

Privatisation in the power sector

Navigating the transition



The roundtable

In November 2012, about 30 senior executives and stakeholders gathered at the Oriental Hotel, Victoria Island, Lagos for the second edition of PwC's power sector roundtable on the next steps in the privatisation process of the Nigerian Power Sector. Participants were drawn from industries within the power sector, banks and financial institutions, regulatory bodies and other stake holder groups.

The moderators and speakers were:

Eyo Ekpo - Commissioner, Market Rates and Competition, NERC

Wole Omoborowo II - CEO, Genesis Electricity, Nigeria

Uyi Akpata - Energy, Power and Utilities Leader, PwC Nigeria

Andrew Nevin - Leader, Strategy and Consulting, PwC Nigeria

Charudatta Palekar - Director, PwC India

Introduction

Nigeria's Power sector reform has proceeded as scheduled. In this publication we look at some of the milestones that have been crossed and explore the next steps in the sale of 17 Federal Government power assets.

With an installed generating capacity of about 7,500MW and operating capacity of circa 4,000MW, electric power is still a major hindrance in Nigeria's objective to be regarded as one of the world's top 20 economies by 2020. The rule of thumb for an industrial nation is about 1MW for every thousand

of population. This puts Nigeria's energy needs in the 160,000MW range given its population of 160 million. The Federal Government has a target of 40,000MW by the year 2020.

The size of Nigeria's power challenge led to the government's release, in August 2010, of the "Roadmap to the Power Sector Reform", a blueprint to conclude the privatisation of the power sector. Since the release of the Power Sector road map, the privatisation has gained momentum. The timelines set by the Bureau for Public Enterprise (BPE) have been met and significant

milestones laid out in the roadmap achieved. Some of the achievement to date include: successful review and implementation of Nigeria's Multi Year Tariff Order (MYTO II); additional 1000 MW of power generation by the National Integrated Power Project (NIPP) and successful bidding for 5 generation companies (Gencos) and 10 distribution companies (Discos).

The privatisation process

Towards achieving the objectives set out in the Electric Power Sector Reform (EPSR) Act of 2005, the following organisations have been established:

- The Power Holding Company of Nigeria Plc (PHCN): established to take over the functions, assets, liabilities and employees of NEPA, the erstwhile national power company;
- The Nigerian Electricity Regulatory Commission (NERC): to regulate the sector and issue necessary operating licenses;
- Successor companies (SC): to deal with generation, distribution and transmission of electric power. The generation companies are: Shiroro Hydro Power Plc, Kainji Hydro Power Plc, Afam Power Plc, Sapele Power Plc, Ughelli Power Plc and Geregu Power Plc. The successor transmission company is the Transmission Company of Nigeria (TCN). Likewise the following are the 11 successor distribution companies: Abuja Electricity Distribution Plc, Benin Electricity Distribution Plc, Eko Electricity Distribution Plc, Enugu Electricity Distribution Plc, Ibadan Electricity Distribution Plc, Ikeja Electricity Distribution Plc, Jos Electricity Distribution Plc, Kaduna Electricity Distribution Plc, Kano Electricity Distribution Plc, Port Harcourt Electricity Distribution Plc, Yola Electricity Distribution Plc.
- The Nigerian Electricity Liability Management Company (NELMCO); to assume the liabilities of the successor companies.
- The Nigerian Bulk Electricity Trader (NBET); to make power purchases from the Gencos and IPP's (Independent Power Plants).

Journey so far Issues

Having established the framework and institutions for the power sector reform, the following milestones have been reached thus far:

- Negotiations with BPE on the transaction documents
- Signing of Share Sale Agreement by the participants
- Signing of Shareholders Agreement and Performance Agreement
- Down payment of twenty-five percent (25%) of the Share purchase price

Next steps

As the reform progresses, the next steps will include the following:

- Settlement of the outstanding seventy five percent (75%) to complete the transaction. Deadline for this final payment is 21 August 2013
- Establishment of shadow management to run the affairs of the companies with the aim of granting acquirers access to the assets as part of the acquisition process and towards baseline data study.

A number of current and potential issues yet remain that must be addressed. Investing entities need to raise the funds needed to acquire assets and/or for subsequent capital requirements. This is bound to be a most significant issue given the poor state of the electricity network assets taken over and the investment required to get them to optimum operating levels.

There are a number of liabilities that also need to be dealt with- contingent or otherwise- in order to have sustainable financial performance.

These investors would also need to tackle the unresolved issues around the pensions of employees, emoluments and the labour unions to pensions, wage rates, and other labour union matters.

For the new owners of these assets, meeting the commitment made during the bidding process would be key to retaining the license obtained. Perhaps most important of these commitments would be the baseline loss levels which must be achieved.

Owners will also need to deal with the occasional incomplete financial and operational records maintained by the acquired companies. These records, which could have been poorly maintained, need to be reviewed, built up and managed in order to effectively run these companies. For those owners who are able to navigate these potential pitfalls, huge benefits await.

Key industry agreements and expectations



Key industry agreements and expectations from successful bidders - Eyo Ekpo

The goal of the Federal Government's power sector reform is to improve efficiency, encourage private sector participation and strengthen the power sector as Nigeria's engine for development. There have been historical challenges to the growth of the sector including prolonged FG presence at commanding heights, consistent under-investment since the early 80's and poor management of the country's gas resources. Given these challenges the effective transfer of the management and ownership of the successor companies is a top priority.

Post-Privatisation Design of the Electricity Market

The competitive market for electricity in Nigeria will evolve through the following three stages:

- ***Pre Transitional Stage:*** This is where we are today. As at November 2012, proposal evaluations have been completed and financial bids opened. Preferred bidders for the successor companies have also been announced.
- ***Transitional stage*** (where we are about to move into). This stage would see the entry

of a new generation of companies, the introduction of competition; and electricity trading through bilateral contracts (industry agreements);

- ***Medium Term Stage*** which would see the introduction of generation competition, several distributors and flexibility in electricity trading arrangements.

A number of key Industry agreements also need to be finalised to facilitate the transition of the companies to the new owners. These agreements include:

- Gas Sale and Aggregation Agreement (GSAA)
- Gas Transportation Agreement (GTA)
- Power Purchase Agreement (PPA)
- Vesting Contract (VC)
- Transmission Use of System Agreement (TUOS)
- Grid Connection Agreement (GCA)
- Ancillary Services Agreement (ASA)
- TCN Management Contract (Manitoba

Hydro International Plc)

The GSAA, PPA and VC will be the 3 primary industry agreements that require negotiation with bidders. Finalisation of the industry documents and payment of all sums due are the main conditions precedent to handover. It is also critical that the execution of industry agreements is done in a timely manner. Negotiations also need to be concluded timely to enable an effective transfer of these companies.

These agreements will involve a number of key players. These players and their respective roles are summarized in the table below.

