



International Support Network for African Development (ISNAD-Africa)

...raising global and multi-stakeholder support for clean energy transition and climate resilience in Africa

Renewables in Nigeria

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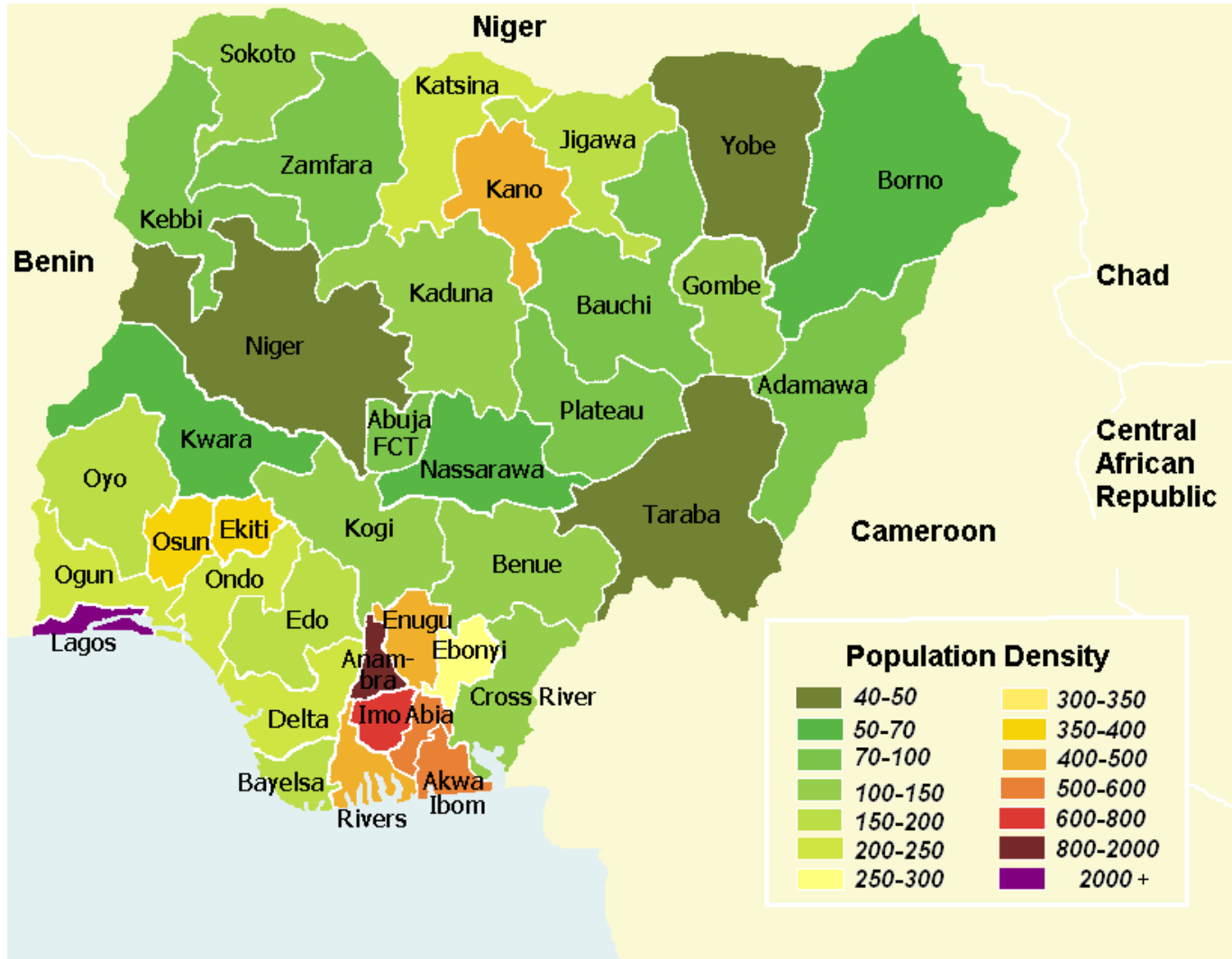
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ISNAD-Africa.....sustainable energy, environmental sustainability, and climate resilience

Nigeria Electricity Market



Population: **194,273,106** (UN estimate, 2018)

