

# MINISTERIAL MEETING and EXPERT ROUNDTABLE



**NEPAD-OECD** AFRICA INVESTMENT INITIATIVE

## INCREASING PRIVATE INVESTMENT IN AFRICAN ENERGY INFRASTRUCTURE

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This background paper is distributed as part of the official documentation for the Ministerial and Expert Roundtable of the NEPAD-OECD Africa Investment Initiative on 11-12 November 2009. The views contained within do not necessarily represent those of NEPAD, the OECD or their member governments. The paper forms part of the NEPAD-OECD Africa Investment Initiative series on private sector investment in Africa's infrastructure sector. The documents serve as background materials for the Initiative's ministerial meetings and expert roundtables. Previous papers focused on water and sanitation infrastructure (Lusaka, 2007) and road infrastructure (Kampala, 2008). All these documents make extensive use of the OECD Principles for Private Sector Participation in Infrastructure.



## List of Acronyms

ODA	Official Development Assistance
PPP	Public-Private Partnership
PPA	Power Purchasing Agreement
GDP	Gross Domestic Product
SADC	Southern Africa Development Community
IFC	International Finance Corporation
JBIC	Japan Bank for International Cooperation
PIDG	Private Infrastructure Development Group
OECD	Organisation for Economic Cooperation and Development
PRG	Partial Risk Guarantee
IBRD	International Bank for Reconstruction and Development
TCX	The Currency Exchange Fund
GIIF	Global Index Insurance Facility
AICD	Africa Infrastructure Country Diagnostic
IPP	Independent Power Producer
UEB	Uganda Electricity Board
UETCL	Uganda Electricity Transmission Company Limited
UEDCL	Uganda Electricity Distribution Company Limited
ERA	Electricity Regulatory Authority
MYT	Multi Year Tariffs
PPA	Power Purchase Agreement
KPLC	Kenya Power and Lighting Company
SSA	Sub Saharan Africa
ICA	Infrastructure Consortium for Africa
ECOWAS	Economic Community of West African States
DFIs	Development Finance Institutions

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## A. EXECUTIVE SUMMARY

More than two-thirds of countries in Sub-Saharan Africa are currently experiencing a debilitating power crisis. The crisis is the result of many factors: strong economic growth, which has in turn led to the rapid increase in electricity consumption and urbanization; and poor planning for boosting generation and distribution capacity and maintaining infrastructure. The human and economic consequences are significant. There is an urgent need to address the problems plaguing the power sector, but a large gap exists between infrastructure needs and the availability of resources. An estimated USD 40.8 billion a year in investments are needed for Africa's power sector, but ODA and funding from the public sector are not sufficient to meet this need. Consequently, the private sector will need to play a significant role in closing the demand-resources gap by providing funds and expertise.

This paper outlines three sets of factors that impede private sector investment in energy infrastructure, their associated risks, and how African governments and their development partners can tackle these impediments.

**Financial impediments** include the high costs inherent to the energy sector, including project preparation, tenders and importing commodities such as crude oil and gas. Limited access to funding is also a problem. Most countries have poor or non-existent sovereign credit ratings, limiting their access to international credit markets, and domestic capital markets are narrow. Potentially valuable financial instruments like project bonds are generally not available. **Financial risks** include insufficient cost recovery, elastic demand, non-payment or inability to pay for services, and foreign exchange risk. Possible **initiatives** to overcome these difficulties entail investing in cost-reducing technology; using syndicated loans; expanding pension funds and project bonds; increasing partial risk guarantees; using indexing for foreign currency risk; and investing in pre-payment meters.

**Regulatory impediments** involve the lack of independent or impartial regulators in some countries; lack of competition or open access to transmission and distribution networks; one-off power purchase agreements (PPAs) rather than standard PPAs; weak procurement laws; inefficient or non-transparent tendering processes that result in cancelled, postponed or disputed tenders; poor contract laws; and tariffs that are set by the government with no provision for inflation or changes in cost. The **regulatory risks** are the breach of contracts, the partiality of regulators, and the inability to raise tariffs to cover costs. Possible **initiatives** include setting multi-year tariffs with automatic adjustment clauses; unbundling utilities into different components to open up competition; setting renegotiation clauses in original contracts; and outlining performance targets for public authorities and private concessionaires.

**Capacity impediments** include the lack of skills among public officials to manage Public Private Partnerships (PPPs); most local judicial systems do not have the capacity to handle complex contracts or disputes; and regional and sub-national regulatory frameworks are not harmonized, which poses problems for projects that cross borders. **Capacity risks** consist of bureaucratic procedures that effectively halt or delay a project; change in administrations and consequently different rules for investors; uneven policies in different countries; and nationalization or expropriation. Possible initiatives for tackling these impediments include streamlining public agencies to minimize bureaucracy; hiring and developing individuals who have experience in PPPs; and strengthening regional PPP capacity and cooperation.

## B. INCREASING PRIVATE INVESTMENT IN AFRICAN ENERGY INFRASTRUCTURE

### I. Introduction

#### *The power crisis*

*Increased consumption and urbanisation fuels the power crisis*

1. More than 30 of the 48 countries in Sub-Saharan Africa are currently facing a debilitating power crisis (IMF Regional Economic Outlook, 2008). The crisis is fuelled in part by growing demand for power, with electricity consumption expected to grow at a yearly rate of 2.6% (IEA International Energy Outlook). At the same time, rates of urbanization have been increasing at 3.5% a year (UNEP Africa Environment Outlook) and industrial and manufacturing sectors expanding, thus adding to the growing demand for power.

