Renewable Energy Procurement in Ethiopia: overcoming obstacles in procurement from independent power producers

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Presentation Outline

1. Introduction
2. Objective of the study
3. Research methodology and tools
4. Major findings and analysis
5. Conclusion and recommendations

1 Introduction

Ethiopia has a long history of electricity generation and use and is rich in renewable resources, but its citizens are energy poor:

- first electric lights switched on at Emperor Menelik II's palace in 1897 and generation started in the early 20th century (e.g. Gnogno, 2019).
- diverse renewable resources e.g. 45,000 MW exploitable hydropower (MoWIE 2019).
- generation capacity reached 4478 MW in 2020, but 56% of the 117 million Ethiopians have no access to electricity (NPC, 2020).

For decades, electric sector reforms and national development have been ongoing:

- 1956 a vertically integrated state-owned Ethiopian Electric Light and Power Authority was set up (Teferra, 2002).
- Three five year development plans (1957-73) set out visions and targets for electricity development – e.g. Koka power station (43 MW) completed in 1960 (WB 1964).

1 Introduction

- Growth and Transformation Plans (GTP I and II), NEP 2.0 and the Ten Year Perspective Plan (TYPP) have been drivers of electricity sector development
- Most recently a Public–Private Partnership (PPP) framework was established to facilitate private investment into major infrastructure projects including activities in the electricity sector.
- The Federal Ministry of Water and Energy (MoWE) (formerly MoWIE) provides high-level direction and policy on electricity and oversees its governance.
- Still EEP remains a dominant generator (single buyer) and transmitter
- In the current TYPP, electricity generation capacity is planned to increase to 21,238 MW and achieve universal access by 2030. Nearly a quarter of new generation capacity is set to be procured from non-hydropower renewable resources by private sector independent power producers (IPPs) (NPC, 2020).

2 Objective of the study

In 2017 the Government of Ethiopia introduced the Public Private Partnerships (PPPs) policy (and PPPs Proclamation No. 1076/2018) to facilitate private investment into major infrastructure projects including activities in the electricity sector.

Yet, the implementation of the new procurement framework brings challenges as well as opportunities for private sector participation.

The UK government-funded study "Renewable energy procurement in Ethiopia: Overcoming obstacles in procurement from independent power producers" was aimed at exploring the emerging challenges and opportunities:

- to answer the question: what barriers and constraints are faced during auction design and implementation of renewable energy projects in Ethiopia? (supplementary questions included: are there adequate skills available in Ethiopia to design, build, and operate energy projects? What types and levels of risks do investors face?).

The research team also explored how such obstacles and risks maybe addressed or mitigated.

3 Research methodology and tools

The study was anchored in the political economy analysis of the Ethiopian renewable sector – PPP/IPP policy, governance, decision-making processes and actor influences, and outcomes.