Energy Need: **31,240 MW** (2015) – ECN

Installed Capacity: 12,000MW

Available Capacity: 7,000 MW

On-Grid: **~5,000MW**

31, 240MW

Electricity Access (national) : 54%

Electricity Access (Rural): 28%

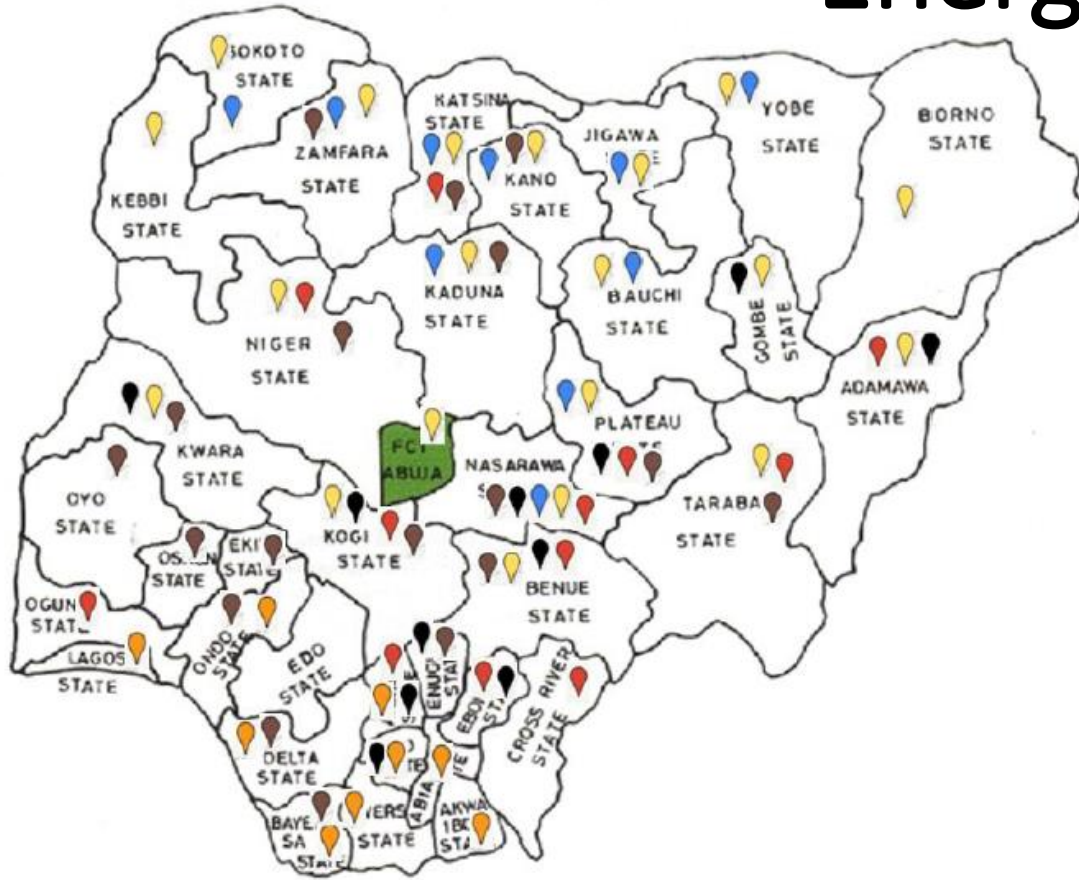
i.e. **73 Million** (Rural) + **17million** (Urban)

Reliability: 6hours/day

Use of private Generators – high cost, Noisy
(climate change issues)

~5,000MW

Energy Resources



S/N	RESOURCE	POTENTIAL
1	Solar (4 – 8 hours/day)	3.5 – 7.0kW/m/day
2	Hydropower Large Small	11,500MW 734MW
3	Wind	2 – 6m/s @ 10m height
4	Biomass	61 million tons per year

Gas	Small Hydro	Coal
Solar	Wind	Large Hydro

Targets

Renewable Energy Targets

(based on the energy requirements for attainment of the Vision 20:2020)

(i) Renewable Electricity Supply Projection in MW (13% GDP Growth Rate)*

S/N	Resource	Now	Short Term	Medium Term	Long Term
1	Hydro (LHP)	1938	4,000	9,000	11,250
2	Hydro (SHP)	60.18	100	760	3,500
3	Solar PV	15.0	300	4,000	30,005
4	Solar Thermal	-	300	2,136	18,127
5	Biomass	-	5	30	100
6	Wind	10.0	23	40	50
	All Renewables	1985.18	4,628	15,966	63,032
	All Energy Resources	8,700	47,490	88,698	315,158