Name	Corresponding agreements / documents	Responsibility
Nigerian Bulk Electricity Trading (NBET)	PPA VC	Meet with preferred bidders to negotiate terms Ensure expectations are clear from the onset in order to achieve timely execution
Gas Aggregation Company of Nigerian (GACN)	GSAA	Same as above
Transmission Company of Nigeria (TCN)	TUOS GCA ASA	Execution of the transmission agreements prior to negotiations on PPA, VC and GSAA
NELMCO	Agreements for transfer of liability	Execution of NELMCO agreements for transfer of liability Management and inheritance of legacy liabilities and liabilities associated with existing PPA Agreements
National Electric Regulatory Commission (NERC)	Licences Fit and proper test Codes of governance /ethics Local content rules	Issue licences to successor companies and set standards via regulations and orders

Expectations

The success of the process depends greatly on the ability of successful bidders, GENCOs and DISCOs to meet the expectations of the Nigerian Electric Regulatory Commission

The Commission expects successful bidders to:

- Assent to the major commercial and legal issues presented in the industry agreements
- Fulfill their business plans towards steady growth of the sector
- Comply with existing regulatory framework e.g. Market rules, customer regulations, KPI regulations
- Engage with NERC in developing baseline data for loss calculations and planning
- Engage with NERC in tariff reviews and re-design

Specifically, the Commission also expects GENCOs to:

- Optimally utilise available and untapped generation resources for the provision of electricity
- Increase generation capacity and supply steady power to the national grid

- Develop renewables and comply with the provisions of Embedded Generation Regulation
- Work towards energy efficiency which facilitates the management of fuel supply risk, and;
- Implement bulk procurement regulations

Regarding the DISCOs, the commission expects them to:

- Provide adequate and safe electricity to consumers
- Improve on the existing plan to issue meters to consumers, and;
- Ensure energy efficiency in supply to customers

Conclusion

The negotiation of industry agreements is a very important stage of the privatisation process. Execution of the agreements is critical to the effectiveness of the entire process. The earlier transaction documents are executed and payment completed, the better for the reform process, the industry and ultimately the people of Nigeria.

*Transformational
issues for Gencos and
Discos*
- Charudatta Palekar

Issues for Gencos

Gencos have a number of issues to deal with as they commence operations in the Nigerian market. These issues need to be dealt with in order to meet the expectations of stakeholders involved in the process. Some of the issues are:

Age of the generation assets

The existing generation assets are largely old thereby requiring high operating and maintenance costs to keep them running. The strain on these assets is compounded by the fact that there has been limited new capacity added in recent years. The existing transmission network is also inadequate, fragile and not reliable. The average availability of generators over the last 8 years is 35%.

Availability of human resource

There is a dearth of adequately trained and motivated human personnel to run the assets. Significant financial resources will be needed for recruitment and training.

Gas supply & pricing

Shortage of gas supply has continuously hindered the availability of new gas-fired power stations to generate electricity in sufficient quantities. The lack of a gas pricing framework represents a major hurdle that needs to be crossed. Gas supply is also affected by inadequate gas transportation infrastructure. There needs to be a full implementation of the gas master plan to ensure the adequate supply of fuel.

Contracts & payment security

A number of vesting contracts are yet to be finalized and signed. These include supply guarantees which need to be established. The payment guarantees to be provided by vesting contracts / PPAs are not clear and are open to different interpretations.

Funds and cash flow

Raising funds for expansion and construction of new plants often presents a challenge. Slow execution of PPAs is another challenge that hinders IPPs from raising required funding.

Operational issues

The existing maintenance culture is inclined towards a model of carrying out maintenance after breakdowns rather than scheduled preventive maintenance. This unfortunately proves to be a costly alternative.

Operational costs are bound to be significant given the age of the plants. Modernization of existing plants is necessary but will require significant capital investment.

Regulations

The regulatory environment is quite restrictive with approval required for planned CAPEX spends. Also required under the current regulatory framework is the requirement for annual tariff filing. This could present a bureaucratic challenge.

Genco Transformation

Achieving efficient and profitable operations means Gencos will need to carry out a number of key procedures. Existing processes need to be reviewed for optimisation; realistic targets need to be set, and processes monitored on a regular basis. The transformation process is summarised in the chart below.



Issues for Discos

Effectively dealing with start-up and operational issues is a key success factor in the running of the distribution companies. Issues that would need to be tackled head on include:

Assets: quality, adequacy and management

The distribution network, made up of injection substations, distribution substation transformers, conductors, wooden cross arms and poles, is largely weak, overloaded and in very poor condition. These networks will struggle to cope with the anticipated increases in demand and will need to be upgraded. Injection Substations and Distribution Substation Transformers are overloaded. More will be needed to serve consumers across the country.

Network issues such as under sized conductors at all levels of voltage, untreated wooden cross arms, untreated wooden poles etc would all need to be addressed. Some of these assets have also suffered vandalism.

The condition of the infrastructure will need to be assessed and measures for improvement determined.

Human Capital

The inadequacy of skilled technical staff also presents a challenge. Therefore significant training costs may be incurred to recruit and train personnel on current best practices in the sector.

The Labour unions remain a strong voice in employee negotiations. Those negotiations need to be carried out in a proactive manner to ensure that all concerns are promptly addressed and disruptions to operations avoided.

Funds and Cash flow

Financial issues and fund raising

Access to funding may be a challenge for players not well known to local and foreign financiers. Significant investments will be needed especially in the initial stages, to boost current infrastructure levels and grow

the network to optimum capacity.

Handling contingent liabilities

The existing distribution companies may have had material contingent liabilities arising from lawsuits, environmental damage, etc. The new companies taking over the Discos would need to identify these liabilities and deal with them in a manner that optimises cashflow and settles the issues permanently.

Revenue management systems

Existing revenue management systems need an upgrade. With the peculiarities of a developing market such as Nigeria, murky connections and customer sharp practices could lead to below-par revenue performance.

Government and Regulatory Framework

Smooth operations is dependent on the Discos having an effective working relationship with the regulators which includes filing all required documents as at when needed. These include tariff filings, loss reduction targets, planned capital expenditure and any subsidies. The requirements for significant paperwork must be well managed to avoid any fines or other sanctions.

Operational Issues

Customers, being the end point in the value chain, must be kept satisfied else there could be loss of goodwill and patronage. They would expect reliable and stable power supply. The fluctuating and low voltages earlier experienced by customers will be expected to be dealt with under the new owners/operators.

Also with metering and billing, customers have historically received estimated meter readings and consequently estimated bills. New meters would need to be installed and billing done on the basis of actual usage. There also needs to be measures put in place to ensure these meters work effectively. Controls would thus be required to ensure that it is extremely difficult for dubious customers to circumvent the metering system.

In summary, tackling transition and transformation issues proactively will require the new owners to carry out an assessment using a framework as shown in the diagram below

Asset	<ul style="list-style-type: none">• Asset review• Asset strategy and planning• Energy balance study• Vigilance tools and measures• Smart meters (solutions)
Revenue	<ul style="list-style-type: none">• Revenue cycle- process mapping & quick diagnostics• Effective revenue management strategy
Human Resources	<ul style="list-style-type: none">• Organisational structure review, skill set mapping• Clear job descriptions, identification of training needs,• Effective HR strategy
Operations	<ul style="list-style-type: none">• Health & safety review• Capital expenditure planning• Effective Procurement system• Parameters for customer satisfaction• Process review and gap analysis• Customer service mapping
Regulatory	<ul style="list-style-type: none">• Regulatory interface

Case Studies

Distribution Segment Advisory

Next, we consider the business of some distribution companies operating in India and look at some of the tools employed that may also be effective in Nigeria. We will consider two of these tools in these case studies - Vigilance tools and Project management tools.

