The Pathway to Recovery

PwC Power and Utilities Roundtable

May 2018

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Setting the stage

Context

The 8th edition of the PwC Power & Utilities roundtable took place on 30th November 2017. The annual event brings together key stakeholders in the power sector to discuss key developments in the industry.

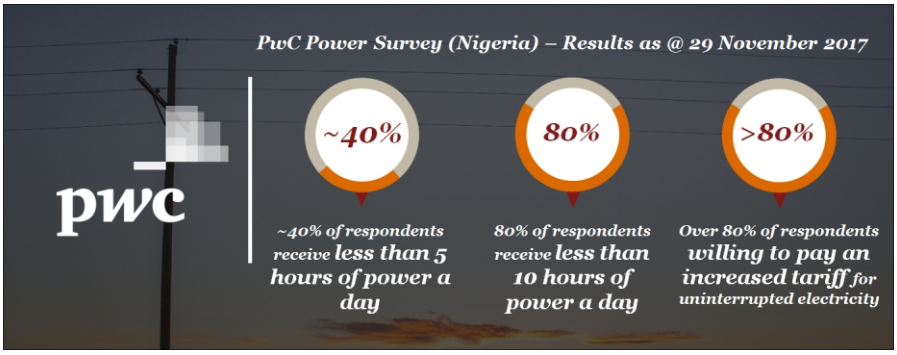
Our exclusive focus this year was the collaborative determination of a clear Pathway to Recovery for the power sector by its leading stakeholders. Power is a key tenet of enabling economic industrialisation and improving standards of living. These are two key themes of Nigeria's Economic and Growth Recovery Plan. As such, discussions and insights obtained from the sessions are imperative to galvanizing Nigeria's continued path to economic development.

PwC point of view

The Power Sector has been privatised for about 5 years and has been evolving in its search for stability and self-sustainability. Increasing levels of intervention from the government, regulators and global development finance agencies as well as rapidly evolving strategies from the private sector participants illustrates the intent by key sector stakeholders to improve sector performance.

However, coordinated collaboration is sometimes lacking and as such the much needed collective push without decision makers working across purposes continues to be elusive.

The absolute need to collaborate and refocus conversations in the power sector on solutions rather than challenges has never been more necessary. The end users in the power value chain are expressing an increasing sense of desperation for a sustainable solution to their power challenges as the euphoria of the privatisation exercise dissipates.



PwC point of view

1. Investing in the Recovery: *More power needs to be delivered right through the power value chain to end-users*

Power is the lifeblood of any economy's industrialisation program, hence the success of Nigeria's planned economic and growth recovery is substantially hinged on improvements within the power sector. Expanding the generation and delivery capacity and capabilities of the power value chain is at the heart of the power investment thesis.

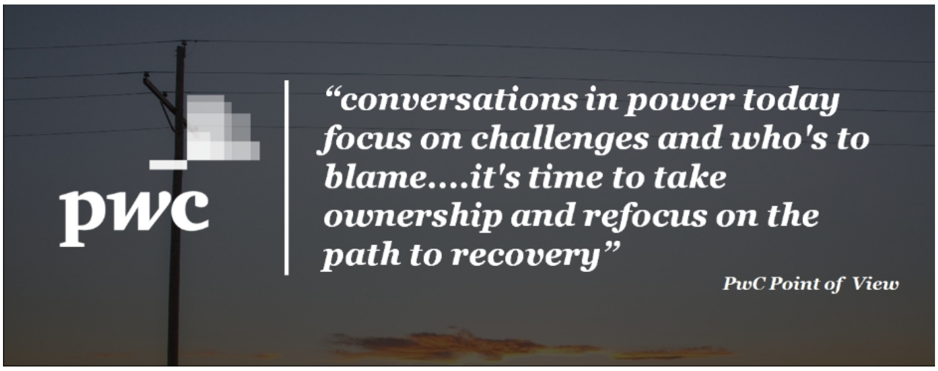
Expanding On-Grid generation capacity by improving gas supply to eliminate non-operational capacity, replacing obsolete equipment at power plants to restore unavailable capacity, investing in the development of new power plants as well as the expansion of existing plants remains a key piece of the solution. However, this must be supplemented by alternative less traditional solutions. Off-Grid Direct-to-Customer solutions and embedded generation initiatives are also key to establishing immediate stability in the sector.

