



# The Nigerian Oil & Gas Industry In a World Of Changing Energy Supply: ARE WE PREPARED?

Lead Presentation: SPE Annual Oloibiri Lecture Series & Energy Forum 2018

By: **Engr. Rabiul I. Suleiman** (*FNSChE, FISPON*)

Senior Technical Adviser to  
The Hon. Minister of State, Petroleum Resources  
(Refineries and Downstream Infrastructure)

March 1st, 2018



# Contents

**Emerging Forces Shaping the Oil & Gas Landscape**

**The Global Energy Trends (2018 -2040)**

**The Changing Face of the Nigeria Oil & Gas Industry**

**Concluding Remarks**



# Emerging Forces Shaping the Oil & Gas Landscape



## World Economy

World Economy is poised for growth driven by US, India, China thereby supporting prices



## Shrinking Upstream Capital Investment

Reduced upstream capital investment will create future supply crunch due to natural production declines in the future thereby supporting prices



## OPEC Cuts

OPEC cuts has prevented crude prices from sliding to record lows

## OPPORTUNISTIC FORCES



## Industrial shift

Coal-to-gas switching, particularly in China,

## Energy



## Potential US Growth

Projected US 4% GDP growth could be triggered by anticipated tax reforms increasing demand for energy



## Paris Agreement Quagmire

Limited impact on Paris agreement due to US pulling out thereby limiting impact



## IMO 2020

Regulations to discontinue use of high Sulphur Fuel oil by 2020 poised to favor sweet crude producers like Nigeria



## Rise of the Teapot

Emergence of China Teapot Refineries create new homes for Nigerian Heavier grades

## STRENGTHENING FORCES

OIL

## THREATING FORCES



## Record Inventories

high

World Inventories at record highs putting pressure on crude prices



## US Shale

Rising US shale production continue to keep the market over supplied, impacting price recovery



## Libyan Production Rebirth

Resumption of Libya product continue to contribute to global oversupply



## Limited EU Growth

Limited demand expected from the European region

## WEAKENING FORCES



## Trump/Brexit World

Uncertainty Trump & Brexit World impeding global investment and economic growth looms



## Limited OPEC Impact

Perception of OPEC diminishing influence swaying crude prices in its desired direction



## Middle East Geopolitics

Rising tensions in Middle east continue to create uncertainty



## New US Energy Policy

New US policy seeks total energy independence could significantly shifting global supply demand dynamics



## Volvo 2020

Volvo announces plan to produce only electric cars from 2020; will these trend spread?



Euro mulling banning Gasoline and diesel cars by 2040? Will it fly?

# Global Energy Projection (2018 -2040)

**6 Mbpd**

Increase in OPEC  
output by 2040

**7%**

Growth of Renewable energy per  
annum. accounting for over 40%  
of the increase in energy  
supplies, the largest contribution  
of any energy source

**1.6%**

Growth of Natural Gas  
per annum, faster  
than either oil and  
coal

**0.5%**

Growth of Oil,  
projected to plateau  
towards 2040

**20%**

Current Energy  
Consumption of  
Transportation

**2/3**

Of industrial energy by  
2040 to be provided by  
Natural Gas and  
Electricity

**30%**

Expansion of global energy  
demand by 2040  
(equivalent of adding  
another China and India to  
today's global demand)

