

# Preliminary Challenges and Outlook for Power Distribution in Nigeria

EKO ELECTRICITY DISTRIBUTION COMPANY



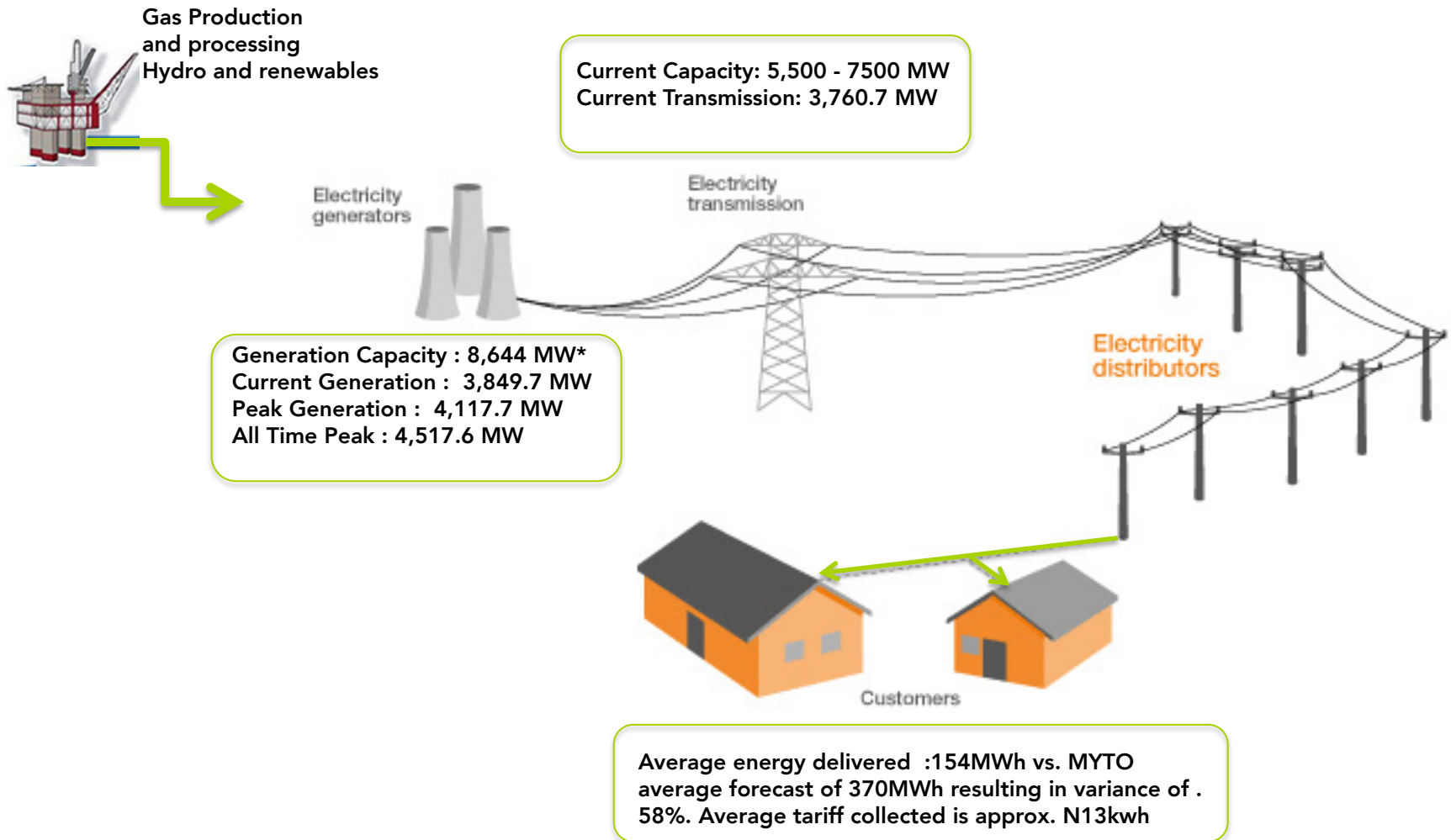
March 2014

# **AGENDA**

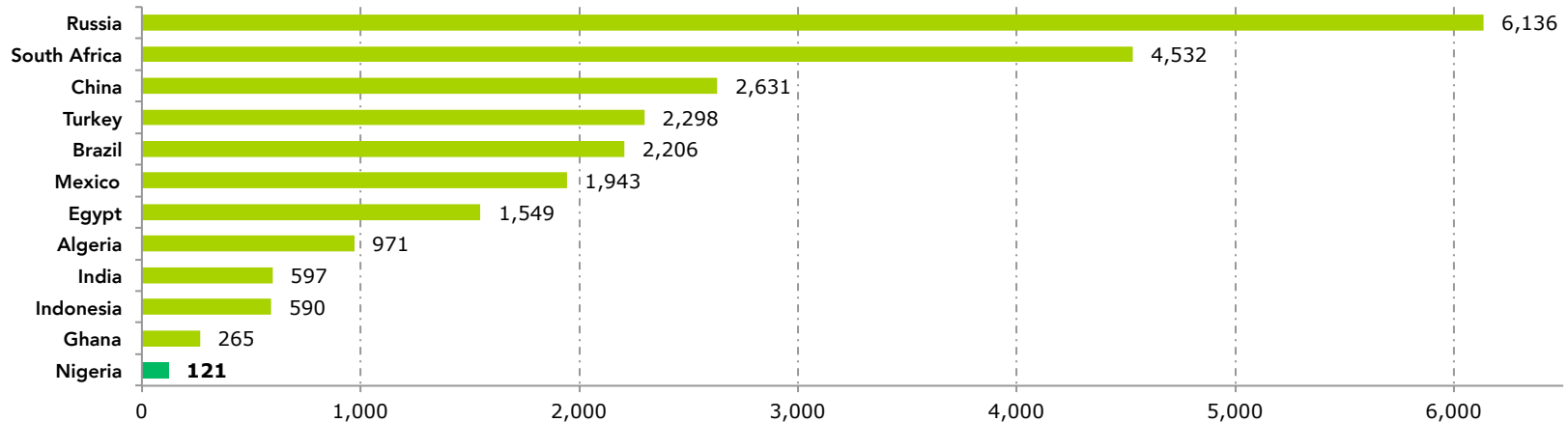
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- 1. INTRODUCTION**
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# Introduction: Industry Value Chain



# Introduction: Consumption Per Capita



Source: Adapted from World Bank and UNFPA databases