Delivering energy indiscriminately through the value chain without a conscious plan around optimising energy mix and geographic coverage will create challenges of over-reliance on one fuel source and an unfairly skewed power delivery map. As such, diversification needs to be focused by enhancing the development of renewable energy alongside the gas-to-power program. Likewise, creative solar solutions which ensure rural communities feel the immediate impact of the power recovery program are also key for an enhanced standard of living for all Nigerians.

Substantially increasing the quantity of power generated and put onto the grid will result in massive system failures. As such investing in power cannot be contrived to mean only investing in power generation. It is imperative that the transmission and distribution capabilities within the power value chain are substantially enhanced. This means replacement and reinforcement of network assets as well as enhancement of people, processes & systems in transmission and distribution are an integral part of the solution.

The considerable investment and enhancement initiatives articulated above does not only deliver value to power end users, but also to generating, transmission and distribution companies.

Similar to the post privatisation growth in the meter manufacturing industry, Local industries adjacent to power will be created as a result of these activities.



PwC point of view

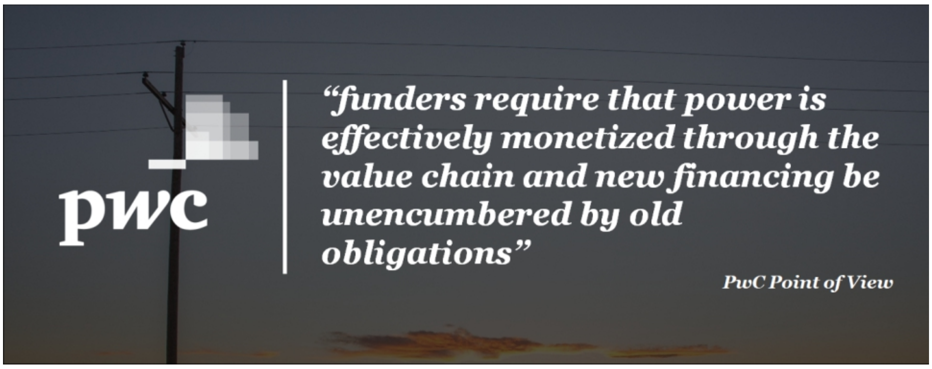
2. Funding the Recovery:
Financing the multitude of investment initiatives / projects required to stabilize the power sector

Five years after the privatisation, financing has proven to be the leading enabler of sector stability that the sector stakeholders have not been able to come to terms with. As we look forward, the power sector financing story must be built around three key themes to attract the required funding partners to the table.

Firstly, existing power must be effectively monetized through the value chain. In essence, power generated and delivered through the value chain must be recovered at full monetary value. This requires the elimination of substantial cash revenue leakages across the entire value chain as a result of technical, commercial and collection losses as well as rebasing tariffs to reflect the full cost basis of delivering power. These solutions require discipline and resolve from both the sector players as well as the community it serves.

Secondly, historical financial obligations from sector deficits have to be restructured with a clear path towards resolution or elimination. New financing ought not to be encumbered by old obligations which will limit the value creation impact of funding new development programs.

Thirdly, accessing new finance from existing and new funding sources must be tied to very clear development initiatives in the core value chain.



Financing must be effectively structured around pricing, tenor and flexibility to enable required investments but also manage the risks of the financier.

Financing strategy must be seamlessly married to business strategy, else the transaction will fail to close or the funding recipient will eventually default. There is absolutely no silver bullet for solving the financing equation. Professionally structured fit-for-purpose transactions with proper diligence of risk and reward are the way forward.

PwC point of view

3. Implementing & Monitoring the Recovery:
Implementing an effective recovery management framework to ensure the recovery does not fail

The power sector recovery will be driven by a complex web of interconnected initiatives and stakeholders. The failure of one initiative or stakeholder to deliver on its mandate will have far reaching impacts on the entire recovery programme. As such, it is imperative that all stakeholders and initiatives are well aligned, coordinated and managed.

