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RES4AFRICA GRIDS

DEVELOPMENT PARTNERS FORUM

PROMOTING PRIVATE SECTOR PARTICIPATION IN AFRICA'S POWER GRIDS

2023

Position Paper

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CONTEXT

Despite their crucial role in delivering power to homes and businesses, transmission and distribution networks in Africa have received less attention from both the public and private sectors. Most Africans still do not have access to electricity, or the supply is unreliable. On the generation side, issues with access and reliability are being addressed with the help of increasing private sector participation, however, this is not matched by efforts on the transmission and distribution side. Indeed, between 2010 and 2020, 99.7% of private sector investment in African electricity sectors has been directed to generation.

In the absence of grid development, future gains regarding the increased penetration of renewable energy may be undermined considering in addition that many utilities and governments are financially constrained, limiting their ability to provide this much-needed capital. The Kenya Transmission Company (KETRACO) alone, will require USD 5.76 billion to implement their current planned transmission lines, and with a funding gap of USD 2.77 billion after USD 235 million has already been earmarked to PPP projects. Development partners continue to provide concessional funding, though these resources are more needed in other sectors and areas, particularly following the COVID pandemic. Private participation is pivotal, as it brings know-how and investment capital to bridge the gap from limited public sector funding. Unfortunately, private investment in transmission is not prevalent on the African continent, with few examples (e.g. the Copperbelt Energy Corporation in Zambia). This is vastly different from regions such as Latin America, where private participation, by contrast, is commonplace.

Consequently, overcoming the barriers in Africa's electricity sector requires consistent and parallel efforts in generation, transmission, and distribution and through partnerships between the public and private sectors.

INTRODUCTION

On Tuesday 22nd November 2022, the RES4Africa Foundation and the International Finance Corporation (IFC) held the first in a series of Development Partner Forums to promote private sector investment in grid infrastructure projects in Africa. The virtual workshop brought

together development partners, public institutions, and private sector parties from across Africa to share case studies with best practices of private involvement in transmission infrastructure projects. The presentations given, together with the open discussions held throughout the forum served as the basis for this position paper. The paper covers salient issues faced in public-private partnership infrastructure projects, to serve as a guideline for future decision makers in this sector.

During the Forum, participants discussed current investment projects in Africa, lessons learned and viable ways to increase investment in future transmission projects. Eunice Mabika, IFC Investment Officer, presented a current project that IFC supports in Panama; Farid Mohamed, from the Regional Transmission Infrastructure Financing Facility (RTIFF) at the Southern African Power Pool (SAPP), provided perspectives on financing regional interconnections and Dr Eng. John Mativo, General Manager, Project Development Services, discussed KETRACO's views on right of way and payment mechanisms. Ryan Ketchum, Partner at Hunton Andrews Kurths, introduced the "Understanding Power Transmission Financing" handbook[1] and the flexibility and simplicity that Independent Transmission Projects provide.

During this first session, two well-known issues were highlighted, which continue to present great risks to projects. The first are wayleaves – the rights of way granted by a landowner (usually in exchange for payment) for the erection of transmission towers. Land ownership is often one of the most important causes of delays in transmission projects, and it can also be an issue in distribution and generation. Many examples exist; in Kenya alone, a number of projects have been severely delayed or cancelled due to land rights issues, particularly with challenges pertaining to indigenous community ownership[2]. Eskom in South Africa also faces severe difficulty in expropriating land and attaining wayleaves for the development of much needed transmission lines. All this despite concerted government efforts to provide compensation frameworks including compulsory purchase.

A second issue raised was that of payment for and remuneration of transmission lines. Remuneration of infrastructure assets is dependent on the model of private involvement, can be cost-based or incentive-based, and is complicated by bundled consumer tariffs. The regulation surrounding remuneration for transmission infrastructure projects needs to be equitable to maintain the attractiveness of such capital-intensive investments. This will be discussed in the context of business models for implementing transmission projects with private sector involvement.

Other issues discussed and summarized later in the paper include affordability and value for money; ownership, operations, and maintenance; policy, regulations, and capability.