- Available generating capacity is low due to inadequate gas supply and insufficient funding as well as high ATCC losses, limited plant maintenance and rehabilitation
- Demand currently met largely by costly self generation averaging N75-90KWh
- Despite current challenges, the Nigerian electricity market is poised for unprecedented growth

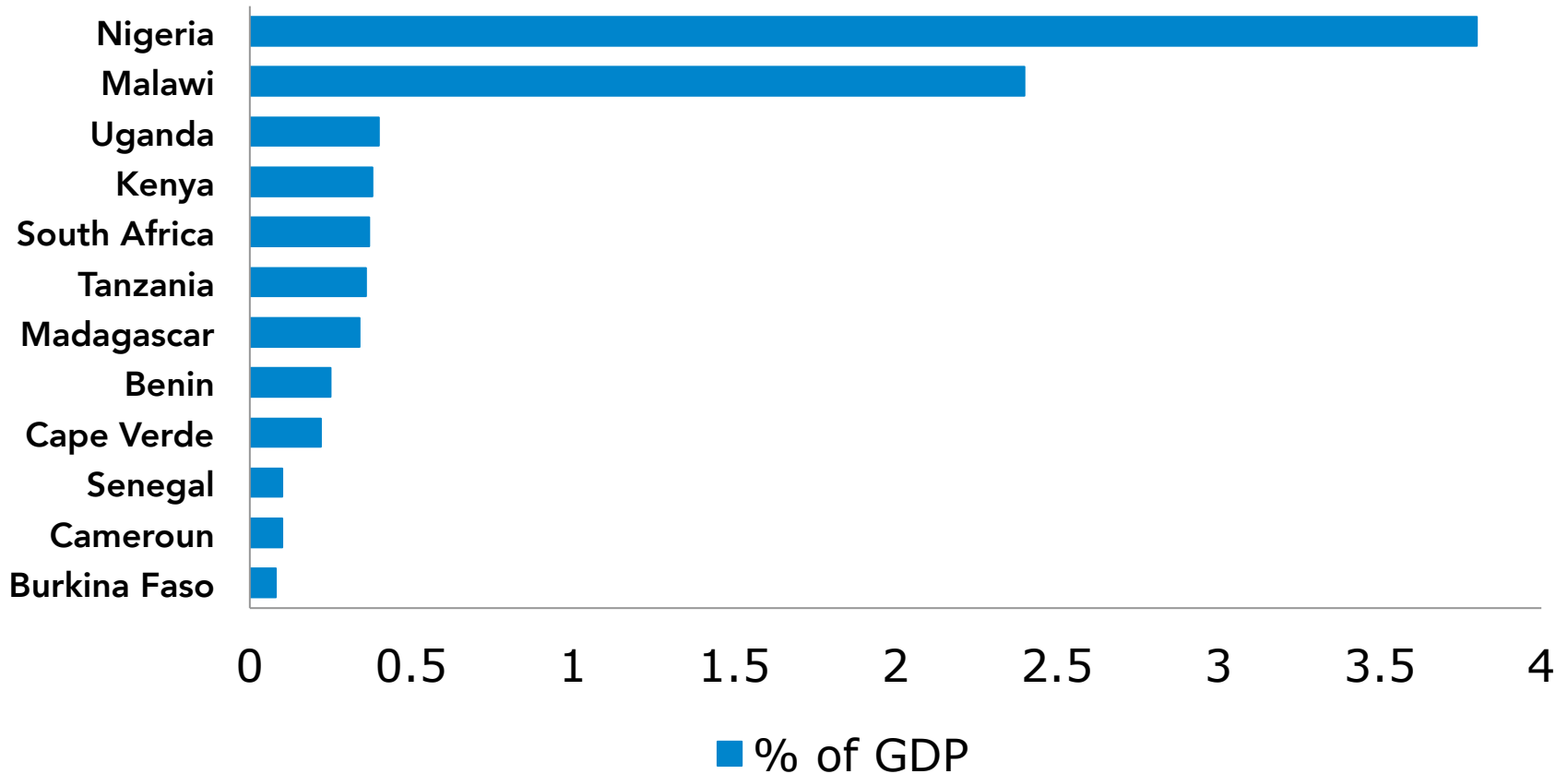
Sources :

