



State of Rural Electrification in Ghana

By

Wisdom Ahiataku-Togobo
Ministry of Energy

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Institut de l'énergie et de l'environnement
de la Francophonie
IEPF



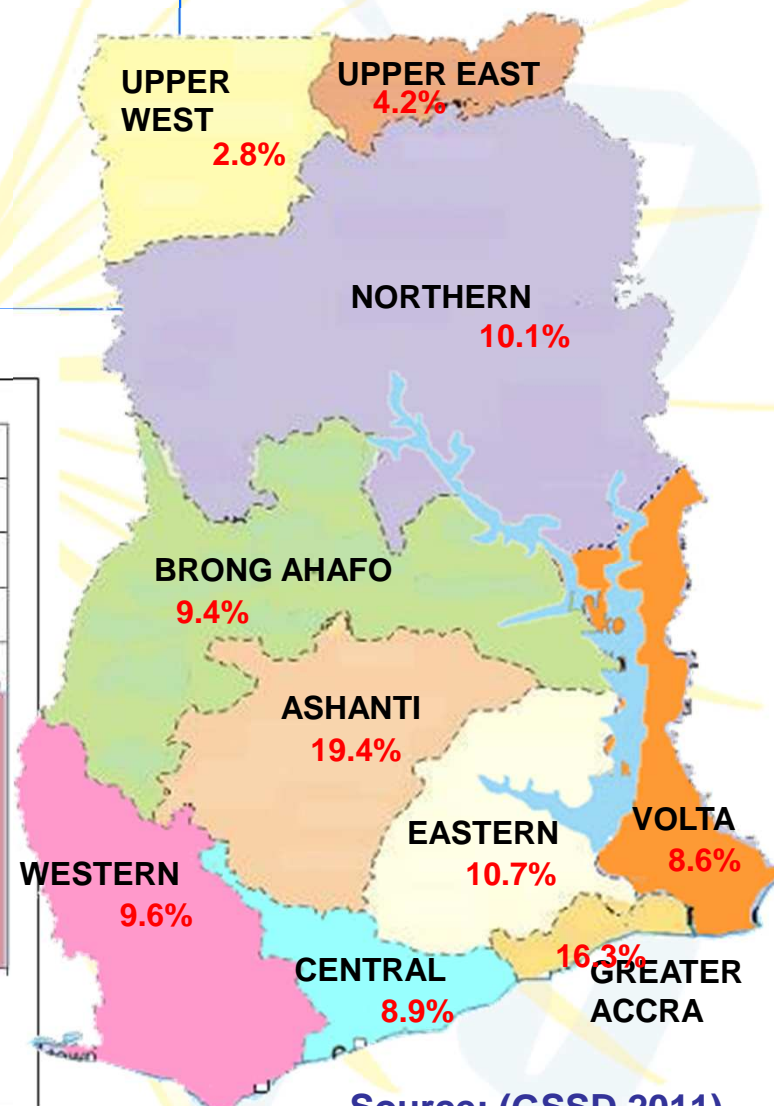
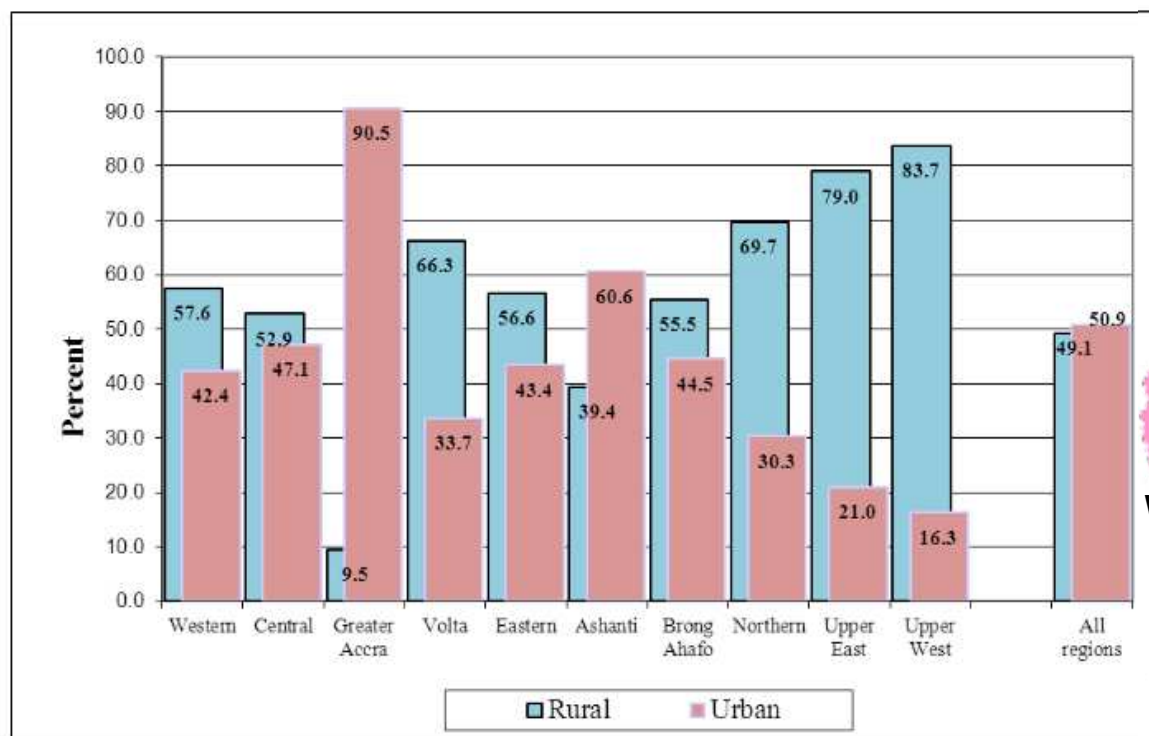