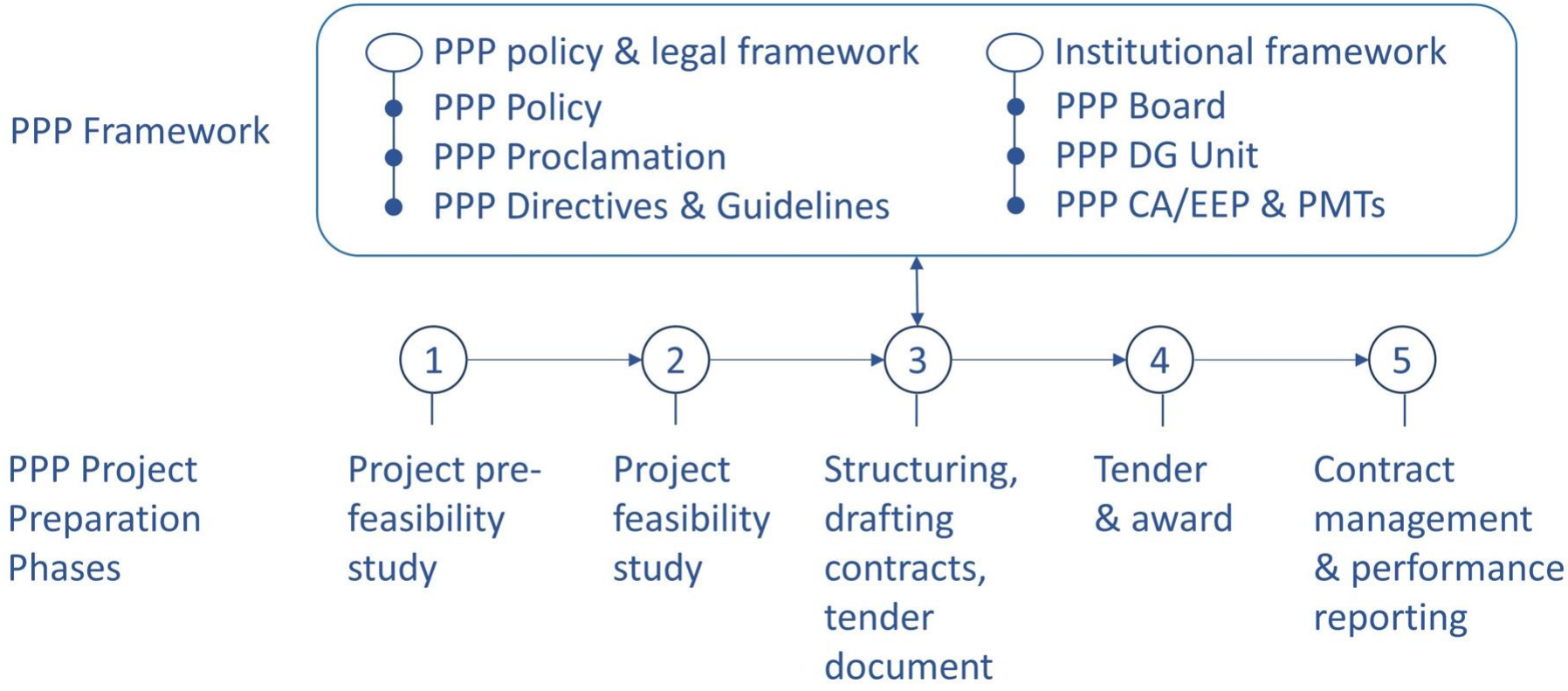
We used diverse data collection methods and tools:

Deskwork: we reviewed numerous academic articles and grey literature on Ethiopian electricity policy and practice, legal frameworks and IPPs.

70 interviews and stakeholder consultations: in-depth interviews with individuals in core institutions from government, donor communities, chief executive officers and managers of project companies, transaction advisors; and consultation workshop participants.

4 Major findings and analysis

To understand the procurement from IPPs, we start with the PPP/IPP Framework (Figure 1: PPP Framework and Project Phases (Source: Authors' (based on Beyene, 2019; MOF-PPP DGU, 2019)



4 Major findings and analysis

Underlying the PPP framework are the **legal and procedural** elements and the **institutions**:

PPP Board (or the Board): the apex body to approve PPP/IPP projects.

PPP Director General Unit (PPP-DGU): selects and procures projects. PPP Proclamation (Article 12) stipulates transfer of some conventional roles held by organisations such as EEP to PPP DGU (this has become a source of contenstion between PPP DGU and EEP).

Contracting Authority (Ethiopian Electric Power - EEP): initiates PPP/IPP projects; signs agreements, etc. EEP is also required to form a Project Management Team(s) (PMTs).

PPP Projects development Phases - projects identified for a PPP go in phases, EEP undertakes a feasibility study and submits proposals to PPP DGU. Those with approval passes to the open bidding process in two stages: request for qualification and request for proposals.

Project Company: the winning company sets up a Project Company registered in Ethiopia to implement the power purchase agreement (PPA), secure project finance, etc. and implement and operate the company for the period agreed in the PPA.

4 Major findings and analysis

Renewable energy IPP projects auctions and approvals

Since the PPP framework came into effect in 2018:

- 19 IPP projects were approved by PPP Board (eight solar PVs, five wind and six hydro).
- Two rounds of tenders ensued for the procurement of 1000 MW of electricity from eight projects.
- the first tender was launched in Oct 2018 for two solar PV project, each for 125 MW, in the Afar and Somali regions – led to the signing of PPAs with a Saudi Arabian company ACWA Power in Dec 2019 at US 2.526 cents/kWh over 20 years
- In May 2019, EEP also announced its Scaling Solar Round 2 for 750 MW from six solar projects.
- Three IPP projects pre-dating the PPP policy and framework were also approved and EEP signed PPAs with three IPP project developers: one solar PV and two geothermal projects.