world Fact book- <http://www.cia.gov/library/publications/the-world-factbook/index.html>

Energy information Administration – [www.eia.doe.gov](http://www.eia.doe.gov)

# Introduction: Effect of Power Outages

**Power outages are a major tax on Africa's economies**  
Economics cost of power outages in select countries



*Source : Derived from Eberhard and others(2009)*

# Privatization Expectations

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## □ BPE

- Pay Purchase Price Based On MYTO II Valuations
- Reduce ATCC Losses over 5 Years in Line with Performance Agreement
- Make Substantial Investments In Network improvements in line with MYTO II estimates
- Customer Growth and Metering plan in line with Performance Agreement
- Power Quality Improvement
- Buy back Asset for US\$1 if targets in the Performance Agreement are not met

## □ NERC

- Full compliance with all Market Rules and NERC regulations issued from time to time
- Improved Customer Complaints resolution
- Improved Safety standards
- Elimination of estimated billing through effective metering
- Compliance with Interim Market Rules
- Prompt settlement of Market Operator invoices in line with Interim Rules
- Assessment of Baseline losses, customer numbers, cost of doing business,etc

# Privatization Expectations

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## ❑ Labor

- ❑ Improved condition of service
- ❑ Training and retraining
- ❑ Career progression
- ❑ Work tools and Equipment

## ❑ Customers

- ❑ Expecting Private sector MAGIC !!!
- ❑ Improved power availability of approximately 12-24 hour daily availability
- ❑ Expect quality power that will not damage appliances
- ❑ Affordable tariff
- ❑ Availability of energy meters.
- ❑ Better Customer Service Experience
- ❑ Responsive Service Providers to customer complaints
- ❑ Ease Of Payment
- ❑ Empowering SMEs : Welders, Hair-dressers/ Barbers, printing press ,tailors, small – scale food Processors, etc.

# Privatization Expectations

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## ❑ Investors

- ❑ Meet and exceed all stakeholder expectations over the 5 year plan period
- ❑ Revenue In Line With MYTO II Forecasts
- ❑ Return on Capital charge available to service acquisition finance debt and network rehabilitation loans
- ❑ Payment of Subsidies in the MYTO II model to make up for the low Tariffs
- ❑ Tariff Reset Based on actual Energy Received, ATCC Losses, Customer Numbers, and Absence of Subsidies
- ❑ Adequate Cash Flows To Service The Cost Of Acquisition And CAPEX Investments