*The existing infrastructure is inadequate and badly maintained*

2. At present, however, not enough electricity is generated to keep up with growing demand: since 1980 generation capacity has increased by an annual average of 2.9% even though this rate should be equal to the economic growth rate for capacity to meet demand (Regional Economic Outlook, 2008). Transmission systems lack adequate backup lines and are not able to function fully due to lack of maintenance. Because of the deficiency in capacity, many countries have resorted to load shedding, or power rationing, in order to cope. Energy sources such as river basins are under-utilized, with only 20% of the total potential of hydropower plants under use (Kalitsi/ UN, 2003). Illegal connections are rampant, resulting in huge systems losses and hampering the transmission of electricity. Rural areas are too widely dispersed for grid lines to extend to them. And only 12% of rural households have access to electricity (Africa Infrastructure Country Diagnostic, 2009).

*USD 40.8 billion a year needed for Africa's power sector*

3. African governments have not been able to amass the funds needed to invest in new generation capacity and maintain existing infrastructure. Between 1990 and 2004, most infrastructure investments were in the telecommunications sector (APRM, 2008). A total of USD 40.8 billion a year in investments is needed for Africa's power sector, with USD 26.72 billion for capital expenditure and USD 14.08 billion for operations and maintenance (Energy Week/ World Bank 2009). But power sector spending is 6.35% of overall GDP in SSA (World Bank Presentation, Forster et al)<sup>1</sup>. Investments from all multilateral sources to energy in Africa have amounted to 9.7% of total multilateral finance (See Appendix 3 for trends in energy investments). Utilities are badly managed and in many cases, still vertically integrated. Regulations are often weak and regulatory bodies are rarely independent or effective (Eberhard, 2008).

*Economic activity and individual consumers adversely affected*

#### *Impact on the population and the economy*

4. With power outages occurring on average 56 days a year (ICA website), the impact on quality of life and economic activity is substantial. Seventy-seven% of households in SSA do not have access to electricity (ICA website). Businesses incur extra costs acquiring their own power source - 70% of firms in Kenya, for example, have their own generators (Ramachandran et al, 2009). For businesses in the informal sector, power cuts lead to losses of 6% of sales revenues (Regional Economic Outlook 2009).

<sup>1</sup> The 2008 IMF Regional Economic Outlook reports that Sub-Saharan countries spend 2.7% of GDP on average on power. They also report that public investment in power is an average of 0.7% of GDP.

The cost to the economy as a whole because of load shedding is estimated at 2.1% of GDP on average (World Bank Factsheet). In addition, African consumers and small businesses spend USD 17 billion a year on kerosene lamps and candles (World Bank Factsheet). Hospitals cannot use medical equipment or store medicines, students cannot read at night, and stores lose their merchandise if their produce goes bad following a power cut.

5. This paper will argue that if the power crisis is to be resolved, it will require increased funding, better regulations, and greater capacity within the public sector.

### ***Role of the private sector***

***The private sector can bring many benefits to the table***

6. It is widely acknowledged that the private sector can play an important role in tackling Africa's power crisis.<sup>2</sup> The OECD Principles for Private Sector Participation in Infrastructure<sup>3</sup> detail the potential benefits of the private sector's involvement in infrastructure: filling the funding gap for projects; creating a more competitive environment; providing technological and managerial expertise. With its concern for maximizing profit, the private sector can also help reduce operating costs, which is essential for financial viability given current weak revenue flows. Most private companies have a wealth of experience in different sectors and have worked in several countries and contexts, so they can bring this wealth of knowledge to power projects. Their penchant for sectoral management efficiency also stands to benefit power companies in Africa. Box 1 below summarizes the forms of private sector participation in power projects.

#### **Box 1: Forms of private sector participation**

Management and lease contracts – a private entity manages a state-owned enterprise. The government finances the investment and the enterprise remains in public hands. E.g. Mali and Tanzania

Concession agreements - a private entity takes over a state-owned enterprise for a set period of time, assuming the investment risk and management responsibilities. The public sector resumes ownership of the enterprise at the end. e.g. Uganda

Divestiture - a private entity buys an equity stake in a state owned enterprise through an asset sale, public offering or mass privatization project.

Independent Power Producer (IPP)– An IPP operates a generation plant and sells power to the government-owned utility.e.g. Ghana and South Africa.

***The private sector's participation takes different forms***

7. All the same, there is a limit to the role the private sector can play. Private investors have neglected hydropower, preferring thermal generation instead. Indeed, some governments have stepped up to develop electricity projects after realizing that the private sector would not engage in them. Moreover, efforts at attracting the private sector to rural electrification projects are likely to be futile due to the low returns on investment (UNEP, 2006). Ultimately, because the needs are so great, the public sector and private

***But there are limits to what the private sector can do***

<sup>2</sup> In a paper on capture and corruption in public utilities, for example, Emmanuelle Auriol and Aymeric Blanc point to empirical evidence that privatization tends to improve firms' performance, result in better asset management and a reduction in unpaid bills, payment delays and theft.

