Republic of Kenya

OFF GRID FORUM

Green Off-grid Solutions in Kenya

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Principal Secretary
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Norfolk Hotel, NAIROBI

Ministry of Energy and Petroleum

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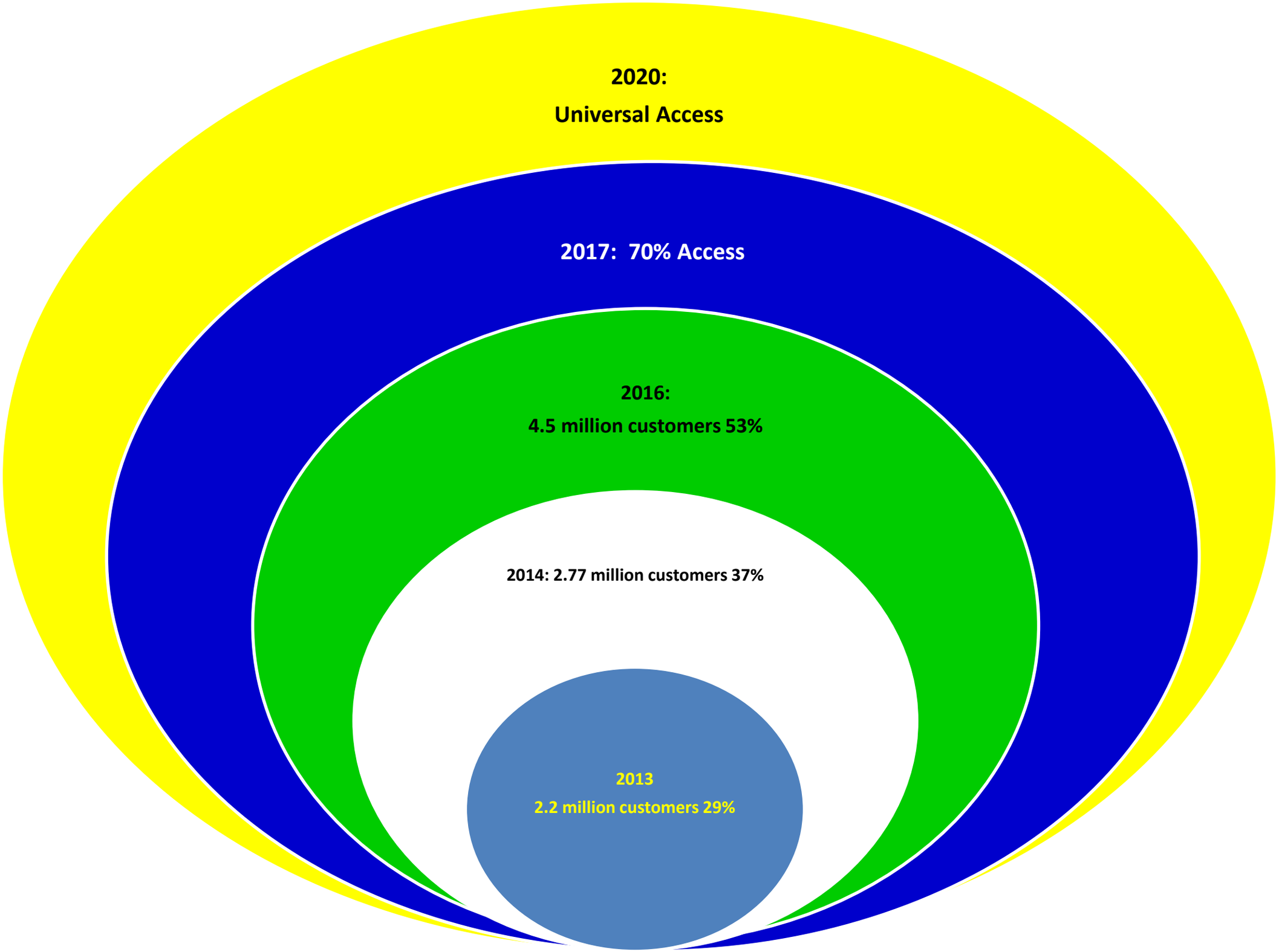
Summary of Key Programs

