

NIGERIAN GAS COMPANY



Nigerian Downstream Gas Business – structure opportunities and Reforms issues

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Approach

- **The Nigerian Gas Industry**
 - The Overview & Historical Development
- **Gas Utilization**
- **Natural Gas Infrastructures**
 - Issue of limited existing pipeline Facilities
- **Opportunities for Gas Utilization**
 - Domestic and export potentials
- **Impediments to sectoral growth**
- **Reforms**
- **Summary**

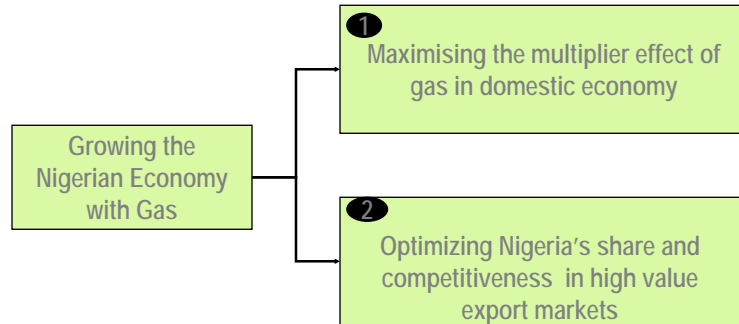
The Nigerian gas Industry

- Structure
- Facts
- Issues

Historical Devt of the Nigerian Gas Utilization

YEAR	Achievement
1957	First oil and gas discovery
1959	First commercial exploitation of oil
1963-68	First non-commercial use of gas by SPDC to ECN Afam, Delta PPs & Aba Ind
1978	NNPC/SPDC built 1 st transmission pipeline (Ogorode-Sapele) to supply ECN Sapele
1981-83	NNPC built Pipelines to supply Steel Coys at Aladja and Ajaokuta
1987	NGC built Pipeline to supply NAFCON Onne fertilizer plant
1988	NGC established to transport and market gas in Nigeria & WA sub-region
1989	Escravos- Lagos Gas Pipeline system (ELPS) built
1992-96	Gas supplied as energy to cement and aluminum sectors
1999	NLNG exports commenced
2000	Gas Distribution to industries in Lagos commenced
2004	FID on first export pipeline (WAGP)
2005	The Electricity sector reformed by Act of Parliament
2005	New LNG programmes at advanced stages (Brass, OK etc)
	FID for first commercial GTL plant by CNL
2006	Increased in-country capacity for cement - Obajana Commenced operation

National aspirations: 2 Key Value Drivers for Nigerian Gas



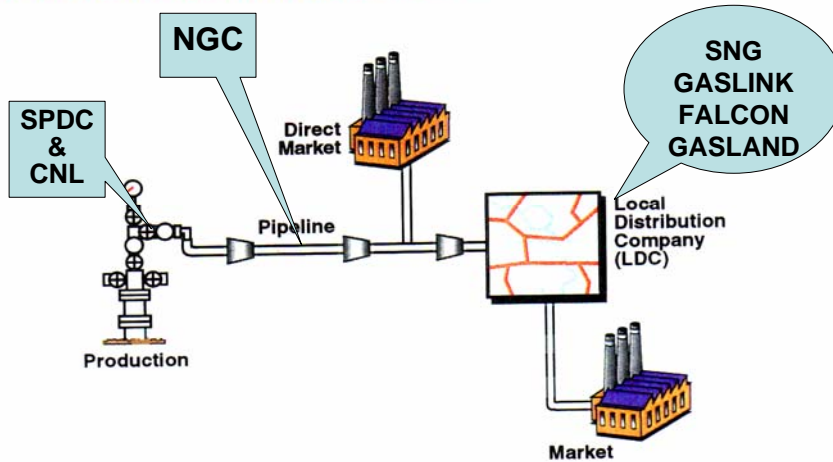
- Gas to power new power plants on a commercial and sustainable basis
- Emphasis to be placed on domestic gas projects before considering exports