Population Data - Ghana



- Land Area: **238.5 km²**
- Population: **24,256,000 (2010)**
 - Urban: **50.9%**
 - Rural: **49.1%**

Figure 4: Population by type of locality (urban and rural)



Source: (GSSD 2011)



National Electrification Scheme



- National Electrification Planning Study (NEPS) was done by Acres International Ltd of Canada with Canadian Government grant in 1988/89;
- Master Plan outlined six 5-year implementation phases (1990 – 2020) - 30 years;
- In 1989 Government of Ghana endorsed the NES with overall goal of universal access by 2020.
- Implementation of NES commenced in 1990



Financing Energy Access



Funding Sources

Internal Sources

- Consolidated funds (GoG Budget)
- Levies on electricity & petroleum consumers (NES Levy)
- Contribution from electricity Utility Agencies,
- Local government sources (**District Assemblies & MP's Common Fund**)
- Communities and
- Local Content (**Industrial Players eg. Pole & Cable Manufacturers**)

External Sources

- Grants, Export Credits and
- Concessionary loans from Multilateral & Bilateral Funding Agencies
- Suppliers Credit (Guarantee Eximbank)





SHEP- Implementation Strategy

Stakeholders and Roles



Name	Role
Ministry of Finance	Procurement of foreign funds; Approval and release of budgeted local funds.
Ministry of Energy	Selection of communities, program planning, material assessment, costing, procurement, contract award, overall project supervision & monitoring, settlement of claims.
Communities	Provision of LV poles, application for connection & communal labour.
MP / District Assembly	Assist with provision of LV poles, <i>Lobbying (on behalf of communities).</i>



SHEP- Implementation Strategy

Stakeholders and Roles



Name	Roles
Distribution Company <i>(Project Engineer)</i> Network Operator	Network design, material specs and requirements validation, supervision, of works, and approval of claims. Operation & maintenance
Local Consultants <i>(Engineer's Representative on site)</i>	Pre-construction survey, site works supervision, material collation and endorsement of contractor's claims.
Local Contractors	Construction & installation works
Foreign suppliers & donors	Supply of off-shore materials & equipment through bilateral export credit facilities from foreign donors.