<sup>3</sup> *OECD Principles for Private Sector Participation in Infrastructure*; OECD, 2007. The full text can be found at <http://www.oecd.org/dataoecd/41/33/38309896.pdf>

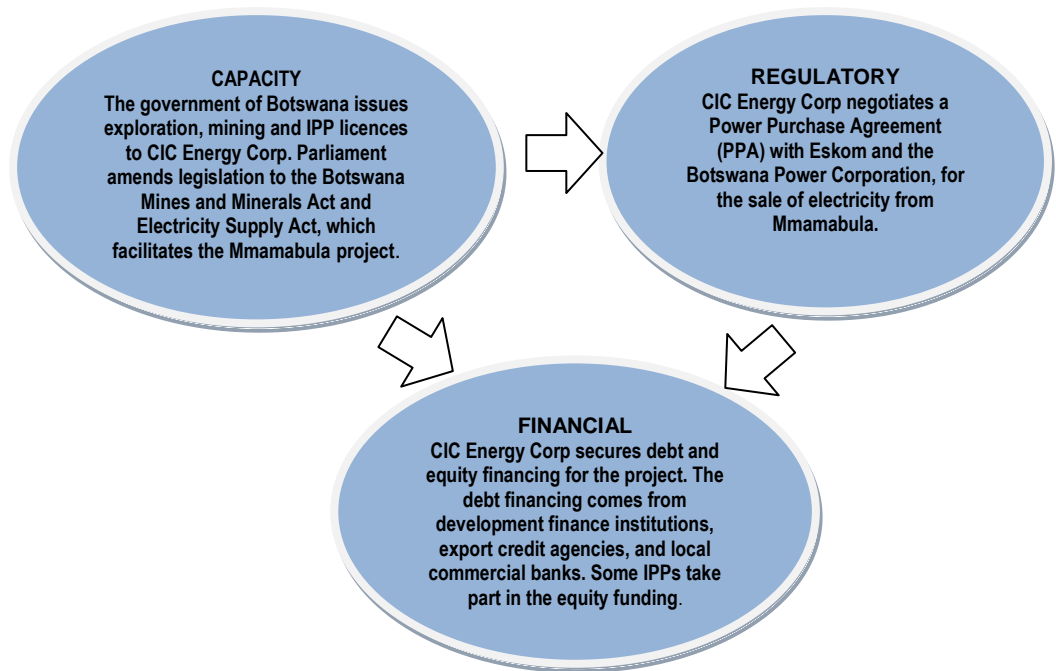
investors will need to collaborate to develop power projects and fight energy poverty in Africa.

**Impediments to private sector participation**

*Three main types of impediments*

8. This paper looks at three main impediments to private sector participation in energy infrastructure in Africa: i) financial ii) regulatory and iii) capacity. The challenges are linked, and are exacerbated by significant risks. The Mmamabula Energy project in Botswana is an example of the interplay of challenges that private investors often face (see Fig. 1).

**Figure 1: Mmamabula Project in Botswana**



*The Mmamabula project illustrates the issues involved in launching energy projects*

**II. Financial factors**

9. **Financial impediments to investing in the energy sector:** Financial impediments to energy projects include the high costs of power projects in Africa and limited access to funding. There are also significant financial risks associated with energy investments.

*Projects carry substantial fixed and operating costs*

10. **High costs inherent to energy projects:** For potential private investors, the financial costs that are incurred throughout the lifespan of a project can be enormous. The average investment commitment for an energy project is USD 109 million.<sup>4</sup> Before any energy project begins, feasibility studies need to take place. Tendering and environmental impact studies are also essential. In total, the costs of project preparation and tendering can be up to 4% of total investment costs (ICA, PPIAF, 2008). There are other high costs involved. For companies working on generation projects in landlocked countries, the costs of importing inputs like crude oil and coal can be exorbitant. They

<sup>4</sup> Own calculations based on PPIAF database.

also need to use gas turbines, which can take up to three years to construct (Amobi, 2007). Once generation is underway, the average operating costs for diesel-based generation run at USD 0.27/kWh, which is about three times the cost of generation in countries with larger-scale power systems (Regional Economic Outlook, 2008). All these factors tend to render power projects unbankable.

### *Insufficient sources of finance:*

*Domestic capital markets are limited*

11. **i) Weak local markets:** High costs are exacerbated by narrow domestic capital markets and lack of sufficient funding for energy infrastructure projects. In a review of 24 African countries, the World Bank found that infrastructure loans are a small proportion of total bank loans. In the leading country, Cape Verde, 24% of total loans were for infrastructure, followed by Niger at 20% and Benin at 18%. In most countries less than 10% of total loans went to infrastructure and in some, infrastructure loans are non-existent (Irving, Manroth, 2009). Where financing is available locally, it is often short-term with high interest rates, which is unsuitable for the long duration of most energy projects.

*Most African countries do not have strong credit ratings*

12. **ii) Lack of access to international markets:** At the same time, most countries have poor or non-existent sovereign credit ratings, making it difficult to access international credit markets. Only South Africa, Botswana and Namibia have received investment-grade sovereign credit ratings of BBB or better, which indicate that they are unlikely to default on their sovereign debt. Because these ratings reflect a country's creditworthiness and investment climate, bad or non-existent scores increase the risk perception and the interest rates for project loans (Irving, Manroth 2009).

13. **iii) Undeveloped alternative financing:** Innovative financial instruments such as project bonds are generally not well developed or not available. While African pension funds exist, in most cases, a very small share is directed towards infrastructure projects: in Cape Verde infrastructure is only 13% of the total assets, in Uganda 1.8% and in Tanzania 0.07% (Irving, Manroth 2009).

### *Financial risks associated with energy investments*

*Revenue may be less than costs and consumers may not pay for services*

14. **Revenues won't cover costs:** The biggest risk is that revenues earned from a project will not be enough to cover the costs incurred. In 2005, the average operating costs for diesel-based power generation was USD 0.27/ kWh but average revenue was only USD 0.17/kWh (Regional Economic Outlook, 2008). This pattern may continue into the future.