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[1] *Power Africa, CLDP, and ALSF (2021) Understanding Power Transmission Financing, available online at: https://cldp.doc.gov/sites/default/files/2021-10/Understanding_Transmission_Financing.pdf*

[2] *RES4Africa (2021) Investor Survey on Sub-Saharan Africa: A survey on the risks to renewable energy investments.*

Using the case studies discussed in the Forum, this position paper will present the key points of the main issues raised, outline how they were overcome in successful cases across the globe and provide recommendations for future transmission infrastructure projects in Africa.

1. WAYLEAVES

Some of the key questions regarding wayleaves for transmission are:

- Who should be responsible for wayleaves?
- How should risks be allocated?
- How can the risk of high costs and implementation overruns in securing wayleaves be reduced?
- How can land rights and issues raised by indigenous people be managed?

The IFC has a long track record of financing projects in transmission in Chile, Peru, Colombia, Argentina, Bolivia, Brazil, and India where private sector was involved. IFC is currently advising Empresa de Transmisión Eléctrica S.A. (ETESA), the state-owned enterprise in charge of the national electricity transmission grid in Panama on how to structure and bid out a transmission line project through a public-private partnership or PPP. A PPP is a mid-term or long-term contract between a private party and a government entity for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance.

In the Panama case presented by IFC, ETESA was responsible for securing rights of way, obtaining required environmental permits and managing the engagement process with Indigenous Communities including obtaining free, prior and informed consent. IFC also guides ETESA on conducting the required E&S assessments and determining the scope of work related to E&S management for the potential bidder.

In the case of Kenya, and for KETRACO, a wayleave is registrable as an easement i.e. can be specifically described and defined. Wayleaves last for the life of the transmission line, normally in perpetuity. Due to the nature of transmission lines, the consideration is normally a capital compensation value made to the property owner. In the case presented for the Loosuk – Lessos 400kV and Kisumu (Kibos) – Kakamega 220kV lines (total of 257 km) KETRACO is working very closely with Africa50, the private developer, to avail budget to enable design and preconstruction activities, as well as the procedure to secure wayleaves and compensate landowners prior to procuring the Engineering, Procurement and Construction (EPC) contractor who will conduct the final design on the basis of the above.

The presentations and discussions highlighted that wayleaves are complex, requiring realistic timeframes, strong ownership and oversight by the utility and government, extensive experience and management skills, as well as negotiation skills to keep on track. The private and public parties need to work closely together to share the risk, each fulfilling its role

efficiently. The private sector could consider supporting to secure compensation funds as part of their commitment to financing these projects, as it may be too cumbersome and time consuming to raise government funding. Clear guidelines on land rights and compensation should be set to support the setting and achievement of budget and schedule targets. Timely actions on obtaining wayleaves are key to avoiding land speculation and political interference.

2. BUSINESS MODELS, REMUNERATION, AND PAYMENT SECURITY

The "Understanding Power Transmission Financing"[3] handbook refers to different business models that countries could use to facilitate private investment in transmission, including Independent Transmission Projects (ITP) and whole of network concessions. ITPs is not a new concept as the contractual structure is similar to that of an IPP.

In the Panama case study, the contract was issued for the Design, Build, Finance, and Maintenance of the new asset or also referred to Build, Own, Operate and Transfer (BOOT) model for a period of 30 years. The PPP contractor or independent power transmission operator (IPT) receives a monthly payment from the transmission tariff once the line becomes operational, also sometimes referred to as availability payments. The tariff is fixed during the term of the PPP contract and only adjusted for inflation, ramp up from 230kV to 500kV as load increases and additional social and environmental provisions required. Generation and distribution companies must comply with transmission regulations and pay a tariff that covers interconnection and transmission charges. The contract payments are also linked to key performance indicators (KPIs) and payment penalties should KPIs not be achieved, incentivizing maintenance to ensure availability and reliability.

