

STATUS OF RURAL ELECTRIFICATION SITUATION IN GHANA

Ing. Seth A. Mahu

Deputy Director, RE

Ministry of Power

Renewable & Alternative Energy Directorate

Seth.mahu@powermin.gov.gh/smagbeve@yahoo.com

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Rural Electrification Background

1. **National Electrification Scheme (NES) policy to extend the reach of reliable electricity supply to all parts of the country over a 30-year period from 1990 to 2020 launched in 1989.**

NES objectives:

- ✓ Increasing socio-economic development, create wealth & alleviate poverty, especially in the rural areas.
- ✓ Improve standard of living, especially in the rural areas.
- ✓ Trigger evolution of small-to-medium scale industries in rural areas.
- ✓ Create job opportunities in rural areas to curb rural-urban migration.

2. **Rural Electrification Master Plan developed on Rural Electrification Using Renewable Energy Resources in Ghana (2005)**

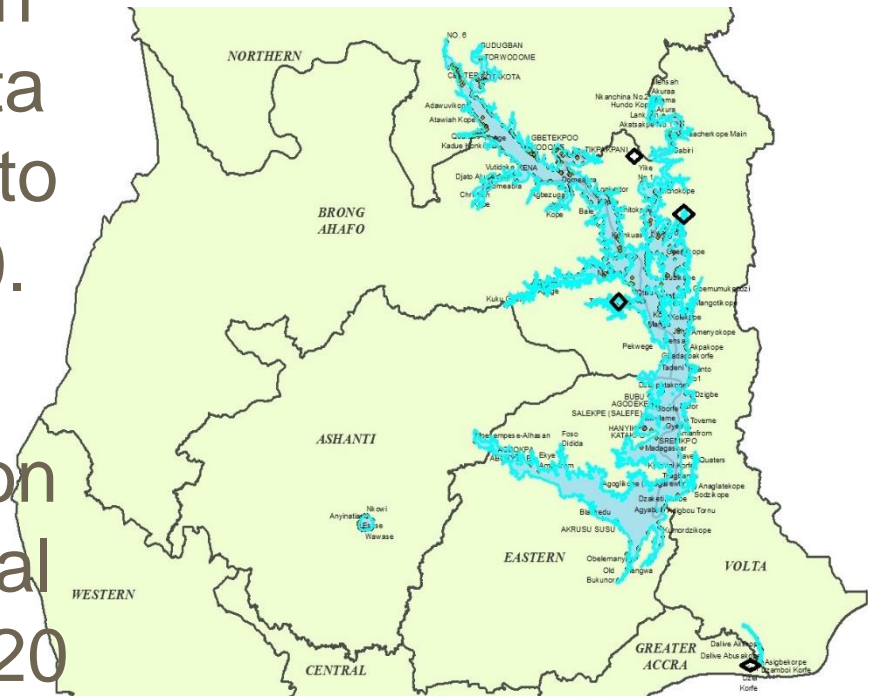
3. Strategy

- ✓ Grid Extension
- ✓ Off-grid RE Initiative (Stand Alone RE & Mini-grids)
- ✓ Self-help Electrification (SHEP 1, 2,3 & 4)
- ✓ Increasing generation capacity inclusive of utility-scale RE initiatives