	(Installed capacity 2012)			
% of Renewables	23%	10%	18%	20%
% RE Less LHP	0.8%	1.3%	8%	16%

*From Supply Projections based on 13% GDP growth

Source: National renewable energy and energy efficiency policy (NREEEP) Draft

Term: Short: 2013-2015 Medium: 2016-2020 Long: 2021-2030

Source: REMP (2012), NREEEP (2014)

Solar Energy Targets

(based on the energy requirements for attainment of the Vision 20:2020)

(i) Electricity

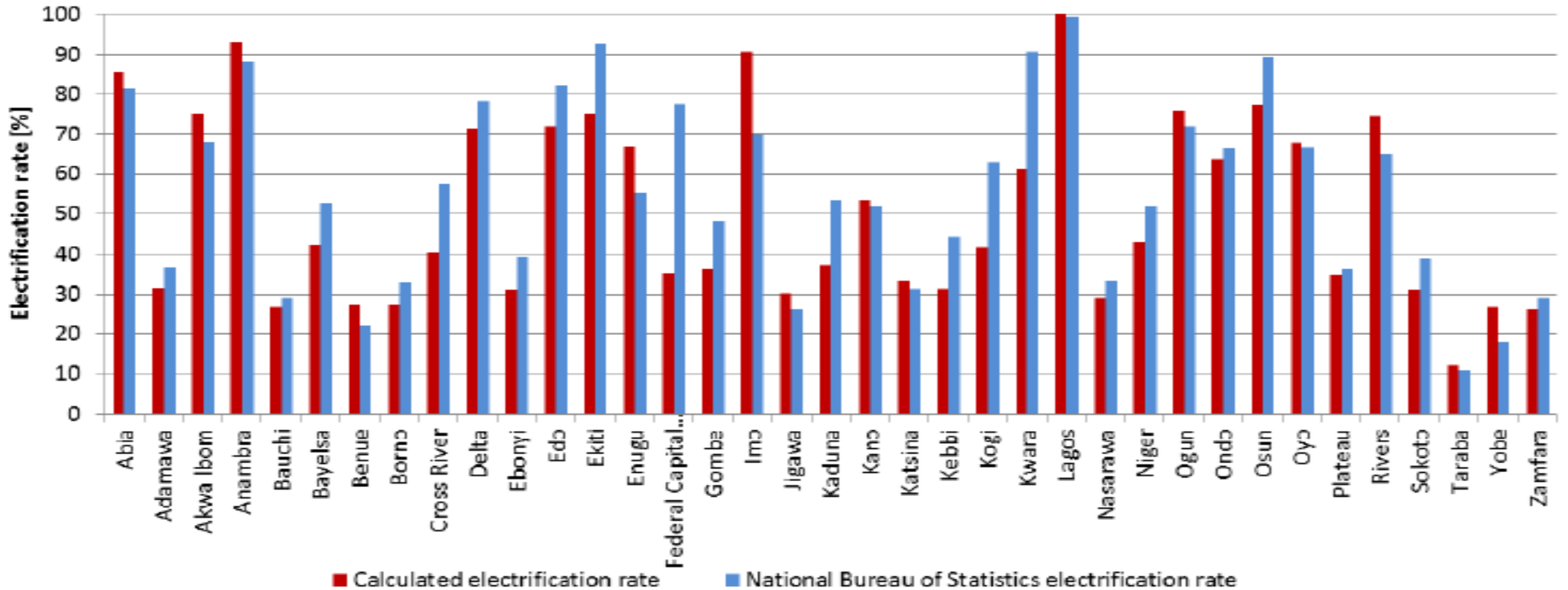
S/N	Activity/Item	Timeline/Quantity		
		Short Term	Medium Term	Long Term
1	Solar PV Home Systems (SHS) (MW)	5	10	15
2	Solar PV Water Pumping (MW)	50	1,000	5,000
3	Solar PV Community Services (MW)	45	500	3,000
4	Solar PV Refrigerators (MW)	20	500	2,000
5	Solar PV Street and Traffic Lighting (MW)	100	1,000	10,000
6	Solar PV Large Scale PV plants (1MW capacity)	80	990	9,990
7	Solar Thermal Electricity (1MW capacity)	300	2,136	18,127
	Total (MW)	600	6,136	48,132