Case Study (1 of 3)

Vigilance tools (Madhya Pradesh)

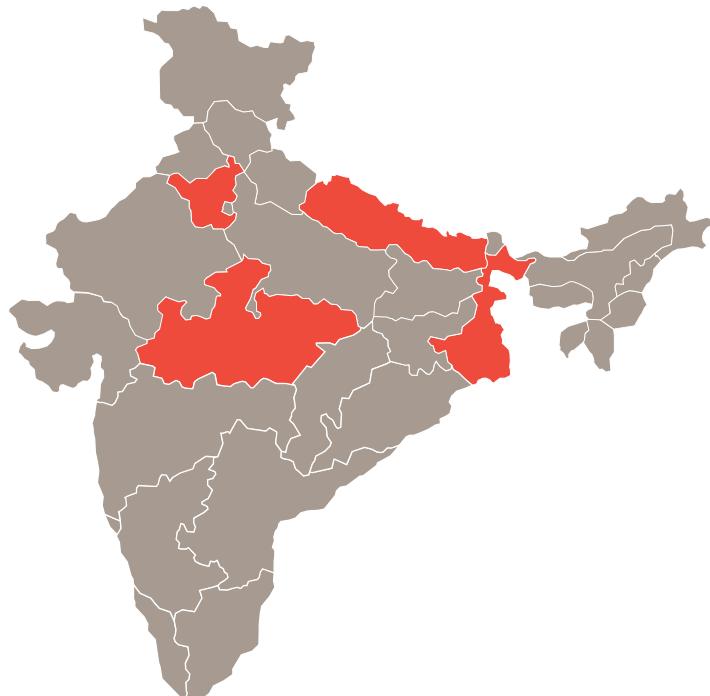
Madhya Pradesh is a state in Central India and is the second largest state by area in the country. Discos in the state used an Oracle-based vigilance tool called High Value Consumer Management System (HVCMS). Magnetic Resonance Imaging downloads of all its consumers are fed into this application and based on that information, the management of the utility can run multiple queries that give an insight into the consumption patterns of its consumers.

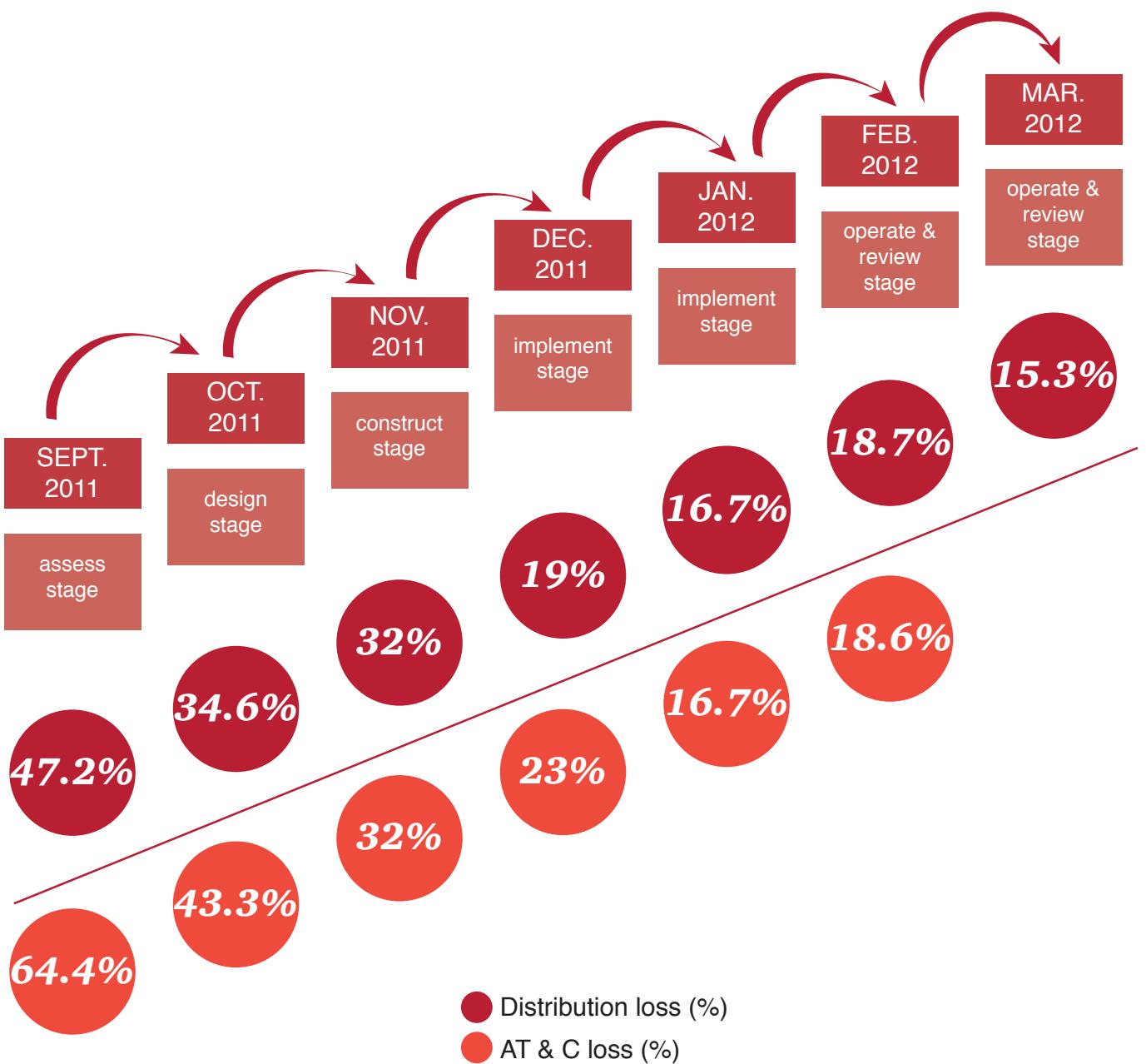
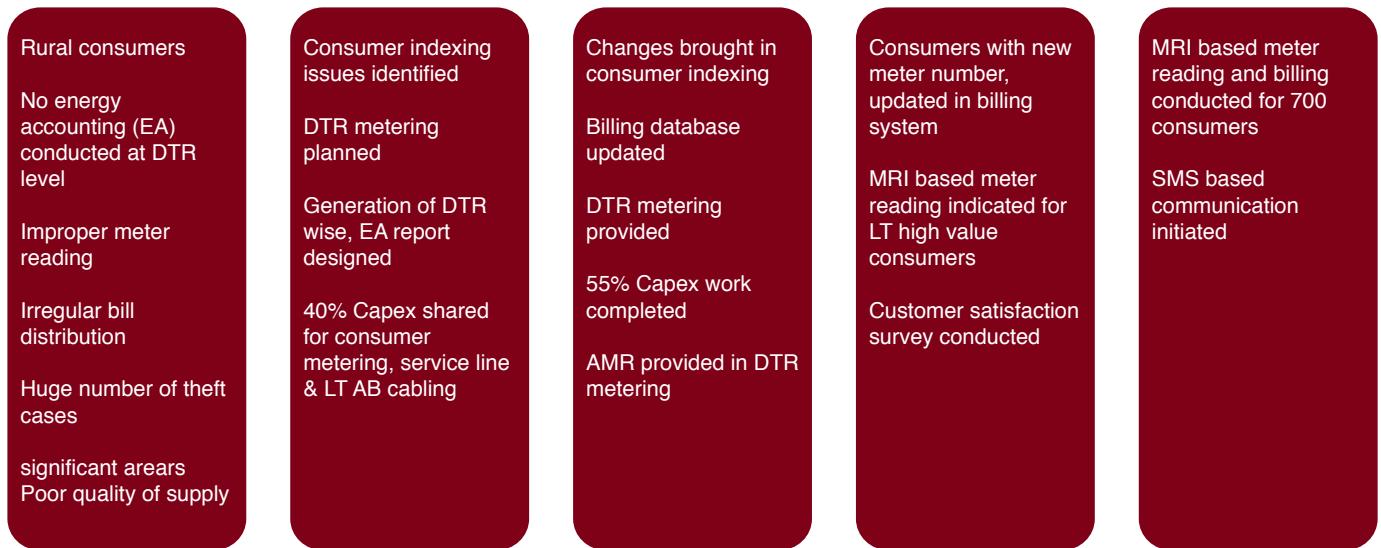
The system helps operators identify where there may be disruptions to the network thus ensuring speedy resolution. By understanding the consumption patterns of its customers, abnormal billing patterns may be easily identified. Also, commercial loss reduction may be more effectively targeted. This system has helped utility companies in India more effectively pursue the recovery of these losses from its customers.