15. **Low consumers' incomes:** Revenues may not be high enough because many consumers in African countries are from low-income backgrounds and their demand for electricity is quite elastic. In Malawi, for example, a 25% increase in electricity prices led to a record use of charcoal, even though its production was illegal (Bayliss, McKinley 2007). Non-payment for services and illegal connections are also big problems, with 52% of "hidden costs" attributable to collection losses (Regional Economic Outlook, 2008).

*Currency devaluation may increase debt weight*

16. **Currency exposure:** Most private investors need to secure some, if not all, their debt in foreign currency but they earn their revenues in local currency. There is an exchange rate risk if the local currency is devalued: investors would get fewer returns when they convert their local earnings to foreign currency. This in turn significantly

increases their debt weight because there is less money available to service the foreign-denominated debt.

*Inflation may raise projects costs*

17. **Inflation:** In 2007, only 60 % of African countries had inflation rates greater than 5%. A year later, over 90 % of them did. The average inflation rate in 2008 was 10.7 %, attributable to the rise of energy and food prices (UNECA Economic Report on Africa 2009). While this spike in inflation may be temporary given the prevailing financial crisis, there is a risk that inflation will continue to grow during the duration of an energy project.

***Suggestions to counter financial impediments and risks***

***Improve local financing:***

*Combine loans from different banks*

18. **i) Syndicated loans:** One way to overcome weak local financing is through syndicated loans from several local banks, which have been successful in other sectors in Africa. For example, in 2006 eight local banks, Citibank, and the local affiliate of a West African regional bank all participated in the financing of Unicem, a Nigerian construction company. In that same year, Standard Bank, in conjunction with four Kenyan banks, pooled resources to fund Safaricom, a telecommunications firm in Kenya. The same model can be used for the energy sector.

**Box 2: Examples of Funding in Local Currency**

UNIT CONCERNED	DETAILS	EXAMPLE
World Bank- IFC	IFC offers local currency loans using derivatives	Loans committed using guarantees in Ghanaian cedi, Kenyan shillings, Nigerian naira and Zambian kwacha.
JBIC Facility for African Investment	Lending in hard currency; equity investments; guarantees for the loans of private banks; local currency financing for projects	7.5 billion yen financing for Eskom's Northern Grid Transmission Project
GuarantCo	Provides guarantees for local currency bonds or local currency loans for infrastructure projects; operates only in local currency;	Celtel in Chad and Celtel in Kenya – both for telecommunications
Emerging Africa Infrastructure Fund (sponsored by PIDG)	Provides long-term loans denominated in US dollars or Euros on commercial terms for infrastructure projects in Africa	Rabai Power Project in Kenya

Source: NEPAD-OECD Africa Investment Initiative, compiled from various sources.

*Pension funds and municipal & infrastructure bonds as funding sources*

19. **ii) Alternative financing sources:** Some countries have pension funds that invest in infrastructure but these funds need to be scaled up. Other sources of funding, like municipal bonds, should also be considered. The same is true for infrastructure bonds, which Kenya, for example, launched in January 2009 for a 12-year period, valued at USD 200 million. South Africa, Ghana, Botswana and Nigeria have also issued similar infrastructure bonds. This could be replicated elsewhere on the continent.



20. **Expand and strengthen instruments that mitigate risk:** Box 3 outlines some risk mitigation instruments that are applicable to power investments in Sub-Saharan Africa.

**Box 3: Risk Mitigation Instruments Applicable to Energy Projects in Africa**

*A number of multilateral risk mitigation instruments are available for a range of risks*

The World Bank provides Partial Risk Guarantees (PRGs) for interest payments in case a private investor defaults on, or delays, payment because of a regulator's failure to comply with the terms of a contract. A PRG for the Azito project in Cote d'Ivoire covered a number of risks, including payment obligations by the government of Cote d'Ivoire to private concessionaires and foreign exchange availability and convertibility.

IBRD offers weather risk management contracts, such as the one for Malawi to protect against the risk of severe drought. While these contracts have not been used for energy projects, they can be used to protect profits.

TCX—a special purpose fund created by donors, development banks, and international banks provides currency and exchange rate risk-management products to investors active in emerging markets, such as basic currency and interest rate derivatives

The World Bank and other development partners are utilizing the Global Index Insurance Facility (GIIF), a multi-donor trust fund linked with a specialized index-based reinsurance company that promotes index-based insurance in developing markets.

Source: Concessional Finance and Global Partnerships, June 2009; World Bank; Gridlines, Sept. 2006

21. **Reduce costs and losses:** Investing in technological upgrades is a way to lower the costs of producing energy. For example, improvements in national gas turbine design have made gas more competitive vis-à-vis coal. Also, smart grids – an energy delivery network that uses digital technology to transmit power to consumers – have the potential to make energy flows more efficient by reducing power outages for example. Investing in smart grids, as Ghana is doing for example, is one of the ways to leverage the private sector's technical expertise for a more efficient power system.

*Technological innovations reduce costs and improve efficiency*

22. Pre-payment meters are a way to tackle non-payment for services. These pre-payment meters and cards – which work much like “airtime” cards for mobile phones, have worked well in Namibia. Landys+Gyr, a private company, also introduced them in South Africa. They allow power-deprived households to be connected to electricity and to control supply according to budget.