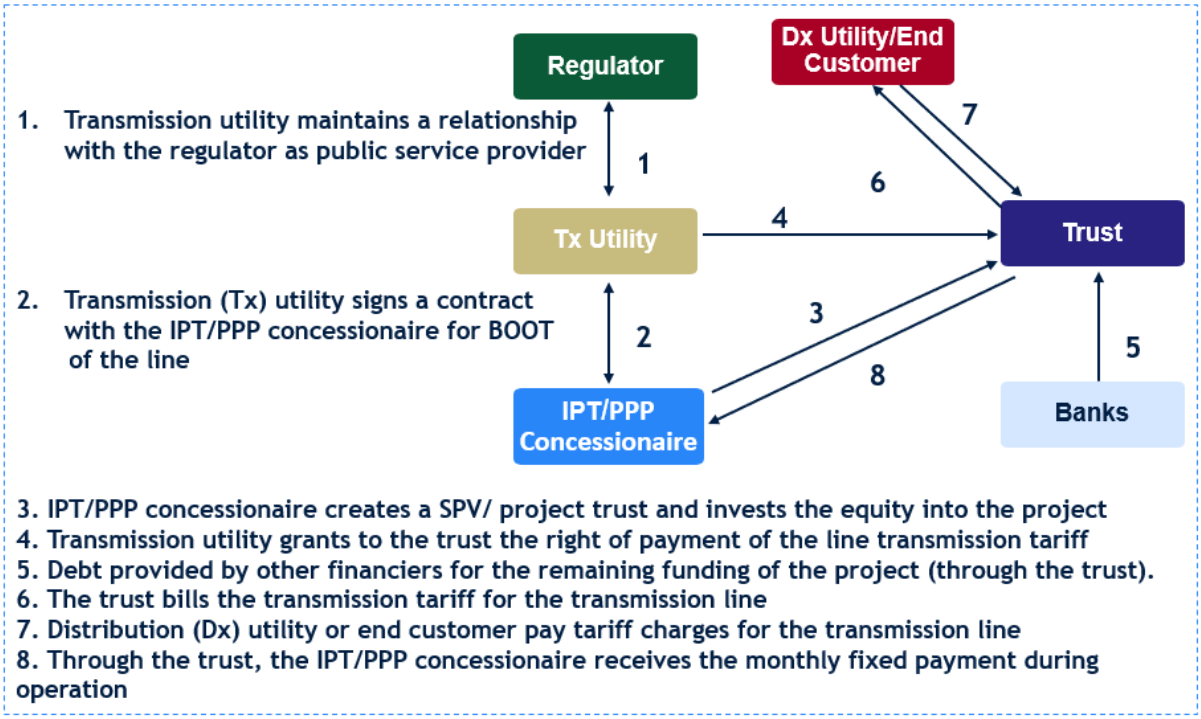
In the case of Kenya, the revenue to the IPT under a BOOT model is on the basis of annual revenue payments set by the winning bidder or negotiated but approved by the regulator. Projects are procured through unsolicited or private initiative investment proposals (e.g., the current Africa50 proposal for two lines) and solicited or competitive PPP tendering.

Availability payments are considered the best practice for remuneration of transmission lines with variations in terms of what is included and could be adjusted, mostly incorporating the investment and operations and maintenance, with a fixed return. There is a limited demand risk for the IPT, as it is an availability payment coming from the transmission tariff charged to distribution companies (and any direct off-takers, such as power intensive users,). The counterparty risk is considered a systemic risk since the non-payment is compensated by the rest of the system. Nevertheless, guarantees – supported by development partners – could be considered for payment, political or other risks. In the case of Panama, the structure allows

[3] *Power Africa, CLDP, and ALSF (2021) Understanding Power Transmission Financing, available online at:* https://cldp.doc.gov/sites/default/files/2021-10/Understanding_Transmission_Financing.pdf

