

Some Lessons From Comparative Experience In Sub-Saharan Africa

INFOGRAPHIC PART 1

OVERVIEW

Improving the performance of the electricity sector in Sub-Saharan African (SSA) countries is a long-standing agenda, going back to the 1990s. The early approach was to attempt to implement a set of 'standard' or 'textbook' reforms based on economic theory and experience in countries.

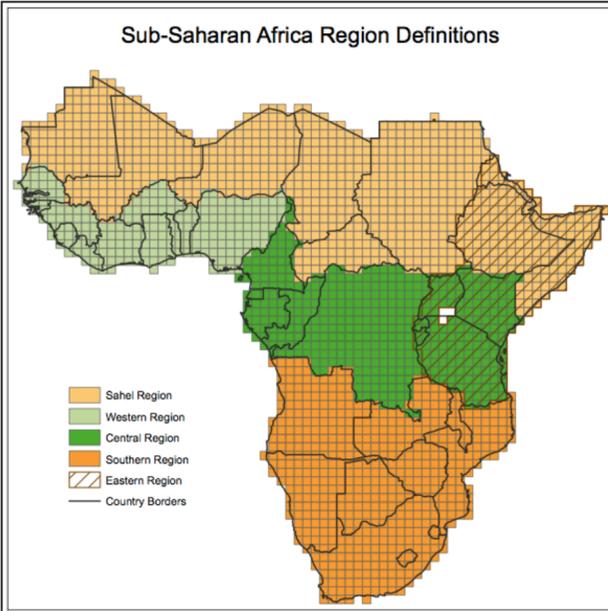


KEY ELEMENTS IN THE 1990S WERE:

- Corporatization of parastatal utilities;
- Unbundling of generation, transmission, distribution and supply; introducing competition to wholesale generation and supply;
- Establishing an independent regulatory authority;
- Horizontal separation of incumbents to create viable supply (i.e. breaking up state monopoly into several companies), and privatization.

REFORM EXPERIENCE CONCLUSIONS

1. In Sub-Saharan Africa (SSA) most countries have not privatized, unbundled or introduced wholesale and retail competition. E.g 2016 data shows that out of 48 SSA countries;
 - 21 had state owned vertically integrated utilities with no private sector participation
 - 14 had vertically integrated state-owned utilities but had introduced Independent Power Producers (IPPs)
 - A smaller group had unbundled to some extent but not introduced IPPs.
 - Many have created regulatory authorities but these are not fully independent of government
2. Reforms have not always had the expected results. Some have led to improved capacity expansion and utilization, expanded access and reserve margins and in many cases, tariffs have increased to become more cost reflective.
 - Evidence shows that increasing competition has more positive effects than privatization or regulation.
 - However, some countries have systems too small for viable competitive power markets.



Source: Regional definitions for sub-Saharan Africa. O'Loughlin et al. (2014).

A MORE NUANCED APPROACH TO POWER SECTOR REFORM ("HYBRID MODEL")

1. Acceptance that a 'hybrid' model with public and private sector actors coexisting in generation has become widely established.
2. Reforms need to be designed to suit the specific conditions of countries, paying more attention to the technical characteristics of the system, institutional capacity and the transaction costs of reform. E.g. unbundling is strongest in large power systems in countries with relatively strong institutions.
3. Acceptance that 'big bang' power sector reform rarely works.
4. A sequenced approach that needs patience, while maintaining momentum, is more realistic.
5. Reform is a political process where public acceptance is extremely important along with new benefits designed to compensate groups or institutions that will lose from reform. E.g. overt cash transfers to vulnerable groups

WHY ZAMBIA NEEDS TO FOCUS ON INVESTMENTS IN POWER SECTOR



1. The country is facing a growing structural capacity deficit, exacerbated in low rainfall years because of the reliance on hydropower.
2. Electricity prices have recently increased with tariff reform, to maintain reform momentum, a benefit in terms of greater reliability is needed.
3. Limited access to resources for investment by the state, this means a greater involvement of IPPs.
4. Over dependence on hydro power needs to shift to non-hydro sources to diversify power sector and reduce risks associated with climate change.

CREDITWORTHINESS OF OFF-TAKERS

- In many SSA countries, the state-owned utilities that are the off-takers of electricity from IPPs are in poor financial shape.
- This is often because of high losses in distribution lines and a poor record on revenue collection, a combination of factors than mean losses of up to half of a utility's turnover.
- A more fundamental reason is the fact that tariffs are frequently not, in aggregate, cost-reflective, meaning that utilities cannot cover capital and operating costs.
- Governments often intervene in the setting of tariffs to keep prices low for political reasons. Unless governments explicitly reimburse utilities for what is effectively subsidized electricity (which they often do not), then the latter accrue chronic debt and may also suffer from liquidity problems.
- Potential IPPs perceive substantial risk in such conditions, especially the risk of non-payment if the utility is financially fragile.
- In such circumstances IPPs will tend to seek safeguards of some kind, including international arbitration, sovereign guarantees, ring-fencing of revenues or escrow accounts, loan or payment guarantees from international financial institutions (e.g. the World Bank, AfDB) and various types of insurance products.
- The direct involvement of development finance institutions in large-scale investment can also give private investors greater confidence.
- In the longer term the financial health of off-taking utilities can be established on a more sustainable basis only through improved governance and management of utilities, and tariff reform in the direction of cost-reflexivity, or more credible guarantees that government will underwrite subsidies.