Overview of the Nigerian Gas Industry

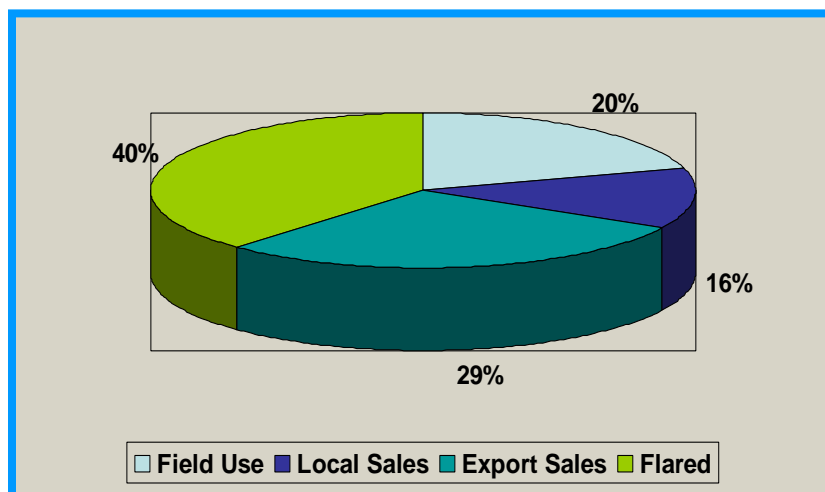
- | | |
|--------------------------|---|
| • Current Reserve | 184Tcf could reach 300Tcf/yr |
| • Production | >4.0Bscfd |
| • %Flaring | 34% in 2006, Down from 69 % in 1999 |
| • Utilization | |
| – Domestic | 0.75Bscfd (2004) & projected 2.5Bscfd by 2007 |
| – Exports | > 3.2Bscfd in 2006 |
| • Key Players | |
| – Producers | SPDC/CNL/Mobil/Agip etc |
| – Transmitter | NGC |
| – Distributors | Gaslink/SNG/Falcon/Gasland |
| – End consumers | Power/Fertilizer/Cement/Manufg. |

Structure of the Nigerian gas chain

Direct Connection to Market & Indirect Connection Through LDC

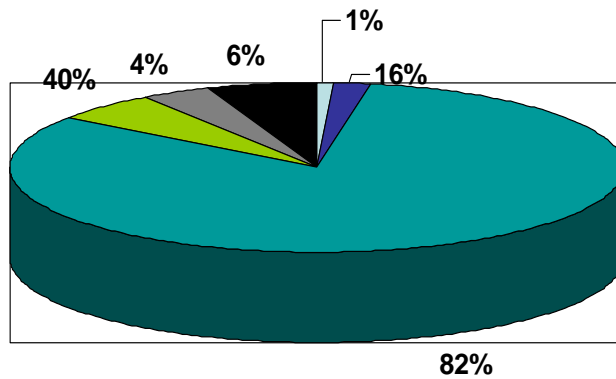


Gas Utilization in 2006



Nations flared gas constitutes 20% of world's total flared gas , enough to supply gas for power generation and other utilizing projects to the entire sub-Sahara Africa in a year.

Gas Off-take by Sector in 2006



The Power Sector Gas Off take constitutes over 80% of total gas consumption

On-going Efforts at Gas Utilization

Export Utilization

- NLNG trains 1 - 3, 4 & 5.
- GTL Plant - NNPC/Chevron/Sasol
- NGL Extraction -Oso NGL recovery & Chevron EGP
- WAGP - Gas supplies to West Africa

Domestic Utilisation

- Power generation- 4 PHCN stations (Geregu, Papalanto, Omotosho & Alaoji)
 - New NEPA Plants and NAOC Kwale, Mobil & Ibom IPP
- Steel and aluminium
- Fertilizer
- Cement
- Manufacturing

Note Items in red are for exports

Planned Efforts at Gas Utilization

- **New LNG Programmes**

- **NLNG Train 6**
- **New promoters**
 - Brass LNG
 - OK LNG
 - Exxon Mobil FLNG
 - Nwadoro LNG

- **Trans - Sahara - To Algeria & Europe**

- **Trans Nigerian Pipeline System**

- **Power generation** - Abuja IPP

- Others - State govt. plan IPP's e.t.c

- **Others** - Methanol, Gas to Olefins & CNG

Note Items in red are for exports



Gas Supply
Infrastructure
(Domestic)