RATIONAL FOR MINI-GRID IN GHANA

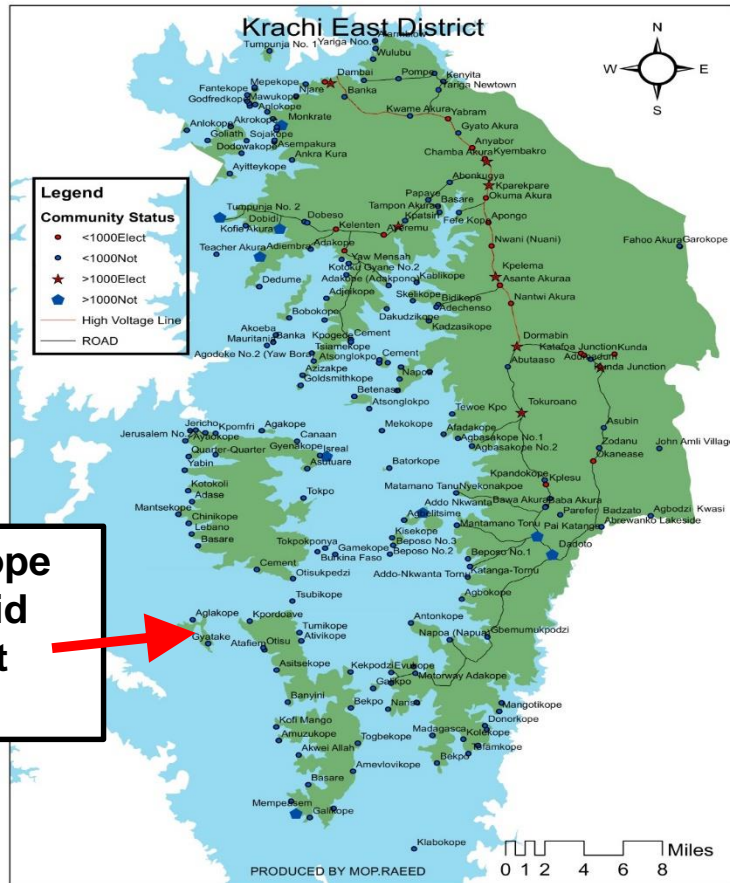
Over 200 islands and more than 2000 communities in 23 districts along the Volta lake not likely be hooked to the national grid by 2020.

and therefore require decentralized electrification options to achieve the goal of universal access by 2020