The success of any programme is significantly dependent on the strength and capability of the stakeholders who own and drive the initiative. Given the nature of the power sector, with a multitude of stakeholders, it is imperative that there is clear ownership of the recovery programme by an individual or team with the requisite authority to act. Buy-in must be sought and obtained from all sector decision makers and stakeholders.

There must be constant engagement between stakeholders to retain collective buy-in. It is on this basis that the key stakeholders will align, be monitored and measured in line with clearly articulated performance targets.

Data analytics driven decision making must be at the core of the power industry. The sector will not achieve stability and sustainability as a whole if data isn't consistently collected from all industry players, analysed and used to inform policy and decision making. All technical, operational, commercial, customer service and financial data need to be aggregated and effectively analysed on an asset and sector basis for the sector to improve its decision making and evolve.

The establishment and use of real-time or frequently updated data visualisation platforms by industry participants is a priority initiative for the sector. After five years of privatisation, the sector ought to have evolved to predictive data model which would help hedge against asset specific and sector wide challenges long before they occur.

The journey to recovery is not a short one. Broader economic and market conditions will continue to evolve as the power sector embarks on its journey to stability. It is important that all stakeholders expect to encounter evolving dynamics and are flexible enough to adjust their strategies and targets to realign with sectoral and economic changes as they occur.

The Nigerian power sector will only witness the desired turnaround with careful and deliberate planning and implementation. Incentivising success and ensuring compliance amongst the large and diverse group of decision makers and stakeholders in power is paramount to a favorable outcome.

Discussions/Learnings at the roundtable

Keynote Speaker, Panelists and Facilitators

Keynote Speaker

Mr. Olawale Oluwo

Honourable Commissioner for Energy and Mineral Resources, Lagos State

Panelists

Mrs. Funke Osibodu

MD/CEO, Benin Electricity Distribution PLC

Mr. Femi Akinrebiyo

Principal Investment Officer (Africa Infrastructure Department), International Finance Corporation

Mr. Dafe Akpeneye

Commissioner, Legal & Compliance, Nigerian Electricity Regulatory Commission

Mr. Amaechi C. Aloke

Deputy Director and Project Manager, Nigeria Power Sector Reform Programme, Bureau of Public Enterprises

Mr. Mohammed Gur Usman

MD, Transmission Company of Nigeria

Dr George Oluwande

CEO, Sahara Power Group

Keynote Speaker, Panelists and Facilitators

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Keynote Address

The entire power sector value chain in Nigeria is plagued by challenges of infrastructure and funding, generation issues, gas supply infrastructure issues, evacuation, transmission and distribution, metering, administration of collected tariff, bad debt and enforcement, settlement dynamics, tariff determination and general lack of investment attraction.

The Power Sector Recovery Programme (PRSP) articulated by the federal government advisers and the World Bank targets to;

- Eliminate accumulated deficit for 2015 and 2016.
- Dimension and commit funds to clear deficit and also provide for deficit that will accrue from 2017 to 2021.
- Ensure distribution companies (discos) perform their obligations.
- Implement credible business plans for the distribution companies (discos).
- Establish data driven process for decision making.
- Guarantee 4000mw minimum average energy in Nigeria.
- Plan and implement communication strategy for the program.
- Develop robust cost reduction plans which includes metering.
- Pay off Nigeria Port Authority's debts and institute payment mechanisms for future bills.
- Restore sector governance - put in place the boards for NBET, PPA, including the Rural Electrification Agency.
- Increase access to power by upgrading renewable solutions.
- Develop and implement a foreign exchange policy for the power sector.
- Make electricity market contract effective
- Ensure achievement of cost effective tariff over a period of five years.

Based on the advice of PwC, we are here to look at investing in the recovery process, financing the recovery and implementing and monitoring the recovery. Without pre-empting the contributions by the panelists; investing, financing, implementation and monitoring will require a value proposition that is credible, sustainable, realistic and has a road map that can deliver and consequently unlock funds that will finance activities in the power sector.

