Africa Energy Market Place (AEMP)

Nigerian Government Presentation
Section 1

Country Energy Sector Overview
I. Long term Vision & Objectives

Nigeria’s strategy to light up and power Africa by 2025

Milestones

- Investment of US$ 3.2B per annum in Generation and Transmission projects
- 10 GW increase in generation capacity by 2020
- 15 GW increase in generation capacity from 2021 to 2025

Policy

The policy objective of the Government is to provide uninterrupted power supply to the nation at affordable price that also guarantee returns on investment for the players.

Generation & Transmission Investment

- US$ 3.2B 2018
- US$ 3.2B 2019
- US$ 3.2B 2020
- US$ 3.2B 2021
- US$ 3.2B 2022
- US$ 3.2B 2023
- US$ 3.2B 2024
- US$ 3.2B 2025

Increased Capacity

- 10 GW
- 15 GW

Technical Assistance

WORLD BANK, JICA, USAID, GIZ, AFD
I. Sector Snapshot

### Potential

- Average 6.5 hours of sunshine per day
- Annual solar energy available is about 27 times that of the country’s total fossil fuel resource, and it is over 115,000 times the electrical power generated

- 14,750 MW of potential, but only 1930 MW (14%) is currently generated.
- Current small hydropower (SHP) generation potential around 3500 MW, (23% of national hydro potential)

- Largest gas reserves in Africa – 181 trillion cubic feet of proven gas reserves plus much more in undiscovered gas resources.
- Only 25% of reserves are being produced or are under development today.

- Wind potential of 50,046 MWh/year coastal regions and offshore, have highest wind speeds
- Currently, no commercial wind plants are connected to the national grid in Nigeria.

### Generation

**13,460 MW**  
Total Installed Capacity  
Of capacity developed by IPPs

### Consumption

- **45%** Electrification Rate  
- **55%** Urban Access  
  - 49% of Population  
- **36%** Rural Access  
  - 51% of Population  
- **12.8 GW** Peak Demand  
  - 7.7 GW Generation Deficit  
- **7%** Demand Growth Per annum
## Gaps to close

### Gap 1 – Energy Access
- Increase Electricity Access from the current 45% to 75% by 2025 and to 90% by 2030.
- 50% clean cooking penetration by 2020 and 80% by 2030.
- Increase Electricity generation from 5,000MW to 30,000MW by 2030.
- Develop transmission and distribution capacity to match the power generation trajectory.

### Gap 3 – Energy efficiency and conservation
- Promote use of energy efficient buildings and appliances.
- Promote energy efficiency technologies for industries and Agricultural processes.
- Promote initiatives for Demand Side Management.

### Gap 2 – Untapped Renewable energy potential
- Reach 27% and 20% contribution of hydroelectricity generation mix by 2025 and 2030 respectively.
- Reach 20% and 19% of Solar electricity generation mix by 2025 and 2030 respectively.
- Reach 2.5% of Wind electricity generation mix by 2030.
- Achieve a technology driven renewable energy sector that harnesses the nation’s resources to complement its fossil fuel consumption and guarantee energy security.

### Gap 4 – Human Capacity building & Technology development
Develop manufacturing capacity for energy efficient appliances and renewable energy equipment.
## Resources Required

<table>
<thead>
<tr>
<th>Govt. Key Reforms/Actions</th>
<th>Main Challenges</th>
<th>Donor Initiatives</th>
<th>Gaps to Close</th>
<th>Estimated costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Priority action to stabilize the wholesale electricity Market towards sustainability</strong></td>
<td>Tariff issues, High ATC&amp;C Losses, Revenue Shortfalls, Contract enforcement etc.</td>
<td>USAID/PowerAfrica support to 4 DISCOs</td>
<td>Tariff Shortfall</td>
<td><strong>$7.5billion</strong></td>
</tr>
<tr>
<td><strong>Priority action to strengthen electricity infrastructure</strong></td>
<td>Weak and inadequate infrastructure</td>
<td>TBD</td>
<td>Implementation of critical network improvement projects</td>
<td><strong>$1.86billion</strong></td>
</tr>
<tr>
<td><strong>Priority action to increase energy access</strong></td>
<td>Financing of energy access projects.</td>
<td>TBD</td>
<td>Long term Concessionary Financing of energy access projects</td>
<td><strong>NEP= $765million</strong></td>
</tr>
</tbody>
</table>
| **Priority action for renewable energy development** | Project financing and local technical capacity | **African Development Bank:**  
- Jigawa Solar Park  
- Global Climate Finance Funding for 14 Solar projects  
- Sustainable Energy for All | Long term Concessionary Financing of projects and capacity building | TBD |
| **Priority action for energy efficiency and conservation** | Poor energy accountability and lack of appropriate energy efficiency technology. | TBD | Promotion of appropriate technology for energy efficiency and proper energy pricing | TBD |
Section 2

