



ENERGY EFFICIENCY & CONSERVATION AS A PILLAR FOR ACHIEVING THE TRANSFORMATION AGENDA IN NIGERIA

BY

Professor Eli Jidere Bala, MNIMechE, MIAEE
Director General/CEO,
Energy Commission of Nigeria,
Abuja.
e-mail: dg@energy.gov.ng



OUTLINE



- Introduction
- Concept of RE, Energy Efficiency & Conservation (EE & C)
- Why Do we Need EE & C
- Areas of Application of EE & C
- Issues To Promote EE & C
- Energy Commission of Nigeria & EE & C
- Conclusion



INTRODUCTION

- We need energy in the forms of electricity, fuels and heat, for development in the economy.
- Development, literally, refers to positive change or transformation for the better.
- It is in this light that Mr. President initiated the Transformation Agenda for a change for the better in the country.
- However, sustainable development is the path to follow to eliminate poverty in the long run.
- According to the 1987 report 'Our Common Future' by Harlem Brundtland, *Sustainable Development* is defined as the development that satisfies the needs of the present without compromising the ability of future generations to satisfy theirs.
- Sustainable development must, however, be driven by sustainable energy which refers to energy supply and utilization that satisfies the need of the present without compromising the ability of future generations to satisfy theirs.



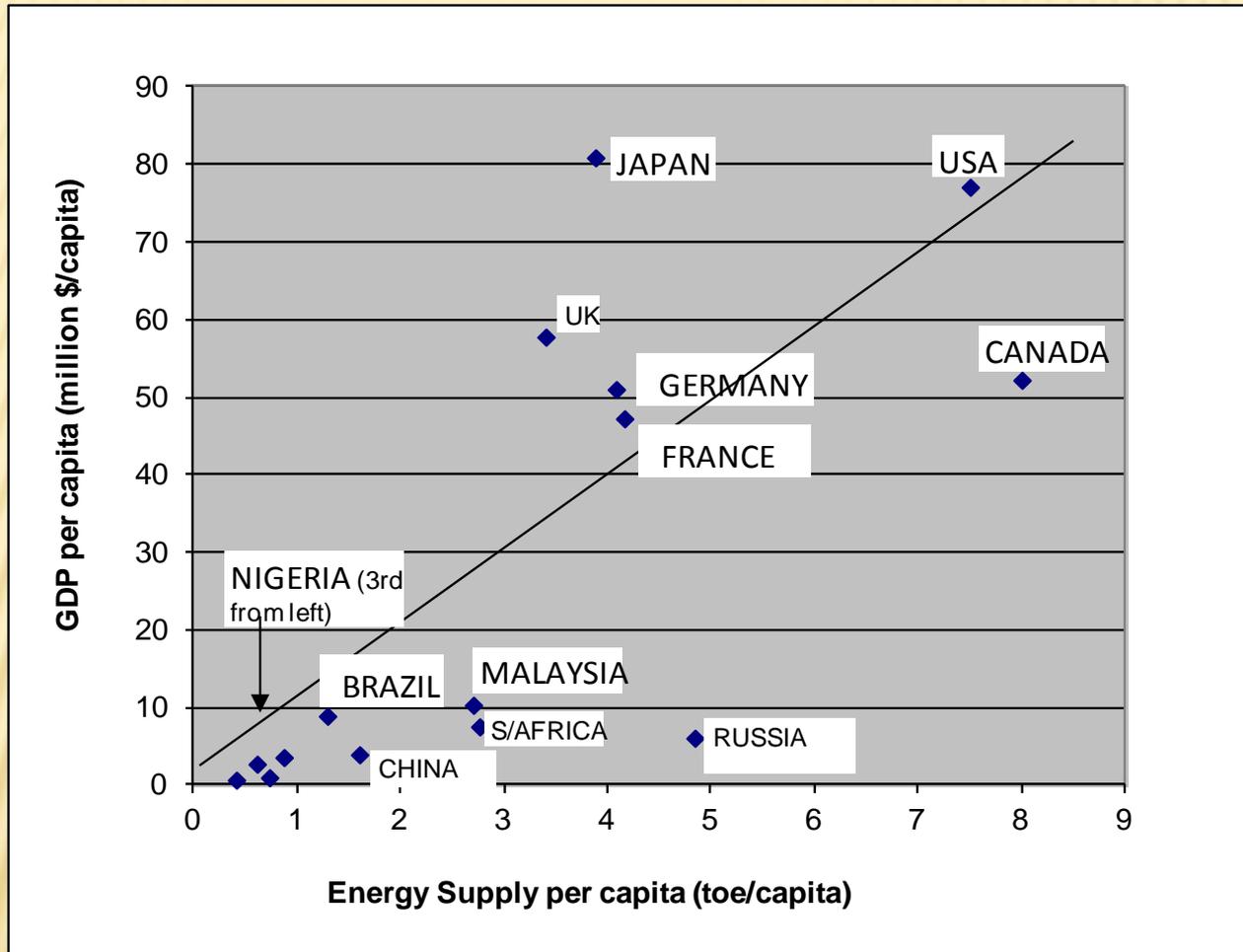
INTRODUCTION..... CONTD.