**11%**

India (the largest  
demand centre), share  
of global energy use  
by 2040

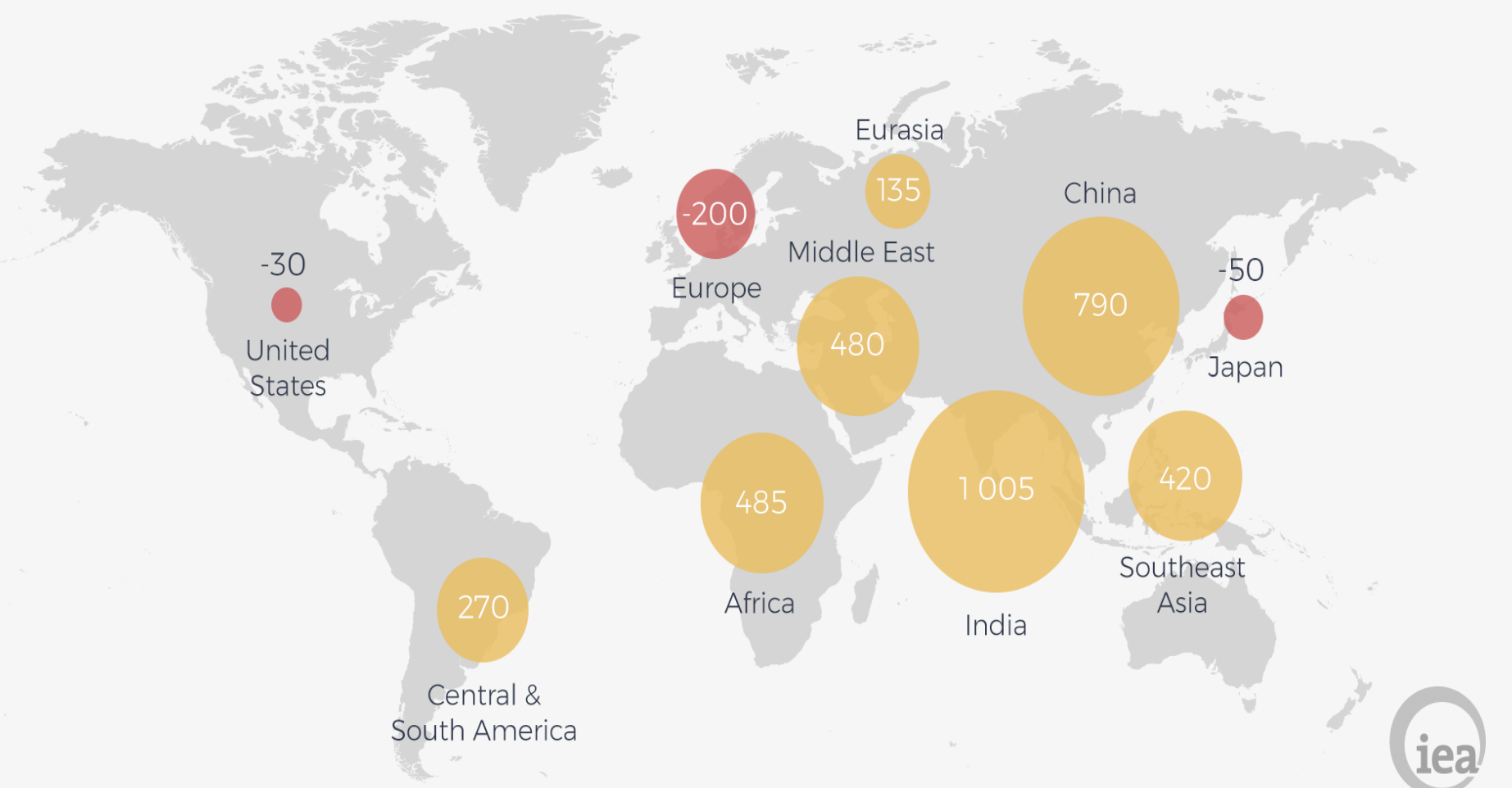
**70%**

Contribution of India,  
emerging Asia and Africa  
to growth in Industrial  
energy consumption



