

Policy Briefing

Renewable Energy Procurement by Private Suppliers in Ethiopia

Auction-based renewable electricity procurement has the potential to attract private investment and lower prices, but its design and implementation can be challenging. Since 2018, Ethiopia has organised auctions to procure new capacity from independent power producers (IPPs). Based on an in-depth study of the political economy, this policy briefing explores factors impeding the design and implementation of IPPs' projects, including the shortage of foreign currency and convertibility of the Ethiopian birr to repatriate profits. It proposes measures to overcome these obstacles and mitigate risks, to put Ethiopia on course to achieve universal access to electricity by 2030.

Key messages

- Ethiopia is rich in energy resources, but its citizens are energy poor and access to energy is a development imperative.
- The legal and institutional framework to facilitate electricity procurement from independent producers has taken off from a solid foundation and resulted in several ongoing projects.
- Since 2018, Ethiopia held two tenders to procure 1,000MW of electricity. The first tender for two solar photovoltaic (PV) projects led to a power purchase agreement (PPA) in 2019 with Saudi Arabian company ACWA Power and one of the cheapest tariff rates in sub-Saharan Africa, at US\$2.526 cents/kWh over 25 years.
- Notable challenges remain, including organisational tensions due to overlapping governance roles. Successful procurement by IPPs requires an effective institutional arrangement, where key energy institutions draw on their competency areas and work in tandem.

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The first tender for two solar PV projects led to a PPA in 2019 with Saudi Arabian company ACWA Power and one of the cheapest tariffs in sub-Saharan Africa.

Introduction

Over the past few decades, developing countries have increasingly used auctions to procure utility-scale renewable electricity, hoping to attract significant private investment and lower prices. Ethiopia introduced its public-private partnership (PPP) policy in 2017 and formed its PPP Board in the Ministry of Finance in 2018, with the PPP Directorate General (PPP-DG) serving as Secretariat to the Board, and responsible for selecting and procuring projects through transparent and competitive auction-based bidding processes.

The government assigned Ethiopian Electric Power (EEP) as the contracting authority, the buyer of electricity generated by IPPs. The new system organised renewable energy auctions to procure new capacity with a simple auction design. In practice, however, implementation has faced serious obstacles due to complex factors of political economy, including friction with incumbent actors.

The study behind this policy briefing was funded by a UK government project, [Energy and Economic Growth: Renewable Energy Procurement in Ethiopia](#), to understand the legal and institutional frameworks needed for effective renewable energy competitive bidding programmes in Ethiopia. Anchored in a political economy analysis of the Ethiopian renewables sector, the study explored PPP/IPP governance structures, their decision-making and outcomes. It drew on over 70 interviews with state and non-state actors, and secondary data, to understand the complex realities of IPP projects.

Reforms in and governance of the Ethiopian electricity sector

Reforms in the Ethiopian electricity sector

For most of the past 15 years, Ethiopia has been undergoing rapid socioeconomic transformation. Its economy has seen double-digit growth for years. Public investment has driven reforms in key sectors including energy, where the focus has been on



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hydropower. Although Ethiopia has abundant and diverse renewable energy resources in hydropower, solar, geothermal and wind energy, it has not sufficiently exploited this resource advantage. Hydropower is the most-exploited resource but remains below 10 per cent of potential. Despite abundant resources, Ethiopia's per capita electricity consumption of 100kWh per year is the third-largest electricity access deficit in sub-Saharan Africa. Use of electricity for socioeconomic development is low. Consequently, Ethiopia's energy supply is highly dependent on biomass resources, namely firewood and agricultural waste. However, electricity generation capacity has jumped over the past three decades, from 380MW in 1991 to 4,478MW in 2021. With the Grand Ethiopian Renaissance Dam (GERD)¹ and other major projects in the pipeline, Ethiopia aims to achieve universal access to electricity by 2030 and achieve Goal 7 of the United Nations Sustainable Development Goals.

Following electricity sector liberalisation trends elsewhere, in 1997 Ethiopia unbundled its state monopoly and the Ethiopian Electric Light and Power Authority was split into two entities: the Ethiopian Electric Power Corporation (EEPCo), with a remit to generate, transmit, distribute and sell electricity; and the Ethiopian Energy Authority (EEA), to regulate the sector. In 2013, EEPCo was further split into EEP, to generate and transmit electricity across

¹ GERD is expected to generate over 5,000MW of electricity, and on 20 February 2022, it started generating 375MW of electricity from one of its turbines.

the country; and the Ethiopian Electric Utility (EEU), to distribute, sell and manage national electricity operations. The government also issued Energy Proclamation No. 810/2013 to encourage independent power procurement. Several factors led to these changes.

First, EEPCo had been dependent on public finances, which was causing the treasury large budget deficits. EEPCo's investment capacity was low and it was not able to switch to non-hydropower renewable sources. Second, there was insufficient investment to meet the government's ambitious target set in its second Growth and Transformation Plan, which aimed to achieve 17,208MW by 2020/21 (up from 4,300MW in 2016/17). Third, droughts and climate change threaten sustainable power generation from hydropower sources. Fourth, there has been a pressing need to transition towards a cleaner energy system, as more than 80 per cent of the population depend on unsustainable traditional biomass energy sources. Finally, the 2017 PPP policy and subsequent Proclamation No. 1076/2018 aimed to facilitate private investment in major infrastructure projects, including activities in the electricity sector.