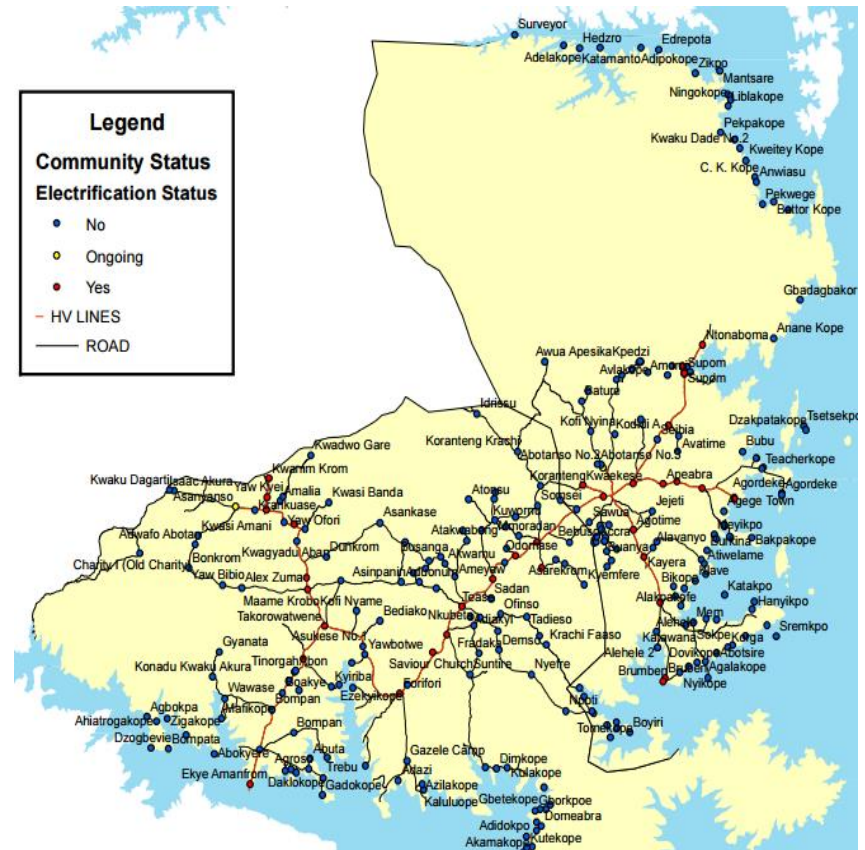


RATIONAL FOR MINI-GRID IN GHANA

Krachi East District

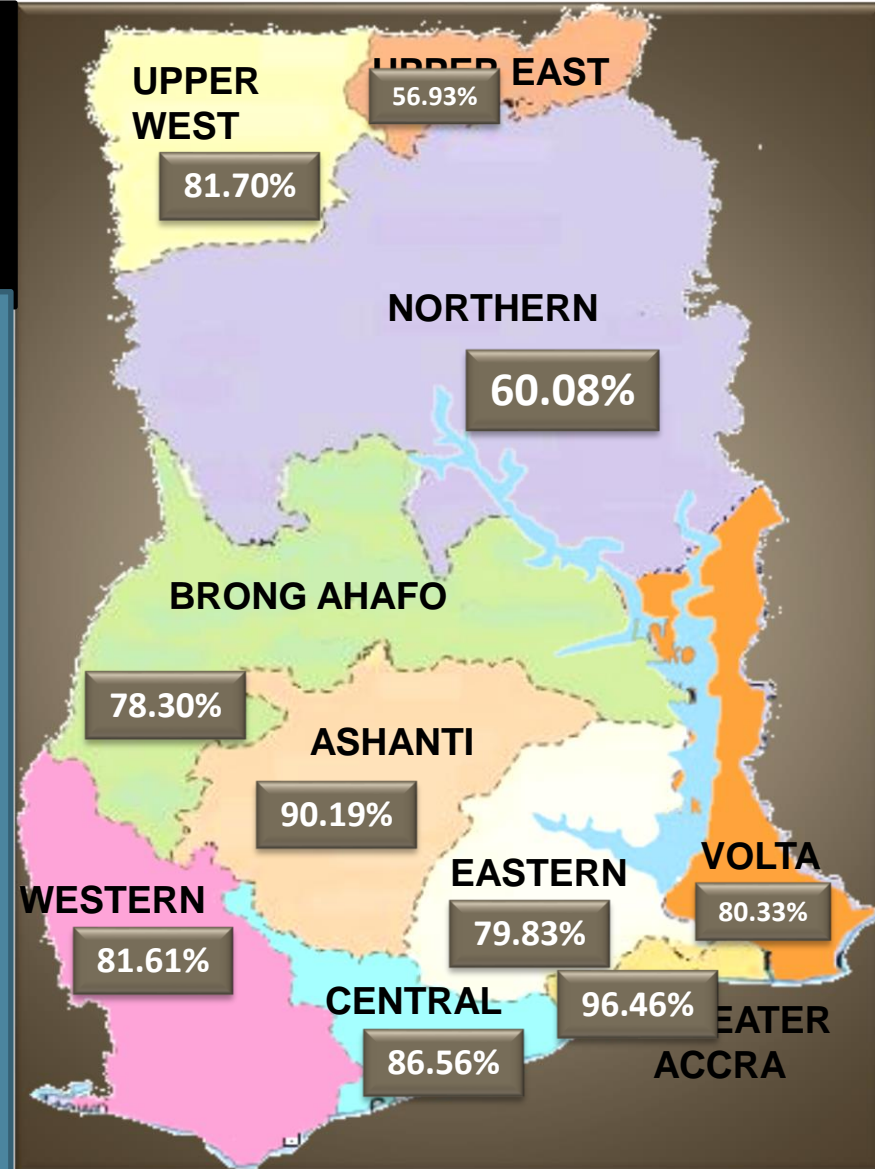


Afram Plains District



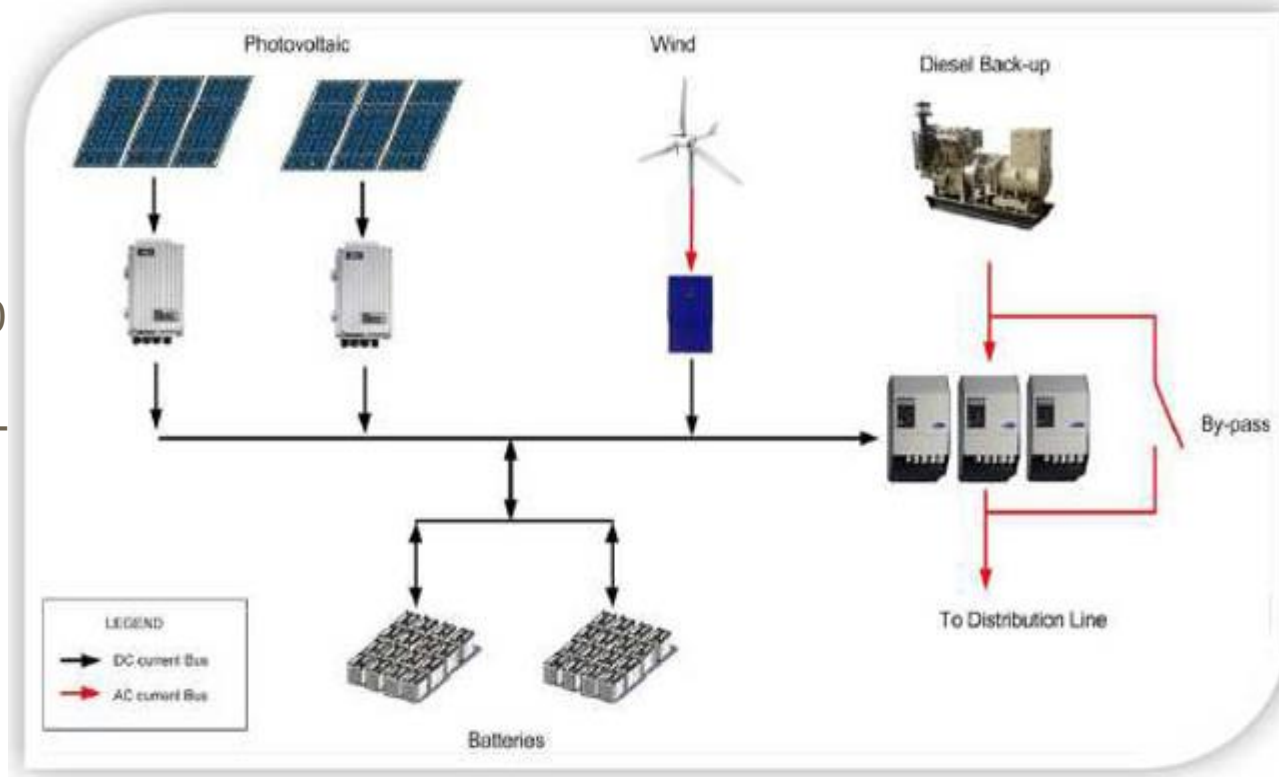
Status of Electrification

- ✓ **National access rate in June 2016 is 82.34% (23% at start of NES in 1990)**
- ✓ **Rural access stands at 42%**
- ✓ **Over 2,700 solar systems installed in clinics and basic schools in remote off-grid communities.**
- ✓ **A total 70,000 solar lanterns distributed with 70% subsidy to replace kerosene lanterns.**
- ✓ **Five (5) RE-based mini-grids installed and energised at the cost of US\$2.5m**
- ✓ **38MW (grid and off-grid) RE installed capacity realized**
- ✓ **GIS-based planning system developed to accelerate attainment of universal access target by 2020**



Pilot Mini – Grid Electrification Project

- Solar PV array
 - 25-54KWp
- Wind Generator
 - 2x5.5KWp
- Battery
 - 2Vx3,500/4,200 Ah
- Diesel/biofuel back-up generator
 - 30KVA
- Invertor
 - 6x48KVA





20MW Solar PV Plant At Mankoadze, CR



Mini-grid plant for Peditorkope

552 residential and non-residential connections

LED street/path lighting facility (30 per Community)

Off peak incentive scheme



Mini-grid plant & Dist. Networks for Kudorkope