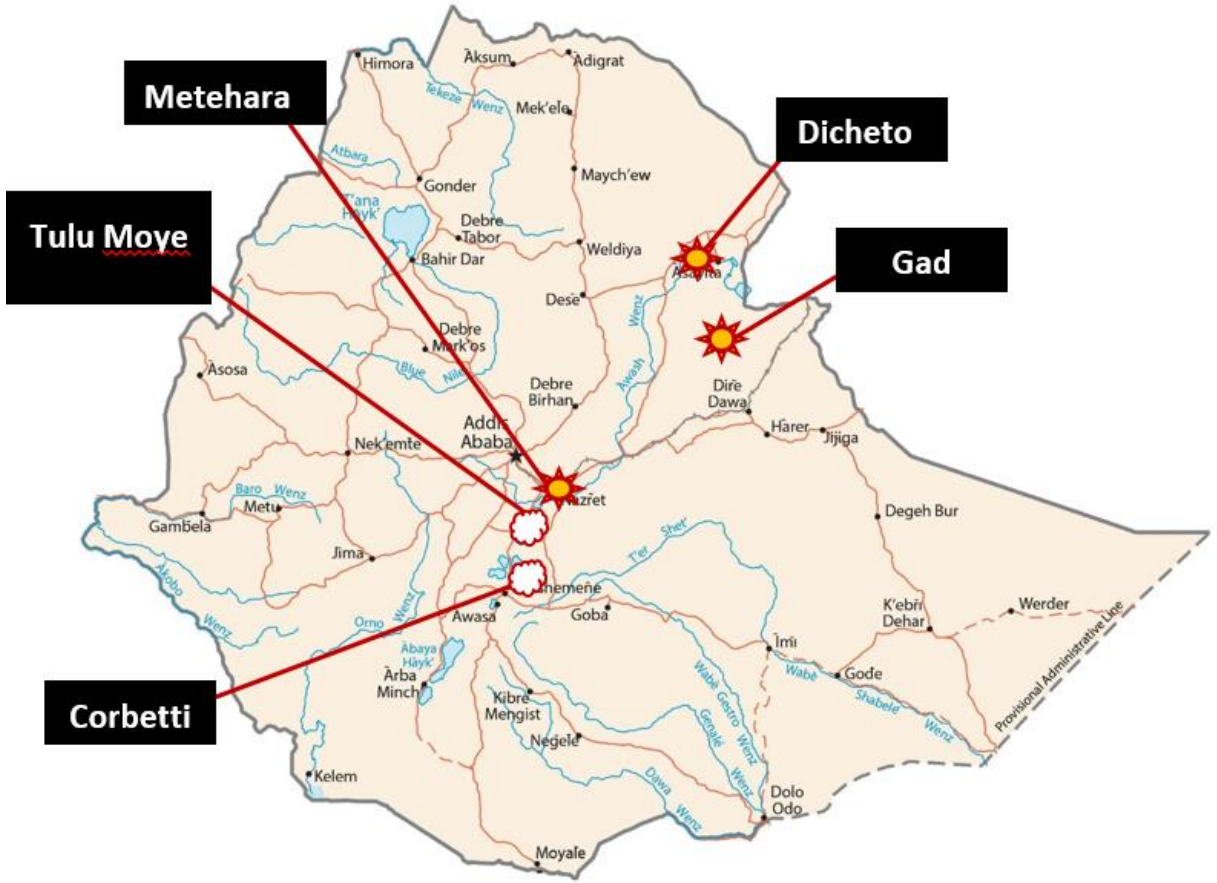
4 Major findings and analysis

Table 1: Non-hydro renewable energy IPPs under implementation in Ethiopia, 2021 (*Source: Authors' compilation)*

Project (energy source; region)	***Capacity***	***Awarded project developer***	***Cost (US$ mil.)***	***Tariff (US$ in KW/h)***	***Project tenure***
Metehara (solar; Oromia)	*100MW*	*Enel Green Power & Orchid Business Group*	*120*	*n/a*	*20*
Tulu Moye (Geothermal; Oromia)	*150MW (50+100)*	*Consortium - Meridian & Reykjavik Geothermal*	*270*	*0.0695*	*25*
Corbetti Geothermal; Oromia)	*150MW (50+100)*	*Consortium - Berkeley Energy & Reykjavik Geothermal*	*n/a*	*0.0753*	*25*
Gad ((solar; Somali)	*125MW*	*ACWA Power*	*150*	*0.02526*	*20*
Dicheto (solar; Afar)	*125MW*	*ACWA Power*	*150*	*0.02526*	*20*