# Global Energy Projection (2018 -2040)

## Change in Primary Energy Demand by 2040 (Mtoe)

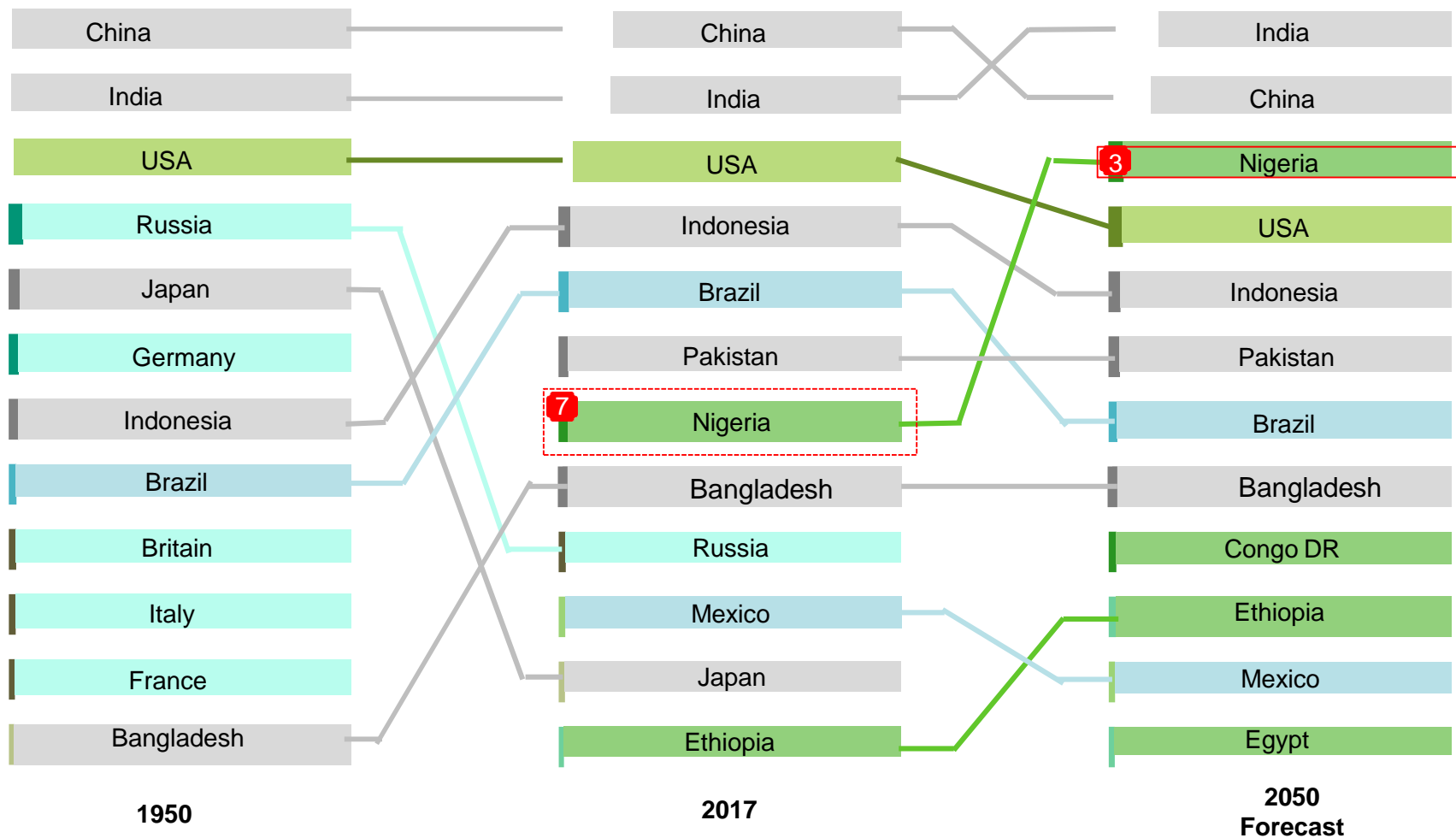


Source: IEA world energy Outlook 2017



# How the world will look in 2050

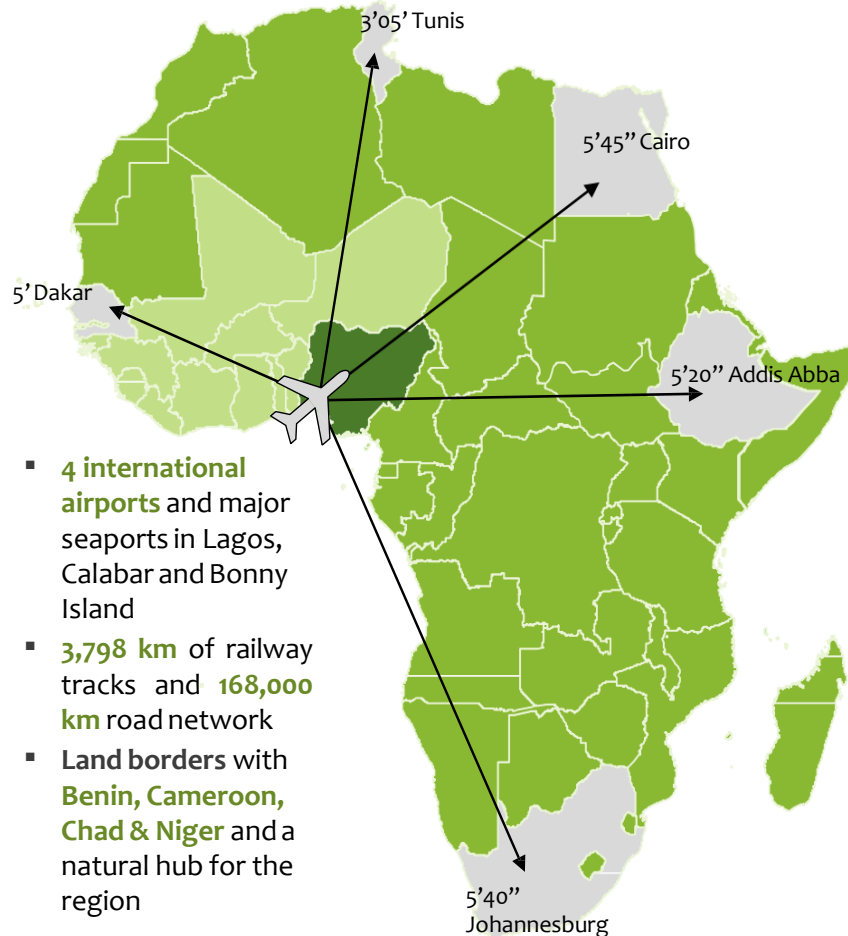
## Most Populous Countries, bn



# Are we Prepared



# Nigeria is strategically located in Africa



**₦31.6 Trillion**  
Nominal GDP as  
@Q4 2017

**1.92%**  
YoY GDP growth rate  
@ Q4 2017

**91.32%**  
Contribution of Non  
Oil Sector to the GDP

**Over \$40 Bn**  
Foreign Reserve

**198.7 Tcf**  
Gas reserves

**36.7 Billion**  
Oil+ Condensate  
Reserves

**Advanced Tech**  
Vast untapped  
opportunities in 3D, 4D etc.

**285 fields**  
For 44 Oil producing  
companies

**31220**  
Retail Outlets



# Nigeria's Economic Recovery & Growth Plan (2017-2020)

President Buhari has set out the tough choices we have to make as a nation over the next 4 years

## Stabilize the Macroeconomic environment



Align Monetary, Trade & Fiscal Policies

Accelerate non oil Revenue generation



Drastically cut costs



Privatize selected public enterprises /assets



## Achieve Agriculture and Food Security



Deliver on Agricultural Transformation

## Improve Transportation Infrastructure



Deliver targeted high priority Transport projects



Enable private sector financing of Infrastructure

## Ensure Energy Sufficiency in power and petroleum products



Urgently increase oil production



Boost local Refining for self sufficiency



Expand power sector Infrastructure

## Drive Industrialisation focusing on SMEs



Improve Ease of doing business



Accelerate the Implementation of National Industrial Revolution plan



# Nigeria Oil & Gas Industry Roadmap

The '7 Big Wins' being implemented will enable a stabilized Oil & Gas landscape with improved transparency and efficiency and stable business environment



## The Nigeria Oil & Gas Roadmap

A Programme Management Office is in place that tracks implementation and escalates issues for resolution

