



# AN OVERVIEW OF THE NIGERIAN DOWNSTREAM GAS MARKET

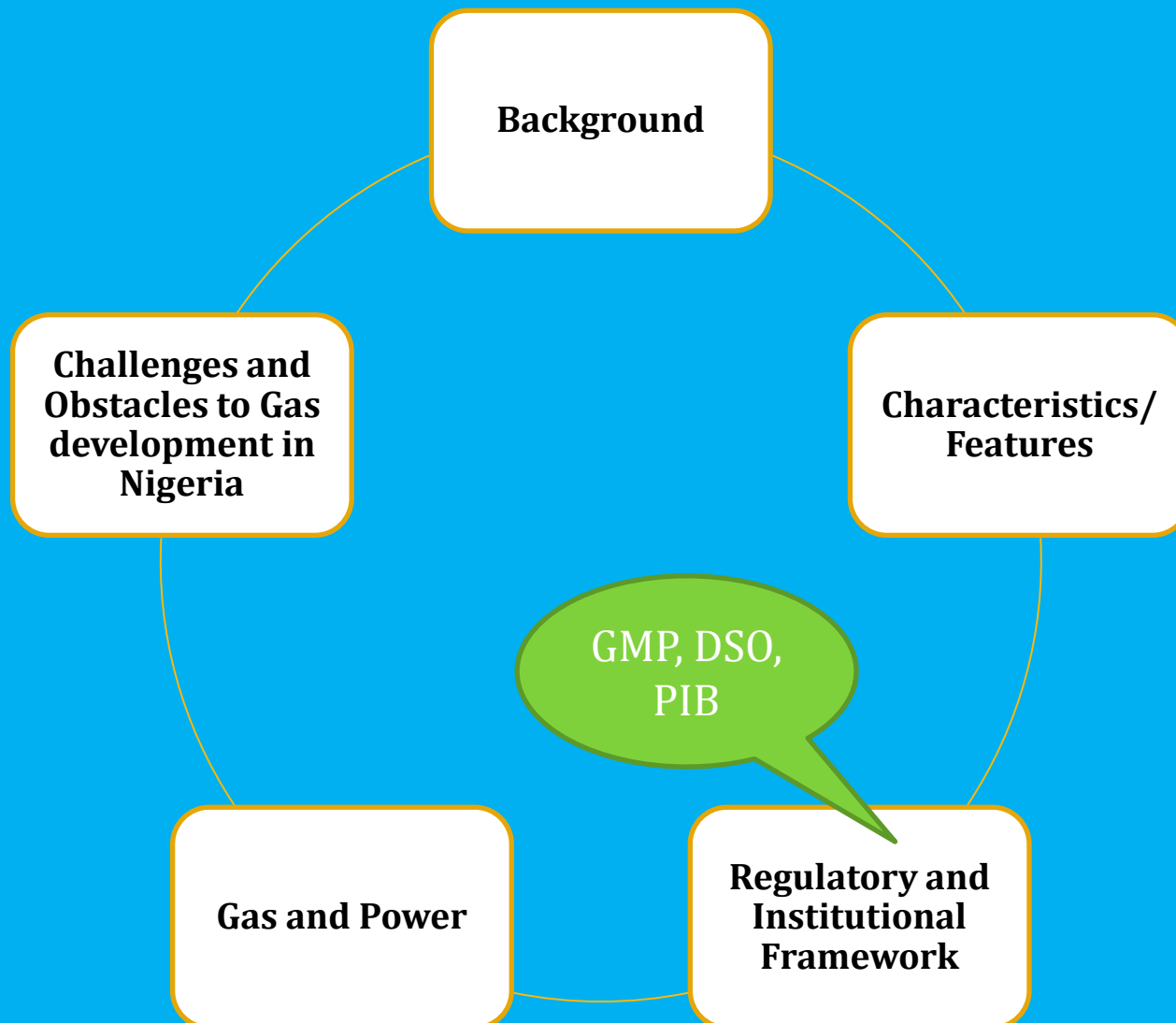
Emeka Onyegbule

Market Competition and Rates

Division, NERC Abuja

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# Presentation Outline

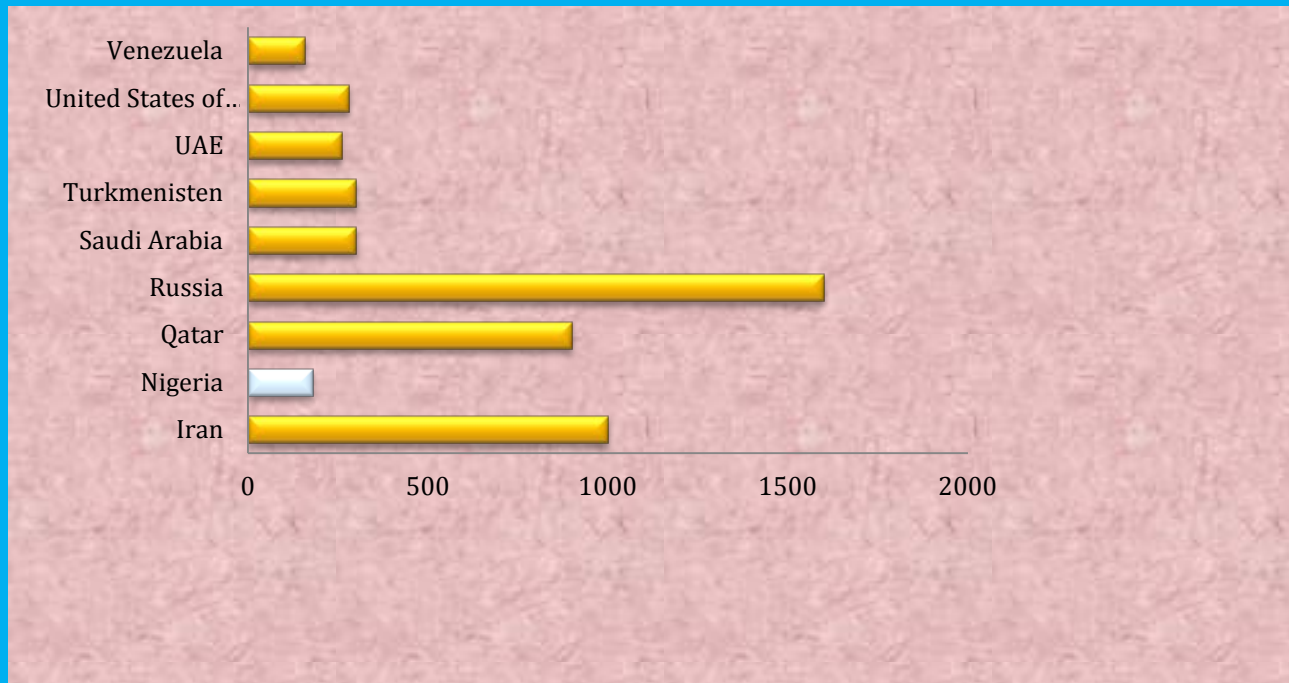


# Background

## Nigeria :

- A proven gas reserve of 187 trillion cubic feet
- Ranked eight largest gas reserves in the world in the following order: Russia, Iran, Qatar, Turkmenistan, Saudi Arabia, USA, UAE, Nigeria, Venezuela and Algeria
- With 1,100km gas pipelines of consisting of ELPS and Alakiri- Obigbo- Ikot- Abasi pipeline systems