4 Major findings and analysis

Figure 2: IPP project sites in Ethiopia (Source: Authors' own reconstruction)



4 Major findings and analysis

Research participants hailed the PPP Framework as ‘timely’ and a ‘significant step’ to engage the private sector in electricity generation from renewables. They identified:

- opportunities for the private sector, including: growing demand for electricity; low level of use and access to electricity; export potential; technological innovations and falling cost.
- risks to investors, including forex availability and convertibility, creditworthiness of the off-taker, security concerns.
- IPP Governance issues: overlapping roles and responsibilities, notably between PPP DG and EEP, capacity gaps (notably in law, finances and tender document preparation)
- Research participants’ overwhelming view was that, in terms of policy, there were ‘no’ or ‘little’ gaps, but the challenges are with implementation.

However, a deeper analysis of the qualitative data showed opportunities and faultlines of the IPPs governance (see below).

4 Major findings and analysis

Renewables IPP governance and project implementation challenges:

1. Ambitious number and size of IPP projects

- pace and sequencing of IPP projects floated for tender were too ambitious - eight projects in two successive tenders was “unwise”.
- high target setting is a “perennial problem” in Ethiopia (e.g. only 52% GTP I targets we met. Sizes of particularly geothermal IPP projects were too large, with high risks).
- IPP projects seen as ‘magic bullet’ solutions, but only create “false optimism”.

Why and what drives ambitious targets? Target setting mainly to the demand and supply side forces and associated policy narratives such as Ethiopia being ‘tower of energy’.

Need to make target setting be more realistic and firmly based on understanding of complex factors such as risk to investors.

4 Major findings and analysis

2. IPP governance is rife with institutional tension

Overlapping roles and responsibilities between PPP-DGU and EEP are the main cause of the tension, with political and technical differences at the core.

The effect of these overlaps meant that PPP project development and management capacity has to be developed in two sites, further “weakening negotiation power with developers”.

EEP feels its roles and responsibilities are ‘appropriated’ by PPP-DGU, while the latter has limited capacity to prepare and implement tenders.

PPP DGU seems to focus on building the larger national development agenda - capacity to coordinate, not only IPPs but all PPP projects, and ensure creditworthiness of CAs.

This tension appears to have disempowered and demotivated staff at EEP and slowed down the tendering process.

4 Major findings and analysis

3. Weak and fragmented RE-IPP governance

- relevant policies and requisite technical expertise for managing projects were dispersed across institutions, and there was no “one-stop-shop” for investors, impeding the procurement process.
- many developers start with EEP and/or PPP-DGU as their entry point but also find themselves caught between several agencies.
- representation of and participation in Board meetings, and awareness level of Board members – there is no representation from regional governments to bring multiple perspectives to the decision-making process which, in a couple of cases, manifested in lack of coordination between central and regional governments over project site availability.
- ‘high turnover rate’ of officials which makes it difficult to bring all members on board. Many Board members “lack the knowledge and understanding of IPPs” (some see PPPs/IPPs as “magic bullets” and/or EPC projects).

4 Major findings and analysis

4. Inadequacy of technical capacity

- key institutions, including PPP DGU, experienced dire shortages of expertise and skills in finance, law and bid document preparation.
- existing expertise and skills in the system tend to be skewed towards hydro development.
- departments involved in the promotion and integration of renewable energy are not adequately staffed to implement the policies and programs to increase the renewable energy uptake in the country.
- institutions took the short term solution of capacity building programmes, and hiring transaction advisers and consultants.
- many research respondents underlined that shortage of expertise for IPP tender processing was exacerbated by the system's "inability to capitalise and build on expertise at EEP".
- demonstrate an exemplar project: capacity building in itself cannot replace the learning by doing process needed during the deep and rapid transition from government-led development of IPPs.

4 Major findings and analysis

5. Unsolicited proposals and fair competition and transparency concerns

Unsolicited proposals (USP) (by 'voluntary' promoters) have been reaching EEP in large numbers; and many respondents revealed some serious concerns about the quality and manner in which these projects were presented to EEP:

- USPs were "poorly prepared" or have no unique "intellectual property related issue"
- USP promoters appear to vigorously mobilise support from federal and regional level officials, obtain letters of support to secure cooperation from EEP (all in 'good faith') … but these 'facilitations' put pressure on EEP or "challenge its producer and off taker roles".
- The process appears to lack transparency as none of these influences or requests for support are openly available to all participants
- Lastly, many USPs tend to be relatively small to justify the cost of processing.