## Key Focus Areas

- Review and gazette **policies and regulations**; National Oil Policy. National Gas Policy, Fiscal Reform Policy and pass the Petroleum Industry Reform Bill
- Improve the **Business Environment and drive investments** in upstream, midstream and downstream
- Accelerate **gas revolution** by developing infrastructure, promoting domestic utilisation of LPG and CNG, commercialising gas flares and increasing gas to power
- Increase **Refineries Local Production capacity** through private sector led revamp of existing refineries and enabling new greenfield and modular refineries
- Improve **Niger Delta Security** across environment, infrastructure, capacity building and economic empowerment
- Increase **Transparency and Efficiency** in the Sector by building capacity, enabling the use of IT and automation and entrenching performance management
- Improve **Stakeholder Management and International Coordination** by managing relationships, international relations and bilateral coordination






Ministry of Petroleum Resources


# Strategic Objectives of the Nigerian Petroleum Policy




Create a market driven oil and gas industry




Maximise production and processing of hydrocarbons




Move away from oil as a source of income to gas as a fuel for economic growth



Cost efficient storage, transportation and distribution for petroleum products



Minimise the environmental footprint of oil exploration and production



Managing the balance between depleting oil resources vs renewable energy

Strategic  
Objectives of the  
Nigerian Petroleum Policy







Ministry of Petroleum Resources

# Overview of The National Gas Policy (NGP)



## Governance (Legislation And Regulation)

Single Independent Petroleum Regulatory Authority

### Industry Structure

- Implementation of Domestic Gas Supply Obligations
- Mixed public-private participation, with a clear separation of roles between government and the private sector

### Infrastructure

- Development of key gas infrastructure

### Developing National Human Resources

- Developing national Human Resources
- Develop Nigerian Content and implement Nigerian Content Act
- Build Institutional Capacity

## Implementation of National Gas Policy (NGP)

- Roadmap and Action Plan

### Developing Gas Resources

Encourage exploration and development of new gas supply sources from the inland and offshore basins

### Building Gas Markets

- Continue gas exports consistent with domestic gas market
- Investigate, develop and gain access to regional African gas markets

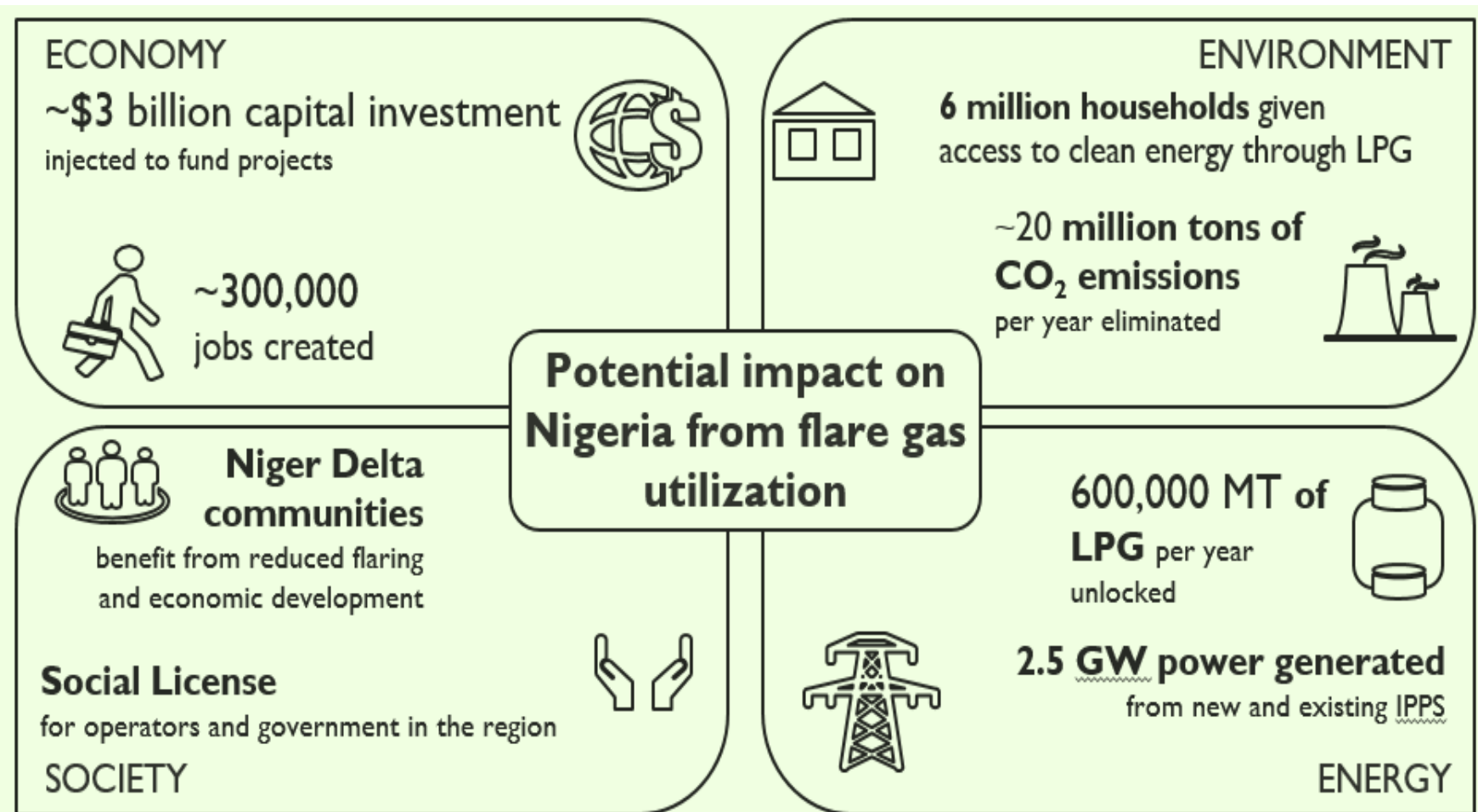
### Communications: Internal and External Communication Strategy