1. 5000MW Power Generation Program
2. Last Mile Connectivity Project & GPOBA
3. Electrification of Public Institutions & Transformers for Constituencies
4. National Public Street Lighting Project
5. National & Regional Transmission Lines
6. Expansion & Devolution of the National Pipeline Network
7. LPG Project
8. Early Monetization of Crude Oil & Pipeline Development

ELECTRICITY ACCESS GROWTH



ELECTRICITY ACCESS STRATEGIES

Last Mile Connectivity:

Phase 1- Those near transformers

Phase 2 – Increasing the transformers

Phase 3 – Reaching off grid areas

Off-grid Solutions:

- Mini-grids- with hybrid solar/wind
- Solar Home Systems
- Solar Lanterns

Global Partnership Output Based Aid (GPOBA) – Targeting highly populated settlements e.g Kibera 1.9 Million Kenyans to benefit across all 47 counties.

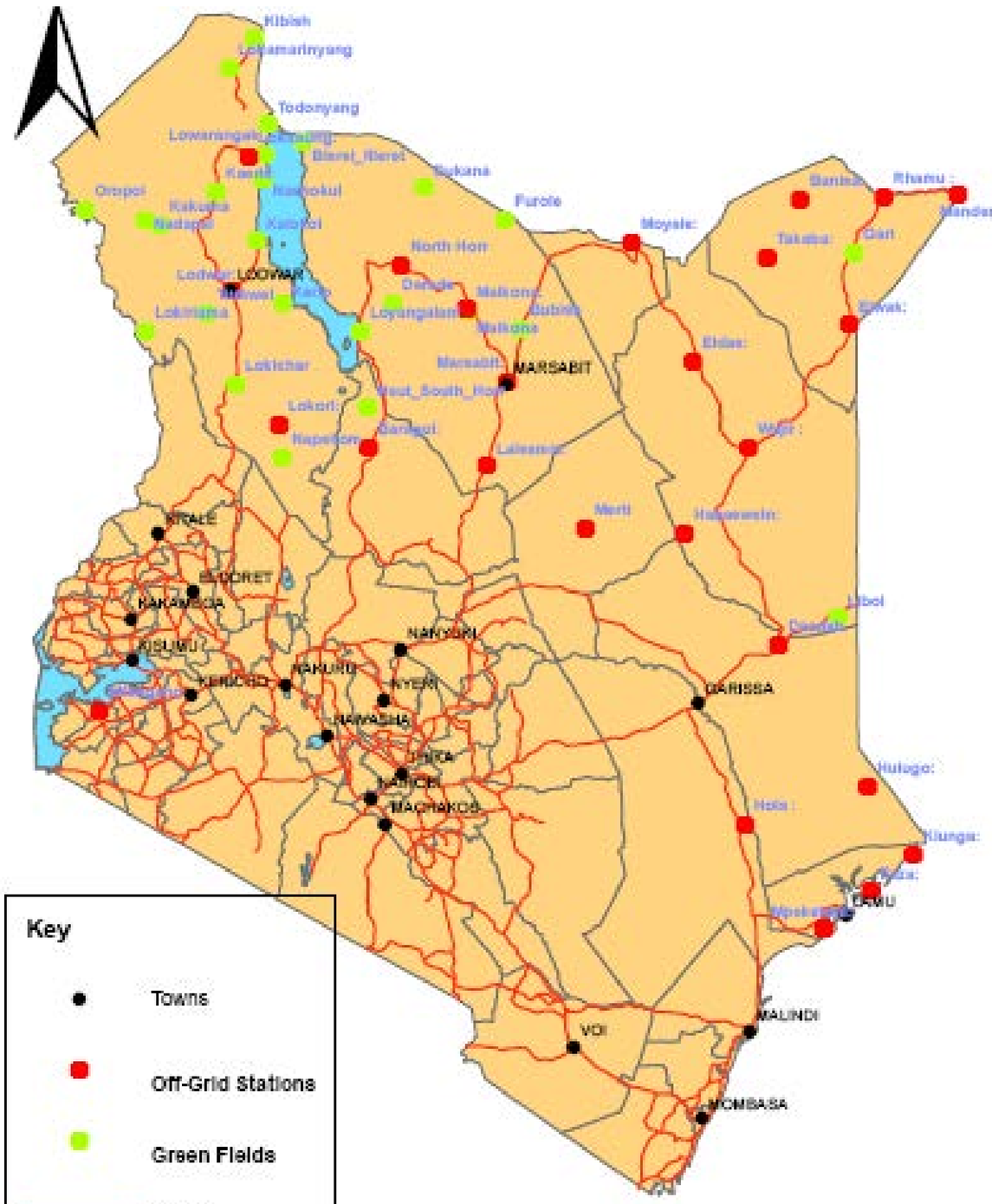
Transformers for every constituency – aimed at supporting and fast-tracking the connectivity programs