Regulatory & Investment Framework
Regulatory Organogram

II. Policy Priorities & Reforms

### Policy Priorities

- **Electric Power Sector Reform Act of 2005** – to institutionalize the legal frameworks for reforming the Nigerian Electricity Supply Industry (NESI) from the vertically integrated government owned entity to a privatized sustainable and competitive electricity Market that will attract private sector investments.

- **Rural Electrification Policy, 2009**

- **Roadmap for Power sector Reforms 2010**

- **National Renewable Energy and Energy Efficiency Policy, 2015** – seeks to increase the share of renewable energy in the total energy mix to 30% by 2030

- **National Energy Action Plan** within the framework of the Sustainable Energy for All (SE4ALL) 2016

### Recent Reforms

- **Privatization of 18 successor companies** of the unbundled government owned vertically integrated utility.

- Development and implementation of **Multi-Year Tariff Order** methodology for energy pricing.

- Declaration of **Transitional Electricity Market (TEM)** to initiate contract-based electricity trading in NESI.

- Declaration of **Eligible Customers status** for certain categories of customers.

- Issuance of **Mini Grid and FiT Regulations** to facilitate investments in off-grid power generation space.
Section 3

Sector Mobilization Strategy
## Focus Projects & Programs

<table>
<thead>
<tr>
<th>Project</th>
<th>Technology</th>
<th>Size (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATFP/Afam Power Plant, Rivers State</td>
<td>Thermal</td>
<td>240</td>
</tr>
<tr>
<td>Katsina Wind Farm</td>
<td>Wind</td>
<td>10</td>
</tr>
<tr>
<td>Gelegele, Edo State</td>
<td></td>
<td>106</td>
</tr>
<tr>
<td>Obotobo, Forcados, Delta State</td>
<td>Gas</td>
<td>50</td>
</tr>
<tr>
<td>Gurara II Hydropower Project</td>
<td>Hydro</td>
<td>360</td>
</tr>
<tr>
<td>Distribution Expansion Programme</td>
<td>Programme</td>
<td>2,000MW evacuation capacity</td>
</tr>
</tbody>
</table>
III. Aligned Interests – Working Better Together

**Government Perspective**
- Legal and Regulatory frameworks for private investment to thrive.
- Implement policies that promote investor confidence.
- Strengthen institutional framework and increase transparency.

**Private Sector Perspective**
- Availability of Investments opportunities.
- Conducive investment climate.
- Reasonable Incentives to support investments.

**Development Partner Perspective**
- Provision of focused Technical Assistance based on local needs.
- Facilitation of long term concessionary financing for projects development.
- Projects bankability and viability.

**Successful implementation of bankable projects to enhance socio-economic development of citizenry.**
### IV. Priority Sector Issues

*Top issues inhibiting greater private sector investment*

<table>
<thead>
<tr>
<th>No.</th>
<th>Most Pressing Issues/Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aggregate collections from consumers does not cover prudent operating costs of generators, transmission company, distribution companies and regulatory authorities due to a combination of infrastructure, operational, billing, human capacity, regulatory and tariff deficiencies.</td>
</tr>
<tr>
<td>2</td>
<td>Regulatory inconsistencies and weak regulatory enforcements</td>
</tr>
<tr>
<td>3</td>
<td>Technically poor state and low capacity of electricity infrastructure in the country</td>
</tr>
</tbody>
</table>
## Current Resources