- In late 2011, the United Nations Secretary General, Ban Ki Moon, initiated Sustainable Energy for All (SE4ALL) by 2030, which stands on the following pillars:
 - ✓ Ensure universal access to modern energy services.
 - ✓ Double the rate of improvement in energy efficiency & *conservation (EE & C)*.
 - ✓ Double the share of renewable energy (RE) in the global energy mix.
- In August 2012, SE4ALL was launched in Nigeria by the Chair of UN-Energy & Director General of UNIDO, Dr Kandeh Yumkela.
- The realisation of SE4ALL initiative in Nigeria to support Mr. Presidents Transformation Agenda, lies on all stakeholders including the universities, where huge amount of energy is required for its teaching & research activities.



INTRODUCTION.....Contd



Source: IEA(2010)

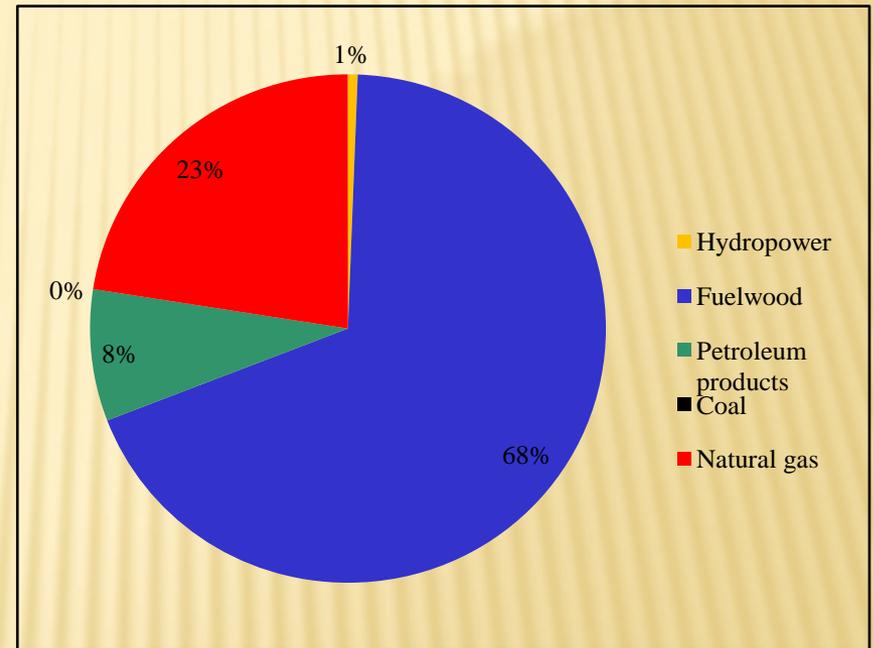
Transformation implies:

- Moving upwards along the line - Macro level
- Improvement of individuals standard of living(enhanced security, health, education, economic empowerment etc)-micro level