4 Major findings and analysis

6. Donor and transaction advisors' influences

Significant support from bilateral and multilateral donors – e.g. the Scaling Solar programme (See: https://www.scalingsolar.org/active-engagements/ethiopia/):

- assigning transaction advisors to provide support to project preparation.
- financial support to undertake studies, hold events, pay for consultants and transition advisors.

But implicit influence of some transaction advisors - e.g. "pushing" and/or "lobbying senior decision- makers" towards an outcome they [government organisation people] thought undermined the public interest.

4 Major findings and analysis

7. Industry response to RE-IPP policy and governance

We found strong and positive response from the private sector developers and financial intermediaries to PPP/IPP policy and framework:

“Ethiopia is the power hub of not only Eastern Africa, but the whole of Africa. So, there is a huge resource potential, and there is huge demand. … access to electricity is very low; the population size is more than 110 million … which makes it the biggest market in terms of market opportunity”. (Developer 4, April 2021).

The timing of policy seen as positive: “As a business and an investor, if you don't invest in Ethiopia now, you'll be crying in 10 years time” (Developer 2, April 2021).

Industry respondents were cognizant of weaknesses of the nascent industry in Ethiopia and, as much as the government, they also have interest in its development.

Many industry respondents also made critical observations:

- owing to frequent staff turnover, they often face new and less experienced personnel, prolonging business deals at hand.
- some middle level bureaucrats were rather slow and do not seem have “embraced the liberalisation agenda.”

4 Major findings and analysis

8. (Business) engaging with local developers and with subnational actors

Research participants overwhelmingly noted that:

- the PPP Policy does not provide enough support to the domestic private sector (only Orchid Business Group is an Ethiopian partner at Enel Green Power, Metehara)
- regional and local level government actors are peripheral to the energy-related decision-making process, creating challenges for IPP project developers who often directly engage with local officials and communities (as at the Metehara PV project which had to be relocated)
- still, a range of demand driven and community-based initiatives (“social license”) - can be sources of strength to projects (when these involves training local youth, providing social services like electricity and health as TMGO effectively did this).

4 Major findings and analysis

9. Risks perceptions and financial close

Forex availability and convertibility of birr to international currency:

- the main sticking point is guarantee for forex availability and birr convertibility.
- some local consultancies and legal experts think that convertibility risks are over-rated among private investors or debt financiers: '..why is IPP so special? We have investors doing bigger projects all these years without asking for convertibility guarantees from the government.' (Consultant 1, 1 April 2021)

Off-taker risk of EEP – currently viewed by private entities and financiers as less significant, mainly because its payment obligations under PPA is guaranteed by GoE.

Security risk:

- the deteriorating security situation in northern Ethiopia and ethic-based political tensions across Ethiopia are believed have undermined investment in the sector
- This is often conflated into global geopolitics and use of 'soft' power to derail investment flows into Ethiopia

Financial close: for the new IPPs, it has proved challenging to reach financial closure milestones. All the above risks and Covid 19 play a part.