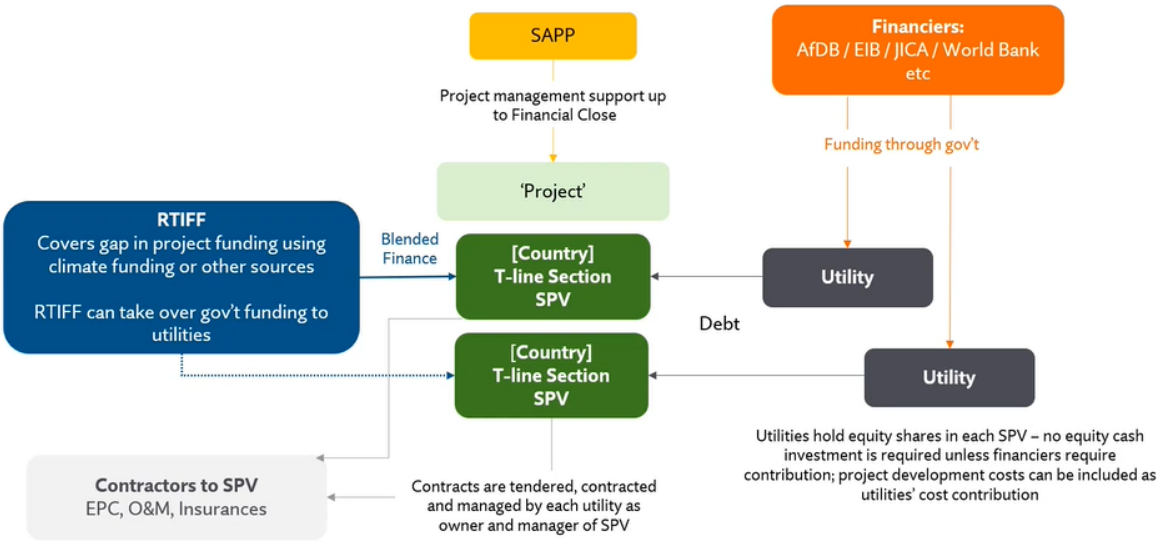
for a trust fund to be established to securitize payments. A more generic version of this structure is given in the diagram below.

Figure 1: An example transmission project structure that support payment security



For cross border projects, innovative financing structures are being developed by SAPP through RTIFF with funding support for projects through blended finance and funding support for utilities through donor funding agencies, provided that the projects are ringfenced per country through a special purpose vehicle, that governance mechanisms are in place, and that the payment waterfall is carefully considered. The diagram below shows this structure.

Figure 2: SAPP RTIFF Structure to allow funders, SAPP and Utility participation



Note: SPV - Special Purpose Vehicle; T-line – Transmission line

Brownfield projects are also suitable for private sector participation. A good brownfield example is the Philippines where blackouts were regular, and a concession of the current network resulted in the concessionaire investing to improve network reliability and availability considerably over a period of time.

3. AFFORDABILITY AND VALUE FOR MONEY

Ryan Ketchum presented the case that competitively procured investment in transmission can result in significant cost reductions with two examples. The United Kingdom used a competitive model to develop GBP 3 billion of investment in transmission to connect offshore wind projects. Ofgem (the regulator) estimated savings of between 23% and 34% compared to traditional utility procurement. Peru implemented eighteen privately financed transmission projects at an estimated cost saving of 36%.

In the SAPP, new and strengthened transmission corridors could enable USD 37 billion of savings (in net present value) by 2040.

In the case of Peru, 7,560 km of new lines were developed with a total investment value of USD 2.6 billion without public CAPEX funding. Winning bids were on average 31% cheaper than the price cap placed on the procurement. This was achieved from 1998 to 2017 and the trend continues. Winning bids help the government improve its ability to determine future price caps for IPTs and EPCs. Well-designed tenders and competitive forces tend to empower private bidders to optimize costs, which the government can leverage in future bidding rounds. The Mantaro-Socabaya line, which was the first investment of USD 179 million, resulted in USD 11.35 billion savings to users over ten years. The lines that followed resulted in annual savings of approximately USD 127 million.

IFC conducted its own analysis in Kenya and the results showed that if fully private financing was used (at the real interest rate for KETRACO), CAPEX savings above 10% could achieve value for money compared to the public funding alternative. Alternatively, with an estimated 30% concessional financing incorporated into the project similar value would be achieved.

4. OWNERSHIP, OPERATIONS, AND MAINTENANCE

In the case presented for Panama, ETESA, through its national dispatch center is the sole operator of the National Transmission System. The concessionaire (or the ITP developer) is only responsible for the administration and maintenance activities. This is envisaged to be the predominant model of operation; in other words, an IPT would provide an open access line, except where dedicated transmission lines are required, such as associated with a power station or mine.