QUALITY AND INDEPENDENCE OF REGULATORS

- The countries with the most IPPs—for example, Uganda, Kenya, Senegal, Nigeria, Tanzania, Ghana, Cameroon, and Côte d'Ivoire—all have electricity regulators, although this is not a necessary condition.
- If regulatory governance is transparent, fair, and accountable, and if regulatory decisions are credible and predictable, there is greater certainty around market access, and tariffs and revenues—with potentially positive outcomes for the host country and investors alike.
 - The best arrangement is for a requirement for competitive procurement to be written into legislation, along with the power of the regulator to oversee the enforcement of competition. This is the case in countries which have had success in attracting IPPs.
 - Even in developed countries, regulators are never entirely independent of governments in practice, but in many SSA countries their independence is often heavily compromised.
 - The greater their independence in practice, and the greater their professional capacity the more likely that the quality of regulation will have the qualities desired for attracting IPPs.
 - High quality regulators will also have the capacity to undertake the regulatory changes, for example in grid codes, needed for facilitating the introduction of intermittent renewable sources of electricity into the system.

KEY MESSAGES

IPP investment in SSA has been fairly concentrated in a few countries. In terms of installed capacity, the largest markets have been Nigeria, Kenya, Cote d'Ivoire and Ghana. In terms of the number of projects over the period 1994-2014 the leaders are **Kenya, Uganda, Mauritius and Senegal.**



- Review of the experience with IPPs in five countries in SSA (Uganda, Kenya, Tanzania, South Africa and Nigeria) shows no clear correlation between the degree of unbundling and the presence of private investment in the form of IPPs
- It seems logical that where the national utility is still investing in new generation capacity, its unbundling would have the effect of levelling the playing field for new IPPs...IPP are [also] not necessarily correlated to the presence of an independent regulator.
- IPP investments have arisen in a variety of power market structures, characterized by various degrees of reform.
- This does not mean that elements of the standard reform model are irrelevant where they improve governance of the power sector.
- Focus less on institutional reforms and more on specific functions that have been found to facilitate cost effective, high quality investments by IPPs.
- Almost all countries still have a dominant state-owned utility while some also have IPPs, leading to a 'hybrid' market in which both co-exist.
- Wholesale competition is extremely limited and, in most cases, the state-owned utility is the off-taker of power for IPPs.
- In these circumstances, there is need to focus first on effective planning, procurement and contracting practices for new generation investment and second on ensuring the financial health of the off-taking utility.

PLANNING, COMPETITIVE PROCUREMENT AND CONTRACTING

- Hybrid markets involve the state, or state-owned utilities, playing a dominant role in shaping the sector, meaning that central planning will play a more decisive role than in a liberalized market.
- Effective planning is therefore important for minimizing costs for consumers and making the most of IPPs.
- Plans should use tools such as the Least Cost Power Development Plan (LCPDP), including both generation and transmission planning, and identifying the supply and demand-side investments needed to meet projected electricity demand at the least total cost over a certain period (typically 15–20 years). Environmental sustainability important
- To be effective, planning should not be a one-off periodic exercise, but a continuous, dynamic process of keeping up-to-date with technology costs, changes in demand trajectories and security of supply threats. E.g correct demand projections and cost assumptions are critical for success.
- Experience suggests that effective planning also involves input from a broad range of stakeholders. E.g. Kenya one of the most successful in attracting IPP investment
- Planning function needs to be properly resourced in terms of people, software, and institutional capacity.
- The majority of Sub-Saharan African countries have inadequate capacity and end up contracting out this function to consultants. This increases the risk that plans for least-cost generation expansion are produced but are not then implemented, which has been the case, for example in Tanzania.
- For planning to play a useful role, it must be translated into appropriate investment and procurement decisions which encompass both the public and private sectors.
- Cost-effectiveness also depends a lot on the design of the procurement process.
- Experience shows that competitive procurement processes produce lower costs, including ultimately for consumers.
- Competitive procurement, such as reverse auctions, have also yielded lower costs for renewable electricity, such as wind and solar PV, than administratively set feed-in tariffs.

DIRECTLY NEGOTIATED PROJECTS

- Directly negotiated projects require measures to ensure value for money e.g. 'open book' processes, pre-specifying capital structure for the project and expected returns on debt and equity, and comparing the resulting prices to other pricing benchmarks—such as feed-in tariffs (FiTs) and the prices resulting from competitive procurements
- State agencies must have a degree of capacity to negotiate contracts with IPPs which typically have access to a great deal of specialized expertise.
- Experience suggests that the best location for the negotiating function may be an independent system operator that also takes responsibility for planning and may then be integrated with the procurement function, and is thus be able to integrate responsibility for short-term balancing and long term security of supply.

RECOMMENDATIONS

- Develop the capacity for effective planning using tools such as Least Cost Power Development Plan (LCPDP) in one institution. Include other stakeholders in the planning process.
 - Ensure a clear link between planning on the one hand, and investment and procurement decision on the other. Ideally have clear criteria for allocating investments between the public and private sectors.
 - Clarify and streamline the procurement process, with one actor handling all bids.
 - Where possible use competitive and transparent bidding processes (tenders, auctions), drawing on existing international experience in design.
 - If direct negotiations are to be used, ensure specialised expert capacity exists in (or is available to) the relevant agency for effective negotiation, preferably on an open book basis with clear signalling on expected returns and use of benchmarks.
 - Where necessary, work with development finance institutions to develop safeguards to provide confidence in offtake contracts.
 - Work towards better management of the off-taking utility (including the reduction of distribution losses and revenue collection). Options include management contracts or concessions.
 - Work towards tariffs that are on average cost-reflective.
 - Establish an independent, well-resourced high-quality regulator.
 - Ensure a requirement for competitive procurement is written into legislation, with a requirement for the regulator to oversee enforcement.
- PART 2** of this series focuses on case studies adopted from three countries (Kenya, Uganda and Tanzania) specifically looking at reform history, IPP experience, planning and procurement, creditworthiness of the off-taker and regulation.