4 Major findings and analysis

10. Towards a new state-market relationship

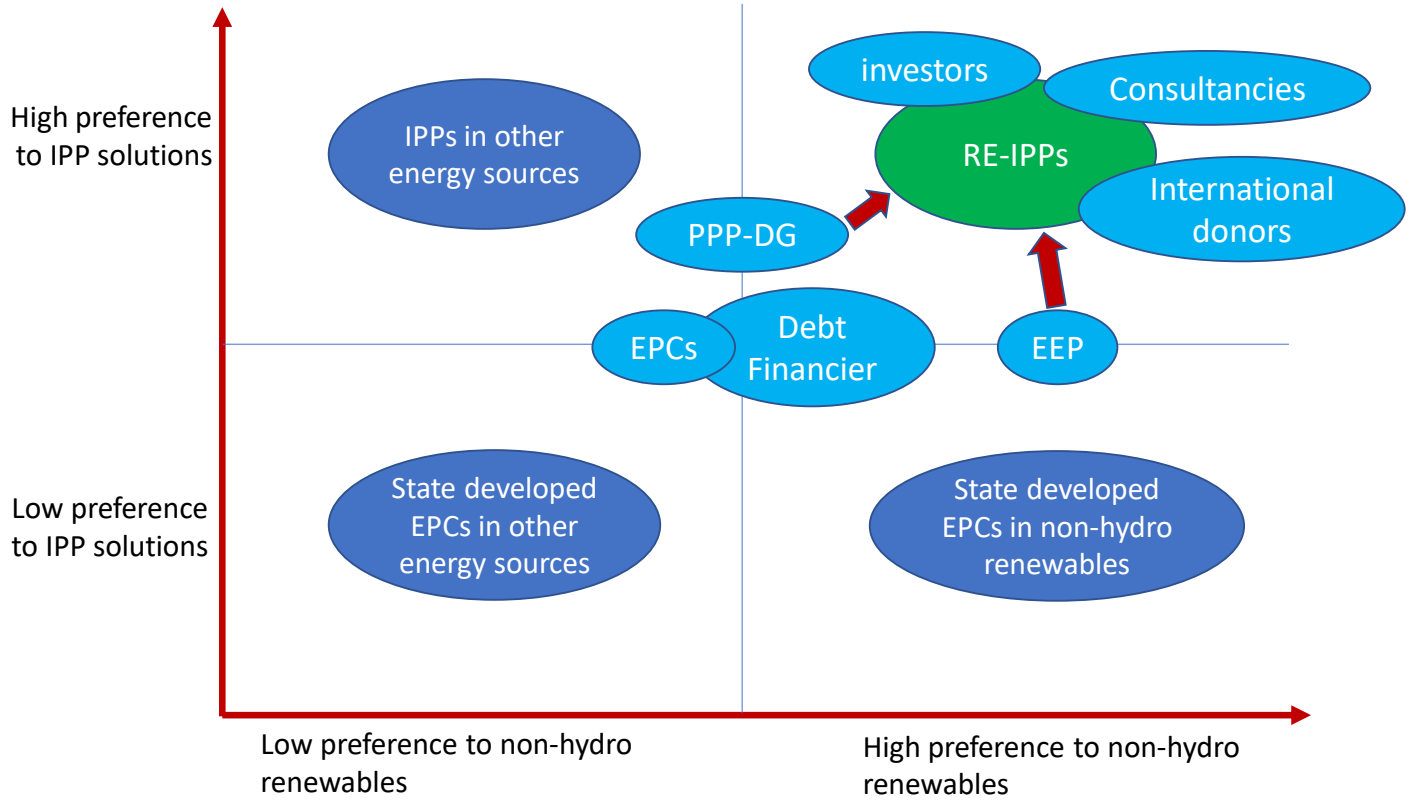
Our analysis showed the need for a coalition or network to drive RE-IPPs in Ethiopia built around two belief systems: commitment to (non-hydro) renewables and commitment to the role of the private sector in procuring electricity from renewable resources. We walk you through Figure 3:

- PPP-DGU, as a cross-sectoral agency, has strong commitment in IPPs but it lacks expertise to drive and support non-hydro renewables.
- EEP aims to promote non-hydro renewable capacities yet not fully driving the IPP model.
- Consequently, no leading government agency has taken the leadership to develop a lasting and cooperative relationship with the private sector, to nurture the RE-IPPs together as the ‘niche’ market and governance segment.
- Such a misaligned arrangement is sometimes the source of hesitation or lack of trust among government officers in engaging and negotiating with private sector.

Developing a constructive state-market relationship requires effort from both belief systems.

4 Major findings and analysis

Figure 3: Two core belief systems that sustain policy coalitions around RE-IPPs (Source: Authors)



5 Conclusion and recommendations

- Ethiopia is rich in renewable energy resources but its citizens are energy poor.
- In 2017, Ethiopia took bold policy action to transition its energy sector to non-hydro renewables, a segment of which was to be procured by private suppliers.
- Efforts thus far are showing credible progress: PPAs were signed with five IPPs to increase generation by 650 MW. Many more projects are in the pipeline.
- It aims to increase generation from its current 4,478 MW to 21,238 MW by 2030, nearly a quarter of which will be procured privately through IPPs from non-hydro renewables. By 2030, Ethiopia also aims to meet the UN Sustainable Development Goal: “ensure access to affordable, reliable, sustainable and modern energy for all”.