# Nigerian Gas



# Features and Characteristics of the Nigerian Gas Market

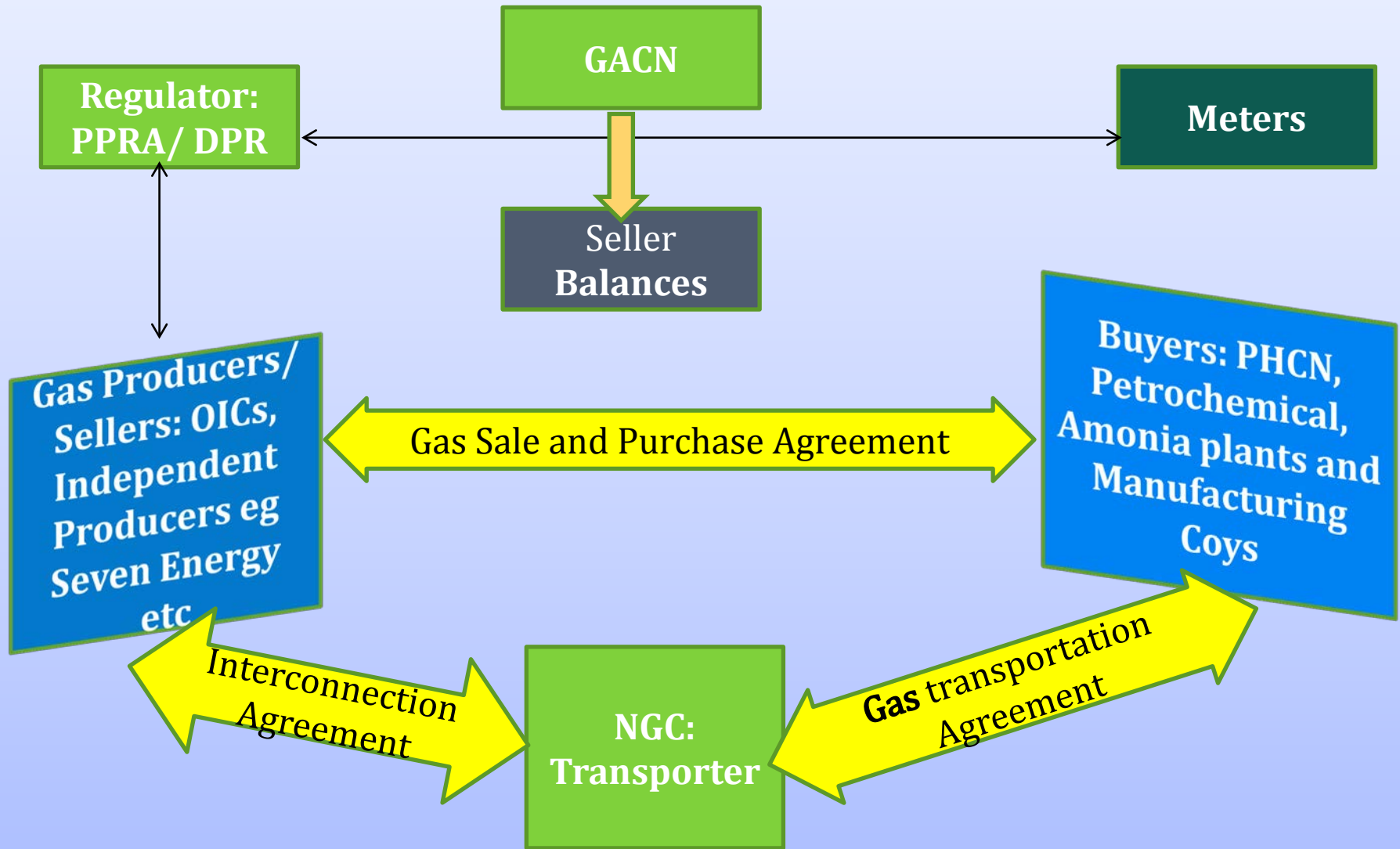
# Characteristics of the Nigerian Gas Market

- Structurally dominated by few buyers and sellers leading to simple bilateral agreements between players
- NGC as a gas marketer, transporter and pseudo regulator
- Government –owned buyer entities
- Relatively stagnant sub commercial sector
- Disjointed and unconnected
- Weak commercial arrangement in the market
- Unclear regulatory framework-DPR,NGC,PPRA and GACN all have some kind of regulatory authority

# Features and Characteristics

- Ministry of Petroleum Resources
- NNPC
- NGC- Subsidiary of NNPC with the responsibility to develop infrastructures for the transportation and distribution of gas in Nigeria
- PPRA- Regulation of demand and supply through pricing
- GACN- Implementer of the Nigerian Gas Master plan Policy of 2008
- DPR- technical regulation through licensing and permits