The Nigerian power sector is in a major crisis. It would have been expected that after privatisation there should be an increase in power, but that is yet to happen. We should now work on a different path. Based on my personal views, I believe the following restructuring have become inevitable:

- Full privatisation of the Transmission Company of Nigeria (TCN).
- Complete privatisation of power plants nation-wide.
- Total divestment of government holdings in the generation and distribution companies through the Nigerian Stock Exchange.
- Total privatisation of the restructured Nigeria Gas Company.
- Immediate implementation of the cost reflective tariff in major cities with customers who can afford the cost (Lagos, Port Harcourt, Kano, etc.). This incremental revenue can help subsidize other states that are yet to bear the cost at this time.
- Focus should be on helping states as stand-alone or clusters to implement embedded power program.
- Foreign exchange is a bane in the power sector, and constitutes concerns for investors.
- Creation of a window for the repatriation that will encompass the present and future windows in the Central Bank of Nigeria.

Hence, going forward with respect to the pathway to recovery, I believe Lagos State is key in the success of this power sector recovery for the following reasons:

- Lagos is a major consumer of power in Nigeria.
- Lagos will become a net producer of power in Nigeria.
- The economy of Lagos supports the implementation of a cost reflective tariff.

Presently, Lagos state gets about 27% of the grid power which gives us about 750MW to 800MW without disruption (300MW to 500MW with disruptions). Hence, the State has put together a proposed Bill titled "The Lagos State Embedded Power Supply Bill" approved by Lagos State Executive Council and currently being fine-tuned by the Lagos State Parliament which with the highlights provided below, constitutes the proposed intervention approach of our government;

- Intervention in generation. 3000 MW in addition to adequate gas supply in Lagos and support provided to TCN for unlimited transmission in the whole State.
- A special purpose vehicle will be created to support the discos in bill collection. We will also adopt as well a super vendor model to ensure there is a seamless metering and collection system.
- A power theft law which will be the first in the country, if passed successfully will be in line with enforcement support for the discos.
- Provide finance to enhance the distribution capacity of the discos, amongst others.

The Bill is currently with the State Assembly waiting to be passed. The tariff will be cost reflective as the power program is off the national grid hence the Regulator will want to review the tariff charge. An implementation committee is being set up to come up with a tariff that will not constitute a burden to consumers.
There will also be a Power Council made up of representatives of the power consumers including the NLC, TUC, NECA, NCCI, consumer associations and other Trade Groups who will focus on advocacy and protection of consumers' interest.
With respect to power in Nigeria, I want to conclude that we will begin to find solution to the power problems in Nigeria if we focus on Lagos State as the best starting point. This will create a model and provide a workable and implementable plan that is sustainable. Furthermore, States that cannot afford the cost can then be subsidized by the Federal Government. Wrongly subsidizing every power consumer in the country with the mindset that every Nigerian cannot afford power will limit investment into the sector, as well as "competition and supply".

Panel Discussion

Panel Discussion

Priority 1: Investing in the Recovery

Power is a key driver of Nigeria's industrialisation aspirations. On-and-off grid solutions, energy mix diversification and network augmentation are key discussion points.

Discussion

What are the ***"highest impact on-and-off grid projects / plans"*** *that are expected to substantially increase energy delivery to Nigerian businesses and homes?*

Key Takeaway

On-grid Generation

Transmission, Rehabilitation and Expansion Program

The generated load must be proportionate to the connected load. Hence, the grid has to be expanded. Efforts are already geared towards expansion of the grid. The rehabilitation and expansion program has been conceptualised and a total of $1.5billion raised. The right-of-way issue across states is being resolved.

More stringent contract qualification criteria

Over the years, equipment suppliers were not interested in installations within Nigeria, as a result, equipment that have been fully paid for remain at the port. The Transmission Company of Nigeria (TCN) has cleared stranded containers worth up to $2.5billion from February 2017 till date. To curb this problem, TCN has modified the contract qualification criteria for the supply of equipment to include an installation clause.

Increased gas supply and a more diversified power mix

Increasing gas supply to the generation companies will increase power generation by 1,500MW to 2,000MW.

Increased generation from new power projects

Power generation from hydro projects such as Mambilla and Zungeru hydro power projects should also increase power generation. Currently, Sahara Power's Egbin Phase II is set to add an additional 1,500MW to 1,800MW to the grid, which is expected to substantially increase energy delivery to Nigerian businesses and homes.