(ii) Thermal

S/N	Activity/Item	Timeline/Quantity		
		Short Term	Medium Term	Long Term
1	Solar Water Heaters (No.)	4,000	60,000	150,000
2	Solar Cookers (No.)	2,000	50,000	150,000
3	Solar Dryers (No.)	150	2,000	6,000
4	Solar Stills (No.)	100	3,000	2,000
5	Solar Pasteurizers (No.)	300	4,000	10,000

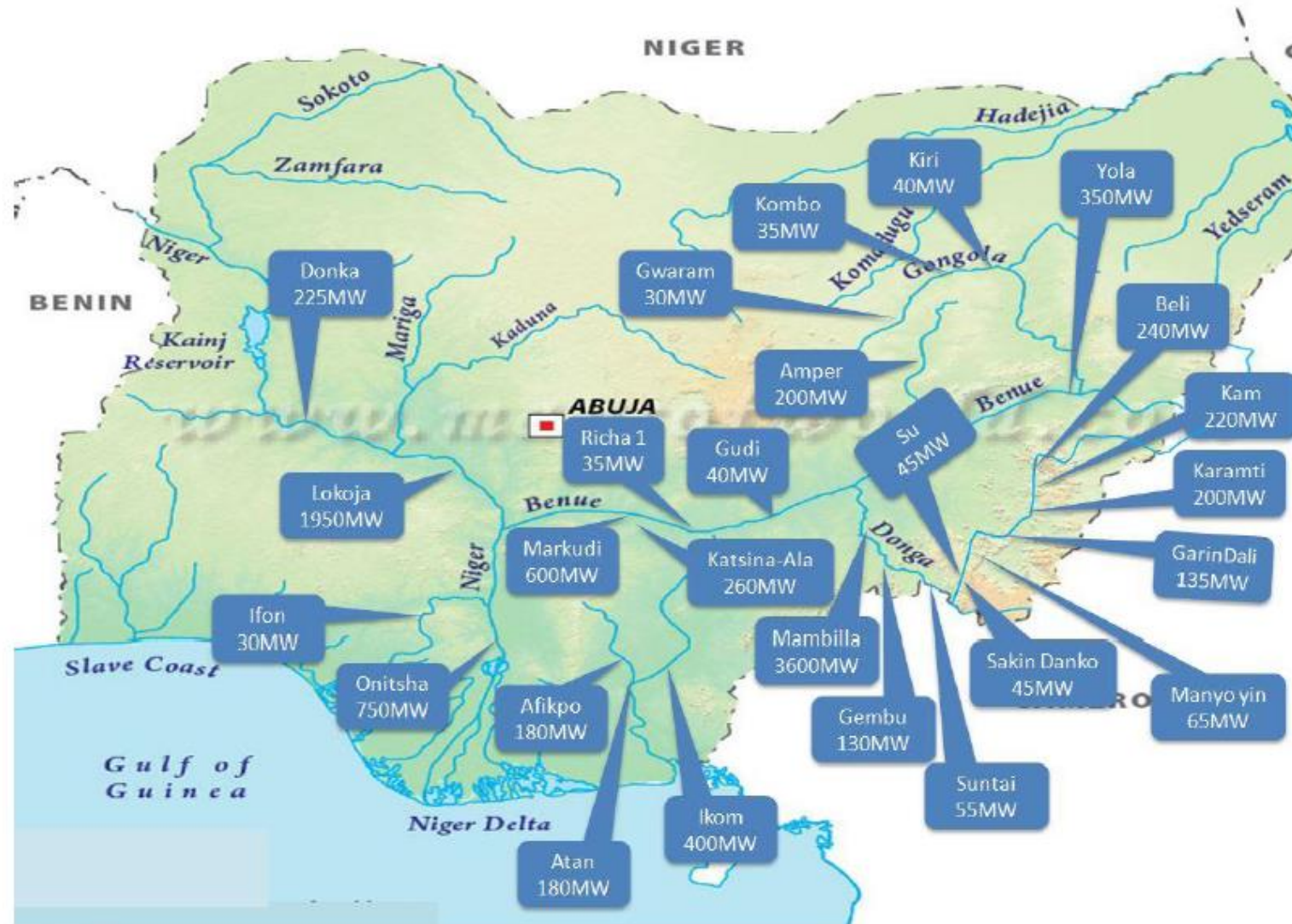
Total PV installed capacity: 1MW (2010)- Sambo (2010); 15MW in 2013 (REMP, 2012) and 28MW in 2015 (ODI et al, 2016)