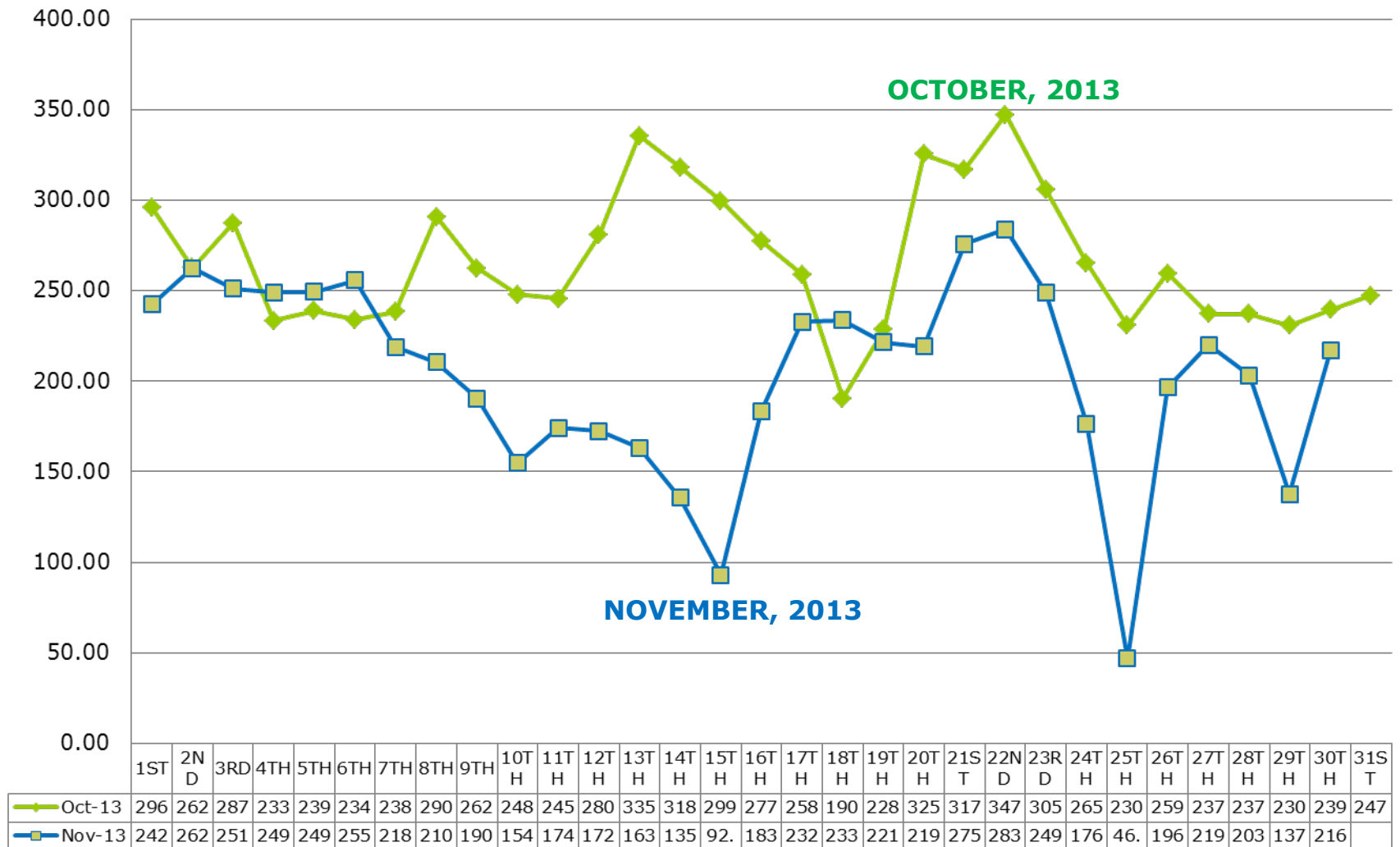


# Challenges – Inadequate Power Supply

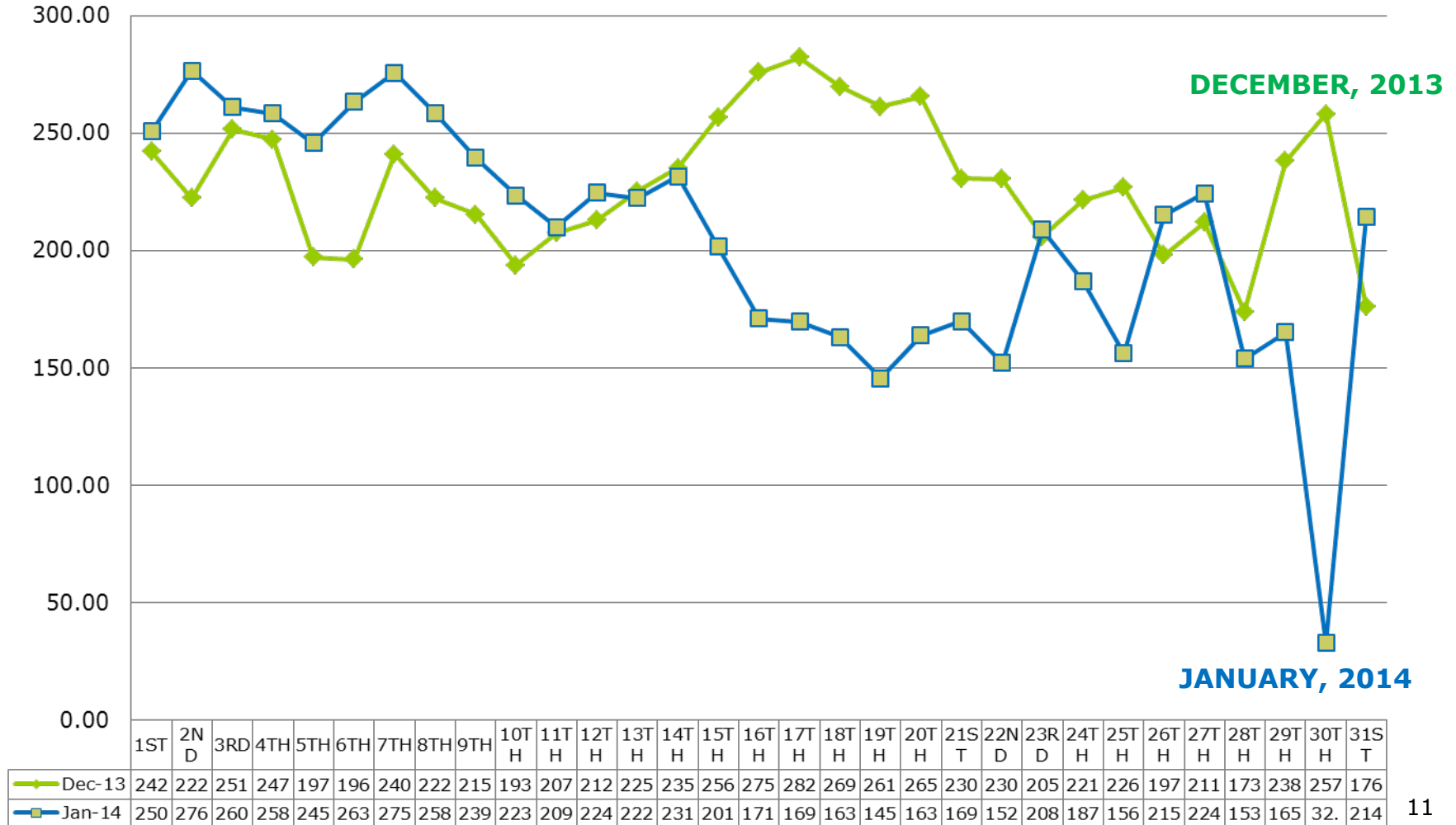
GwH	Actual	MYTO* (Monthly Avg)	Disparity (GwH)	Disparity (%)
November	139.73	335.38	195.65	58.34
December	162.54	335.38	172.84	51.54
January	150.61	405.18	254.57	62.83
February	163.92	405.18	241.26	59.54
<b>Average</b>	<b>154.2</b>	<b>370.28</b>	<b>216.08</b>	<b>58.36</b>

- Eko's Revenues are currently less than the 58.36% adverse variance in energy delivered because the Price of power considered a subsidy that has never been paid.
- Revenue = Price x Quantity.

# Daily Average Load Allocation to Eko Disco October – November, 2013



# Daily Average Load Allocation to Eko Disco December 2013 & January 2014



# Challenges – Transmission Constraints

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- ❑ There are 12 transmission stations and most of them have capacity limitations, some very critical, resulting in load-shedding on outgoing 33kV feeders and consequently our inability to evacuate sufficient power from the grid.
- ❑ There is urgent need to address the severe capacity limitations in the transmission stations if the anticipated improvements in generation will have the desired impact on energy and service delivery to our customers.
- ❑ Some Discos are ready to assist in funding of some of the Transmission project that will remove interface bottlenecks.

# Additional Challenges

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- ❑ Inadequate Gas supply is a major impediment to energy production in Nigeria, a substantial majority of the country's gas is located in the South Eastern part of the country with limited evacuation infrastructure. Presently, only 2 major pipelines from Escravos( ELPS) and Oben (OBOB)