Project Management Tools

Given the scale and complexity of the operations of electricity distribution companies, sound project management is required to ensure the objectives of the operator with regards to efficiency and profitability are met.

In India, PwC developed a project management framework to help its clients deliver on their operating and financial objectives. We used a “Transform” approach to drive and deliver the change our clients needed in their business. Five stages were identified in the process and the diagram below summarizes these stages





Case Study (2 of 3)

Project Management tools Barhi Town, Madhya Pradesh

Barhi is a town also in Madhya Pradesh. Using the Transform approach, we assessed the current needs of the town and defined the problem statement. Our team made field visits in the initial month and got a grasp of the issues affecting the community including the inadequate number of consumer feeders in the town, the relatively high incidence of faulty meters, improper meter readings, theft, significant consumer arrears and low quality of power supplied. Even baseline losses were not known in this town.

Having identified all the issues, the team proceeded to come up with solutions for each of them. We assessed the situation and developed baseline loss figures. We also assisted our client in updating the billing system and consumer database.

Consumer indexing was also carried out. We reviewed the existing CAPEX plans and identified those priority expenditure that needed to be addressed and assessed the adequacy of the amounts dedicated to these plans. Consumer service improvement initiatives were also suggested.

Through our approach, our client was able to reduce those losses from 64% to 19% in 6 months.



Case Study (3 of 3)

Project Management (Haryana)

PwC has been the distribution retainership consultant for performance improvement in the state of Haryana, India, since May 2007. Haryana has 2 distribution utilities – DHBVN and UHBVN- carrying out electricity distribution in the Southern and Northern Regions of Haryana respectively. Together, they serve a combined consumer base of more than five million consumers and have approximately 25% AT&C losses. They also control a combined annual turnover of Rs 100billion (\$2billion). Our key achievements in the course of our work with these utility companies include:

1. Assistance in the formation of a separate Power Purchase Committee, HPPC, for power procurement and load forecasting Haryana state as a whole
2. Setting up of an online Performance Monitoring and Management System (PMMS) as a customised web based Management Information Systems solution for DHBVN
3. Preparation of a Procurement Manual for materials and works procurement covering revised policies, monitoring

framework and standard bidding documents

4. Assistance in implementation of Spot Billing for DS/NDS categories of consumers in the urban areas
5. Bid Process Management for AMR implementation in the state of Haryana
6. Prepared process manual on Verification of large metering installations

Conclusion

Despite the significant challenges that can often be experienced by new players taking over government owned infrastructure in the power sector, pursuing a sustainable course and having a sound implementation plan can lead to success. This has been proven in the stories of other companies who have worked in similarly challenging markets. The success of these companies show a path for similar success in the Nigerian market.

Commercial electricity operation



Commercial electricity operation

Genesis Electricity Limited's Experience Wole Omoboriowo II

Genesis Electricity Limited (GEL) is a private corporate entity registered in Nigeria to carry on the business of Power electricity supply including power generation, distribution and other associated services such as billing, metering and revenue collection. GEL operates the following power infrastructure-

- 10MW grid generation in Guinea Bissau
- Co-development of 50MW Emergency Power Project (EPP) in Tema, Ghana
- 5MW grid generation in Sao Tome and Principe
- 9.3MW fully integrated IPP in Calabar Free Trade Zone
- 84MW Captive Power Project (CPP) being constructed for NNPC's Port Harcourt Refinery
- Circa 5MW Off-Grid Power supply currently being developed for the property Agency of the Lagos State Government.

Commercial electricity operation involves the production, selling (supply) and trading of electricity (both power and energy) in the short and/or long-term. It is effected by the following:

- Grid electricity sale,
- Captive electricity generation, and
- Off-grid electricity sale

Commercial electricity operations can follow either of two models. In the first instance, the company may acquire, install, commission and operate the power plants; and sell clean electricity to the off-taker, based on Power Purchase Agreements (PPA).

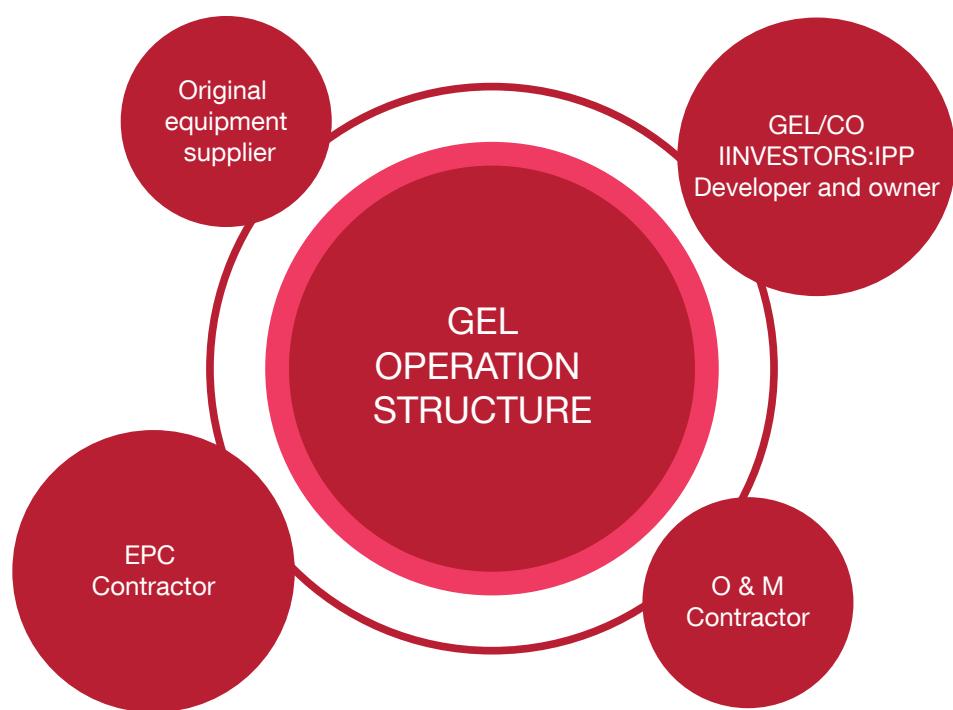
Alternatively, the operator may lease and operate existing power plants and sell to the off taker based on the Power Purchase Agreements (PPA) /Electricity Service Agreements (ESA). These agreements are usually backed by an appropriate financial guarantee.

GEL prefers the first option and carries out its operations using this models.

Commercial electricity operation

Operating Structure

Genesis outsources the engineering, procurement and construction functions to competent and reputable partners. Also outsourced is the operations and maintenance function. It has established strong relationships with original equipment manufacturers to ensure timely support in cases of malfunction. GEL deploys its Fuel Optimisation System when gas is not available.



Billing models

There are two models for billing customers. The capacity and energy charge model; and the flat tariff model. Under the first model, commercial electricity operators incorporate two components in the bills - the capacity charge component and the energy charge. The capacity charge component is billed to finance the fixed cost of the plant, debt and other fixed operating and maintenance costs. The energy charge is the variable component that is computed based on the cost of fuel and the variable operating and maintenance costs. The fuel component is treated as pass-through.

Flat Tariff Model, is a fixed tariff given to the off-taker. This tariff covers all cost, including the fuel component, which is not treated as pass-through especially from the off-takers perspective e.g. ESA.

