



# **TOWARDS THE TRANSFORMATION AGENDA:**

## **PROGRESS REPORT ON PROJECTS & PROGRAMMES**

**ENERGY COMMISSION OF NIGERIA**  
*(Promoting Sustainable Energy Development In Nigeria)*

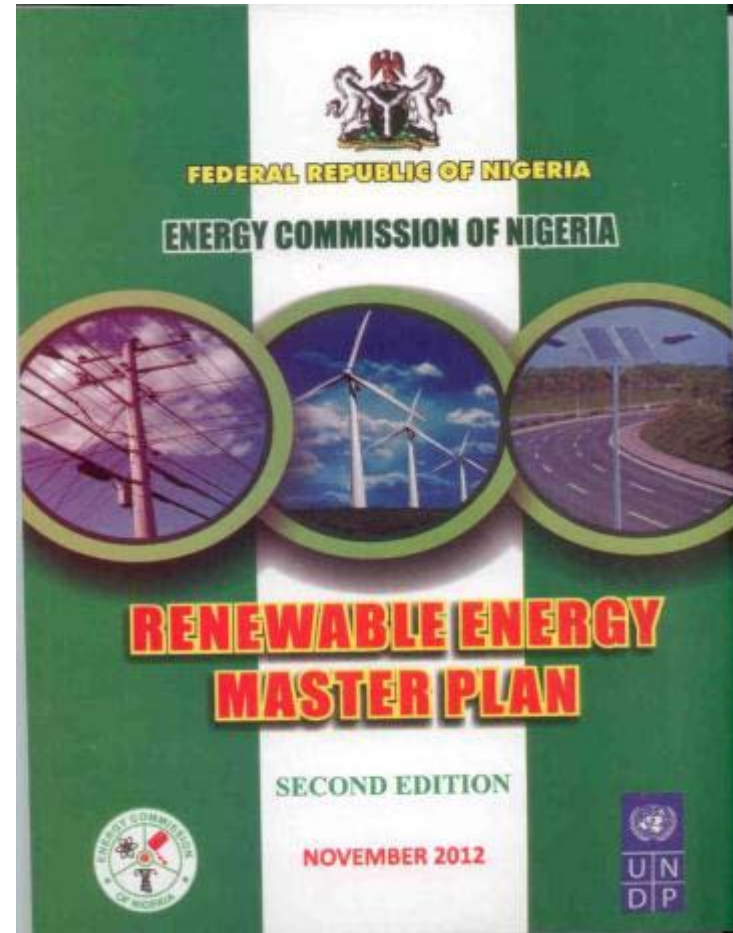
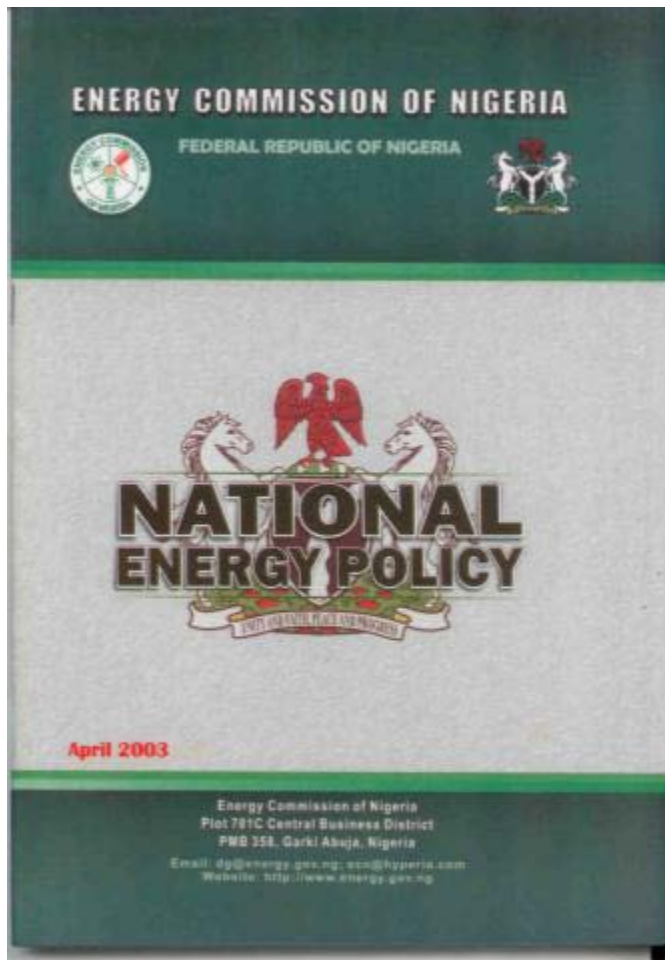
**2011 - 2013**