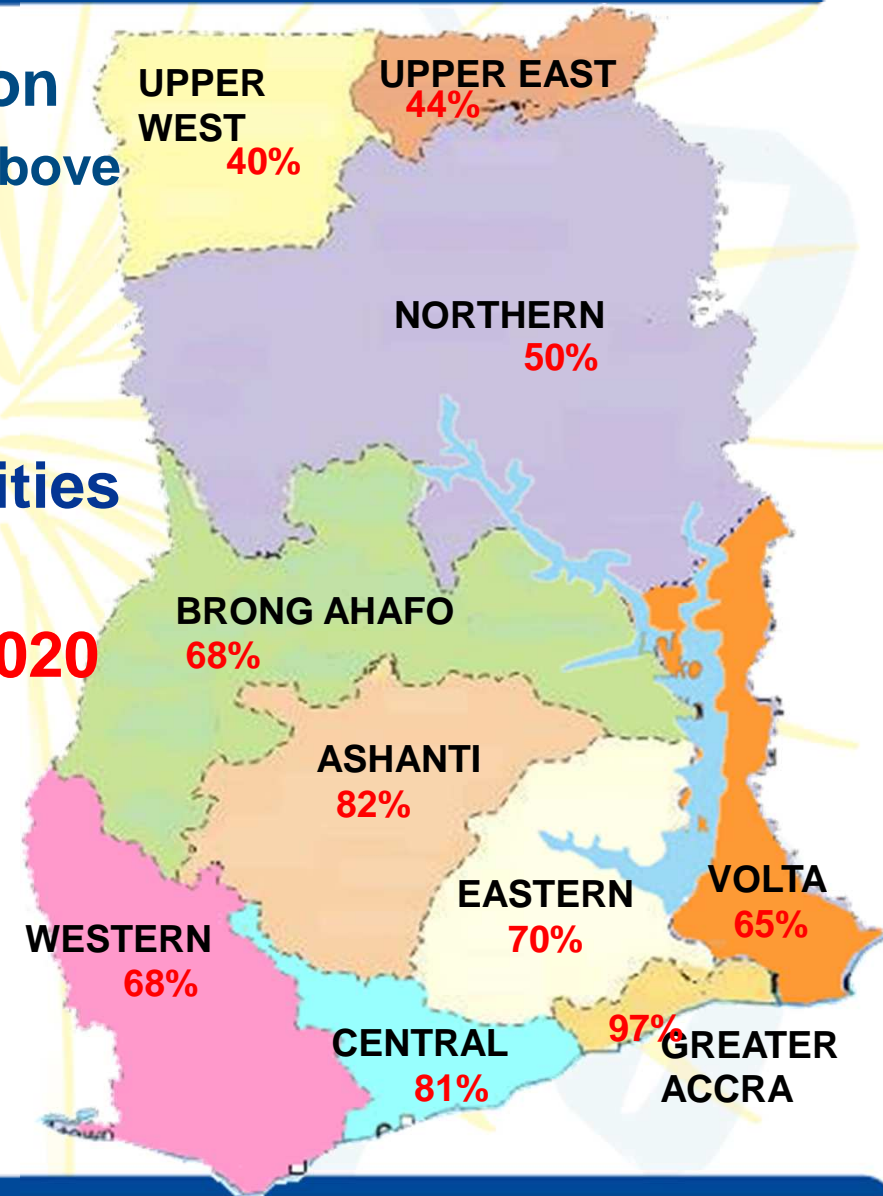


Electricity Access Trends



- **Baseline for rural Electrification**
 - Communities with populations above **500**
- **Only 478 communities had access**
- **Currently over 4,000 communities connected**
- **Target: Universal access by 2020**

	1990	2000	2010
Access (Population)	28%	43%	72%
Penetration (Households)	15%	39%	59%



ELECTRICITY SUPPLY INFRASTRUCTURE

Generation Sources

Hydropower

Akosombo – 1,020 MW
Kpong – 160 MW

Bui – 400 MW

Thermal Power

TAPCO (Takoradi I) – 330 MW
TICO (Takoradi II) – 220 MW
Mines Reserve Plant – 80 MW
VRA Tema – 126 MW