Funding

Funding sources for commercial electricity operators include the following:

- Foreign partners via cash equity, discounted Engineering, Procurement and Construction (EPC) Cost, Equity contribution
- Investment and commercial banks
- Developmental institutions/banks
- Private equity firms
- Export Credit Agencies (ECA's)
- Original Equipment Manufacturers (OEM)
- GEL needs a number of these resources in dealing with some of its funding challenges

Challenges

Commercial electricity operators especially in developing market like Nigeria face a number of challenges including:

- Limited but growing understanding of the Commercial Power Production market by the banks to effectively fund it
- Compliance requirements and the evolving regulatory environment
- Long term funding requirements of commercial power production which is often times at odds with the medium term local lending pattern of local financiers
- Issuance of payment guarantees by PPA/ESA Counter parties
- Fuel sources and supply guarantees

Considerations

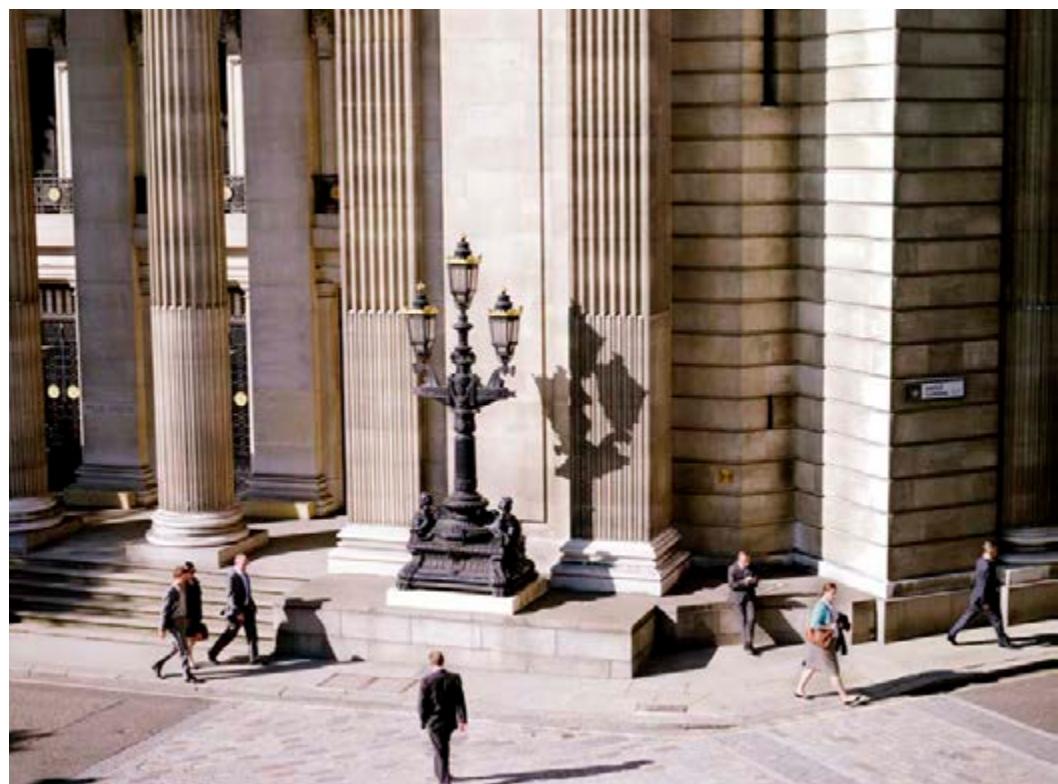
- How can local banks best access the "Qualifying" opportunities and players in the Commercial Power Operation segment?
- How viable are the Financial Institutions supporting the Compressed Natural Gas (CNG) Providers who supply commercial power operators?
- What is the prospect of local financial institutions creating specialised funds dedicated to commercial power production, with terms similar to or better lending arrangement.
- Are the pension funds able to invest also in commercial operators? Commercial electricity operations provide an exciting and challenging prospect for all players. Given GEL's experience so far in the industry, we have seen its immense potential for national development and investment returns. Success is possible with the right tools and partnerships.

Funding for the sector: Scope for mobilizing international resources

Andrew Nevin

Investing in the sector

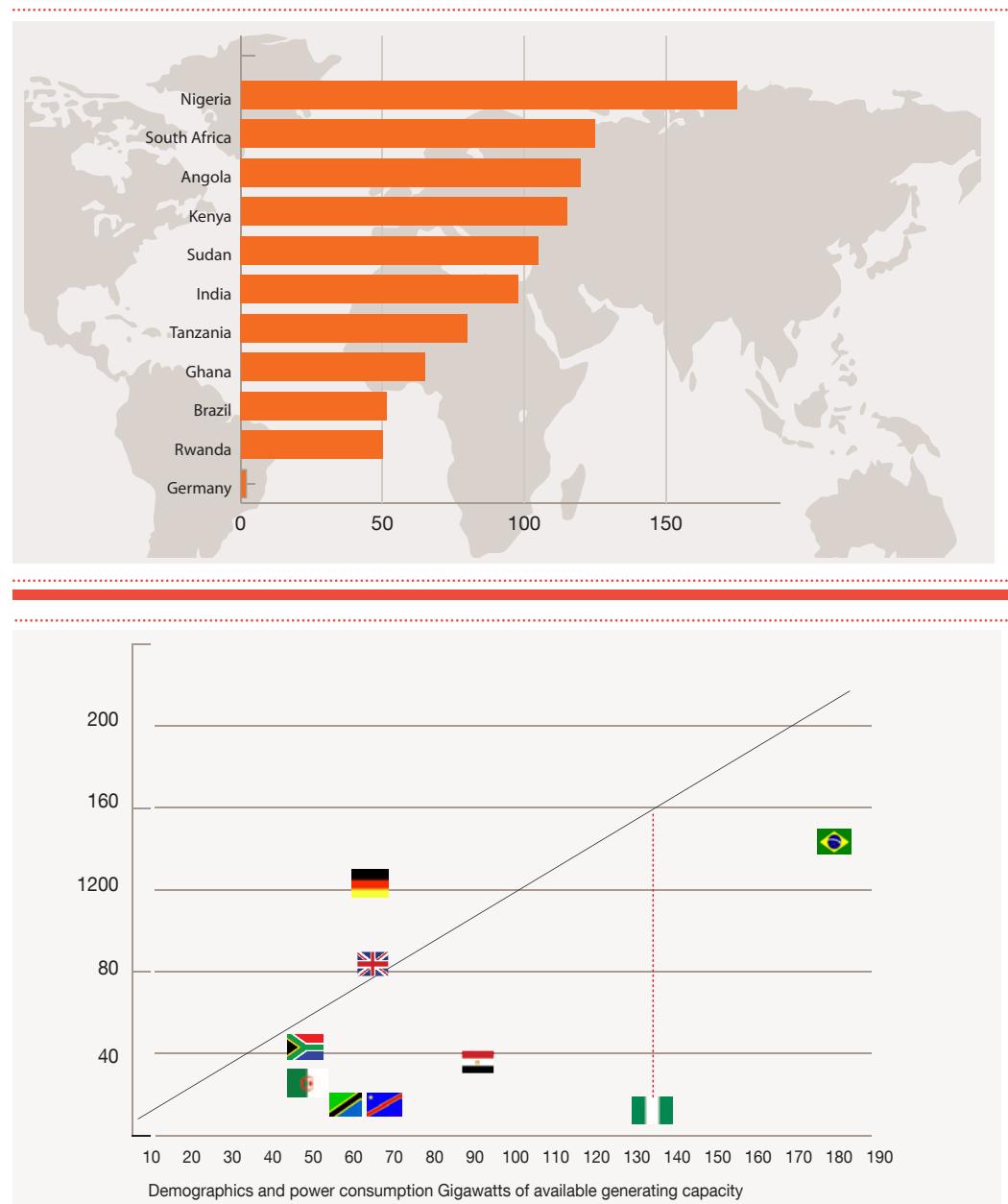
With the Federal Government of Nigeria's focus on implementing fundamental changes to the ownership, control and regulation of the power sector, the question is- where will the funds needed to achieve the short to long term goals for the power sector come from?