# SCOPE OF ACHIEVEMENTS

- Solar PV Mini-Grids and Wind Electricity:
  - For Lighting
  - For Ventilation
  - For Vaccine Storage
  - For Driving ICT
- Solar PV streetlight:
  - For Improved Security at Night
  - For Improved Social and Economic Activities at Night
  - For Enhanced Learning at Night
- Solar PV-powered water boreholes:
  - For Clean Drinking Water and Sanitation
  - For Improved Standard of Living
- Energy Policy & Masterplan Review
  - For attracting investment
  - For protecting investment
  - For providing direction
  - For sustainable energy development
- Infrastructural Development
  - For supporting energy institutions
  - For research & manpower development facilities
- Bio-Mass
  - For Alternative Clean Fuel for Heating and Cooking
  - For Waste Management

## SCOPE OF ACHIEVEMENTS CONT'D

- Energy Efficiency & Conservation:
  - For Energy Saving
  - For Reduced GHG emission
  - For Reducing Energy Demand
- Capacity Building of Youths on Energy Technologies
  - For job creation
  - For economic emancipation of Nigerians
  - For self reliance of Nigeria
- Solar Thermal Energy
  - Food Processing and Preservation
  - Warm Water Provision for Health Care
- Continuous Liaison with Foreign Organisations
  - For Technology Transfer
  - For Capacity Building
  - For Collaborative and Sustainable Development



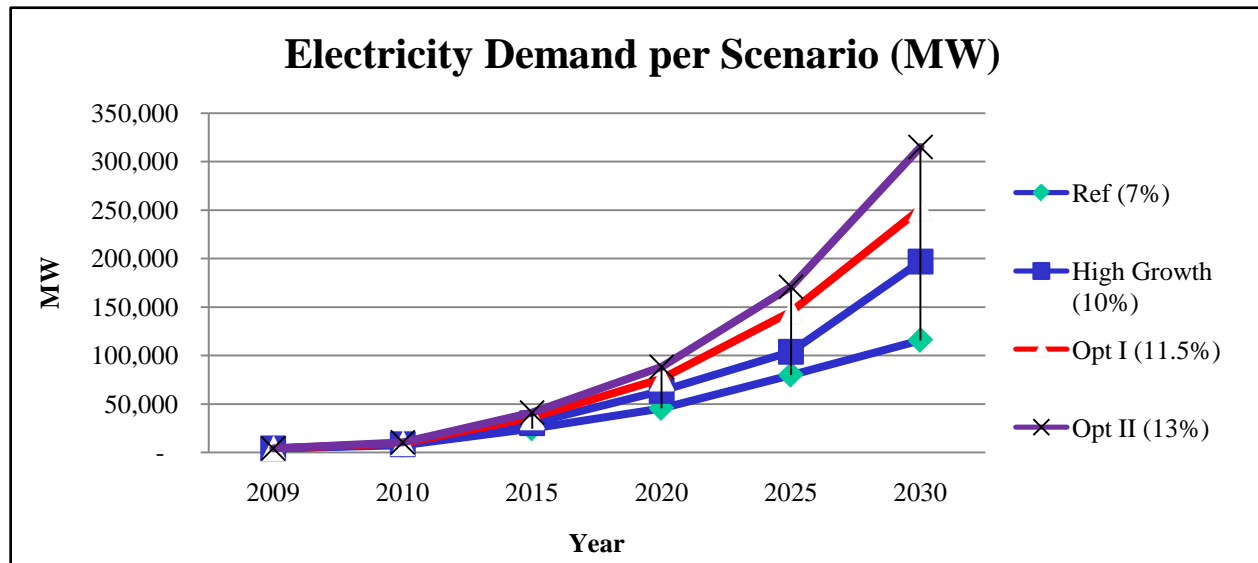
## Review Of The National Energy Policy (August 2013) And The Renewable Energy Masterplan (March 2013)