INTRODUCTION.....Contd

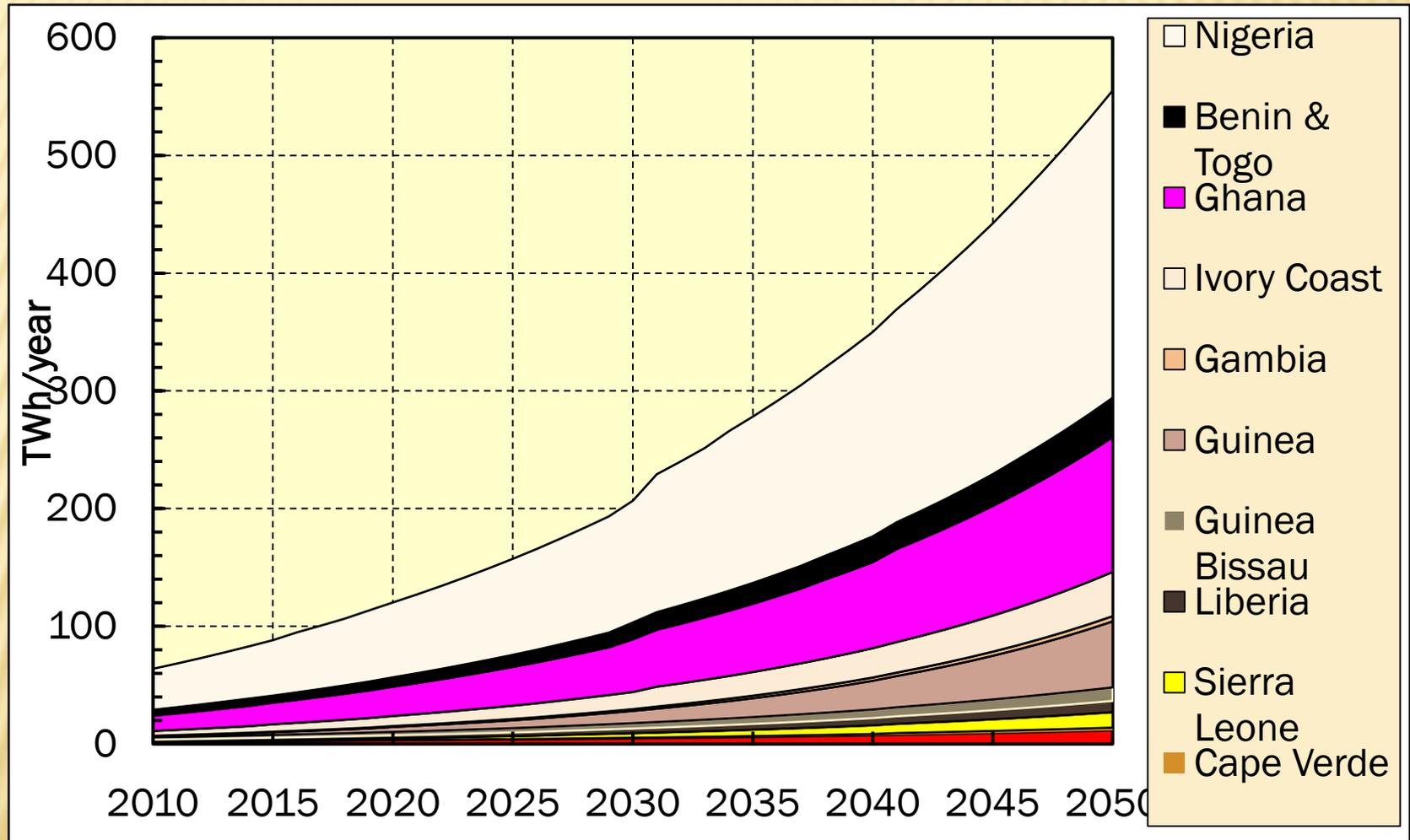
Primary Energy Consumption in Nigeria (2010)

Energy Type	Consumption, TOE	% of Total
Hydropower	641,947.38	0.60
Fuelwood	72,872,800.00	68.52
Petroleum products	8,874,342.61	8.34
Coal	5600	0.01
Natural gas	23,955,518.05	22.53
Total	106,345,168.03	100.00



Percentage Contribution by Primary Energy Type

ENERGY GAP – WEST AFRICA SUB-REGION



Source: AFREC(2010)

CONCEPT OF RE, EE & C

- Renewable energy refers to energy derived from a source that has the capacity to replenish within a relatively short time or has the ability to continue providing energy with no long-term adverse consequences to the environment. These sources include solar, wind, biomass, hydro, geothermal, ocean waves & tides etc.
- Energy efficiency is using less energy to provide the same service; whereas energy conservation is reducing or going without a service to save energy. It is not the same as energy efficiency.
- Both renewable energy, energy efficiency & conservation, however, have the capacity to reduce GHG emissions & thus mitigate adverse climate change effects on our environment.



WHY DO WE NEED EE & C ?



- To reduce the gap between energy supply & demand;
- To enhance energy security;
- To reduce GHG emissions and thus reduce adverse climate change effects;
- To save costs;
- To create more jobs, enhance economic empowerment and reduce poverty;
- To drive the Transformation Agenda of Mr. President



AREAS OF APPLICATION OF EE&C ?

- Classrooms, hostels, Lecture theatres, Homes, offices etc;
 - ✓ Energy Efficient lighting fittings;
 - ✓ Electrical appliances (Refrigerators, A/Cs, Heaters, Washing Machines etc);
 - ✓ Use of artificial lighting & ventilation in buildings
 - ✓ Lighting controls & sensors
 - ✓ Switching off lights when not needed
- Workshops, Laboratories;
 - ✓ Efficient electrical drives;
 - ✓ Efficient lighting fittings;
 - ✓ Efficient boilers;
 - ✓ Artificial lighting & ventilation
 - ✓ Lighting controls & sensors
 - ✓ Switching off lights when not needed.
- Transportation;
 - ✓ Efficient vehicles;
 - ✓ Best driving practices
- Cooking;
 - ✓ Use of efficient cook stoves



