14 – 15 May 2013, Cape Town, South Africa
Pre-conference workshops: 13 May 2013 | Site visits: 16 May 2013

13th ANNUAL

UNIVERSAL ACCESS TO ENERGY:
Ghana’s Rural Electrification – A Case Study

AFRICAN UTILITY WEEK
DELIVERING BEYOND TOMORROW

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PRESENTATION OUTLINE

• Overview of the Ghana
• Historical Background
• National Electrification Scheme
• Implementation Strategy & Schemes
• Managing Rural Electrification
• Financing Strategy
• Financing Sources
• Key Challenges
• Key Success Factors
• Way Forward
• Conclusion
Overview of Ghana

- **Land Area:** 238,500 km²
- **Population:** 24,658,823 (2010 Census)
- **Electricity Access:** 72% (2011)
- **Rural Access:** 45% (2011)
- **Consumption/Capita:** 443.3kwh (2012)
- **Av. GDP Growth Rate:** 9.2% (2012)

**Major Export:** Cocoa, Gold, Timber, Bauxite, Oil, Electricity (Togo, Benin & Burkina Faso)
HISTORICAL BACKGROUND

• **Rural Electrification** was initiated in Ghana in 1970

• **Objective** was to bring electrification to rural areas, as a means of reducing the urban-rural inequalities and increase economic activity in the rural areas

• About 70 communities benefited from the installation of diesel generating plants with corresponding distribution networks

• Beneficiary communities contributed about 1% of the capital cost.
Rural Electrification -

The National Electrification Scheme

• National Electrification Policy was instituted in 1989 to replace the 1970 policy.
• National electrification access was then about 25%.
• 46 out of the 110 district capitals existing then were connected to the grid.
• Less than 5% rural coverage estimated at the time.
• *National Electrification Levy* was instituted and the levies collected were paid into a *National Electrification Fund* established to support implementation of the rural electrification programme.
National Electrification Scheme (NES)

- **Goal**: of NES is to achieve universal access of reliable electricity supply to all communities over a 30-year period (1990-2020).

- **Aims**:
  - to enhance socio-economic development nationwide; and
  - to reduce level of poverty nationwide, particularly in the rural areas.
National Electrification Scheme – Specific Objectives

• Promote use of local and indigenous resources for a cost effective implementation of rural electrification.
• Create employment and increase productivity and wealth.
• Promote growth of agro-based & small scale industries.
• Reduce the rate of rural-urban migration.
• Improve information access and communication services nationwide.
• Improve the quality of life of rural folks.
National Electrification Scheme – Implementation Strategy

• Developed a comprehensive National Electrification Master Plan for 4,221 communities.
• All possible options of electrification to be considered including grid extension and off-grid renewable energy-based solutions such as biomass, solar, wind & small hydro.
• 69 grid-based electrification project packages identified and prioritized for implementation over six 5-year phases.
National Electrification Scheme – Implementation Strategy (Contd.)

• Connection of district capitals given first priority (64 district capitals in total) and completion of already ongoing projects - Phase One

• Subsequent phases prioritized based on: economic, political, traditional & historical factors:
  - potential for small-scale industry activity;
  - status as commercial market center;
  - tourism potential;
  - political dispensation; and
  - historical importance of area.
National Electrification Scheme – Self-Help Electrification Programme (SHEP)

• SHEP is complementary electrification programme instituted to support the main NES.
• Rationale: To accelerate the connection of communities to the national electricity grid.
• Introduced by government to encourage the self-help developmental initiatives of communities.
• Communities that initiate their township electrification projects receive government support for completion of the projects earlier than the scheduled date of connection under the NEMP.
SHEP
Criteria for joining SHEP

• Community must be within 20 km of an existing 11kV or 33kV network suitable for further extension.
• Community must procure and erect all the low voltage electricity poles required for the local network.
• Evidence of a minimum of one-third of houses in the community wired and ready to receive electricity.
• Community must apply to join SHEP thru its District Assembly.
Managing Rural Electrification

- Rural Electrification is Managed and Implemented by the Ministry of Energy
- Designed and Supervised by Local Consultants
- Constructed by Local and Foreign Contractors
- Co-supervised by Engineers of the beneficiary agencies which are the Distribution Utilities.
FINANCING STRATEGY

• Public Private Partnership Arrangements
• Multilateral & Bilateral Sources from Development Partners
• Public Sector – Budget & Concessional Loan Facilities for “Special” Infrastructure Programmes
• National Electrification Levy (Consumers)
• Internally Generated Funds from Power Sector Companies
Financing Sources

NES programmes are financed through a mixture of Local and External Sources.