# Energy Demand and Supply Projections for Nigeria

## Electricity Demand Projections Per Scenario, MW

	2009	2010	2015	2020	2025	2030
			24380	45490		
Ref (7%)	4,052	7440	(14,000)*	(40,000)**	79798	115674
High Growth (10%)	4,052	8420	30236	63363	103859	196875
Opt I (11.5%)	4,052	9400	36124	76124	145113	251224
Opt II (13%)	4,052	10230	41133	88282	170901	315113

\* Power Roadmap Target (PRMT) by 2014 \*\* PRMT by 2020



# Energy Demand and Supply Projections for Nigeria .... contd

## Projected Electricity Supply by Fuel Type Based on 7% Economic Growth Rate (MW)

	2009	2010	2015	2020	2025	2030
Coal	0			3000	4000	5000
Electricity import	0					
Gas	3803	4976.65	19760.5	31319	53636	74230
Hydro	1930	1930	1930	7400	9950	9950
Nuclear	0	0	0	0	1500	4340
Small hydro	20	20	105	200	600	2000
Solar	0	490.35	2543.5	3500	10000	20000
Wind	0	23	36	41	47	54
Biomass	0	0	5	30	65	100
Total supply	5753	7440	24380	45490	79798	115674

# Energy Demand and Supply Projections for Nigeria.... . contd

## Projected Electricity Supply by Fuel Type Based on 10% Economic Growth Rate (MW)

	2009	2010	2015	2020	2025	2030
Coal	0	0	0	3352.98	6000	8000
Electricity import	0	0	0	0	0	40000
Gas	3803	6936.65	29277.5	57793.02	110269	161938
Hydro	1930	1930	4157	11207	12132	12132
Nuclear	0	0	0	0	6000	7000
Small hydro	20	20	105	200	600	2000
Solar	0	490.35	2543.5	3500	10000	20000
Wind	0	23	36	41	47	54
Biomass	0	0	5	30	65	100
Total supply	5753	9400	36124	76124	145113	251224

# Energy Demand and Supply Projections for Nigeria.... . contd

## Projected Electricity Supply by Fuel Type Based on 13% Economic Growth Rate (MW)

	2009 (Based Yr)	2010	2015	2020	2025	2030
Coal	0.00	3352.9818	3352.9818	12,121.794	14,011.266	20,398.634
Electricity Import	0.00	0	0	0	0	67727
Gas	3803.00	13109.77	26426.06	49, 996.468	120, 512.45	164,306.85
Hydro	1930.00	4157	11207	12132	12132	12132
Nuclear	0.00	0.00	3599.995	7199.99	7199.99	7199.99
Small hydro	20.00	105	319.9	759.85	1660.05	3502.1
Solar	0.00	490.35	2543.303	6417.268	15969.94	39737.5
Wind	0.00	23	36	41	47	54
Biomass	0	0	5	30	65	100
Supply	5746.00	21,238.09	47,490.24	88,698.37	171,597.69	315,158.07



# Energy Demand and Supply Projections for Nigeria..... contd

## Projected Total Energy Demand for Fuel Petroleum Products for Nigeria (Million Litres)

Year	PMS		DPK		AGO		Fuel Oil		LPG	
	7%	13%	7%	13%	7%	13%	7%	13%	7%	13%
<b>2009</b>	12,280	12,280	2,600	2,600	2,690	2,690	580	580	27.8	27.8
<b>2010</b>	15,070	18,230	3,290	3,780	6,040	7,310	1,469	2,664	75.9	150.6
<b>2015</b>	21,220	35,880	5,040	6,450	8,520	14,430	2,839	5,641	227.8	529.7
<b>2020</b>	29,830	61,090	7,370	9,950	11,990	24,610	4,604	11,909	614.9	1,263.0
<b>2025</b>	41,910	107,550	11,150	15,430	16,880	43,380	7,216	26,147	1,374.2	2,483.5
<b>2030</b>	58,830	196,960	17,210	28,820	23,720	79,510	16,029	58,873	2,442.8	4,281.8