- ❑ No universal commercial framework for gas production approved by DPR
- ❑ Frequent vandalisation of gas pipelines has further stifled the generation of electricity in the country and reduced the energy available to customers
- ❑ TCN arguably has a capacity of 5500-7500 MWh however only 3500MWh currently transmitted to Distribution Companies ("Discos") and other users such as Niger and Benin republic.
- ❑ Under frequency relays used by TCN to stabilize the grid significantly reduces the ability of Discos to efficiently allocate power within their networks
- ❑ Higher ATCC loses than advertised in the BPE RFP and the numbers in the MYTOII Model
- ❑ Lower customer numbers on the network, hence lower revenues from KVA charges
- ❑ Energy Demand approximately 5000MWh in the Eko Disco zone

# Improvement Strategies Going Forward

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- **Additional Power**
  - Encourage embedded and captive power plants
  - Liaison with NERC to streamline Implementation Process
  - First PPA to be signed soon
  
- **Working closely with NERC for a Tariff Reset**
  - Fair tariffs to customers and the industry value chain
  - Reclassify customer classes based on energy consumed
  
- **Capital Expenditure**
  - Replacing more 5000 Maximum Demand Meters Immediately
  - Network Reinforcement and development
  - Robust Metering plan for all customers
  
- **Automation**
  - Working with technical team to automate processes
  - Improved business knowledge and controls