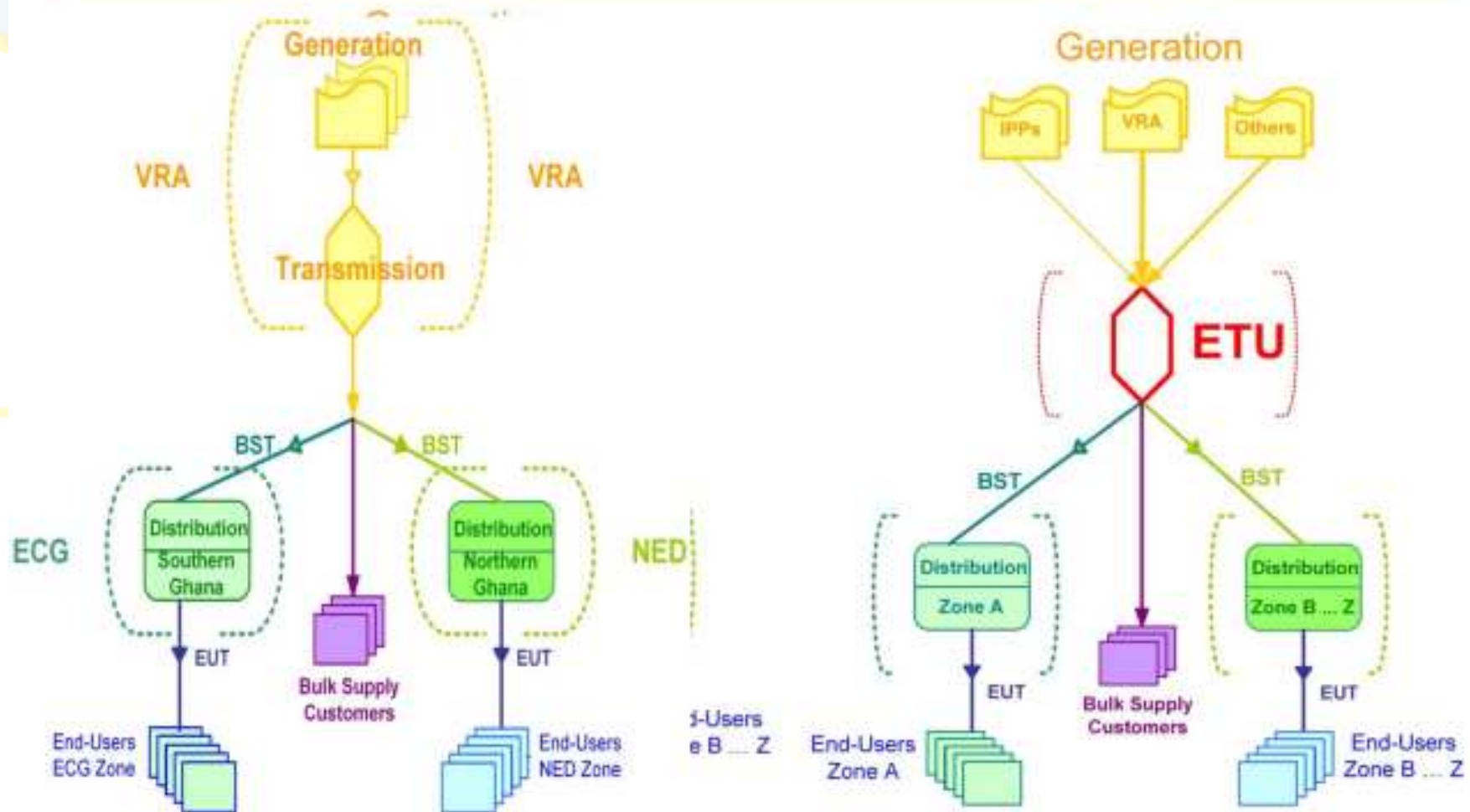
Osagyefo Barge – 125 MW
Tema 2 Plant – 49.5 MW
Kpone Thermal – 223.4 MW
Takoradi III Plant – 132 MW