Public Presentation of 2<sup>nd</sup> Edition of REMP 28<sup>th</sup> March 2013, Rockview Hotel, Abuja

# Commissioning of Danjawa RE Village, 2013



**Aerial View of  
Danjawa Village  
of 1500 people**



**The RE Systems**

## Commissioning of Danjawa Integrated Renewable Energy Model Village, Sokoto State, 2013

- The Danjawa Integrated Renewable Energy (RE) Model Village, Sokoto State, commissioned in April 2013, has the following RE systems:
  - 10kW Solar PV Mini Grid
  - 5kW Wind Energy conversion system
  - Solar water heater for hot water supply to the village Health Centre
  - Solar PV Streetlights
  - Biogas System
  - Improved Fuelwood Stoves for the villagers
  - *Kilichi* solar dryer

# Commissioning of Danjawa RE Village, 2013



**A View of the Mini Grid Station**



**Solar Water Heater for the Health Centre**



**Community Solar Water Supply**



**Light from the Mini Grid in the Health Centre**



# Commissioning of Danjawa RE Village, 2013

## Solar PV Mini Grids



**10kVA Solar PV Mini-grid in Danjawa Village, Sokoto State**

# **4 MW Solar PV Manufacturing Plant at Sokoto Energy Research Centre (For Research and Training)**

## Major Equipment of the Plant

1. JVG Manual stringer
2. String repair
3. Manual lay up
4. JVG Basic bussing station
5. Passive inspection/string tester
6. JVG Laminator Semi auto
7. JVG Trimming Semi auto
8. Frame and key coner assembly.
9. Sealant pump
10. Inspection turning
11. Junction box station
12. Flasher
13. HV Test station



## 4 MW Solar PV Manufacturing Plant at Sokoto Energy Research Centre







**Completed Laboratories at the NCPRD, ATBU Bauchi, February 2013**



**Physical Development at the Permanent Site, Main Building, ATBU Bauchi under construction, 2013**



**Latest Stage of Construction of the Permanent Site, Main Building, ATBU Bauchi, Dec. 2013**



**Front View Of Completed Office of the National Centre For Energy And Environment, NCEE (Energy Commission Of Nigeria, ECN), University Of Benin, Benin City, Nov. 2012**



# Solar PV Mini Grids



**3kW Solar PV mini Grid for Electricity at Igu Community Bwari, FCT, 2012**



3kW Alternative Solar PV Plant at Gassol L.G.A., Taraba State, 2012.



Distribution of 3kW Alternative Solar PV Plant at Gassol L.G.A., Taraba State, 2012.