In a number of countries regulation requires the state-owned utility to be the sole owner of transmission assets. However, this should not prohibit private sector participation, as it could still be achieved through a contract structure not requiring private ownership of the asset.

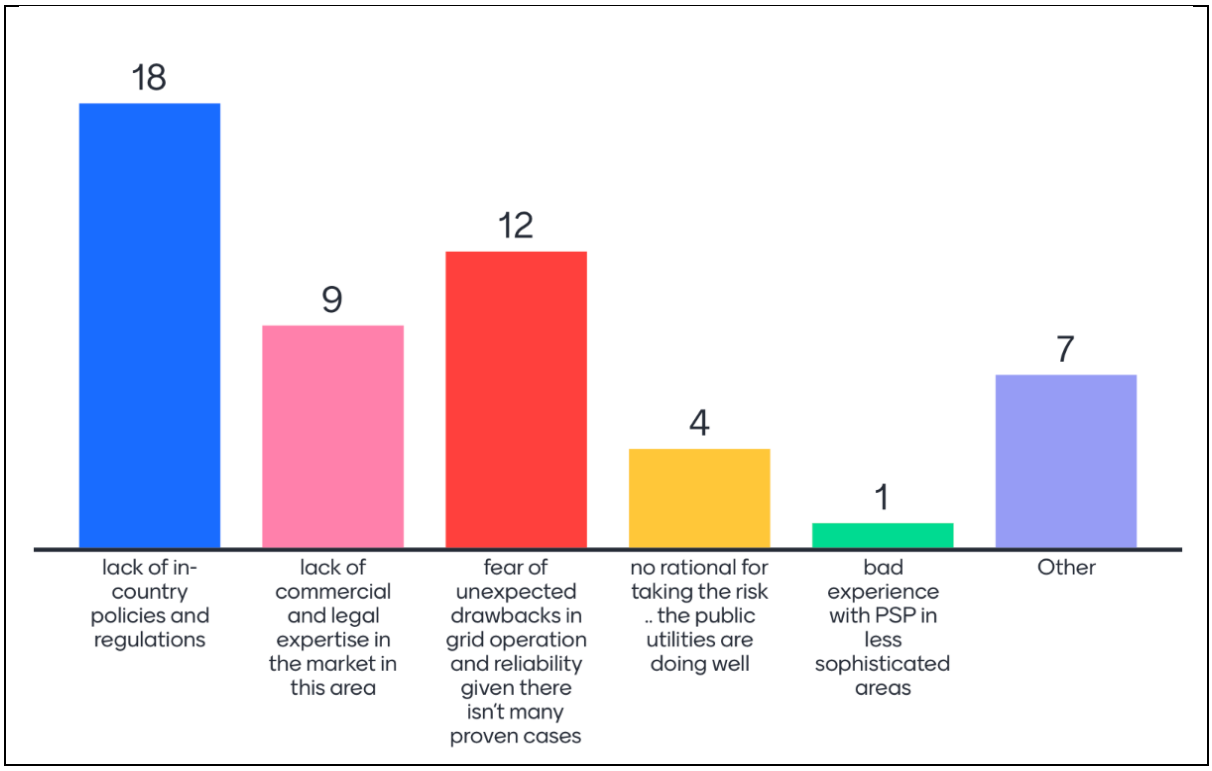
In the Kenya preferred PPP structure, the IPT owns the asset for the duration of the contract and hands it over to KETRACO at the end of the contract, bears the operational performance and lifecycle risk while KETRACO remains responsible for the overall operations of the grid.

There seems to be consensus that for privately built transmission, the national utility should retain the transmission system operator role and control the line function in the network, while operations and maintenance of the line under private sector control should be the responsibility of the IPT.

5. POLICY, REGULATIONS AND CAPABILITY

Feedback from Forum participants (refer to boxes 1 and 2 below) indicated that the biggest barriers to more development partner involvement and private sector participation in the development of transmission lines include "lack of appropriate country policies and regulations".