# Improvement Strategies Going Forward

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- Strategic Partnerships With Key Players Such as:
  - Lagos State Government Electricity Board
  - Independent Power Producers
  - Other Distribution Companies Such as Ikeja Distribution Company
  - Bilateral PPAs with large power generation companies and customers with more captive generation capacity than currently required

# IMPROVEMENT STRATEGIES : SHORT TERM PLANS

## Customers

- Know who they are
- Know where they are
- Know if they are billed correctly
- Know if they are paying
- Know how we are billing them
- Ensure we have all consumers billed

## Assets

- Know what we own
- Know where our assets are
- Know the status of our assets
- Know how we should improve
- Regulatory Compliance

## Staff

- Know our staff
- Measure efficiency, monitor performance
- Set KPIs
- Restructure effectively
- Assist with technology to improve efficiency
- Development and Training



# IMPROVEMENT STRATEGIES : SHORT TERM PLANS

## Customers

- Demand Growth Analysis
- Centralized improved customer complaints
- Technology to enumerate consumers and manage metering
- Improved customer Experience through appropriate metering and billing

## Assets

- Asset enumeration
- Asset utilization through measurement (SCADA)
- Capital expenditure planning based on demand forecasting
- Maintenance planning based on asset enumeration

## Staff

- Staff enumeration and biometric
- KPI implementation
- Organization Restructure
- Implement technology to improve efficiency
- Development and Training

# Investment Plans of The Discos

Distribution Company	2013	2014	2015	2016	2017
Abuja	\$36,606,000	\$36,606,000	\$36,606,000	\$36,606,000	\$36,606,000
Benin	\$24,314,000	\$24,314,000	\$24,314,000	\$24,314,000	\$24,314,000
Enugu	\$27,230,000	\$27,230,000	\$27,230,000	\$27,230,000	\$27,230,000
Ibadan	\$43,865,000	\$43,865,000	\$43,865,000	\$43,865,000	\$43,865,000
Jos	\$22,755,000	\$22,755,000	\$22,755,000	\$22,755,000	\$22,755,000
Kaduna	\$29,960,000	\$29,960,000	\$29,960,000	\$29,960,000	\$29,960,000
Kano	\$30,379,000	\$30,379,000	\$30,379,000	\$30,379,000	\$30,379,000
Eko	\$45,170,000	\$45,170,000	\$45,170,000	\$45,170,000	\$45,170,000
Ikeja	\$58,737,000	\$58,737,000	\$58,737,000	\$58,737,000	\$58,737,000
PH	\$25,514,000	\$25,514,000	\$25,514,000	\$25,514,000	\$25,514,000
Yola	\$13,133,000	\$13,133,000	\$13,133,000	\$13,133,000	\$13,133,000
<b>Total</b>	<b>\$357,663,000</b>	<b>\$357,663,000</b>	<b>\$357,663,000</b>	<b>\$357,663,000</b>	<b>\$357,663,000</b>

**5 year total Capex for Distribution companies is almost \$1.8 Billion and based on cost reflective tariff**

**Source - BPE and MYTOII Model**

# Investment Plans Of The Discos

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- ❑ EKO Has Secured an Initial \$150 Million Which it will spend on its Capital Expenditure Program to Improve Its Network In The Near Term
- ❑ The investment to be made by the Discos must cover the commitments they have all made in the following areas:
  - Metering ( About 6 million meters)
  - Health, Safety and Environmental practices
  - Reduction in number of customer interruptions i.e. due to network faults
  - New customer connections and network expansion
  - Improving customer services and complaints handling procedures
  - A cost reflective tariff has been introduced since June 1 2012 this needs to be updated for current reality

# Eko Disco Investment Plan

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- ❑ Eko Disco is determined to stabilize power supply in its area of operation with plans to invest over ₦ 42 Billion for Network rehabilitation and improvements over the next five years as part of a program to reduce ATCC losses and enhance service delivery to customers.
- ❑ Funds to be sourced from a combination of Nigerian banks and internally generated revenue
- ❑ Within six months EKEDC will roll-out an investment plan geared towards rehabilitating facilities that would stabilize electricity delivered to end users.
- ❑ EKEDC will maintain healthy relationship with all stakeholders.

