



Africa Energy Futures: Ethiopia

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Over the last five years, how has the energy mix changed, and what have been the key drivers?

The primary source of energy in Ethiopia is biomass. Despite Ethiopia's potential to generate over 60,000 MW of electric power from renewable resources, such as wind, solar and geothermal, the majority of the population continues to rely on traditional energy sources (wood, charcoal).

Over the last decade, efforts have been made to meet energy demands from renewable resources. One of the notable projects in this regard is the Grand Ethiopian Renaissance Dam (GERD). Once completed, the GERD will generate 6,000 MW of electric power. At present, 4,500 MW of electric power is generated from renewable sources with 90% from hydropower, 8% from wind and 2% from thermal resources.¹

Publicly available data shows that only 44% of the population has access to electricity. From what has been achieved so far, 33% of power access is through the national grid and 11% is sourced from off-grid electrification. The government intends to increase and achieve universal access to power by 2025.² As part of the plan, 35% of power access is to be sourced from off-grid transmission and distribution, creating a potential market for the private sector to add to the existing energy mix.

In light of this goal, the government enacted legislation in 2018 that allows for participation of the private sector via the public-private partnership (PPP) model. Following the enactment of the PPP Proclamation, four power purchase and implementation agreements (PPAs) have been signed by the government to develop electric power from solar and geothermal resources. This includes PPAs signed with the government of Ethiopia to construct and generate two (125 MW each) solar power generation sites at Gad and Dicheto in the Somali and Afar regional states. The PPAs for the Tulu Moye and Corbetti geothermal projects (initially signed in 2017) were renegotiated and resigned in 2020 each with a capacity of 150 MW.

Currently, the Ethiopian Electric Power and Ethiopian Electric Utility (both state entities) are the main players regarding generation, distribution and transmission of power, despite the liberalization of the sector in terms of generation as well as off-grid power generation, transmission and distribution. However, this is expected to change in the coming years due to legal and regulatory amendments that are being implemented. More recently, the government has amended the investment regulation allowing for participation of domestic investors to engage in transmission and distribution/supply of power through the national grid system, previously reserved exclusively for the government. The export of electric power is also permitted for domestic and foreign investors, in joint venture with the government.

In addition to this, the mini-grid directive, which was recently enacted by the Ethiopian Energy Authority, is set to facilitate the participation of the private sector in mini-grid power generation, transmission, distribution and sale to communities in remote areas.

What is the outlook for the energy and natural resources sector in the next five years? In particular:

Key policy decisions

As mentioned above, the government has introduced a PPP model whereby the private sector – in partnership with the government – can work towards the development of the energy sector. In light of this, the PPP directorate within the Ministry of Finance has 14 power projects in the pipeline, eight of which are solar and six hydro. The enactment of the mini-grid directive is also expected to play a significant role in realizing universal access to electric power by 2025. The abundance and variety of energy resources coupled with the development of the regulatory framework will attract more investment in the coming years. More recently, the government has announced that 25% of infrastructure developments in the country are to be undertaken through the PPP model for the next ten years. This policy direction is expected to invite more private sector participation.

Further to what has been achieved in liberalizing the sector, it is expected that the government will develop a regulatory framework whereby corporations can generate power for their own use or for sale to other corporates through corporate power purchase agreements (cPPAs). Ethiopia does not yet have a regulatory framework specific to cPPAs and this creates a challenge for investors. To address this, the Ethiopian Energy Authority is currently making preparations to draft a directive on cPPAs. It is expected that a positive cumulative effect of these developments will be seen in the coming years.

Main policy challenges

One of the core challenges of the sector is lack of foreign exchange, which is affecting the potential realization of projects that have already started and those being planned. There is also a noted gap in technical expertise. It appears to be difficult to find experts who can fully appreciate the technological advancements already made in the sector. This directly affects how the sector is regulated. However, given Ethiopia's commitment to realizing universal access to electric power, available resources, legal and/or regulatory adjustments made and planned and trained professionals in the sector can help in overcoming the practical challenges. In an attempt to address problems relating to forex unavailability, the government has recently announced that it is considering providing convertibility guarantees to PPP projects, which is a commitment that can be appreciated by sponsors and investors of PPP projects.³ Additionally, successful completion of projects already in progress can help better identify advantages and gaps within the system.

The anticipated role that renewables and/or new technologies will play

The development of the renewable energy sector will play a fundamental role in realizing the government's policy of achieving middle-income country status by 2025.⁴ In the process of realizing this goal, the sector will create job opportunities, transfer knowledge and add skills to local professionals. The foreign currency that could be earned from investment in the sector and export of power will also help the government in bringing in much needed foreign currency.

What are the key investment opportunities in the energy and natural resources sectors over the next five to ten years?

As noted above, Ethiopia has abundant renewable resources that can not only power the entire country but can be exported to neighboring markets. Additionally, the sector (which was previously under the monopoly of the government) is liberalized, inviting investors to the market. Foreign investors can now independently or in partnership with the government invest in generation, off-grid transmission and distribution or even export of electric power. There are reports of growing earnings from the export of power.⁵ The cumulative effect of what has been done so far indicates that the sector can grow significantly in the coming years.

With particular focus on sustainability, and on reducing carbon emissions, how will the energy and natural resources landscape change over the next five to ten years?

According to the Climate-Resilient Green Economy (CRGE)⁶ strategy developed by the government of Ethiopia, the country's plans and actions to achieve middle-income status by 2025 will rely on the green economy. Among the four pillars set to realize this ambition is expanding electricity generation from renewable sources of energy for domestic and

regional markets. As mentioned above, 90% of the power generated in Ethiopia currently comes from hydro. As such, using available renewable resources is feasible. Although it is possible to source the energy demands of the country from renewable resources, one of the major challenges that would affect development is investment. While there are various legal and political factors that can affect access to finance, ideally capital for renewable projects can be obtained from institutional backers, foreign and local investors and power export earnings.

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¹*Access the Ethiopia - Country Commercial Guide*

²*Access the National Electrification Program 2.0*

³*See "Gov't decides to consider convertibility guarantee for PPP " news*

^{4 and 6}*Access the Ethiopia's Climate - Resilient Green Economy: Green economy strategy report*

⁵*See "In the concluded fiscal year, more than USD90 million was generated from electricity export" publication*