<table>
<thead>
<tr>
<th>Institution</th>
<th>Resource(s) Type</th>
<th>Available Budget (m$)</th>
<th>Budget Timeline</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Loan</td>
<td>410</td>
<td>TBD</td>
<td>Funding for Transmission Expansion Projects to build 330kV and 132kV transmission lines and substations across the country.</td>
</tr>
<tr>
<td>World Bank</td>
<td>Loan</td>
<td>486</td>
<td>TBD</td>
<td>Funding for Nigerian Electricity Transmission Access Project to support rehabilitation and reinforcement of existing lines and substations.</td>
</tr>
<tr>
<td>JICA</td>
<td>Loan</td>
<td>200</td>
<td>TBD</td>
<td>Funding for Transmission Infrastructure Projects in Lagos and Ogun States to support construction of 330kV and 132kV transmission lines and substations.</td>
</tr>
<tr>
<td>AFD</td>
<td>Loan</td>
<td>170</td>
<td>TBD</td>
<td>Funding for Abuja Ring Scheme to support construction of 330kV and 132kV line and substations to reinforce and stabilize power supply in the Federal Capital Territory and environs.</td>
</tr>
<tr>
<td>AFD</td>
<td>Loan</td>
<td>272</td>
<td>TBD</td>
<td>Funding for Northern Corridor Transmission Project to support construction of new lines and reconstruction of some existing lines.</td>
</tr>
<tr>
<td>GIZ</td>
<td>Grant</td>
<td>25</td>
<td>2018 – 2020</td>
<td>Technical support towards development / integration of renewable energy into energy mix of the country</td>
</tr>
<tr>
<td>World Bank</td>
<td>Loan</td>
<td>300</td>
<td>2012 – 2018</td>
<td>Funding for Transmission infrastructure rehabilitation and expansion project to support rehabilitation and expansion of 330kV and 132kV substations rehabilitation and expansion.</td>
</tr>
</tbody>
</table>
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</thead>
<tbody>
<tr>
<td><strong>CENTRAL BANK OF NIGERIA</strong></td>
<td>Loan</td>
<td>1,200</td>
<td>TBD</td>
<td>CBN_NESI Stabilization Facility</td>
</tr>
<tr>
<td><strong>CENTRAL BANK OF NIGERIA</strong></td>
<td>Loan</td>
<td>2,300</td>
<td>TBD</td>
<td>Payment Assurance Facility to NBET</td>
</tr>
<tr>
<td><strong>WORLD BANK</strong></td>
<td>Loan</td>
<td>350</td>
<td>TBD</td>
<td>Rural Electrification facility to REA</td>
</tr>
</tbody>
</table>
### Closing the Gap

*Propositions to decrease the deficit between installed capacity and effective generation*

<table>
<thead>
<tr>
<th>No.</th>
<th>Issue</th>
<th>Propositions</th>
<th>Expected Costs (M$)</th>
</tr>
</thead>
</table>
| 1   | Transmission network wheeling capacity and reliability requirements | • Improving power evacuation capacity of transmission lines and substations  
• Provision of n-1 reliability requirements for transmission lines and substations  
• Expansions of the transmission grid to reach unserved and underserved areas  
• Rehabilitation and reinforcement of weak components of the transmission infrastructure | TBD                 |
| 2   | Power distribution capacity of Distribution Companies                | • Improving power distribution capacity of the Distribution Companies to deliver electricity to end-users.  
• Rehabilitation and reinforcement of distribution network to improve reliability and stability of supply to end-users.  
• Reduction in Aggregated Technical, Commercial and Collection Losses in the system to improve financial viability of the sector. | TBD                 |
| 3   | Gas supply availability and reliability to Generation Companies      | • Implementation of Nigerian Gas Master Plan  
• Guarantee security of Gas Pipelines against vandalism  
• Resolve Gas to Power pricing issues | TBD                 |
| 4   | Capacity recovery of inactive capacity                               | • Investment in generation companies towards recovery of inactive idle capacity in the power stations. | TBD                 |
| 5   | Energy accounting and revenue recovery of Distribution Companies    | • Massive deployment of energy meters to end-users in the Distribution Companies  
• Deploy revenue assurance systems and processes.  
• Enforcement of laws against electricity theft. | TBD                 |