Nigeria has a large and energy-hungry population

With an estimated population of 160 million residents, Nigeria presents a huge market. And with only 40% of the population having access to electricity supply, there is big room for growth. For comparison, South Africa with a population of 40 million has available capacity of about 40GW, Nigeria on the other hand has a generating capacity of only 3.6GW, Transmission capacity of 5.8MVA, distribution capacity of 8.4MVA and tariff collection efficiency of 70%.

The chart below shows Nigeria's ranking in the world in the "Getting electricity" category of the world Bank's survey on the ease of doing business. Per the ranking, Nigeria comes 176th among 183 countries surveyed.



Source: Department of Fisheries and Wildlife, School of Agriculture and Agricultural Technology, Federal University of Technology Akure, PwC Analysis

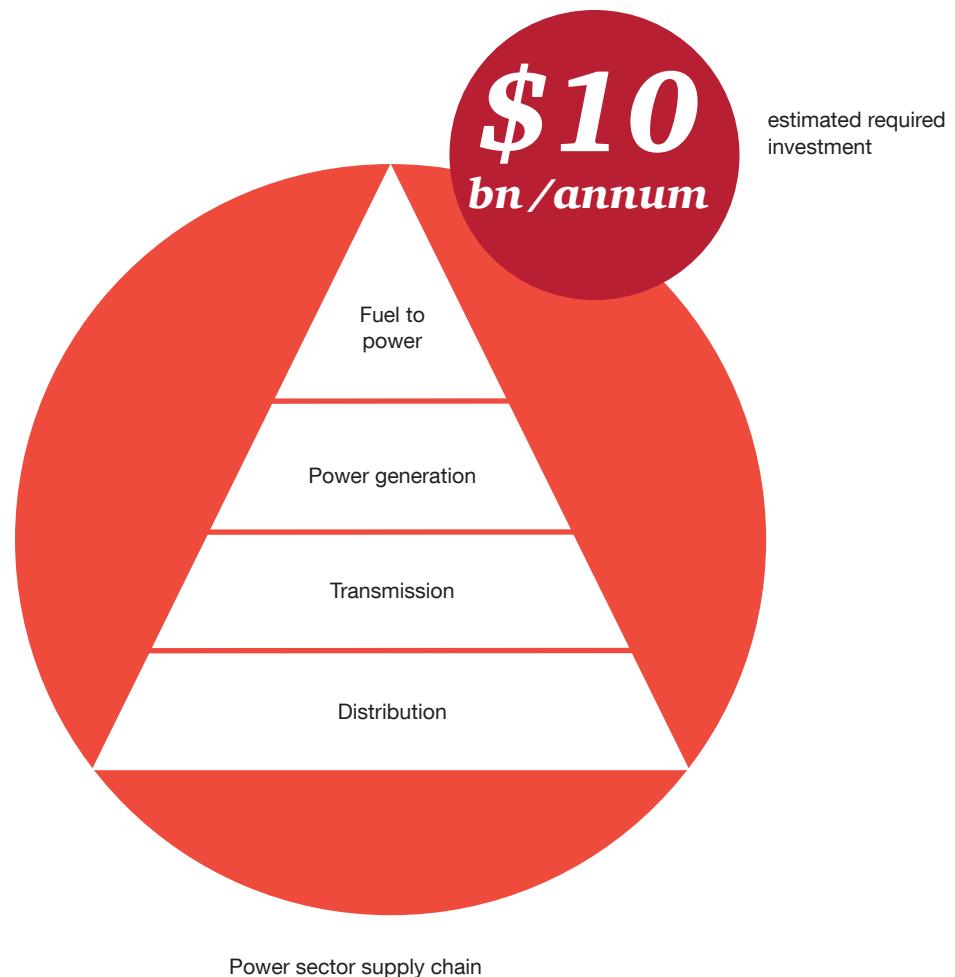
There are six realities that all investors have to contend with as they invest in the Power sector

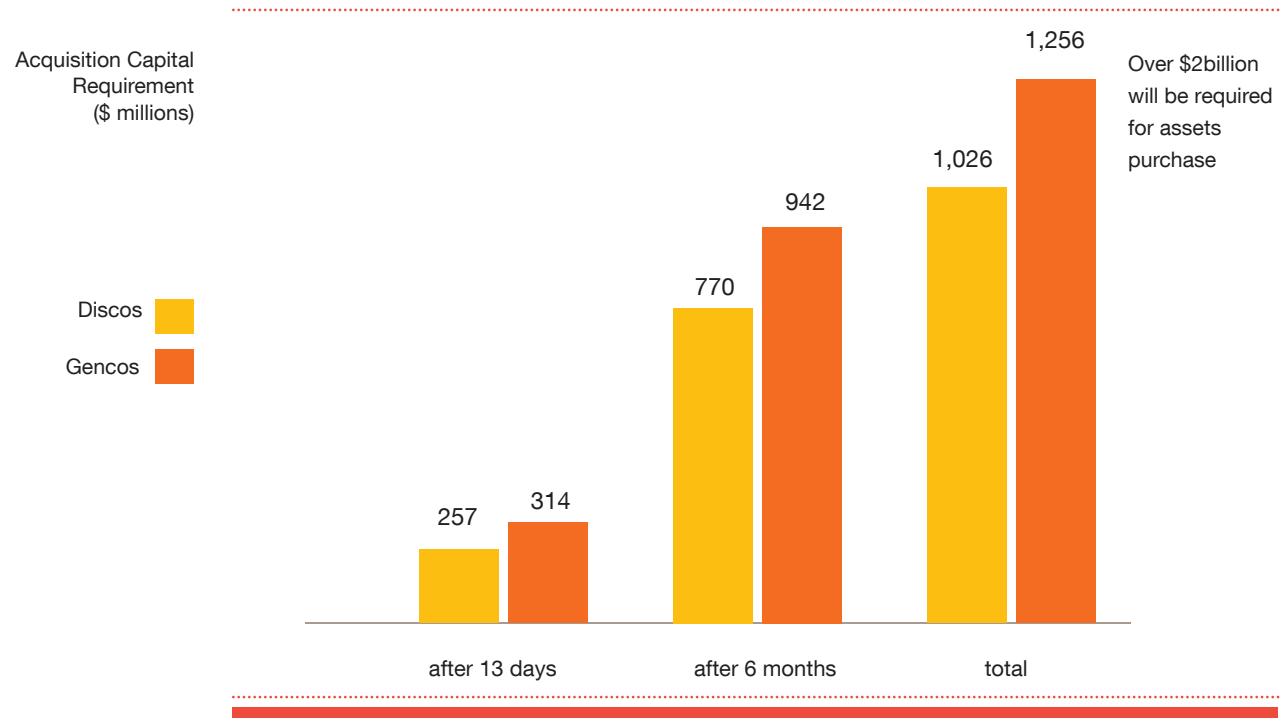
The First Reality:

The entire power sector needs capital, both to complete the purchase of the assets and to fund required investments

The transmission and distribution networks need to be rehabilitated in order to be robust and flexible enough to accommodate the nation's demand for electricity. This will require additional capital from investors.