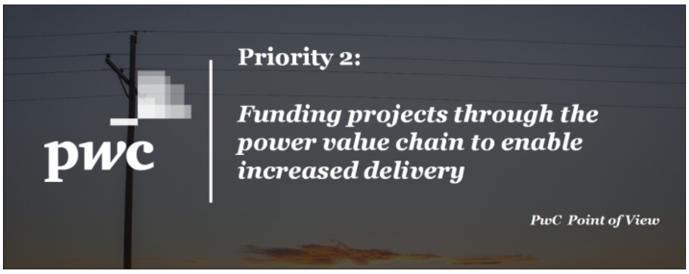
Investment in the Power Network

Distribution companies need to improve their network in order to better segment their customers and channel power to people that need them. Also, the interface between the TCN and distribution companies has to be improved.

Discussion	*Key Takeaway*
	Off-grid Solutions ***Use of Mini Grids*** Recent regulation by NERC empowers the general public to set up minigrids and notify distribution companies if it is certain that no distribution company will be in the area in 4 to 5 years. When a distribution company eventually appears in the space, it will compensate the investor for the investment made.
*How will **renewable energy** fit into the energy mix today and tomorrow?*	***Solar Power*** Renewable energy from solar power is a good addition to our energy mix, but its contribution is dependent on the design of the grid as well as grid stability. Due to the instability of solar, there is a limit to the load that can be put on it at any point in time. Countries that use a lot of solar have much larger grids such that the solar component represents a small component of the energy mix. Technology is being developed to address the major challenge with solar power i.e the need for storage.
*Can the **embedded generation programme** be re-energized in the short term?*	***Embedded Power Pricing and Price Regulation*** There are willing investors in embedded power generation. However, issues such as high unpaid receivables, losses and an unsustainable pricing system are preventing investors from committing funds. Embedded power generators charge up to N60 per KW of electricity, however the current rate being paid by maximum demand customers ranges between N30 and N40. This shows that if there is no pricing regulation for embedded power, customers will be unwilling to pay that amount. If this commercial aspect is not resolved, investors in embedded power will have negative returns on investment. ***Segmentation by distribution Companies*** With the mini grid, distribution companies can dimension the requirements of an area and what is needed to provide power to those people. Consequently, it can execute a deployment plan at its own pace.
*Can the **rural electrification programme** be rejuvenated in the short term?*	***"I will make electricity so cheap that only the rich will burn candles"- Thomas Edison, 1871*** ***Payment for Energy Supply*** Rural electrification could either be financed by customers or the government. An approach to this is for the financially buoyant power consumers to pay cost reflective tariff for power supply, while government subsidizes for the less privileged. ***Cultural reorientation & reduced government intervention in the Sector*** Electricity in Nigeria is viewed as a social service. While there may be a social element to it, Nigerians need to realize that the social service goes beyond the government. There is a need to sensitize the Nigerian public that power cannot be subsidized by the government forever. ***Rural electrification and Renewables*** Power supply through renewables may be the most effective and efficient way of rural electrification.
*Is **local content i.e. incentives to encourage local entrepreneurship** a focus in the power story?*	The Power Sector reform is designed in a way that Nigerians get to take over the running of privatised companies after a period of 5 years. The Nigeria Employers' Consultative Association (NECA) further reinforced this through the new rule that enforces the use of local contractors under the local content regulation.

Priority 2: Funding the Recovery

Funding is a key enabler of the power investment platform. Effective monetization of power, outstanding obligations in the sector and funding requirements for new projects are key discussion points.