# Solar streetlight



**Duwan Mani, Katsina State, 2011**





Solar PV Streetlight in Otukpo Benue State, 2011



Solar PV Streetlight in Isua, Ondo State, 2012

## Solar PV-powered water boreholes



**Akande-Adeola Ogbomoso Town, Oyo State, 2012**



**Solar Water Pumping Project in Okpanam Osimili North, Delta State, 2012**



**Solar PV Water Pumping, Jigalambu, Adamawa State, 2012**



**Solar Powered Water Pumping System For Danjawa Village, Sokoto State, Nigeria, 2012**



Establishment of solar PV powered borehole at Isan, Oye L.G.A., Ekiti State 2012

## Wind Energy



**4kW Wind Power System In Integrated with 10kW Solar PV Plant (Hybrid) in Danjawa, Sokoto State , 2012**



**2X0.25kW Wind-Solar PV Hybrid Power System & Solar PV Streetlight at Sabon Iddo, Airport Road, Abuja, FCT, 2011**



**0.5kW Wind Power System for Village Electrification, at Bmuko, Dutsen Alhaji, Bwari Area Council, FCT, 2011**

## Energy Commission Of Nigeria's Pilot Projects On Renewable Energy (2011 – 2012)

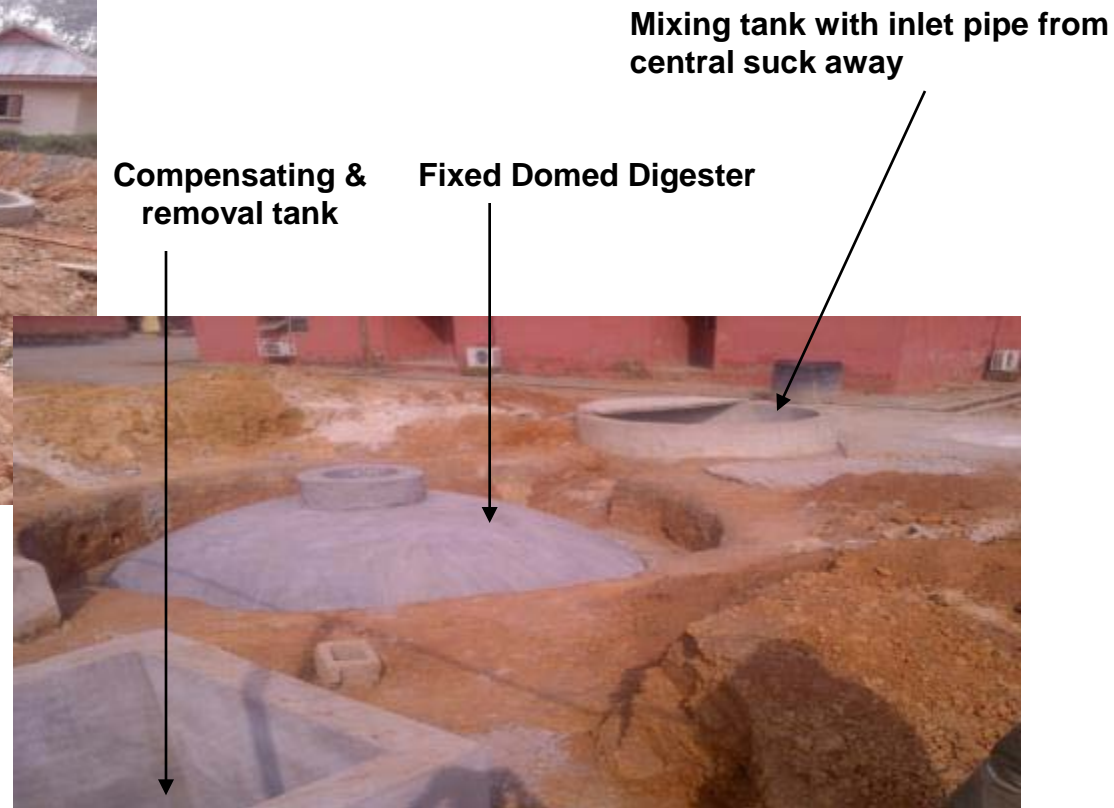
YEAR	Wind		Solar PV Streetlight		Solar PV Mini-Grid		Solar PV Water Pumping		TOTAL
	QTY	MW	QTY	MW	QTY	MW	QTY	MW	MW
2011	4	0.002	5,100	0.816	1	0.04	72	0.086	<b>0.944</b>
2012	-	-	7000	1.100	9	0.061	246	0.295	<b>1.456</b>
<b>Grand Total</b>									<b>2.400</b>



# Bio-Mass



**30 m<sup>3</sup> Biogas-digester at NAPRI Shika, Zaria LGA, Kaduna State, 2012**



**30 m<sup>3</sup> Biogas-digester at Kuje Prison, Kuje LGC, FCT, 2012**

## Energy Efficiency & Conservation



**Retrofitting ECN Building with LED Lamps to half the lighting load of the building (UNDP-GEF Energy Efficiency project), 2012**



# Capacity Building of Youths (NYSC Members)



**Capacity Building of Youth Corpsers (Bauchi, Kaduna, Enugu, Calabar, Abeokuta, Lafia) on Renewable Energy Technologies , 2011**

# Capacity Building of Youths (Other Youths)



**Capacity Building of Youths on Renewable Energy Technologies in Gombe State, 2012**



# Training of States Officers on Energy Planning Models



MAED & MESSAGE Training in Ogun State, 2011



MAED & MESSAGE Training in Bauchi State, 2011

## Liaison with International Energy Organizations:



**Professor Eli Jidere Bala, Director General/CEO, Energy Commission of Nigeria and other delegates at the IRENA Council Meeting, Abu-Dhabi, 2013**



**Group picture of delegates at the Joint WEC, AUC & APUA Workshop on EE, RE & Interconnections, Addis Ababa, June 2013**