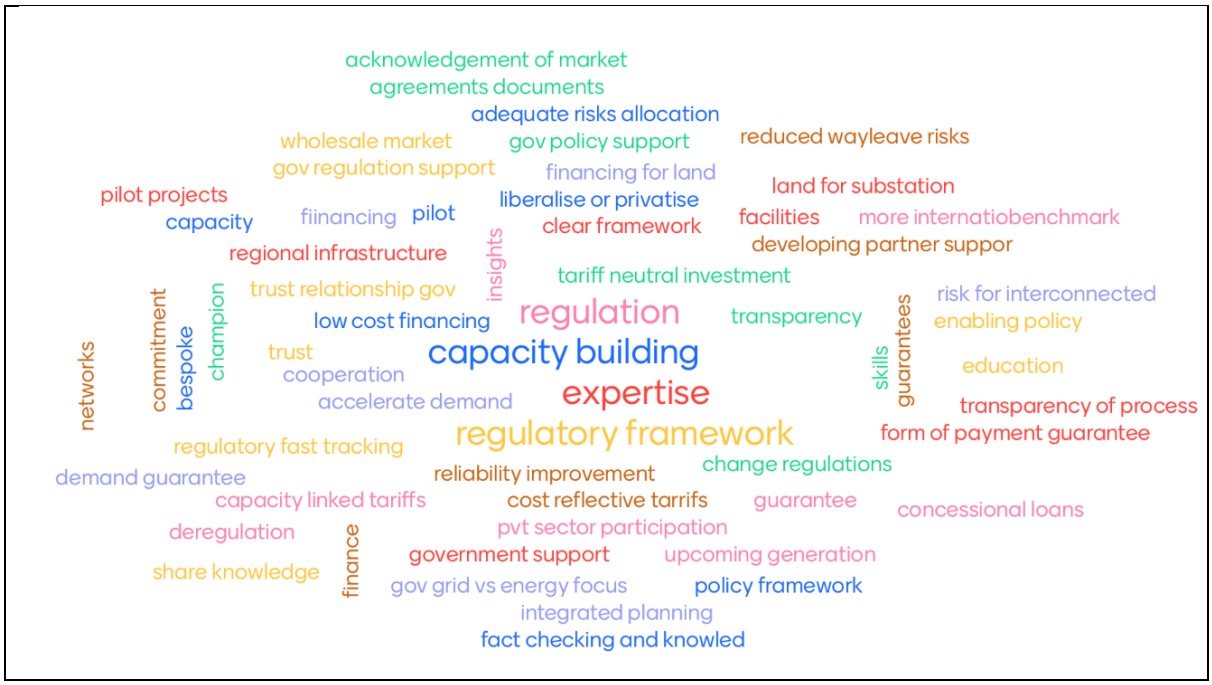
Figure 3: What are the concerns/barriers to introducing private investment to transmission?



ITPs are simple and flexible and do not need a fully developed regulatory framework. Main requirements for the legal framework for ITPs include a suitable licensing regime and clear authority by a government, sector regulator, or state-owned transmission utility to award the concession or transmission service agreement. ITPs does not require an independent regulator (but it is helpful), an unbundled utility, or a grid code, distribution code, or dispatch code.

Kenya is leading in the regulatory environment with a recently enacted PPP Act (2021) and an Energy Act (2019) allowing for private transmission operators to secure a licence, non-discriminatory open access to the transmission system, and fair and reasonable wheeling charges.

Figure 4: What may be needed by ministry/agency to enable private participation in transmission?



Another barrier highlighted at the Forum was "lack of commercial and legal expertise in the market in this area" and the need identified for "capacity building." There is a wealth of knowledge available from other regions, not least of all the handbook, and as was seen from the experience and case studies presented that could be shared amongst development partners, utilities, other regulators, and other stakeholders.

Cross-country transmission lines are no exception and existing approaches have failed to mobilise the necessary investments, in part due to insufficient institutional capacities and structures, with the latest interconnector (Namibia-Zambia) commissioned in 2007. The key regional energy institutions, including the Regional Energy Regulators Association of Southern Africa, and development partners (notably the World Bank Group and the African Development Bank) have greatly supported the development of institutional capacities and their resources should be further leveraged.