<table>
<thead>
<tr>
<th>Funding Sources</th>
<th>Local Sources</th>
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<tbody>
<tr>
<td></td>
<td>• Consolidated funds,</td>
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<tr>
<td></td>
<td>• Levy on consumers of electricity,</td>
</tr>
<tr>
<td></td>
<td>• Contribution from electricity Utility Agencies,</td>
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<tr>
<td></td>
<td>• Local government sources (District Assemblies &amp; MP’s Common Fund)</td>
</tr>
<tr>
<td></td>
<td>• Communities and</td>
</tr>
<tr>
<td></td>
<td>• Suppliers Credit</td>
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</table>

<table>
<thead>
<tr>
<th>External Sources</th>
<th>• Grants</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>• Export Credits and</td>
</tr>
<tr>
<td></td>
<td>• Concessionary loans from Multilateral &amp; Bilateral Funding Agencies</td>
</tr>
<tr>
<td></td>
<td>• Suppliers Credit (Guarantee Eximbank)</td>
</tr>
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</table>
## Summary of Funding

<table>
<thead>
<tr>
<th>Source of Funding</th>
<th>Beneficiary Communities</th>
<th>Foreign USD (million)</th>
<th>Local USD (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilateral</td>
<td>1002</td>
<td>183.58</td>
<td>13.02</td>
</tr>
<tr>
<td>Multilateral</td>
<td>554</td>
<td>163.03</td>
<td>0.28</td>
</tr>
<tr>
<td>Government of Ghana</td>
<td>1,865</td>
<td>207.80</td>
<td>118.12</td>
</tr>
<tr>
<td>On-going</td>
<td>4,880</td>
<td>966.55</td>
<td>94</td>
</tr>
<tr>
<td>Renewable</td>
<td></td>
<td>28.75</td>
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KEY CHALLENGIES

• Poverty Level of the Rural People
• High Cost of Grid Extension to thinly Populated and Remote Areas.
• Lackluster Acceptability of Off-grid Systems
• Ownership, Management & Operations of Renewable Systems especially Mini-grid.
• Inadequate Funding—Government Budget Support – Inadequate & Unreliable; Low Level of Electrification Levy.
• Lack of Private Capital
• Lack of Commitment of the Utilities
Key Success Factors

- Political Will
- National Consensus and Policy Drive
- National Priority on Infrastructure Development
- Mix Technology Approach
- Governance Structure
- Funding
Key Success Factors  Cont…

• Implementation Plan and Execution
  – Prepare National Electrification Master Plan (NEMP)
  – Community involvement or participation is key
  – Execute in phases through acceptable criteria
  – Use as much as possible Local capacity - Consultants and Contractors.
WAY FORWARD

• Financing RE Projects is a daunting task for developing countries
• Government Policy towards Poverty Alleviation/Wealth Creation in Rural Areas must be pursued vigorously
• Rural Electrification Fund (REF) must be established
• Local Government, Communities and Consumers should contribute to the RE Fund (directly or indirectly)
• Private Investors should be encouraged to fund RE Projects
WAY FORWARD cont…

• The RE Levy should be made a percentage of Energy Consumption
• Government Budgetary Allocation should be adequate and released timely
• Development Partners should continue to assist RE with lesser conditionalities
• Planning for Electrification Access must be holistic to cater for the entire power value chain, to avoid Generation shortfalls and Transmission & Distribution Systems overloads.
• Hybrid Renewable Schemes should be considered.
• Grants & Micro-financing schemes can be instituted for Renewable Projects for Remote Areas
Conclusion

• Access to Electricity is essential for reducing urban-rural inequalities.

• It is a catalyst for improving socio-economic development of the people.

• Empowers them to create wealth and reduce their poverty levels.

• Ghana is on course to achieving universal access by 2016.

• The collaboration and commitment of government, development partners, local communities, private sector, utility agencies and consumers are crucial.
THANK YOU AND GOD BLESS YOU