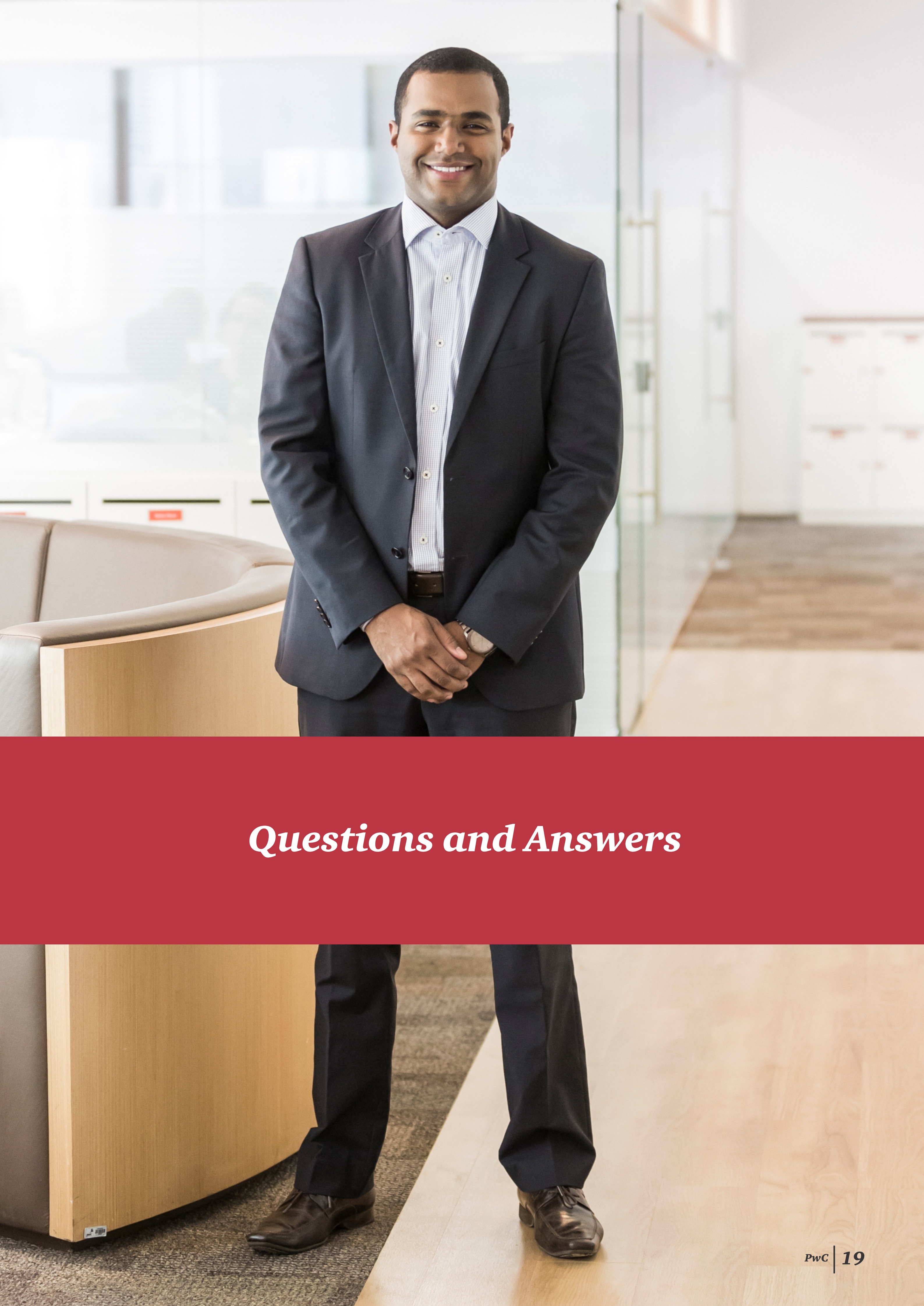


Discussion	Key Takeaway
What is the path to cost ***reflective tariffs*** *in Nigeria?*	There is need to initiate tariffs that allow for investments and improvement in inefficiency by the distribution companies, as the funds collected from the distribution companies is what services the rest of the industry. Before cost reflective tariffs can be properly determined, some fundamental issues in the industry have to be resolved. These include customer enumeration- capturing all customers within the system; metering solution; and a proper revenue assurance framework that ensures that the customers are not the ones bearing the losses at the end of the day. Resolving other issues such as information asymmetry and electricity theft will foster more transparency in the system.
Is the ***eligible customer programme*** *a viable way to close out some of the power value chain inefficiencies?*	Eligible customer program needs to be cautiously approached considering the state of Nigerian power sector position. The purpose/main objective of the eligible customer program is to open the market to bring in those who are not in it (.i.e. those who are off the grid). However, the customers that will qualify for eligible customer programme are the maximum demand customer that are more or less subsidizing other customers. Removing them from disco service system will have huge implications for disco viability. Until we guarantee that the people and the distribution companies who are on the grid have a finite amount of guaranteed energy, we should not sell electricity to eligible customers, otherwise the distribution companies will collapse.
What do the generation companies, distribution companies and the transmission company need to do to ***access new funding?***	The companies need to meet the requirement for government funding and government needs to continue to play its own part. If there is assurance that the revenue gap will be filled and there is confidence that the government policy will be consistent, it is certain that funding will come in. Options available include; funds from government, private sector and the World Bank.

Priority 3: Implementing the Recovery

The power sector recovery is a complex web of interconnected initiatives. Stakeholder management and performance monitoring are key discussion points.

Discussion	Key Takeaway
Who is best placed to ***coordinate, drive, sponsor, own and evolve the overall delivery*** *of the programme?*	*Partnership Between Public & Private Sectors* In order for the program to achieve its goals, it has to come from the Office of the President. There needs to be an independent, capable, competent and assertive team supporting the implementation that should be funded independently. The private sector needs to be ready to play its own part. Since the government has put a recovery program together, the distribution companies and the generating companies need to perform their roles by having a comprehensive plan to turn their business around. A partnership between the private sector and the public will drive improvement in the sector.



Questions and Answers