# Nigerian Gas Flare Commercialization Program

- The Federal Government launched a new Gas Flare Commercialisation Programme in December, 2016 as a high priority strategy for the Government in achieving the national mandate for flare-out by 2020.
- The Gas Flare Commercialisation Programme lays out a framework for Government to license gas that would otherwise have been flared to technically credible and financially sound 3rd party private sector players.

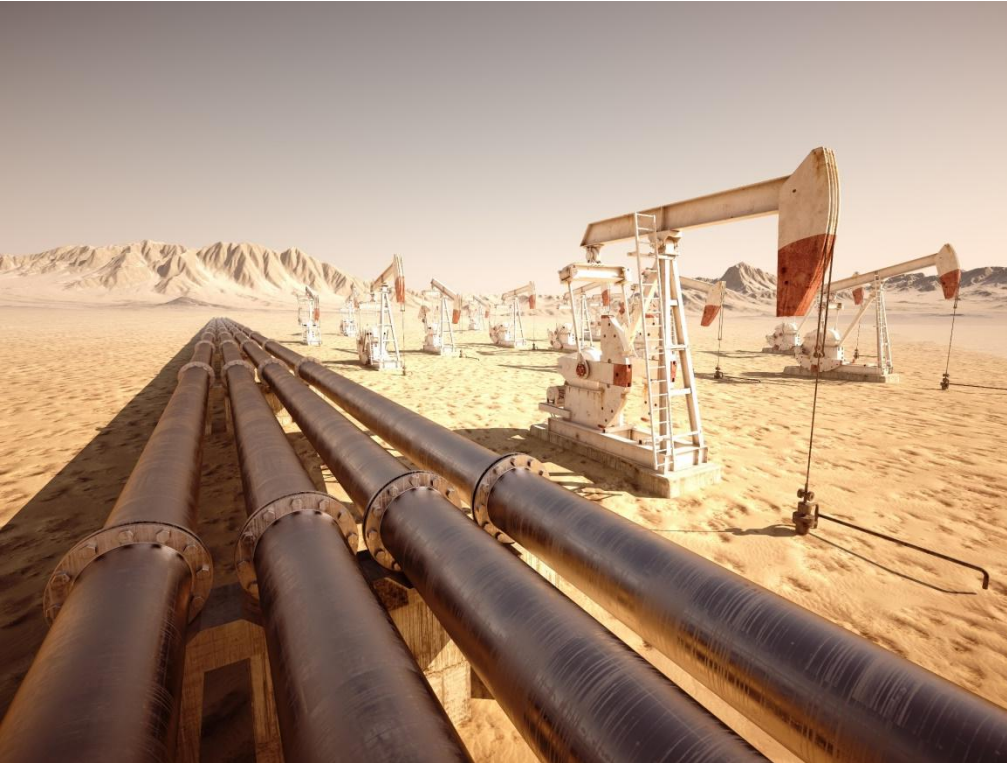


# Expected 'wins' from Gas Flare Commercialisation





# Gas Pipeline Projects



- The AKK pipeline is pipeline with a total length of 614km and a diameter of 40 inches.
- It targeted to transfer gas from gathering stations across Ajaokuta to a terminal station in Kano, while passing through Kaduna.
- This would create an enabling environment for more gas to be generated by entrepreneurs, as the market would then exist.
- Also, gas and power projects could be sited along the pipeline areas because of easier access to gas.
- Others include Pipelines Escravos – Lagos, Odidi – Warri, OB3 etc.

# Renewable Energy

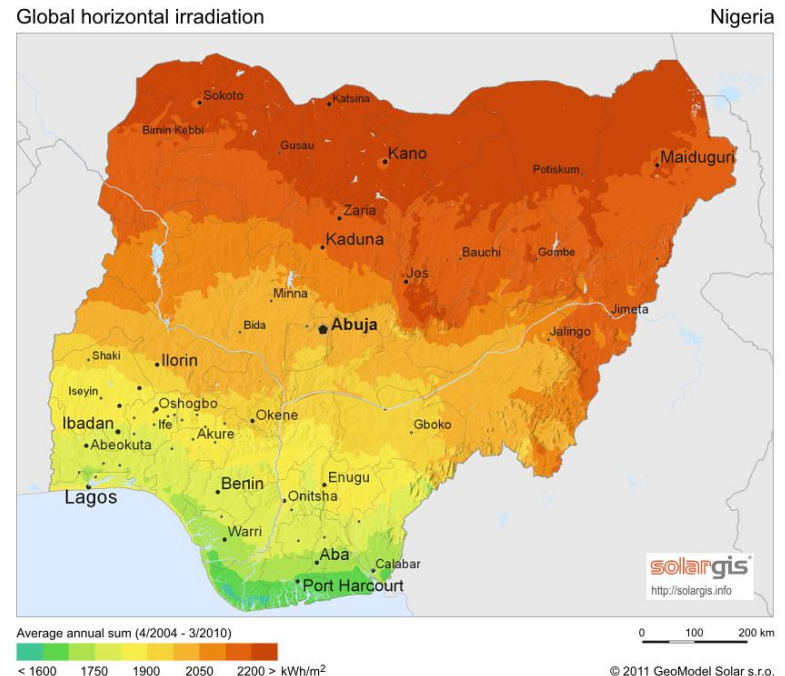
- Nigeria initiated a Renewable Energy programme in August 2005 which is in conformity with the Kyoto Protocol agreement to which Nigeria is a signatory.
- The primary aim of the programme **is to link the agricultural sector with the Oil and Gas Industry**. It is also aimed at gradually reducing the nation's dependence on imported gasoline, reducing environmental pollution as a result of consumption of wholesale fossil fuel as well as creating a commercially viable industry that can boast of sustainable domestic jobs.
- A similar programme in Brazil has a thriving biofuels industry providing quantum economic benefits including creation of hundreds of thousands of employment opportunities for nationals of that country
- A Renewable Energy Division was set up in NNPC in 2015; Site specific Bankable Feasibility Studies has been developed for Sugarcane & Cassava to Fuel Ethanol in various states, National Biofuels Policy gazetted and MOUs signed with State Governments. Collaboration has since progressed





# Solar Energy Development

- Solar is a major energy resource in Nigeria from a geographical perspective. Analysts have projected that Nigeria could generate hundreds of mega watts by deploying Solar PV panels from just 1% of Nigeria's land mass.
- Availability of land and high level of solar radiation in the northern part of Nigeria (about 5.0-7.0Kw.m2/day) has the potential to steadily increase the power generation capacity in Nigeria
- Solar power projects take less time to reach commercial operations compared to the conventional gas-fired generation
- The Federal Government has set of attaining 30% energy contributions from Renewables by 2030