# Eko Disco Investment Plan

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## Focused on

- ❑ Growing the network to meet the projected energy demand of 5000MWh within the Eko Disco Zone
- ❑ Reliable and Quality Power
- ❑ ATC & C loss reduction (Metering)
- ❑ Process improvement/Automation
- ❑ Network Development
- ❑ Technology (SCADA, GIS e.t.c)

## Approach

- ❑ System upgrade
- ❑ ATC & C loss Reduction
- ❑ Customer Care improvement activities
- ❑ Organizational Restructuring
- ❑ Effective Metering & Billing Process
- ❑ I.T System & Processes

# Improvement Targets for 2014

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1. Reduction in response time to faults clearing for major faults.
2. Reduction of technical losses through several network reinforcement activities such as re-conducting of lines by replacing undersized conductors and execution of planned network reinforcement projects to improve voltage profile.
3. Increase installed 33/11kV injection substation capacity through execution of planned network reinforcement projects and encouraging completion of on-going NIPP projects.
4. Increase installed distribution substation capacity through execution of planned relief distribution substation projects.
5. Regular maintenance of Injection substation power transformers, switchgears and distribution substations

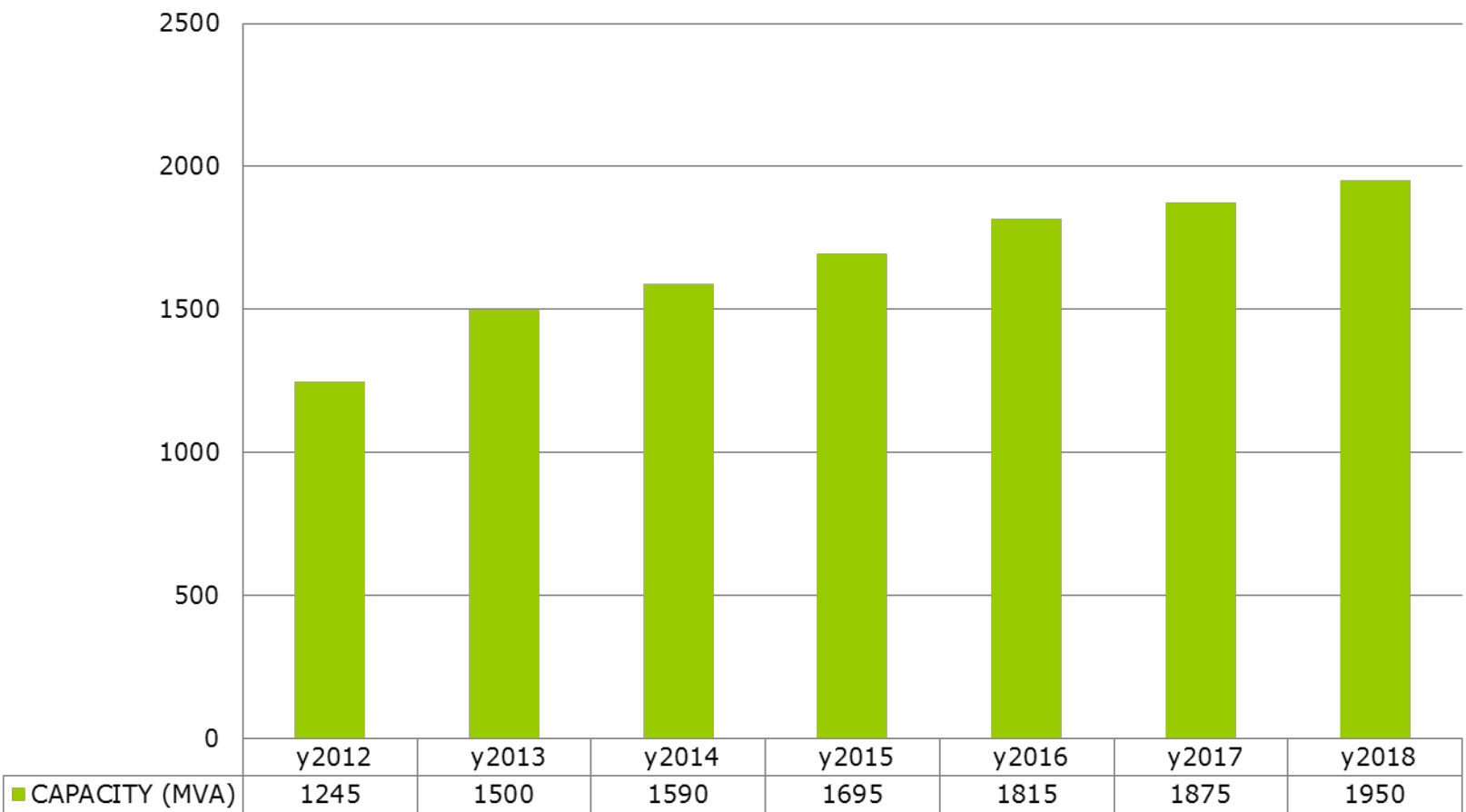
# Improvement Targets for 2014

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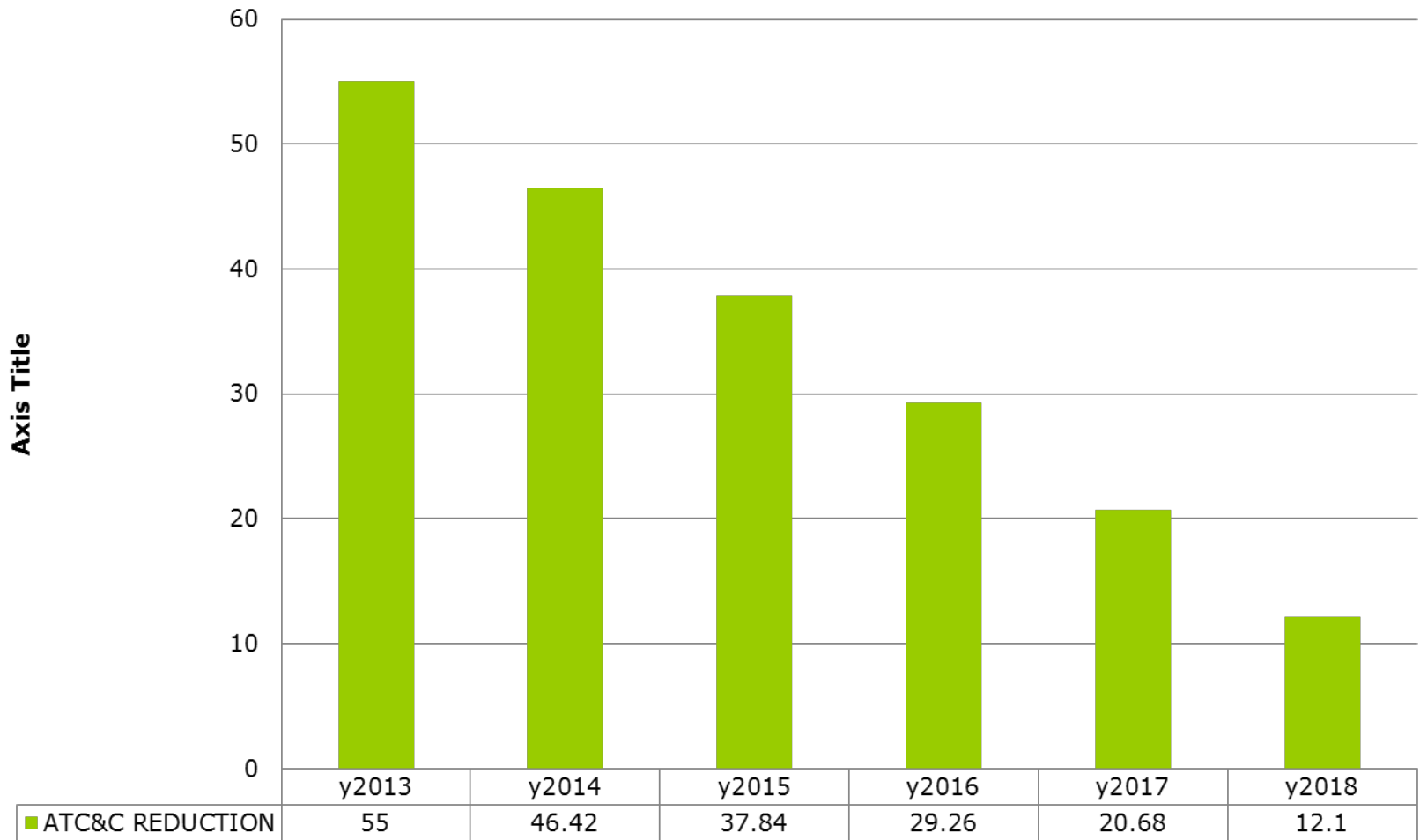
6. **Completion of rehabilitation/replacement of significant number of obsolete and problematic 33kV and 11kV switchgears, aged 33kV and 11kV underground cable and aged power/distribution transformers to boost power evacuation from the grid.**
7. **Procurement of special purpose operational vehicles and tools to strengthen our logistics capacity to support field operations/activities. Strengthen the network through construction of new 33/11kV Injection Substation, 33kV lines, 11kV and relief distribution substation to boost power evacuation from the grid and improve service delivery to customers.**

# 5-Year Capacity Development Projection





# Projected 5 Year ATCC Loss Reduction Plan



# CONCLUSION

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- ❑ In spite of the initial challenges, the Electricity Distribution business is a very important link between the customers and the Industry Value Chain as it collects the revenue required to service the entire industry.
- ❑ Presently an infant industry deserving understanding and patience of all stakeholders as it evolves.
- ❑ Far greater opportunities to deliver energy than earlier anticipated
- ❑ Future of the Distribution company is very bright current challenges are daunting but not insurmountable. There are several growth opportunities to make the Discos stronger and more to meet stakeholders expectations
- ❑ Eko Electricity will strive to exceed the needs and expectation of our customers and all stakeholders in the Nigerian electricity supply industry.

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**Thank you**