*Pre-payment meters to tackle non-payment*

**III. Regulatory factors**

23. The problems besieging the power sector in Africa are not only financial, but regulatory. Regulations in the context of infrastructure means government-imposed “direct and indirect costs on the decisions or actions of enterprises”. They comprise “the setting, monitoring, and enforcing of maximum tariffs and of minimum service standard controls over tariff structures, quality-of-service standards, the use of automatic pass-through and adjustment mechanisms, access conditions to networks, entry and exit conditions for participants, and investment obligations relative to existing and new customers.” (World Bank, Brown et al, 2006) Well-crafted rules governing the energy sector facilitate the work of private investors and forestall conflict between them and

*Regulations in energy infrastructure*

public entities. But the regulatory environment in many African countries can be an obstacle to private sector investment in the energy sector.

*Regulatory reforms undertaken but incomplete*

24. By 2006, the reform process was underway, with many countries in Sub-Saharan Africa enacting power sector reform laws, SOE corporatization, regulatory oversight, allowing IPPs to operate and vertical unbundling (AICD Power Sector Database). But various problems remain. In some countries, the Board and Directors of regulatory agencies are both appointed by, and answerable to, the Minister of Energy. The agencies are therefore not independent in action. Most state utilities remain vertically integrated, with a dominant share in the generation market. Potential investors, knowing all this, may be discouraged from investing in the power sector.

### *Regulatory impediments to investing in the energy sector*

*Uncompetitive bidding processes*

25. **Tenders, contracts and licensing:** It is quite common across the continent for calls for tenders to attract only a handful, or no, bids. This is true of Cameroon, which put its public utility, Sonel, up for a private concession, but the bidding process only attracted a single bid (Pineau, 2007). There are also many instances of tenders getting cancelled or postponed, which is irksome for interested private actors because they spend time and money preparing their bids.

26. **Procurement and hiring:** Some African countries put in place local procurement and hiring procedures that may hamper the operations of private companies. Procurement rules are often separate from the work of utilities and are often mandated by law.

*Tariffs are often set in an inflexible way*

27. **Tariffs:** Some countries set tariffs at the onset of a project, making it very unattractive to investors because they are not given the flexibility to recover costs by changing tariffs if need be in the future. Some governments subsidize certain industries at the expense of private consumers. In some countries, certain industrial pay low prices for their electricity compared to domestic and business users. It may be difficult for a private operator to reverse such subsidies in order to recuperate costs.

### *Risks associated with weak regulations*

*Breaches in contracts are common*

28. **Breach in contracts:** A lot of the risks associated with weak regulations have to do with the upholding of contracts. By 2005, 47 % of the 30 contracts involving distribution businesses in Africa were no longer operational – it is 9% in other regions (Gridlines May 2007). Contracts are breached because utilities may not be able to keep their part of the agreement as circumstances change during the lifetime of a project. A private investor wants to be assured that they can raise tariffs in the event that costs increase, or change their procurement source if need be. Lastly, there is the risk of “regulatory creep”, which arises when regulatory agencies overstep their formal mandate to assume more discretion over a private company’s operations.

### *Suggestions to counter weak regulatory environment*

*Unbundling can be an effective way to manage utilities*

29. **Utilities reform:** Unbundling – where generation, transmission and distribution are separated from each other - is a potentially effective way to increase opportunities for investment and pre-empt monopolies. Uganda fully unbundled its utility with great success. First, the government created a legal framework by establishing an Electricity Act, which removed the vertically integrated Uganda Electricity Board (UEB)’s

monopoly and effectively unbundled it. Three new companies were created as a result, the Uganda Electricity Transmission Company (UETCL), the Uganda Electricity Generation Company (UEGCL) and the Uganda Electricity Distribution Company (UEDCL). The latter two were privatized through long-term concessions. The Electricity Regulatory Authority (ERA) was also established and was made responsible for issuing licenses, reviewing and approving tariffs, and establishing sector standards. Unbundling allows multiple players to make commercial decisions in a decentralised way and is an effective way to guard against discrimination by network operators in granting network access to third parties (OECD Infrastructure, 2007)

30. **Tariffs:** Tariff setting, enforcement and revisions are some of the major problems that come up in energy sector PPPs. One way to counteract these issues is to use multi-year tariffs (MYTs) with automatic adjustment clauses factored in for inflation and changes in cost. Uganda has successfully adopted MYTs in a deal with Umeme, a private distribution company. These tariffs should be made publicly available through government gazettes, utility websites, annual reports, and other public fora. Some countries have different levels of tariffs – for domestic usage, low voltage usage and high voltage usage, as in Tanzania’s case, or for distribution, generation, transmission, isolated grid and feed-in tariffs as Uganda does. Tariffs should also reflect an appropriate profit margin that both parties can agree on at the beginning.

*Set tariffs so they account for changes and reflect an appropriate profit margin*

31. **Subsidies:** In order to address the tension between on the one hand keeping prices high enough to recover costs and on the other ensuring access to low-income consumers, governments may consider subsidies. There are several approaches: one is cross-subsidization, as in South Africa; another is giving subsidies directly to IPPs or utilities, as done in Ghana, Mali, Tanzania and Uganda; and a third option is “lifeline” tariffs, whereby the government supplies a limited quantity of electricity at a subsidized rate. Ghana, South Africa, Tanzania and Uganda have used this approach (Clark et al, 2005).