ISSUES TO PROMOTE EE&C



- Appropriate policies:
 - ✓ Political will
 - ✓ Targets
 - ✓ Codes, Standards & Labels
 - ✓ Advocacy & Awareness Creation
 - ✓ Incentives
- Appropriate technologies & behaviours;
 - ✓ Energy audit,
 - ✓ Efficient lighting systems,
 - ✓ Lighting controls,
 - ✓ Efficient cooking devices,
 - ✓ Efficient electrical drives,
 - ✓ Turn-off the light when not in use,
 - ✓ Walk distances or use bikes rather than driving, where you can.
- Finance;
 - ✓ Local
 - ✓ International



ENERGY COMMISSION NIGERIA & EE & C



- Energy Commission Of Nigeria is established by law to produce strategic plans and coordinate national policies on energy in all its ramifications. In doing so, it promotes sustainable energy development in Nigeria.
- Quite a lot is being done in the area of enhancing energy efficiency & conservation in Nigeria.
- Some of the activities carried out by the Commission in collaboration with stakeholders, in promoting energy efficiency include:
 - ✓ **Replacement of Incandescent Lamps with 1Million High Quality Compact Fluorescent Lamps (CFL) across the Nation. An ECN/CUBA/ECOWAS Pilot Project .**



ENERGY COMMISSION & EE & C..... CONTD.



Replacement of Incandescent Lamps with High Quality Compact Fluorescent Lamps (CFL) in some Universities

	Tertiary Institutions	No. Of CFLs Used for Replacement
1.	Nasarawa State University	3,360
2.	Bayero university Kano	12,984
3.	FUT Minna	2,472
4.	Nnamdi Azikwa University, Awka	5,004
5.	FUT Yola	2,808
6.	Umaru Yar'Adua University Katsina	8,940
7.	University of Abuja	4,104
8	University of Maiduguri	9,396
9	University of Port Harcourt	6,624
10.	Kaduna State University, Kaduna State	5,604
11	University of Jos	6,000



ENERGY COMMISSION & EE & C..... CONTD.



Replacement at the Senate Chambers Uni Abuja



Replacement at the FUT Owerri



Replacement at FUT Yola



Replacement at the Ministry of Energy Kwara State



Replacement exercise at Jaji Military Cantonment Kaduna



Replacement at the NSCDC (Civil Defense)



ENERGY COMMISSION & EE & C..... CONTD.



- Establishment of the National Centre for Energy Efficiency and Conservation in UniLag.
- Nation-wide Energy Efficiency Awareness Campaigns through Posters, leaflets, handbills, radio, TV displays.
- Walk-through Energy Audits across the Nation in collaboration with UNIDO.
- Designated by ECREE as the National Competence Centre for Supporting Energy Efficiency for Access in West Africa (SEEA-WA) programme.



ENERGY COMMISSION & EE & C..... CONTD.



- Drafting of National Energy Policy [NEP] and National Energy Master Plan [NEMP];
- Ongoing collaboration with GEF-UNDP on Promoting Energy Efficiency in Residential and Public Sector in Nigeria;
- Developments of improved cook stoves;
- Setting up, in collaboration with International Centre for Energy & Environment (ICEED) and the Alliance on Clean Cook-stoves, of a National Clean Cook-stove Testing Laboratory at the National Centre for Energy Research and Development (NCERD), Nsukka.



ENERGY COMMISSION & EE & C..... CONTD.

- As part of the drive to promote energy efficiency best practices in public buildings in Nigeria, Energy Efficiency Retrofit of ECN building was conducted. This is the first of its kind in Nigeria and would be replicated in some other public buildings in the country.
- Total of **840** linear fluorescent lamps (**23,328W**) were replaced with **840** LED efficient lamps(**9,504W**)
- Overall **60%** Saving on Lighting



Improved Cook Stoves



SERC Family Size Improved Wood Stove



SERC Industrial Improved Wood Stove

ENERGY COMMISSION & EE & C..... CONTD.

IMPROVED COOK STOVES WILL REDUCE FIREWOOD CONSUMPTION



Firewood Harvest by Children



Firewood Market in Kano



Firewood Market Along Abuja – Minna Road



ENERGY COMMISSION & EE & C..... CONTD.



ENERGY EFFICIENCY RETROFIT OF ECN BUILDING





CONCLUSION

- Sustainable energy is essential in the realization of Mr. President's Transformation Agenda.
- Renewable energy and best practices in energy efficiency & conservation are imperative in providing sustainable energy required to drive growth in the economy.
- Though a rising gap exists between energy demand and supply in Nigeria, adoption of best practices in energy efficiency & conservation in the universities, and the economy at large, is expected to reduce this gap and thus support Mr. President's Transformation Agenda at the lowest costs.
- Universities are therefore called upon to imbibe best practices in energy efficiency & conservation in their hostels, classrooms, lecture halls, offices, laboratories, workshops, transportation systems etc



THANK YOU