of tenders and developing a track record of competitive and credible tendering.**

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### To enhance the Attractiveness of the electricity market

1. **Pursue tariff reform towards cost-reflectivity to enhance the attractiveness of the electricity market to private sector investors and ensure financial sustainability.**

2. **Pursue fair competition in the electricity market to reduce the need of offering more incentive packages to investors, with the exception of emerging markets such as off-grids, or certain technologies.**

3. **Related to contracts regulation, address the gaps in capacity components and indexation of contracts.**

4. **Adopt, along with appropriate regulatory reform, Transmission and Distribution Service Agreements.**

5. **Pursue standardization of retail contracts for off-grid market operators.**

6. **Strengthen the system of financing options with innovative private sector financing instruments for energy infrastructure development.**
To enhance the Readiness of the electricity market

1. Address constraints in the authorization and permitting process through efficient and clear processes, better coordination, and establishment of one-stop shops.

2. Adopt formal review procedures for reviewing network development plans.

3. Undertake periodic network expansion assessment, along with grid flexibility and network integration studies.

4. Related to the grid code, ensure the draft code addresses:
   - system operation rules, including the dispatch of ancillary services.
   - connection rules for generation investors, including on a clear and defined procedure for getting authorization.
   - efficient dispatch that would enable public availability of market settlement rules, market settlement information, and management of investor exposure to imbalance risks.
   - curtailment, including on compensation to generation investors and specification of limitations on curtailment to generation investors.
   - ancillary services management, such as reactive power, black start capacity, spinning reserves, and governing rules and regulations.

5. Review and address grid access regulation to enhance the readiness of the electricity market to private sector participation.

6. Adopt the finalized quality and security standards on networks, including off-grid systems, and enter them into force.

As Ethiopia 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 Ethiopia 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 Ethiopia towards greater openness, attractiveness, and readiness of the electricity market.