*Subsidies may help increase access to energy*

32. **Procurement tenders and licensing:** Procurement includes calls for tenders and signing of Power Purchase Agreements. Measures for the procurement process should be as clear and transparent as possible. Such measures include specifying any procurement limits and criteria, or giving incentives for private companies to comply. Zambia, for example, has Citizens’ Economic Empowerment scorecards for companies based on whether they use local labour or inputs. When presented as an incentive, rather than an imperative, these types of scorecards can help governments meet indigenous empowerment goals while giving investors flexibility in their procurements. Another procurement solution is forward-sale contracts, where the public and private entities agree on the buying and selling of assets at defined times in the future. Coverage targets should also be considered for the supplier. Publicly-owned utilities in Ghana, Kenya (see Box 4 below) and Zimbabwe have effectively used these kinds of coverage targets with private companies.

*Give incentives and set contracts for procurement procedures*

#### Box 4: Kenya Power Contract

##### **Manitoba Hydro and Kenya Power and Lighting Company**

*A two year management contract was signed between Manitoba Hydro, a Canadian-based private company, and the Kenyan utility, Kenta Power and Lighting Company (KPLC). The contract specified the roles and requirements of the private actor and the public utility:*

##### **MIH would:**

- i) have complete management authority*
- ii) provide key staff to the utility*
- iii) carry out various studies to improve operations and technical capacity of the utility*

##### **KPLC would:**

- i) connect 300,000 new customers*
- ii) reduce systems losses by 4%*
- iii) improve the quality of power supply to consumers*

*Transparency in tenders and PPAs*

33. **Power Purchase Arrangements:** Tenders should be publicized and closed-bids avoided to ensure transparency. A formal reporting system that allows private companies to track the progress of their bids should be put in place. As for Power Purchase Agreements (PPAs), they should define the quantity, schedule and conditions for delivery by the private entity and payment options and schedule by the government buyer. The agreement should similarly outline the consequences for missed targets. The metering system, and the sharing of responsibilities for installation and maintenance of the meters, must also be included in the PPAs.

*Off-take agreements contain stipulations*

34. **Off-take agreements:** Off-take agreements are a potentially effective means of hedging against regulatory risk. The government agrees to buy electricity from private operators at pre-determined stipulations over a number of years. A strong off-take agreement includes a force majeure clause, which is a contractual provision outlining the consequences if performance becomes impossible, as a result of an event that the parties could not have anticipated or controlled, such as civil strife or extreme weather events. These agreements ensure that operators have enough money to service their debts and to operate their systems.

#### **IV. Capacity factors**

*Institutions are weak and not well coordinated*

35. **Weak Public Institutions:** One of the problems with attracting private actors to the African energy sector is the weakness of public institutions. For example, recent econometric analysis by the World Bank showed that the likelihood of project cancellation increases by nine percentage points in Sub-Saharan Africa, and even more if a private foreign company is involved. The authors explain that project cancellation rates may be higher in SSA because of weak institutional capacity (Harris, Pratap, 2009) Indeed, many governments do not have much experience dealing with infrastructure projects or with PPPs, and the few institutions that do deal with energy investments often face many constraints. An energy project may cross multiple jurisdictions within the same country and many often cross borders but sub-national bodies and regional institutions are not systematically well coordinated. Appendix 1 shows the complexity of a typical PPP project.

#### **Capacity impediments**

*Lack of skills for handling PPPs*

36. **Lack of skills:** PPPs can be quite complex but few government officials and civil servants have the requisite skills for dealing with them. There is also a lack of skills in handling international competitive bids and negotiating and enforcing contracts. Having skilled and experienced government staff working on PPPs is important because private investors will feel more confident if there are people in the government who have experience working with the private sector, or who are experts in the energy infrastructure field.

*Too many bodies dealing with the power sector.*

37. **Bloated government structure:** In some countries, there are multiple government bodies dealing with the energy sector. In addition to the Ministry of Energy, which deals with electricity policy, there may be regional power authorities, a regulatory commission, the state utility and component arms, an energy commission or an energy foundation. If all these institutions are not well coordinated, there is likely to be discord and unnecessary replication of functions.

*Legal complexity and lack of enforcement*

38. **Weak legal and judicial systems:** Energy projects can be legally complex but in some countries, legal institutions and organizations are unable to handle such complexity, having little experience with such work or few lawyers with professional training in infrastructure or energy contracts and laws. Law enforcement is also quite weak. Utilities collect only 70% to 90% of billed revenues, and distribution losses from illegal connections can be as high as 40% of total losses. Vandalism is often unpunished, and the police forces do little to enforce any rules against it.

*Political leaders not engaged enough*

39. **Lack of political will:** In a lot of African countries, the enthusiasm of the 1990s for private sector reforms has waned. In some countries, there is little cognisance of the need for measures to tackle the energy capacity and funding gap. Some government departments do not pay their electric bills, which can undermine reform efforts for the power sector. There also needs to be a major effort to educate the public on the importance of conserving power and being responsible consumers. Unpaid municipal bills, for example, are a major problem in many countries.

### *Capacity risks*

*Risk of changed policies or expropriation*

40. **Policy and expropriation risks:** One capacity risk is that, because there is no long-term power sector planning within ministries, there is an element of unpredictability from ministries and national legislations, especially due to the lack of coordination among ministries and different bodies dealing with energy. Similarly, there is the risk of policy change from one government to another, or taxation or regulatory changes over oil and gas prices. The risk is heightened by the lack of a coherent policy framework, such as a White Paper for the power sector in most African countries. Nationalisation or expropriation represent another risk.

### *Suggestions to enhance capacity*

*Include PPP units in government agencies and create training programmes at regional level*

41. **Skills-building in public sector:** The South African Treasury Department has created a special PPP unit that provides technical assistance to local governments, districts and municipalities. For example, the unit has a project development facility which provides municipalities that lack the capacity to deal with PPPs with a paid project officer who manages the process on their behalf. The Treasury has also published a *PPP Manual and Standardised PPP Provisions* guide for PPP projects. Malawi also has a PPP unit, which is funded by the World Bank.