Summary of Existing NGC Facilities

- **14 Compressor Stations**

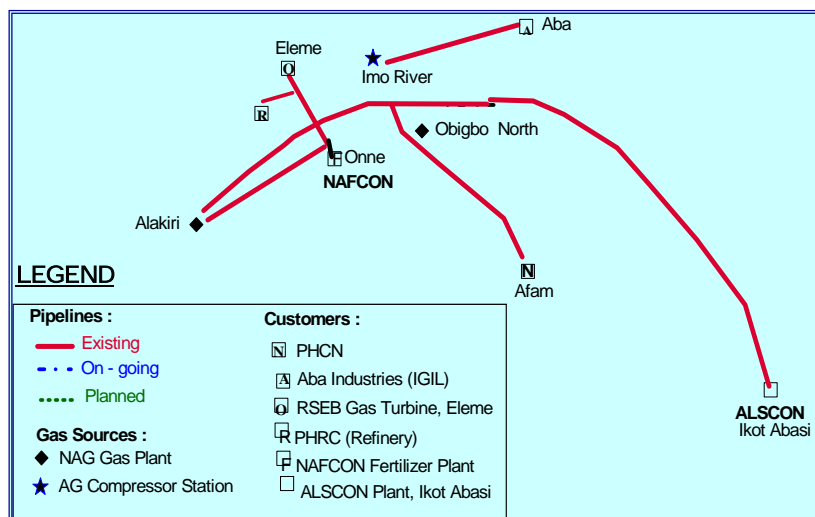
- ❖ 12 stations are leased out to SPDC

- 4 stations: Eriemu, Utorogu, Afiesere, & Sapele have been rehabilitated and are operating;
 - Remainders are being taken over for rehabilitated.

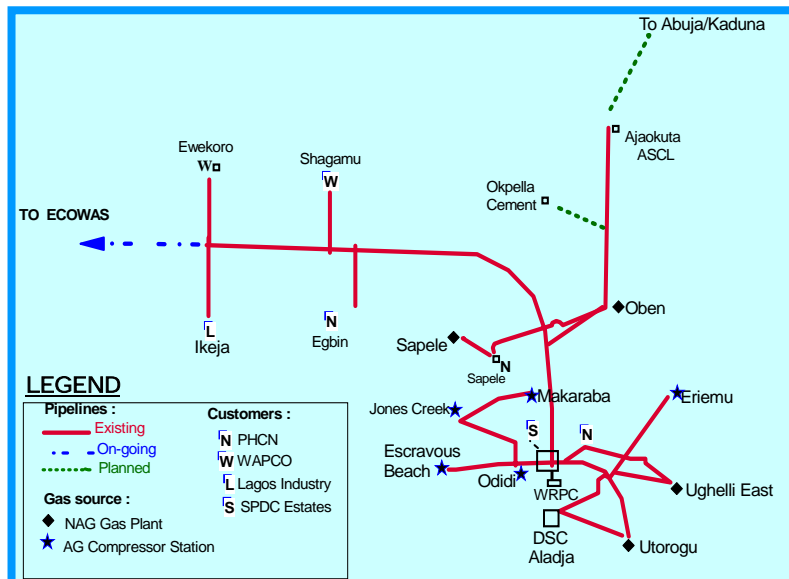
- **20 Metering Stations; 1,200km of Pipelines and related facilities**

- **2.04 Billion scf/d total installed capacity, present demand of approx 570mmscf/d**