5 Conclusion and recommendations

To attain these goals formidable challenges identified by this study need to be addressed:

The number and size of IPP projects are too ambitious: two tenders were announced in quick succession; the IPP project sizes also tend to be large and add risk to investment. Planners appear to see IPP projects as ‘magic bullet’ solutions, which can create false hopes.

We recommend that target setting be more realistic and firmly based on the understanding of complex factors such as risk to investors. Projects stuck in the pipeline will only overstretch the limited institutional and technical capacity when dealing with multiple and simultaneous negotiations. The immediate focus should be on designing and implementing an exemplar project and generating lessons to address many of the (seemingly intractable) challenges.

IPP governance is rife with institutional tension: Overlapping roles and responsibilities between PPP-DGU and EEP are the main cause of the tension, with political and technical differences at the core.

Core institutions need to draw on their competency areas and work in sync to succeed. We suggest that PPP-DGU focus on provision of sovereign guarantees and ensuring prudent budgets for IPPs, while EEP, as an off-taker, could focus on all the technical aspects of electrify procurement via IPPs.

5 Conclusion and recommendations

Weak and fragmented IPP governance: relevant policies and requisite technical expertise for managing projects are dispersed across main institutions, and there is no “one-stop-shop” for developers, impeding the procurement process. Regional governments are not formally involved in the decision-making process either, but they play critical roles in making project sites available to investors and implementation on the ground.

We recommend PPP DGU and EEP coordinate IPP project developments with subnational government structure; increase awareness among key institutions involved in IPPs and the project tender processes, and make procedures clear and widely circulated, including via websites.

IPP projects preparation and implementation face capacity deficit: Existing expertise and skills in the system tend to be skewed towards hydro-power development. Institutions took the short term solution of capacity building programmes, and hiring transaction advisers and consultants.

We recommend relevant institutions work together, identifying and capitalising on existing capacity. In the medium to long term, a conducive environment needs to be created for training, attracting and retaining staff, developing clear career pathways within the organisations and improving salary scales.

5 Conclusion and recommendations

Increasing interest in unsolicited proposals is putting undue pressure on EEP technical teams: a large number of unsolicited proposals (USP) are submitted by 'voluntary' promotors for consideration but no single such project has been successfully approved. As there does not seem to be clear transparency (and also fair competition) in evaluating these projects, guidelines are need for processing and evaluating USPs.

Investors face real and perceived project risks: the main challenge here being foreign currency availability and convertibility of birr to foreign currencies. Availability is a reflection of a sustained unhealthy status of Ethiopia's foreign exchange reserves. Also, like any other country, Ethiopia has many priorities, including importing medicine. What makes it pronounced for investors and financiers is the unpredictability of access to forex to expatriate profit. The study proposes a range of potential solutions to mitigate this risk, including commitment to a timeline for currency repatriation, allocation of a certain proportion of forex from energy export and developing the competitive domestic private sector to partner global IPPs and possibly reduce the demand to expatriate profit.

5 Conclusion and recommendations

Security risks: how and when the armed conflict in northern Ethiopia will be resolved is beyond the scope of this study but, conflated with global geopolitics and use of 'soft' power, it has been straining on investment flows into the renewables and other sectors. Under the current circumstances, there can be very few political risk insurers willing to provide for Ethiopian IPP projects. Even if they do, the premium could be excessively high, with an impact on tariffs.

Project companies' engagement with communities (promotion of community development work) can also provide the requisite 'social license' and be sources of strength in both peaceful and turbulent times.

Weak policy support to the nascent domestic private sector: in medium and long term, a viable domestic private sector could mitigate, for example, the forex supply and currency convertibility issues (see above). The development of the sector could not only reduce the need for converting birr into foreign currency to repatriate profits, it would also enhance knowledge and increase technology transfer, and boost local technology development and manufacturing. Thus we recommend a strong programme to nurture the domestic private sector through tax incentives, training and coaching.

5 Conclusion and recommendations

Ethiopia's policy to transition to a mix of renewable resources, and increase the contribution of non-hydro renewables with a segment procured by private suppliers, has taken off from solid foundations.

However, notable challenges remain in RE-IPPs governance, capacity gaps and substantial risks to investment.

Many of these problems are part of the learning process during the transition from a state to market-led development pathway in the energy sector. A successful close of at least one project would serve to raise the credibility of the process, and this is the most urgent task.

Thank You!