Osonor Power – 126 MW
Asorgli Power – 200 MW

Electricity Supply Industry Structure

(a) Before Reforms

(b) After Reforms





ELECTRICITY CONSUMPTION



Year	ECG GWh	NEDCO GWh	TOTAL GWh
2000	2,910	239	3,149
2010	4,952	473	5,425

More than 90% of Electricity is consumed through ECG in the southern Sector

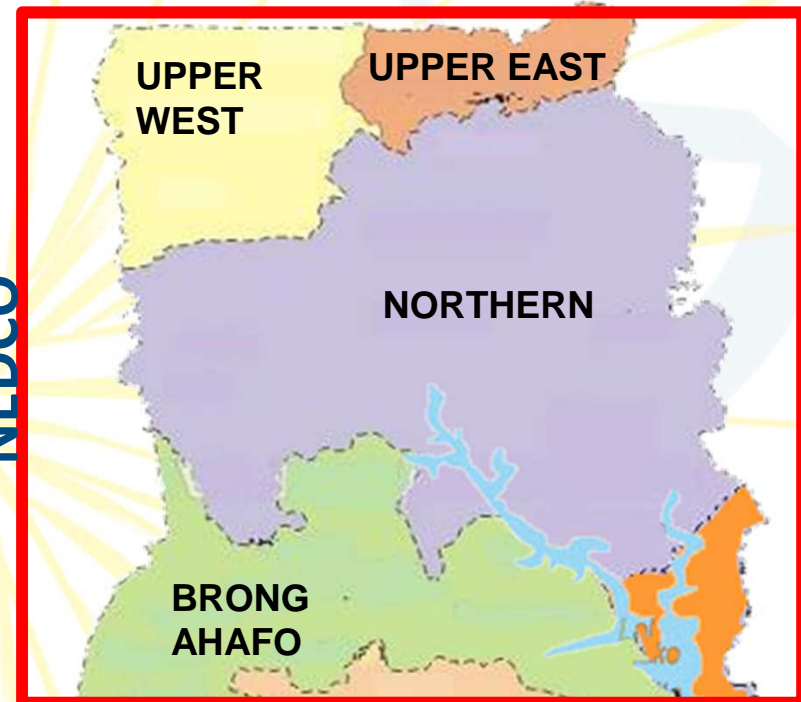
Residential - 39.9%

Non Residential – 10.2%

Industrial – 46%

Streetlights – 4.2%

NEDCO



ECG





Uniform Pricing Policy



ELECTRICITY TARIFF CATEGORY	GHp/KWh 2010	US cents/KWh (2010)
Residential		
0-50(Exclusive)	9.5	6.33
51-150	17.0	11.33
151-300	17.0	11.33
301-600	21.0	14.00
600+	23.0	15.33
Service Charge	150.0	100.00
Non-Residential		
0-300	26.0	17.33
301-600	29.0	19.33
600+	45.0	30.00
Service Charge* (GHp/mon)	250.0	166.67

Source: PURC



Industrial Tariff



	GHp/KWh	US cents/KWh
SLT-LV	2010	(2010)
Max. Demand (GHp/KvA/month)	1400.0	933.33
Energy Charge (GHp/kWh)	26.0	17.33
Service Charge (GHp/month)	1000.0	666.67
SLT-MV		
Max. Demand (GHp/kWa/month)	1400.0	933.33
	27.0	18.00
	1500.0	1,000.00
SLT-HV		
Max. Demand(GHp/kWh)	1400.0	933.33
	27.0	18.00
	1500.0	1,000.00



Role of Renewable Energy



- Enacted a Renewable Energy Law (Act 832) in Dec 2011 to provide the necessary fiscal incentives for renewable energy development by the private sector (IPP)
 - Legal and regulatory framework
 - Feed-in-Tariff
 - Obligatory purchase
 - Renewable Energy Fund
- Goal is to achieve 10% of modern RE in electricity generation by 2020



SENE DISTRICT





SOLAR HOME SYSTEMS



Over 6,300 solar systems supplied and installed since October 2009 in 11 Districts through loans and grant facilities (ARB Apex Bank/GEDAP).

*Renewable Energy -
Ministry of Energy*



Solar PV Systems for Remote Schools



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Solar Systems in Remote Health Facilities



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Community Charging Centre at Tomefa

Installed in Dec 2009 – Min. of Energy/JICA



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Ministry of Energy*

Solar Mobile Phone Charging Centre

October 2009



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Ministry of Energy*

GRID CONNECTED SOLAR PV SYSTEM



Energy Commission



**Presby Women Training
Center Abokobi**

750KW solar under Installation at Noguchi, Legon with grant support from JICA

10MW Solar installation under construction by VRA in northern Ghana with support from GoG and KFW

Ongoing feasibility studies for wind, biomass medium and small hydro power resource assessment.



Conclusion



- Ghana is committed to achieve universal access to electricity by 2020 through grid, mini-grid and off-grid options
- Policy framework and strategic plan is in place towards the attainment of this goal.
- Acknowledge contribution of Development Partners for their immense financial and technical supports to Ghana's rural electrification efforts
- JICA, DANIDA, World Bank, Dutch, SIDA, FINIDA, Indian Ex-Im Bank, US Ex-Im Bank, SIDA, South Africa, Spain, Germany, among others.

■ Thank you.