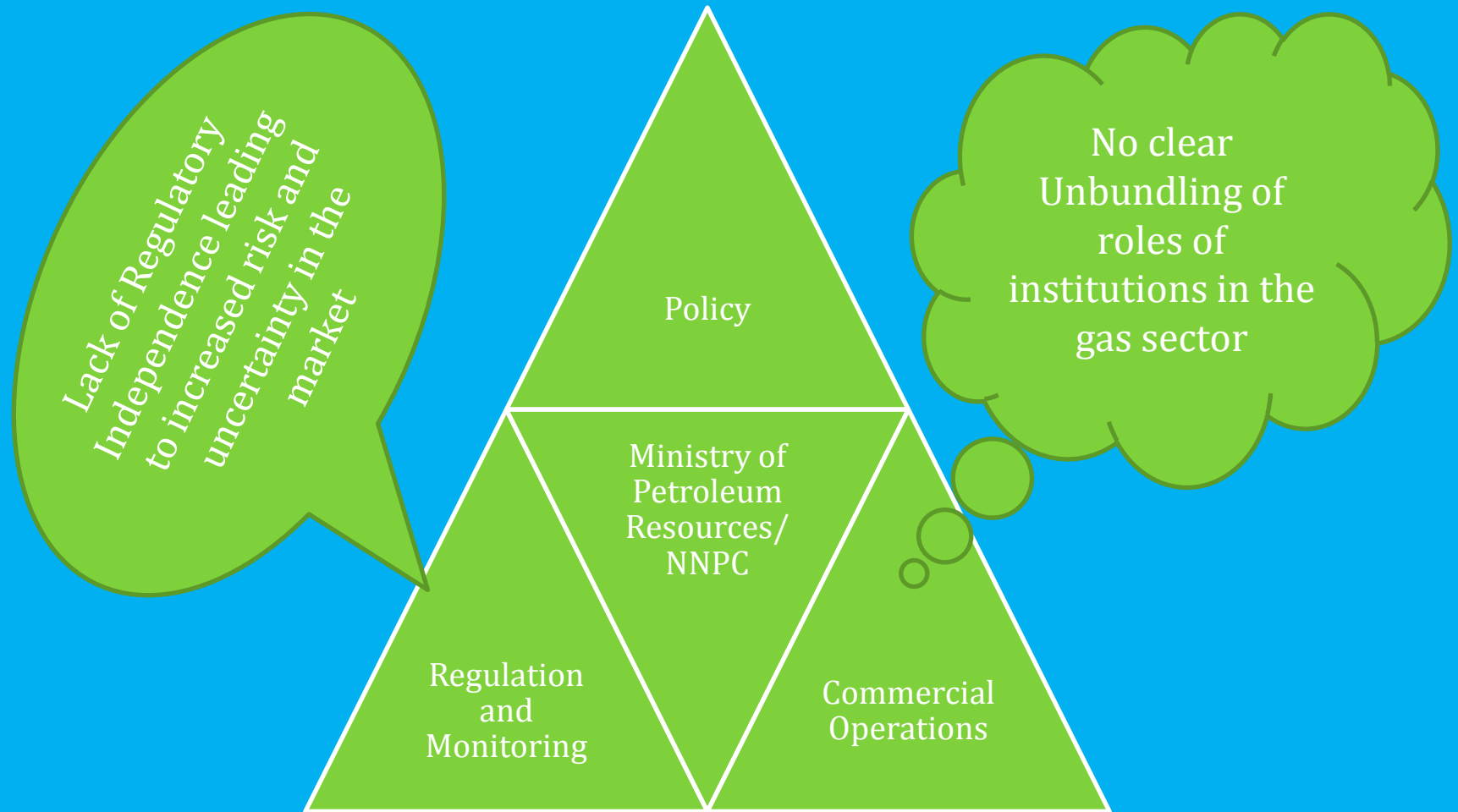
# Current Gas Market structure





# Regulatory and Institutional Framework

# Regulatory Environment



# The Nigerian Gas Master Plan (NGM)



# NGM-Gas Utilisation

- The Nigerian Gas Master plan (NGM) grouped the gas domestic market as follows:
  - The strategic domestic sector-Power sector
  - The strategic industrial sector e.g. fertilizer, methanol, petrochemical plants and LNG
  - The commercial sector e.g. manufacturing industries