Over the past ten years, moreover, policy narratives driving the sector have become increasingly important in setting electricity generation and access targets. Narratives about addressing energy poverty or characterising Ethiopia as a 'tower of energy', and energy generation using a variety of sources instead of relying on hydropower, have gained prominence. Ethiopia continues to plan and implement a series of projects, including its National Electrification Program 2.0.

Governance structure of the Ethiopian electricity sector

The Ministry of Water and Energy (MoWE)² provides high-level direction and policy on electricity and oversees its governance.

² On 6 October 2021, the Ministry of Water, Irrigation and Electricity was restructured to become the Ministry of Water and Energy (MoWE); this briefing refers to both MoWIE and MoWE, as appropriate.

It coordinates a complex and diverse range of actors within the government – such as the EEP, EEU and EEA – and non-state actors, cooperatives, the private sector and donors. A major departure from the electricity governance structure that the MoWE leads is the governance of renewables procured through IPPs. As well as the MoWE, EEP and EEA, the Ministry of Finance has become a key player in procuring renewable electricity from IPPs. In 2018, it was given the lead role in designing PPP/IPP programmes and creating a favourable framework for privately financed projects to support Ethiopian economic growth, as well as maintaining macroeconomic stability by reducing growth in public debt and to ensure transparency, fairness, value for money, efficiency and long-term sustainability.

Multilateral and bilateral donor programmes also play a significant role in the procurement of electricity from IPPs. Notably, this includes the International Finance Corporation's Scaling Solar programme, which involves assigning transaction advisors to support project preparation in areas such as bid preparation and tender processing.

IPP project auctions and implementation – the findings

IPP projects and auctions

Major progress has been made since the PPP framework came into effect in 2018. The PPP Board has approved 23 projects, 19 of which are in the energy sector: eight solar PV, five wind energy and six hydropower projects. Two rounds of open and competitive tenders have also been launched to procure 1,000MW of electricity from eight projects.

- **The Gad and Dicheto solar PV projects:** the first tender process was launched in 2018 for two solar PV projects, each for 125MW, in the Afar and Somali regions. The bidding process led to the signing of a PPA with ACWA Power in 2019. In 2019, EEP also announced its Scaling Solar Round 2 for 750MW from six solar projects.

- The EEP signed three PPAs with private suppliers that entered the Ethiopian energy market before the PPP framework was set up:
 1. **Metehara** – a US\$120m solar PV project being implemented by Italian energy company Enel’s renewable energy subsidiary Enel Green Power.
 2. **Tulu Moyo** – a joint venture between Meridiam and Reykjavik Geothermal to generate 150MW. The company, Tulu Moyo Geothermal, signed a PPA with EEP in 2017 and plans to commission the first phase in 2023 and the second in 2025.
 3. **Corbetti** – a pioneering geothermal project with a long history. Reykjavik Geothermal signed a framework agreement with EEP Co in 2013. It will be implemented in two phases (50MW and 100MW, respectively, with a 50MW power plant in the first phase expected to become operational in 2024 – see Table 1).

Major impediments to auction-based procurement

While these are significant developments, at the time of writing none of the projects is operational. Various barriers have hindered the development of renewable energy in Ethiopia; notably, elements of the auction-based procurement framework.

Ambitious number and size of IPP projects: ambitious energy plans are inherent in the system and driven by policy narratives that emphasise Ethiopia’s rich renewable resources and unmet demand, but with less attention to institutional and technical capacity to implementation, and the risks investors face as they raise project finance and implement projects. Planners appear to see IPP projects as ‘magic bullet’ solutions, which can create false optimism. Ambitious targets manifest at various levels. First, at national level; for example, the first Growth and Transformation Plan (2010/11–2014/15) planned to increase Ethiopia’s power generation capacity from 2,000MW in 2009/10 to 8,000MW by



Successful completion of at least one exemplar IPP project would demonstrate the credibility of the process and generate lessons that could address many – seemingly intractable – challenges.

2014/15; but only 52 per cent of the target (4,180MW) had been reached by 2014/15.

At project level, Ethiopian IPPs tend to be larger than many projects in neighbouring countries, which adds risks in areas such as raising project finance. The two geothermal IPP projects, for example, started with a target of 520MW each but were eventually downscaled to 150MW. Finally, the pace and sequencing of auctions; two tenders were announced in quick succession for eight projects, but without significant preparation and learning from projects that are already under implementation.

Organisational tensions: IPP governance is rife with organisational tensions due to overlapping roles and responsibilities, particularly between the PPP-DG and EEP. With some difference in emphasis, both are tasked with identifying and evaluating the suitability of IPP projects; and both are involved in designing and implementing IPP tender documents. While deeply concerned about potential risks and uncertainties with IPP projects, the EEP perceives that the PPP-DG has ‘appropriated’ its roles and responsibilities, although the latter has limited capacity to prepare and implement tenders. The tensions appear to have demotivated EEP staff, slowing down the tendering process.