Investments are needed all the way along the electricity supply chain

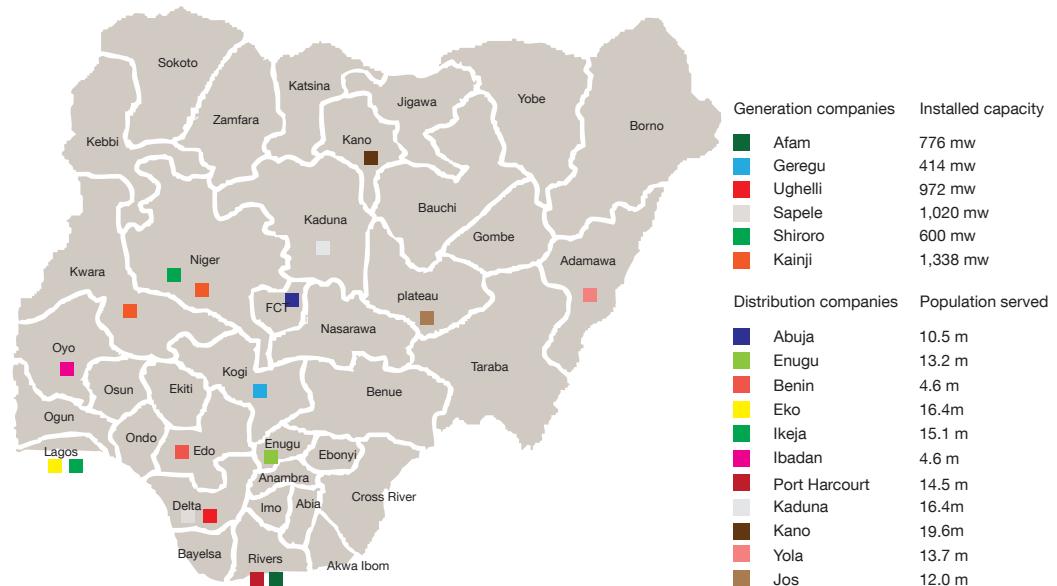




Source: *Roadmap for Power sector reform, PwC analysis*

The second reality: Discos and Gencos will be competing to tell their story...

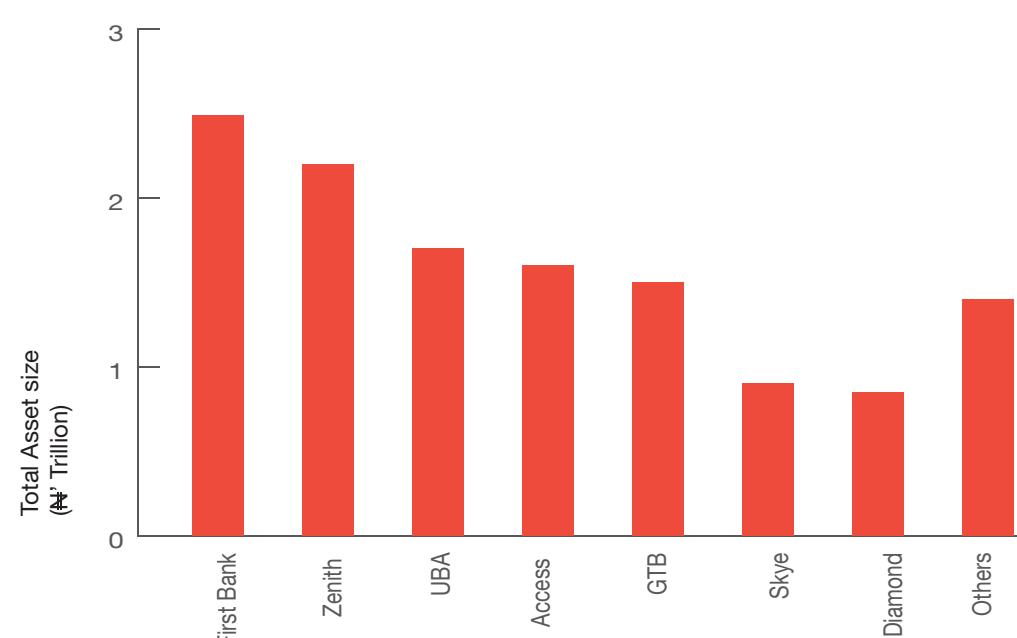
With the expected hike in investment activity towards the acquisition of the Gencos and Discos, there would be a lot to learn.



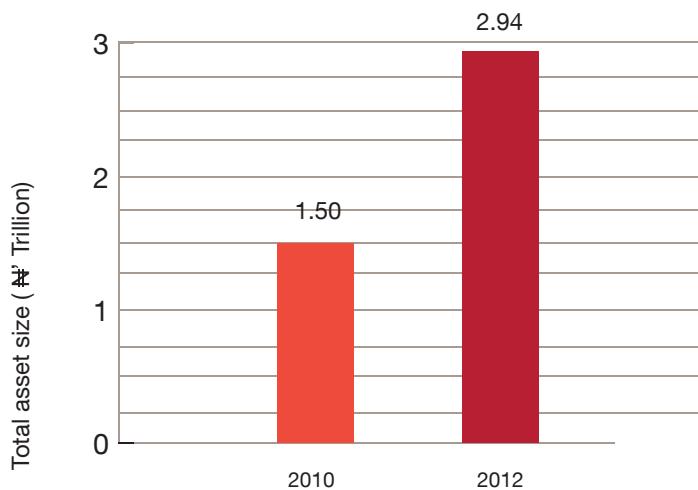
11 distribution companies and 6 generation companies to be privatized

The third reality: Nigeria does not have enough domestic resources to fund the power sector.

The chart below shows the estimated total assets of Nigeria's leading banks.



Source: Select banks' websites, PENCOM website, PwC Analysis



Source: Select banks' websites, PENCOM website, PwC Analysis

Based on the charts it is evident that the funding requirements cannot be met by local banks alone. Private wealth may help, but it is difficult to tap and creates governance issues. Government borrowing could also help but this would crowd out private investment. Furthermore, the Power and Aviation Intervention Funds (PAIF) were not created to support the acquisition of power assets.

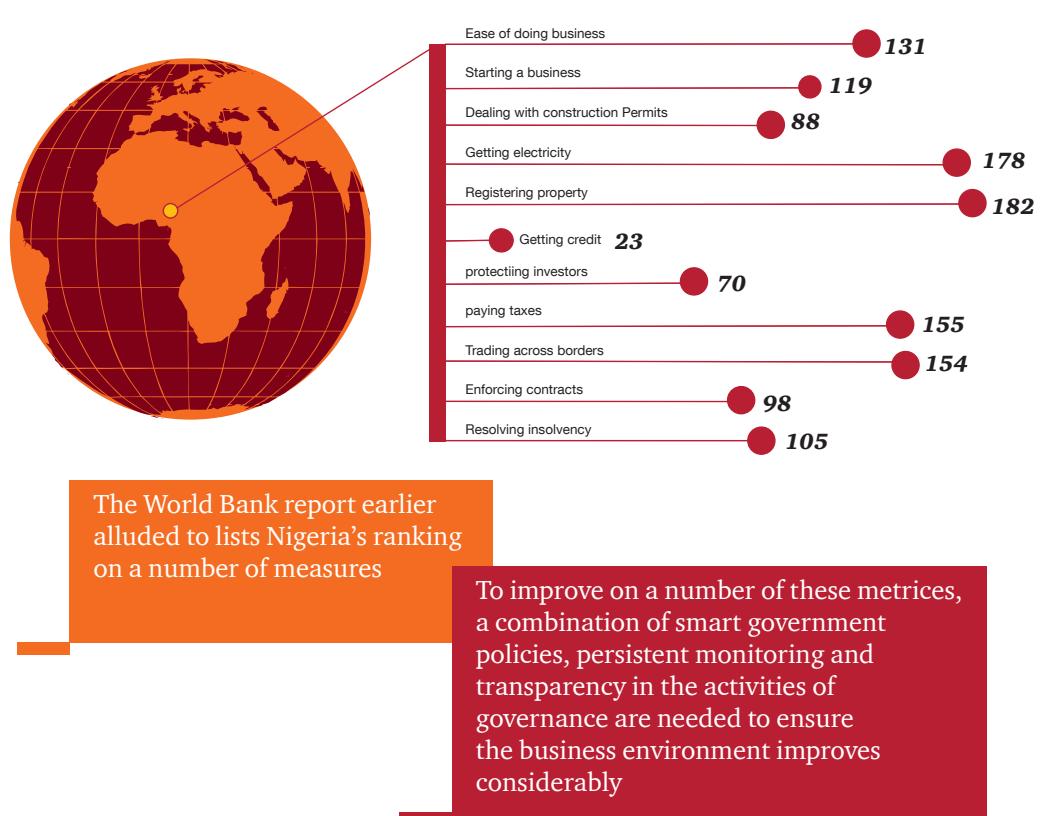
Given these local shortages, raising capital abroad is necessary and feasible but could be challenging.