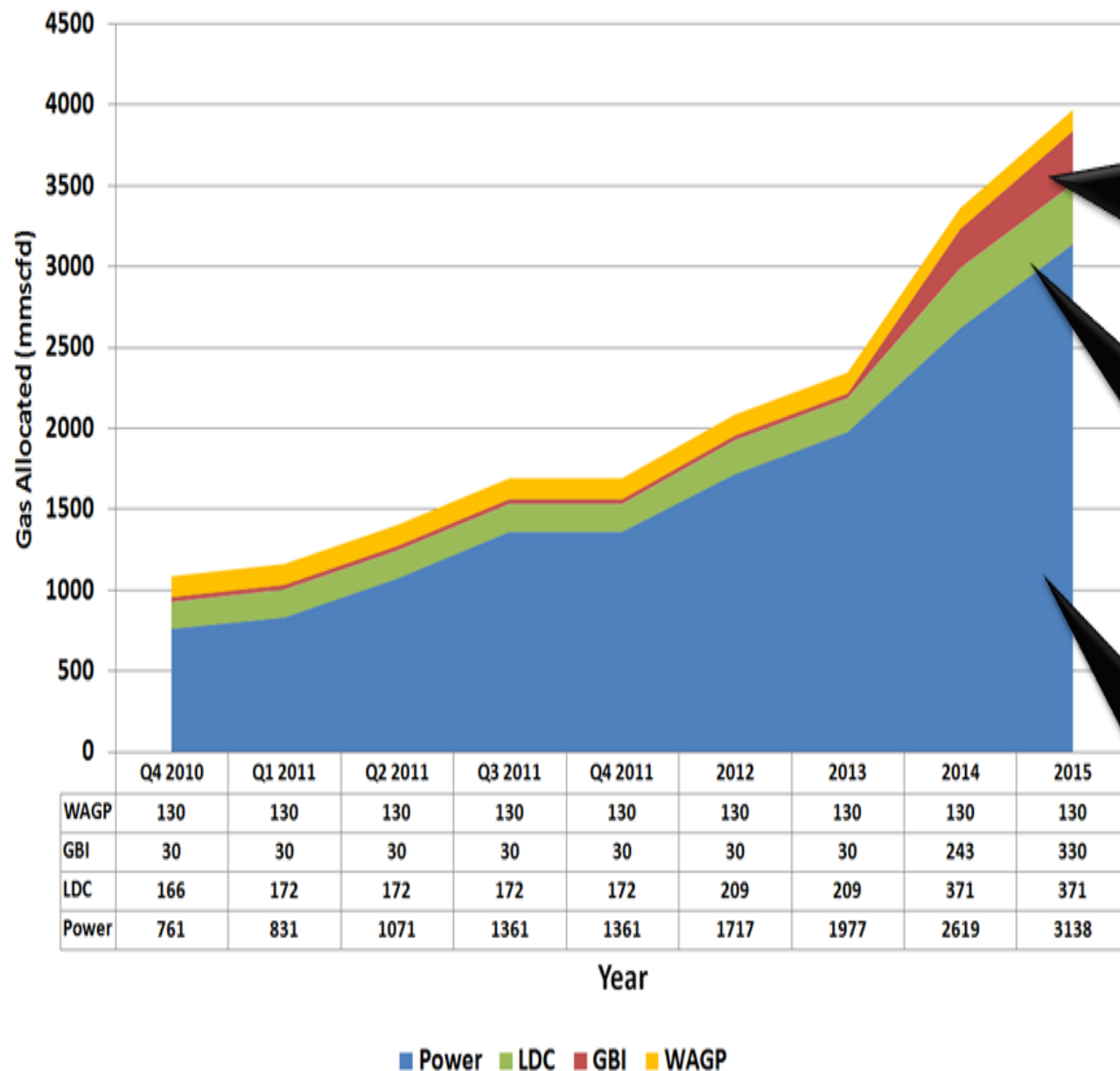
This categorisation formed the basis for pricing which determines the price for the above segments of the gas market

# Gas Utilization

## 5- Year Gas Production outlook (Mscf)

Year	Gas Produced	Total Gas Utilised	Gas to NGC	Gas flared
2007	2,415,649,041	1,655,960,315	N/A	759,688,726
2008	2,287,547,344	1,668,148,489	63,831,255	619,398,854
2009	1,837,278,307	1,327,926,402	21,021,894	509,351,905
2010	2,392,838,898	1,811,270,545	167,190,149	581,568,354
2011	2,400,402,880	1,781,370,022	101,560,670	619,032,858
Source: NNPC 2011 Draft Annual Statistic Bulletin				

## Domestic Gas Allocation Profile (2010-2015)



- Gas Based Industries
  - 2-3 World Scale Urea/Ammonia Plants
  - 1 World Scale Petrochemical Plant; 1 Methanol Plant

- Manufacturing Industries
  - Increased penetration of natural gas as fuel to manufacturing sector

- Gas to Power
  - Unprecedented growth in Gas to Power Supply – over 35% growth rate annually in power generation between 2010/15

# NGM-Gas Transportation

- Three major gas transmission systems in Nigeria as follows:
  - The western gas system comprising the existing Escravos- Lagos pipeline system
  - The first South-North gas transmission line- from Akwa Ibom to Ajaokuta, Abuja, Kano and Katsina. The line will also connect Abia, Imo, Anambra, Enugu and Ebonyi States
  - An interconnector to link the Eastern gas reserve centre with the two transmission systems above