Weak and fragmented IPP governance: a related challenge is that governance of the electricity sector is fragmented and lacks coherence. Although by law IPP project developers must follow PPP directives and start with the PPP-DG or EEP as their entry point,

they find themselves caught between several agencies. Some start with the EEP or MoWE or even regional governments, as the policies and guidelines of these agencies control access to resources; for example, regional governments control access to project sites.

Inadequate institutional and human capacity:

key institutions, including the PPP-DG, experience dire shortages of expertise and skills in finance, law and preparation of bid documents. Existing expertise and skills in the system tend to skew towards hydropower development. The current structure of the MoWE reflects the importance of hydropower. Institutions have taken the short-term solution of implementing capacity-building programmes and hiring transaction advisors and consultants, but capacity gaps prevail.

Project risk and financial close:³ since 2013, an increasing number of private entities (e.g. equity investors, asset management companies, energy companies, etc.) have been drawn to the Ethiopian renewable energy sector by untapped resources and unmet demand, a growing economy with high demand for electricity, strong government policy backed up by ambitious targets and a range of incentives. However, despite major developments in

³ Financial close is the point at the end of the procurement phase when the contract has been signed, financing is in place, and construction can begin.

institutional reforms and market development, at the time of writing neither of the solar PV projects that have been through the tender process have reached financial close.

The biggest challenge relates to a **shortage of foreign currency and convertibility of the birr to international currency**. The sticking point here is the government's reluctance to provide guarantees for foreign currency availability to IPP developers and debt financiers, who are concerned about delays in accessing foreign currency. Ethiopia's debt service, although not among the worst in sub-Saharan Africa, is a concern, particularly as it recovers from the Covid-19 pandemic. For lenders, in particular, these factors impose uncertainty as the biggest hurdle for IPPs in reaching financial close.

Another important risk highlighted by our research is the security situation in Ethiopia, where civil conflict and ethnic-based political tensions have led to armed conflict that has ravaged the country. This is often conflated with global geopolitics and use of 'soft' power to interrupt investment flows into Ethiopia until the conflict has been resolved.

Weak policy support for the nascent domestic private sector: except for one junior partner in the Metehara solar PV project with Enel Green Power, we found no Ethiopian company participating in renewable energy IPP tenders.

Table 1: Non-hydropower renewable energy IPP projects under implementation in Ethiopia (2022)

Project (energy source and region)	Capacity (MW)	Project developers	Cost (US\$m)	Tariff (US\$/kWh)	Project tenure (years)
Metehara (solar, Oromia)	100	Enel Green Power & Orchid Business Group	120	n/a	20
Tulu Moye (geothermal, Oromia)	150 (50 + 100)	Consortium led by Meridiam & Reykjavik Geothermal	270	0.0695	25
Corbetti (geothermal, Oromia)	150 (50 + 100)	Consortium led by Berkeley Energy & Reykjavik Geothermal	n/a	0.0753	25
Gad (solar, Somali)	125	ACWA Power	90	0.02526	25
Dicheto (solar, Afar)	125	ACWA Power	90	0.02526	25

Policy recommendations

To ensure universal access to electricity by 2030 and meet SDG targets, Ethiopia needs to urgently address impediments to procuring electricity from IPPs.

- **Set realistic targets for IPP projects and prioritise implementing projects already in the pipeline:** target-setting should be more realistic and – besides demand – needs to be based on understanding complex factors, such as risk to investors in raising project finance.
- **Mitigate interagency rifts through productive engagement and (re)allocate agency tasks based on competencies:** core energy institutions need to draw on their competency areas and work together to succeed. PPP-DG should focus on providing sovereign guarantees for IPPs; and the EEP, as a buyer, on the technical aspects of electricity procurement through IPPs.
- **Address weak and fragmented IPP governance:** the PPP-DG and EEP need to increase awareness among key institutions involved in IPPs and project tendering processes, making procedures clear and circulating them widely, including through websites.
- **Address IPP project auction design and implementation capacity deficits in a systematic way:** relevant institutions need to work together, identifying and capitalising on existing capacity.

The political economy environment needs to be conducive to training, attracting and retaining staff, and developing clear career pathways within organisations, with improved salary scales.

- **Mitigate investors' project risks:** to mitigate the challenge of foreign currency shortage and convertibility of the birr to foreign currencies, the government should commit to a timeline for profit repatriation and allocate a certain proportion of foreign currency from energy exports to repatriating profits. Project companies' engagement in developing local communities can provide requisite 'social licence' and be a source of strength during both peaceful and turbulent times, where communities protect foreign investment projects and infrastructure that will last for two decades or more.
- **Support the nascent domestic private sector:** for example, to mitigate the foreign currency supply and currency convertibility issues described above. A viable domestic sector could reduce the need to convert birr into foreign currency to repatriate profits, and would also enhance knowledge and increase technology transfer, boosting local technology development and manufacturing. Thus, the government should nurture the domestic private sector through tax incentives, training and coaching, and promoting joint ventures.

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Further reading

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