Comments on report summary for the IDS Webinar

Renewable Energy Procurement in Ethiopia: overcoming obstacles in procurement from independent power producers

By Gosaye Mengistie

Senior Energy Advisor,

Ministry of Water and Energy

November 16, 2021

Addis Ababa, Ethiopia

Ethiopian Electricity Sector Context and Challenges (1/1)

- **Strong supply position**

Huge Access deficit

- 100% low-carbon electricity supply
- About 14% growth in capacity p.a. in recent years
- Enough low-cost RE resources for significant growth

- 3rd access deficit in Africa and
- 5th highest electricity access deficit in the world (~60m people or 45% access rate)

10 Year Generation target and % of Generation Mix (1/2)

In the coming 10 Years (2030) The total generation capacity will increase to 17,056 MW and the other RE share will increase to 27.5%

Energy Source	Baseline 2021	% Share	2030	% share
• Hydropower Generation	4,154 MW	92.8%	12,366 MW	72.5%
• Other RE/clean energy	324 MW	7.2%	4,690 MW	27.5%
• Total	4,478 MW	100%	17,056 MW	100%

Reflections/Comments on the Executive Summary Concussions/recommendations (2/1)

Strengths of the report

- The electricity context and challenges are well stated.
- The data /information gathering using literature review, primary and secondary data from concerned stakeholders,
- Major barriers hindering the development of RE thru auction based procurement framework are well identified.
- Most of the recommendations are well thought and will be accepted like the need to have **one -stop -shop** for investors; capacity development; solutions indicated for currency availability and convertibility; tax incentive and training to support domestic private sector ..etc..

Reflections/comments on the Executive Summary Concussions/recommendations (2/2)

Some reflections/thoughts to be considered

1. The data for installed generation target for 2030 is on the higher side. It is better to adjust with the above figure

2. Considering the low level of electrification our target for IPP projects will not be too ambitious. Time is against us for piloting.

3. Indicate some countries experience on RE cooperation (e.g. the benefit of South-South cooperation). Joint venture

4. Try to assess some risk balanced business environment and adoption of international risk allocation standards (WB, AFDB, Climate Change fund etc..) to get guarantee to reduce the investors risks.

Reflections/comments on the Executive Summary Concussions/recommendations

<u>Some reflections/thoughts to be considered</u>

5. Joint venture (as one part of PPP) is also another guarantee to reduce the management risk for investors.

6. Mention some points how to develop the local capital market and local banking sector.

7. The Ministry of Finance recently placed a new investment law and tax incentive which is explicitly designed to encourage foreign direct investment in the power and other sectors please check the implication.

8. In addition to procurement framework other power sector reforms are undergoing.

Thank you

Reflections on the study on renewable energy procurement in Ethiopia

[Dawit Mekonnen, International Food Policy Research Institute]

Renewable Energy Procurement in Ethiopia: overcoming obstacles in procurement from independent power producers

Institute of Development Studies

16 November 2021

Challenges and recommendation

- Ambitious number of and size of IPP projects: target-setting be more realistic
- Institutional tensions: non-overlapping roles and responsibilities between PPP-DGU and EEP.
- Weak and fragmented IPP governance: PPP-DGU and EEP to coordinate key institutions
- Capacity deficits: identify and capitalize on existing capacity in the short term
- Other risks: foreign currency, insecurity: commitment to a timeline for currency repatriation, allocation of a certain proportion of forex from energy export

Overall Comments

- COVID-19 Pandemic: First PPA approved in Dec 2019. Others after that. How much of the delay in project implementation can be ascribed to the pandemic?

- PPP Proclamation 1076/2018 applies beyond the energy sector. Notwithstanding peculiarities of the energy sector, is there any lessons to be learned from other sectors in terms of institutional set up, governance, skill gaps, ….

- Lessons from other countries?

The need for experimentation

- Ambitious energy plans and targets driven by policy narratives that emphasize Ethiopia's rich renewable resources and unmet demand

- Having many projects in the pipeline stretch the limited institutional and technical capacity when dealing with multiple and simultaneous negotiations

- The need for experimentation looms large and having an exemplar project to draw lessons and address the challenges is highly important

Participation of the domestic private sector

- No Ethiopian company participating in the renewable energy RE-IPP tenders, except one junior partner with Enel Green Power at the Metehara solar PV project.

- This needs critical evaluation. Is it only lack of expertise in the domestic private sector? Does the economics of RE-IPPs work for domestic investors? What does it take to attract the domestic private sector in JVs of RE-IPPs?