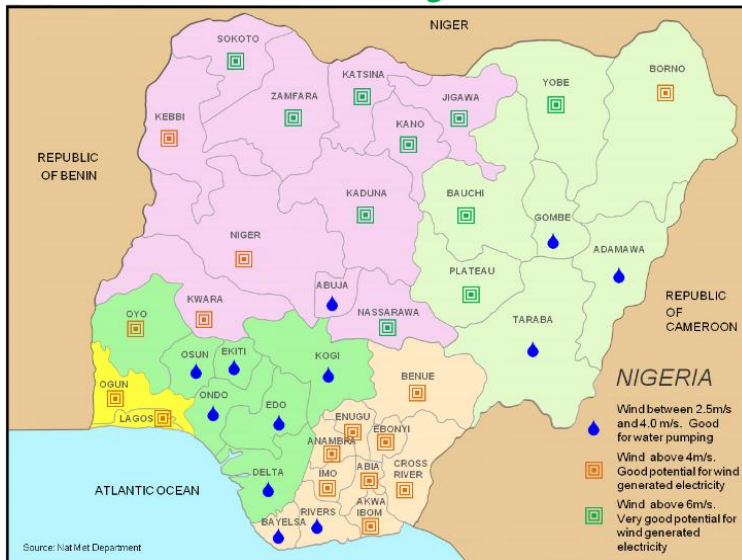


# Summary of Renewable Energy Potentials in Nigeria

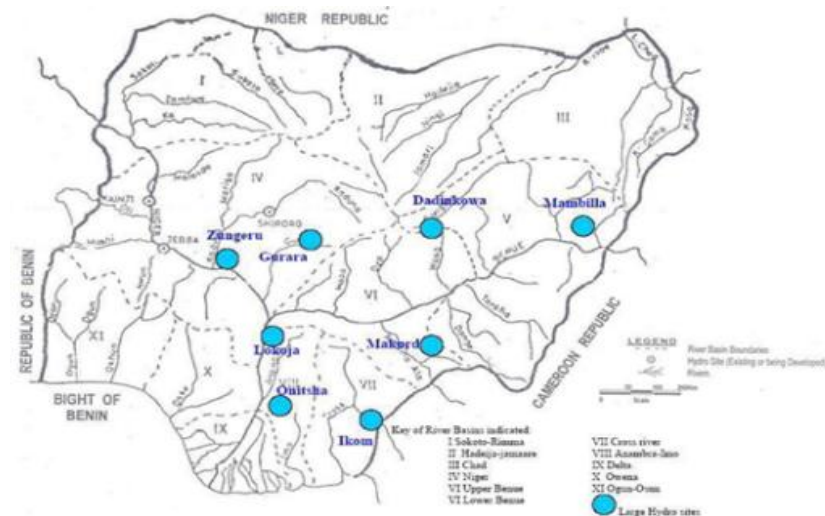
Resource	Potential	Comments
Large Hydropower	11,250MW	1,900MW exploited
Small Hydropower	3,500MW	64.2MW exploited
Solar	4.0kWh/m <sup>2</sup> /day – 6.5kWh/m <sup>2</sup> /day	Significant potentials for solar infrastructure; both for on-grid and on-grid use
Wind	Average of 2-4m/s @ 10m hub height	Moderate wind potentials in the country.
Biomass	Municipal waste	18.5 million tonnes produced in 2005 and now estimated at 0.5kg/capita/day
	Fuel wood	43.4 million tonnes/yr of fuel wood consumption
	Agricultural residues	91.4 million tonnes/yr. produced
	Energy crops	28.2 million hectares of arable land; 8.5% cultivated

Source: ECN (2014), Energy Implications of Vision 20: 2020 and Beyond, Report no.: ECN/EPA/2014/01

## Wind Resource Potential in Nigeria



## River Basins with large and small scale hydropower potentials



Is Nigeria getting there?

Yes!

But a lot collaborative efforts, energy and focus need to be exerted to attain our Targets