42. Some governments do not have the means to create a PPP unit. In those cases, it is worthwhile to identify and retain individuals who have worked on PPP projects before so that they constitute a pool of specialists and skilled staff who can be asked to work on power projects as they arise. Regionally, the SADC Banking Association's PPP Capacity Building Programme is an example of how skills-building in the public sector can be coordinated across different countries (see Box 5). At the 2009 African Development Bank annual meeting in Senegal, the ICA agreed to establish a task force with project developers and legal experts to draft a model power-purchase agreement. (ICA Press Release, 13 May 2009)

### Box 5: SADC Banking Association

The SADC Banking Association's PPP Capacity Building Programme has carried out training in PPPs in Mozambique, Botswana, Tanzania and Mauritius. It also reviewed the institutional and regulatory environments with regards to PPPs in those countries. They organized a six-week online training programme on PPPs for both government officials and the private sector on designing and monitoring PPPs. The training programme covered project appraisals, feasibility studies, project finance, investment analysis, procurement processes, contract management and communication and stakeholder relations. They also conduct institutional and regulatory studies on a voluntary basis. However, capacity building services have not been extended to all members of the SADC Banking Association because they decided it was best to focus on potentially successful cases. Extending the service was also considered too capital intensive. The programme could consider scaling up and including other countries to increase its impact.

Source: South African National Treasury; quoted in Working Together: Assessing Public-Private Partnerships in Africa

*Consider expert panels for resolving disputes*

43. **Judicial initiatives:** Instead of relying on local courts to adjudicate cases between private actors and public entities, it is possible to outsource dispute resolution to qualified legal professionals and energy experts who can form an expert panel. The panel can either replace the regulator to undertake price reviews for a period of time or serve as an appeals body for decisions made by the regulator. Ideally, the panel would have three members: a chairperson to manage the process; a technical member to handle operations of power companies, investment planning and costing; and a financial member to oversee financial modeling, accounting systems and project finance (Balance, Shugart 2005). Regional bodies must also incorporate dispute resolution into their power pools, as ECOWAS did for the West Africa Power Pool (Brainch, 2006).

*Laws and policy statements should be crafted*

44. **Outline policy:** There needs to be clear energy policy and legislation outlining power sector planning and delineating responsibilities among government agencies for planning, bids, contracts, licensing and so on. Lagos state in Nigeria offers an example of how such policy can be crafted, with the Lagos State Roads, Bridges and Infrastructure Development Board Law (Private Sector Participation Law) in 2005, the first PPP law in Nigeria. Governments should come up with policy statements on PPPs and on the energy sector – some countries have released White Papers, for example South Africa, while Malawi has set out the National Energy Policy as part of the country's Vision 2020 and Poverty Reduction Strategy. One study recommends certain measures to include in power sector planning<sup>5</sup> including:

- Set a reliability standard for energy security;
- Have detailed supply and demand forecasts;
- Have a least-cost plan with alternative scenarios;
- Clarify how new power generation will be split between the private and public sectors;
- Outline bidding and procurement processes for new builds;
- Vest procurement and planning in one empowered agency to facilitate implementation; and
- Consider contingencies such as droughts (Eberhard, Gratwick 2008).

<sup>5</sup> The IFC recommends setting out “*core principles* (based on international best practice) in framework legislation and to use administrative rules to set out more *detailed law* that may respond in a logical and consultative way over time to inevitable changes in policy and the market.” (IFC, *Attracting Investors to African PPP*).

*Harmonise  
policy  
frameworks  
across different  
jurisdictions*

45. **Better coordination among national and regional entities:** Many projects cross borders or jurisdictions within a country. It is important to harmonize the legal and regulatory frameworks in these entities. If a project is multinational, the host government should offer to help with the legal complexities and processes. The host government should also handle any jurisdictional issues on behalf of the private actor. As for development partners, it might be worthwhile to establish regional PPP Facilitation Units in development finance institutions (DFIs).

46. **Strengthen guarantees against political risk:** The World Bank and some national export credit agencies offer political risk guarantees. Some countries have offered sovereign guarantees, eg Tanzania for IPTL; Nigeria for AES Barge, Cote d'Ivoire for Azito and Ghana for Takoradi II.

*Adopt ethics  
codes and lead  
by example*

47. **Political support:** Above all, it is important for political leaders and institutions to signal their support for private sector investment. This is especially important because for the most part, regulatory systems in Africa are still quite weak. Government agencies should pay their bills on time and in full to signal to investors their commitment to tackling problems in the power sector. Another form of political support is ethics codes. Benin adopted such a code in 1999, requiring government officials and private bidders to commit to abstain from corrupt practices such as paying or accepting bribes during the bidding process and the implementation of the contract thereafter.

*International  
support for  
fighting energy  
poverty*

48. Internationally, at a meeting in Rome in May 2009, G8 energy ministers as well as ministers from Algeria, Egypt, Libya, Nigeria, Rwanda and South Africa among others, issued a statement recognizing that energy poverty is a problem in Africa. They called for the creation of an Expert-Level Working Group on energy poverty in Africa that would aim to increase policy-making capacity; focus on PPPs in the provision of energy to the poor; and build private sector clean energy business in Africa. The Working Group will include a broad range of stakeholders report on its activities at the next G8 summit in Muskoka, Canada, in 2010.