A global consultancy's Mergers and Acquisitions report for June 2012, analyses the level of activity in different sector and the capital requirements for acquisitions in each of them. Based on the report power and financial services sectors show the highest level of investment activity. There is therefore potential for significant funding inflow to the power sector.

The fourth reality:

Although the IMF and World bank have identified Nigeria as one of the 11 economies to watch out for, Nigeria is still not doing well enough in a tough world ...

In 2011, according to a report by a global consultancy firm, 80% of Foreign Direct Investment in Nigeria went to the oil sector, while only about \$1.2bn of the \$ 6.09bn total went to the non oil sector. This shows the country's dependence on the oil & gas sector.



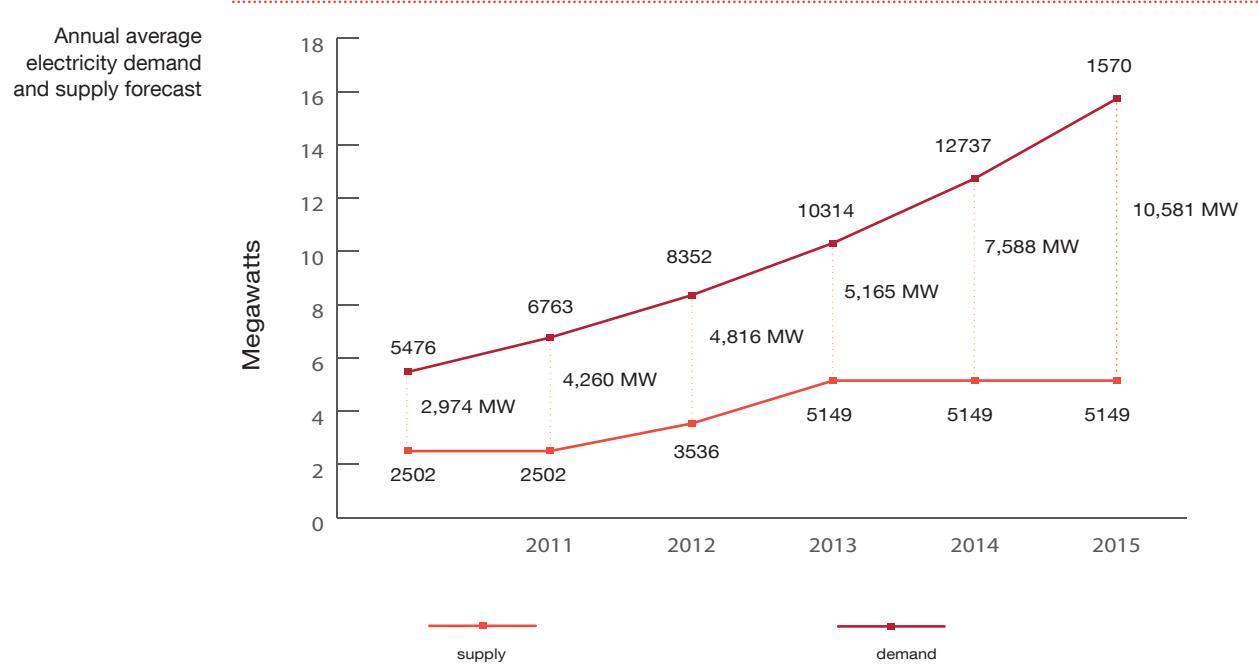
The fifth reality:

Genco and Disco winning bidders need to be out there now – creatively, aggressively and persistently

A number of private equity players are interested in Nigeria, and in the power sector in particular, but are looking for extraordinary returns, especially given the uncertainties in the industry. Also, Sovereign Wealth Funds from the Middle East are increasingly looking to Africa as the next source for phenomenal economic expansion. The Genco and Disco winning bidders must be out there aggressively pursuing the resources which are definitely available.

The sixth reality:

Nigeria has emerged as the country with the biggest gap between supply and demand for electricity in the world, according to the progress report on the roadmap for power sector reform. The chart below summarises this gap.



Source: CIA World fact book, <http://sweetcrudereports.com>, ECN, All Africa, PwC Analysis

The difference between demand and supply is currently being bridged through alternative power generation by individuals & businesses. In 2008, the Energy Commission of Nigeria estimated that Nigerians spent about ₦1.56trn (\$975mn) on alternative power supplies.

In 2012, this estimate has reached ₦3.01trn (\$1.9bn). Currently, 5120 megawatts is the maximum generating capacity of the existing power plants.

	<i>Available</i>	<i>Needed</i>
Generation	3,600 MW	10,000 MW
Transmission capacity	5,838 MW	9,340 MW
Distribution Capacity	8,425 MW	15,165 MW
Tariff Collection Efficiency	70 %	95 %

Source: OANDO

From the statistics above, the size of Nigeria's power sector needs, and prospects, may be better appreciated. The power sector reform presents an opportunity to plug the imbalances in the sector. If the power issues are addressed, Nigeria can grow explosively and rebalance the economy away from oil.

These six realities need to be taken into account by all investors. The prospects are indeed exciting.

Q&A session

Questions

Q Does long term funding for projects still exist and how accessible is it?

A Long term funding still exists out there from banks, infrastructure funds and Private Equity Funds. All these finance providers are showing keen interest in the West African region and in the Nigerian market in particular as the reform picks up steam. Given the intense competition for these funds, it is imperative that the companies seeking these funds get the right business structure in place. Sound project management systems help to give financiers the necessary confidence needed to invest and this covers the whole spectrum from the agreements with the BPE to the management and staffing in place and other key components. They need to ensure that their operating models are strong. The next two to three years are critical for companies to set up templates, procedures and systems that ensure their organisations have the structure to attract value from within and outside the country.

Q How much power (precisely) does Nigeria need now, in 5years and in the next 20 years?

A Nigeria currently generates 6,000MW of electricity for a population of 160 million, this gives an average per capita usage of 40W. However, the rule of thumb for an industrial nation is about 1MW for every thousand of population. This puts Nigeria's energy needs in the 160,000MW range given its population of 160million

Q What are the penalties for operators who fail to meet up with the expected targets for generation and distribution?

A The NERC, as the issuer of generation and distribution licences, may on its own initiative or upon receiving a complaint from any consumer, suspend or cancel the licence granted according to the processes set out in its regulations.

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