Questions & Answers

Discussion	*Key Takeaway*
*Why can't the sale of meters be **liberalised** to enable consumers freely purchase rather than endlessly waiting for discos to distribute these equipment and in the process, remain exploited?*	***Respondent - Mrs. Funke Osibodu (MD/CEO, Benin Electricity Distribution PLC)*** "There is a process ongoing from NERC which we believe once done, will make it easier. There will be licensed parties who will work with the discos. In addition, a major limitation is the inclusion of metering as part of the capital expenditure which once settled by the process currently under implementation by NERC, will make the process faster." ***Respondent - Mr Dafe Akpeneye (Commissioner, Legal & Compliance, Nigerian Electricity Regulatory commission)*** "There are two options – Metering Service Scheme and Franchising. Under the Metering Service scheme, there are options whereby customers who can afford to buy their meters outright are given the option to do so. On the other hand, customers who want to lease a meter will be given such option. There is also an option of "Bulk Metering". For franchising, at an agreed point, the franchisee will pay the disco in advance for power that is distributed in that area. Hence, it is now the duty of the franchisee to engage the community and handle the metering process (implementation and monitoring)."
What is the implication of the threat by Discos to declare force majeure and the response of NERC?	***Respondent - Mr Dafe Akpeneye (Commissioner, Legal & Compliance, Nigerian Electricity Regulatory Commission)*** "NERC is not privy to that contract as it is a dispute arising from the performance agreement between the BPE and Discos. Whatever the dispute is, we will not allow Nigerians get the short-end of the stick. There will be no service disruption or room for uncertainties."
What is your position on the Lagos State Government aspiration to implement non-MYTO tariff in Lagos.	***Respondent - Mr. Dafe Akpeneye (Commissioner, Legal & Compliance, Nigerian Electricity Regulatory Commission)*** "The Lagos State Government is working closely with NERC as the whole system is work-in-progress. The Commission will support any initiative that will bring power to Nigerians in a manner that is fair. If the Commission can create a special dispensation for Lagos and is wanted by Lagosians, we should not stand in their way but it should be done in a manner that is workable."

Conclusion

The solutions that will enable the Nigerian power sector's turnaround are a complex web of interconnected initiatives that require careful and deliberate planning and implementation across a myriad of stakeholders.

However, three themes are clear in coming up with a complex solution for Nigeria to meet its power demand needs:

- Invest in enhancing power delivery through the value chain to end users;
- Structure the right environment for financiers to fund these investment programs; and
- Deploy effective institutional frameworks for implementing and monitoring these projects to ensure the recovery program does not fail

The journey to recovery has commenced!

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