## **V. Conclusion**

49. Energy infrastructure plays an important role in African economies and is critical for development. However, as this paper points out, there are many reasons why energy projects encounter problems. By implementing reforms and learning from best practices, African governments and their development partners can take solid steps towards resolving Africa's power crisis. Improving incentives for private investors should be a key part of any strategy for catalysing investment in the sector. These initiatives not only help to close the demand-resources gap and to improve the management of services in the energy sector. They also contribute towards long-term improvements in Africa's overall investment environment.

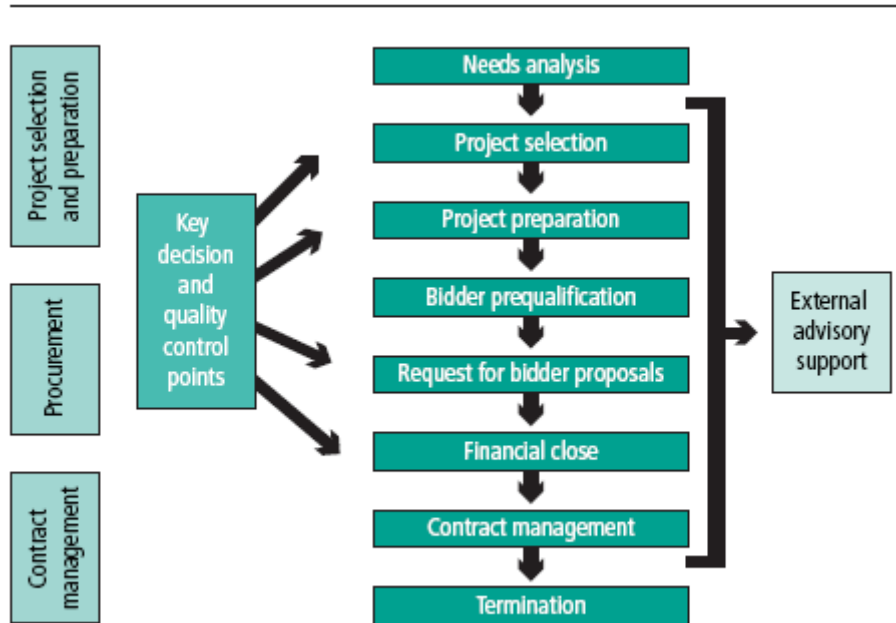
ANNEX

ANNEX 1: PPP PROJECT CYCLE





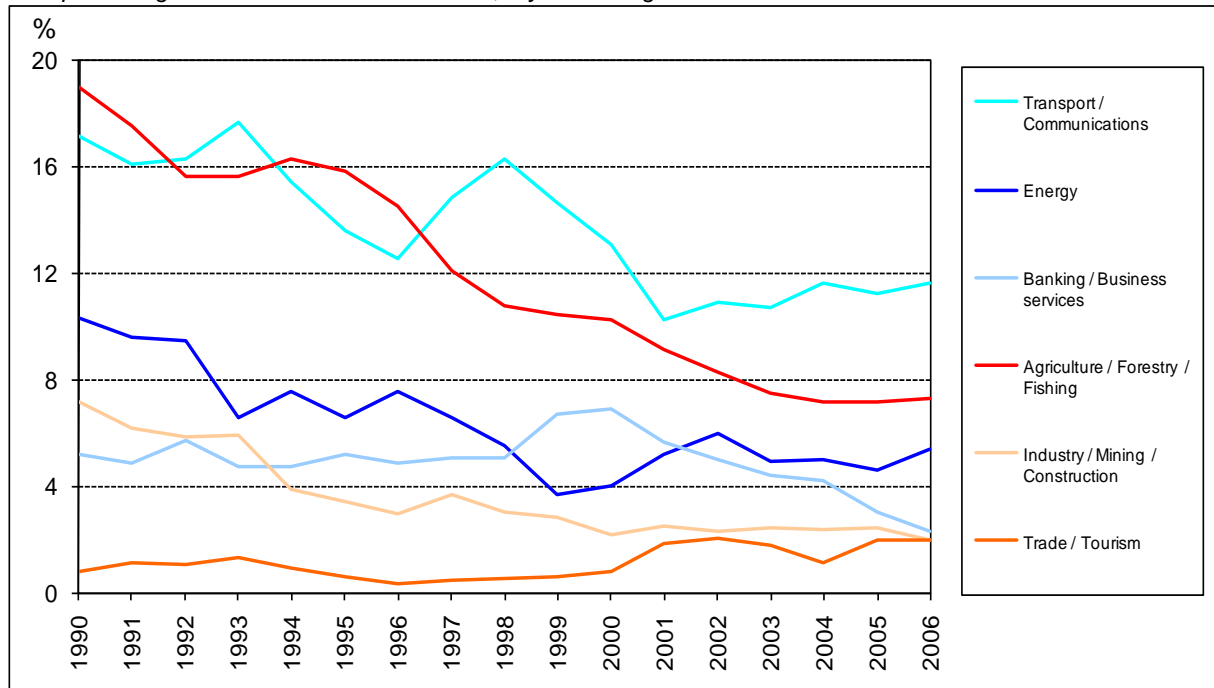
## ANNEX 2: KEY PHASES OF THE PUBLIC PRIVATE PARTNERSHIPS PROJECT PROCESS



Source: Attracting Private Investors to African PPPs

## ANNEX 3: ANALYSIS OF ECONOMIC AND PRODUCTION SECTOR ODA TO AFRICA SINCE 1990

*As a percentage of total sector-allocable ODA, 3-year average commitments*



Source: Africa -Development Aid at a Glance, 2009

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