# Domestic Gas Supply Obligation (DSO)

- Mandated all oil and gas operators in the country to set aside a certain quantity of gas reserves and production for the domestic market
- The Federal Ministry of Petroleum (FMoPR) is empowered to stipulate such quantities periodically to be set aside by the IOCs
- Mandated all oil and gas producers to comply with their reserve obligations or face penalties for default
- Established a department of gas in the FMoPR to oversee the execution of the DSO



# The Petroleum Industry Bill (PIB)

- Approved by FEC on July 11<sup>th</sup> 2012 and presently before the legislature
- The PIB Covers all aspect of petroleum industry the market into upstream, mid stream and down stream sectors by bringing together all existing regulations in the petroleum industry into a single regulation
- Created an upstream and downstream petroleum regulatory agencies

# PIB- Gas Regulation

- The downstream gas sector to be regulated by the Downstream Petroleum Regulatory Agency (DPRA)
- DPRA will be responsible for all downstream petroleum activities including
  - Oil and gas
- DPRA shall perform the functions of present day PPRA and DPR in terms of the technical and commercial regulation of the entire oil industry

# PIB –Objectives of the DPRA

- Regulate commercial activities within the downstream sector as designated by the Minister
- Regulate technical aspect of the downstream petroleum sector
- Promote the efficient development of transportation infrastructure for crude oil to downstream facilities, gas and petroleum products
- Execute Government policies for the downstream petroleum sector as may be assigned by the Minister

# PIB

- Absence of an independent downstream gas regulator
- Establishment of a bill that gave the Minister omnibus powers over both the upstream and downstream petroleum market

# NATURAL GAS AND ELECTRICITY GENERATION

# Gas and Power

- 6,000 MW installed capacity out of which 75% is gas powered
- 30,000MW installed capacity projected for 2020 through the vision 2020.
- Majority of the projected capacity will be gas-fired
- Gas availability therefore is critical to achieving stable and affordable electricity in Nigeria
- Gas cost constitutes about 40% of wholesale electricity tariffs in Nigeria
- What goes on in gas sector has huge implications for the electricity sector

# Natural Gas and Electricity Chain

## Chain Participants and Stakeholders

- Gas Producers
  - IOCs
  - NPDC
- Gas Processors
  - IOCs
  - Future CPFs owners
- Gas Transmission company
  - NGC
- Gas Customers
  - PHCN, IPP, NIPP
  - Industries
- Regulatory Authorities