Electrification Rate

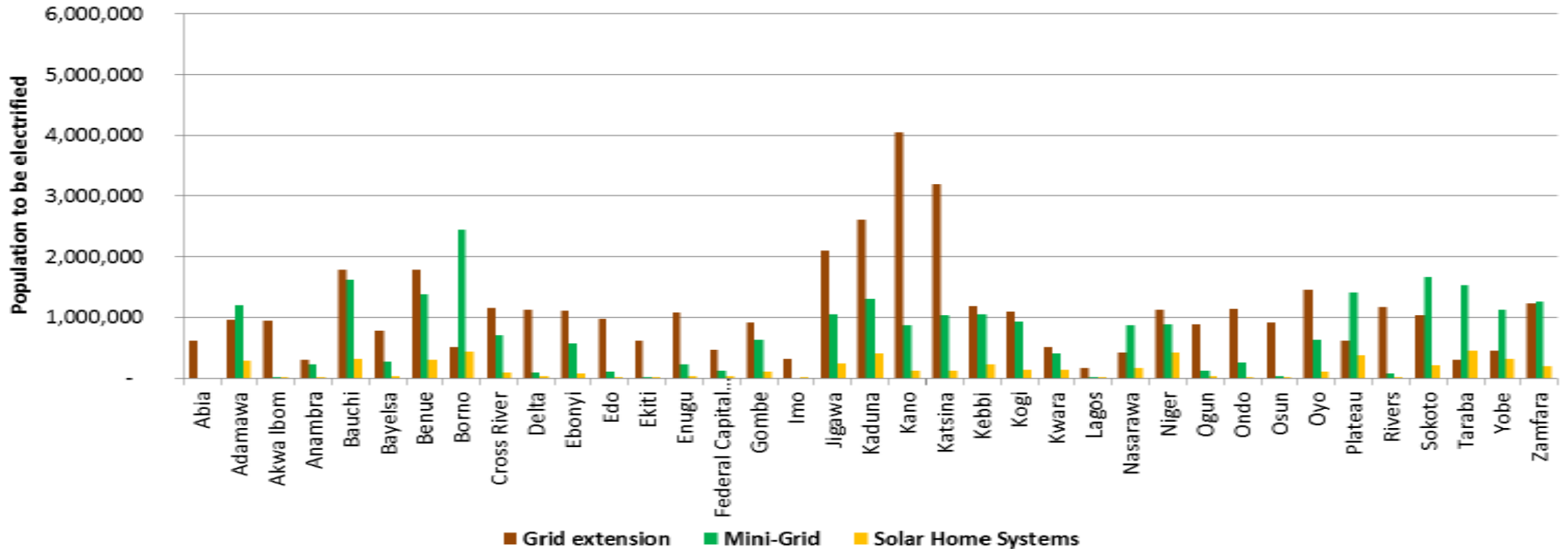


- Solar for instance works everywhere in Nigeria
 - More than 60 percent of the states are below 50% electrification rate
 - Reliability (6hours per day)
- Market – Effective Demand**

Identified Potential: Hydropower



Renewables: More than a Need!



- Solar: Mini-grid (8,000 identified sites)
- Mini – Grid: Energy Access for Productive Use

Business Case

- Solar Home System: Pay-as-You Go (Lots of Companies yet insufficient)
 - Residential and Businesses
 - Urban and Rural
 - MTN Lumos, Asteven, GVE Projects, Rubitec, BlueCamel, etc
 - Import Tax free and rebate for Organisations (NREEEP, 2014)
 - Support for Local Investors: up to 50% grants (Local Investors)
- Mini – Grid: Rural (Productive use)
 - GIZ NESP
 - Over 8,000 Identified sites
 - De-risking the sector (**New regulation**)

Mini- Grid Regulation (Effective: 2017): De – Risking

- Aimed at incentivize and simplify market entrance by Industry stakeholders
- Rural Electrification: Attract private sector investment
- Covers Licensing, Tariff and technical standards, effective **May, 2017**

Permit Holders	Registered
Less than 100kW (Voluntary) 100kW – 1MW (Mandatory)	Less than 100kW
Technical Codes and Standards	Not enforced
Compensation due to Extension (Tripartite Agreement)	No compensation
Approved by NERC but not nationally determined	Based on agreement between operator and 60% of customers in the community. But submitted for NERC records

- Permit Ready in 30days - Ease of doing business executive order

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Africa is too rich to be poor!.....We choose to Act!

*Thank
you*



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