Investments and Way Forward

- **Achieve Universal Access by 2020.**
- **\$230m Ghana SREP Investment Plan**
 - **4 projects under SREP**
 - ✓ 55 Mini-Grid & 38,000 SHS
 - ✓ 15,000 Net-metering
 - ✓ 20-30MW utility scale Solar/wind Project
 - ✓ Technical Assistance

Potential Projects	Capacity (MW)/Units	Status
Utility-scale wind	150-300	3 projects realized.
Utility-scale solar	100-250	22.5MW developed
Small-Medium HP	150-300	Feasibility studies completed for 108MW
Biomass & W2E	100	Biomass resource assessment underway
RE-Mini-grids	60	5 mini-grids developed
Solar lantern	2 million units	68,000 units distributed
Off-grid RE	40,000 units	Nearly 15,000 SHS installed
ICS	>100,000	Action plan in place with timelines

Investments and Way Forward

- SECO – Expressed Support installation of 3 Additional mini grids
- USAID – Support Mini-grid electrification of Afram Plains District
- General Electric (GE) – Mini-grid electrification in the PRU District

Financing Plans

Public Private Partnership Arrangements

Multilateral & Bilateral Sources from Development Partners

Public Sector – Budgets & Concessional Loan Facilities

National Electrification Levy (electricity consumers)

Renewable Energy Fund

Internally Generated Funds