# Gas to Power Chain

Power Plant, Transmission and Distribution



Pipeline transmission and metering



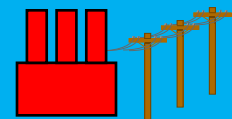
Liquefaction



Shipping



Re-gas



Market

Upstream

Gas Supply  
and processing

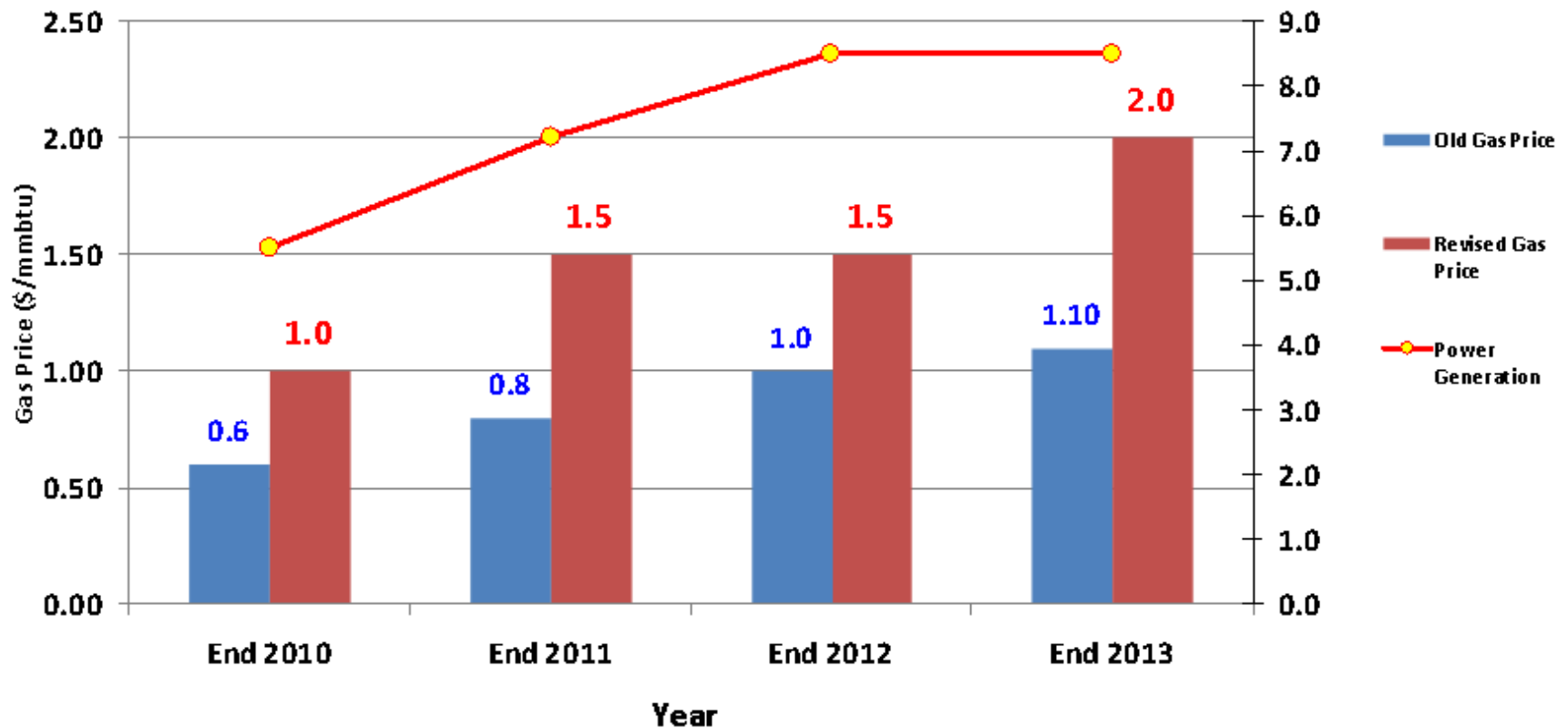
LNG production and  
shipping

LNG Terminal and delivery



# Gas pricing

Gas Price to Power Profile (2010-2013)



# Natural Gas and Electricity Chain

## Requirements

- Integrated planning
- Mutual understanding of plans and requirements due to mutual dependence
  - Appreciation of each others needs
  - Willingness to go into a very long term contract – 20 years
- Assured return on investment and Profit
  - Mitigation of risks
- Sustainability
- Reliability
- Coordinated maintenance

# Challenges to Effective and sustainable Gas- to -Power

# Challenges

- Gas Availability - Unprecedented pace of growth in demand – domestic, regional and export.
- 2. Gas Affordability - Unprecedented rise in global gas price vis-à-vis the varying capacity of gas buyers to pay.
- 3. Gas Deliverability - Inadequate gas transportation and processing infrastructure
- 4. Commerciality of Supply - History of commercial poor performance of the domestic gas sector – low price, unpaid bills, weak and unenforceable GSPAs'

# Challenges

- Legal and regulatory framework- absence of clear institutional and independent regulatory framework to promote certainty in investment in local gas production
- Unprecedented rise in global gas prices limits investment in local gas production and making export a preferred investment option
- Uncertainty about effect of new US Shale gas exploitation on global gas market

# Obstacles to gas development

- Provision of third-party access
- Framework for pipeline ownership and management
- Tariff structure to facilitate entrants of third parties whose gas pricing is at variance with the DSO pricing framework
- Integration of existing and upcoming pipeline system ie, development of a proper gas transmission grid
- Gas transportation code

# Summary

- Reforms in power and gas sectors must complement each other to leverage on opportunities in both sectors. Synergy must be created
- Gas Availability is critical to the success of the reforms in the Power Sector
- Regulatory certainty and transparency in both gas and power are key to attracting necessary investments into the gas sector
- Regulatory independence is central to achieving government objectives in both sectors.
- Unbundling of downstream gas regulation from the downstream petroleum regulation will boost market confidence. A PIB that will guarantee independence of the regulator is a pre-requisite



# Thank You

Contact us at:

**Adamawa Plaza, Plot 1099 First Avenue,  
Off Shehu Shagari Way,  
Central Business District,  
Abuja**

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