OFF-GRID

Introduction

- Currently there are 21 public operational mini grids
  - 19 owned by REA and operated by KPLC
  - 2 Large ones managed by KenGen, i.e Lamu and Garissa, both recently connected to the National Grid
- All these are diesel based but nine have been retrofitted with Renewable Energy
- Total Installed Capacity is 24.86MW
  - Thermal- 23.7
  - Solar- 0.610 MW
  - Wind – 0.55 MW
- Others being developed by Rural Electrification Authority

Electricity Grid Coverage and Mini Grids



Author: Chepkwony/Nderitu
Source: Renewable Energy
Year: February, 2013

Hybrid Mini Grids

- Operational Expenditure for mini-grids are generally high - funded through cross-subsidy i.e. uniform tariff policy
- Fuel costs account for approximately 80% of the thermal generation costs thus the need for hybridization
- Commenced installing solar/wind hybrid systems at off-grid power stations
- Solar hybrids at Mandera (300KW), Lodwar and Hola (60kW each), Elwak , Takaba and Rhamu(50kW each) Merti (10kW),
- Wind hybrids at Marsabit(500kW)
- Solar/Wind hybrid at Habaswein (50kW wind, 30kW solar)
- Currently we save USD 1,000,000 annually from installed RE capacity of 1.16MW

Other Off-grid Solutions

- Small energy centres, kiosks, lanterns are embraced by the rural people
- Kenyans adopt new technology very fast as demonstrated by MPESA (mobile money transfer)
- Those with diesel generators are early adopters
- It is a better alternative to kerosene use

Future Plans

- To do more, with funds from GoK, AFD, World Bank, Nordic Development Fund(NDF), DFID, KfW, GIZ and other Development partners
- AFD supporting retrofitting of all current government mini grids to the tune of Euros 30 m
- Planned capacity range from 60 – 2,000kW
- NDF supporting retrofitting of 2 stations
- 44 additional green field mini grids mapped-to be developed either by public sector or by private sector

Private Sector Participation

- Kenya keen to facilitate energy provision through mini-grids and other off-grid solutions through the private sector
- Already, solar lanterns largely done on market basis
- Ministry to ensure favourable policy and business climate for private sector to function- removal of any barriers, tax regime, quality control, awareness

Studies

- Ministry to ensure favourable policy environment within which mini-grid development can take place.
- The Ministry has commissioned a consultant to develop a framework for mini-grid development, consolidating existing frameworks into a clear, single framework that will guide all stakeholders in the way forward for mini-grid development.
- The Ministry is also commissioning a consultant to undertake pre-feasibility studies of around 30 different sites for mini-grids. These studies will identify optimal energy solutions for the populations, including costs and technologies, as well as approaches for procurement of operators.

Some Issues to Focus on in your Deliberations...

- Tariffs- since power generated at Off-grid is normally more costly than grid power
- Access to Financing- for service providers and consumers
- What Happens when the grid arrives to a mini-grid
- Consumer protection(standards) and awareness
- Regulation of mini-grids

Conclusion

- *Favourable policy and regulatory frameworks for energy provision*
- *GoK is committed to increasing access to modern energy, and will use Renewable Energy solutions as much as possible*
- *Development partners and the Private Sector are key partners in energy provision, and as such are Encouraged and Facilitated to participate in energy sector in Kenya*

THANK YOU …