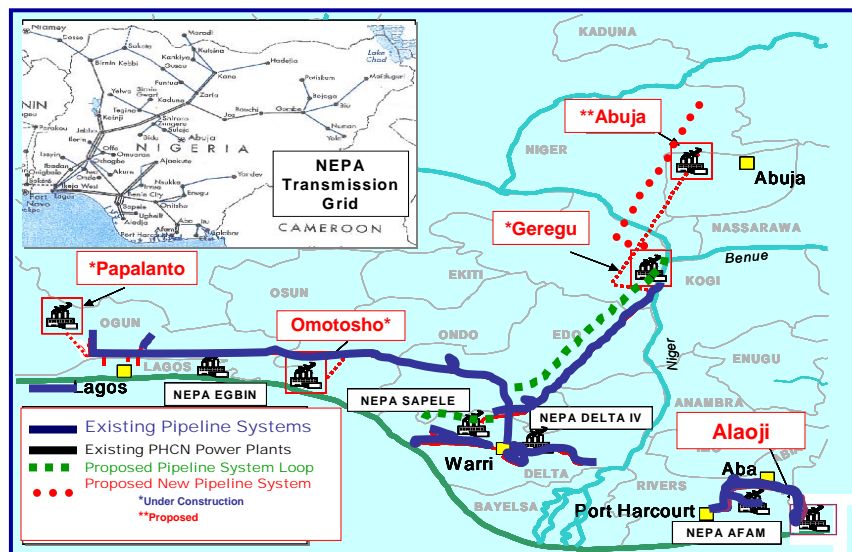
Eastern Gas Transmission System



Western Gas Transmission System



Gas supply to the New PHCN Thermal Stations



NGC pursuing an Integrated Network

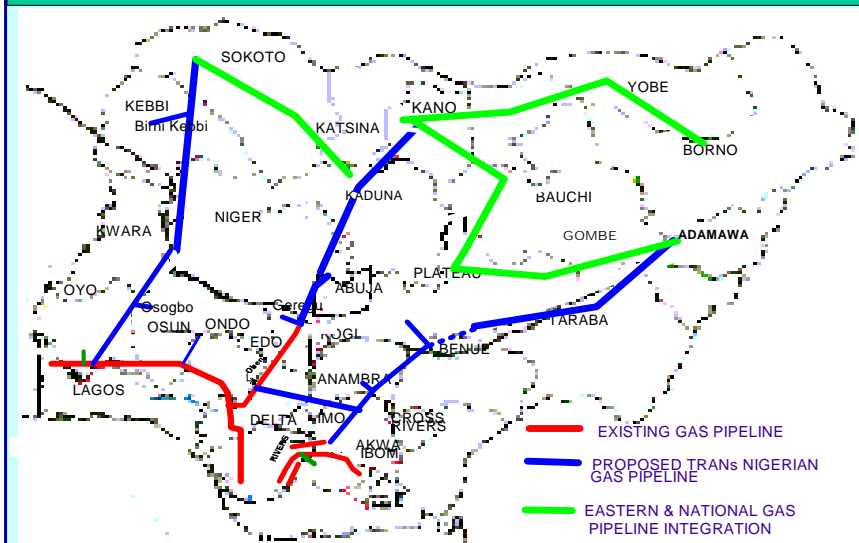
Objective

- Enhance flexibility in gas flowing operations
- Reduction of unit cost of operation
- Enables proper facility maintenance while ensuring minimum interruption

Networking: New Pipeline projects being pursued:

- Eminent / on-going projects (about \$1.0Bill)
 - Gas Supply to Abeokuta (\$50Mill)
 - Gas supply to Oyo state (\$160Mill)
 - ELP – Jebba Trunk pipeline - supplies to Osun, Ekiti, Kwara etc. (\$400Mill)
 - Gas supply to Geregu, Omotosho, Papalanto and Alaoja (\$384Mill)
- Future projects
 - Ajaokuta –Abuja- Kaduna Pipeline System
 - Aba-Enugu- Gboko Pipeline system
 - East –West Link Pipeline System

The NGC's Dream of pipeline network



Opportunity for Gas Utilisation

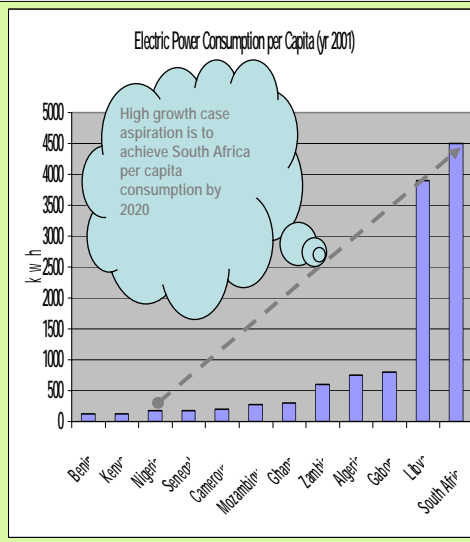
POTENTIAL FOR DOMESTIC GAS MARKET

POWER SECTOR

Electricity Consumption per capita;

Nigeria	111kwh/cap
Ghana	350kwh/cap
Gabon	750kwh/cap
South Africa	4500kwh/cap

- 15 new gas fired plants being built
- 12,000 Megawatts expected by 2010



POTENTIAL...

FERTILIZER AND CEMENT SECTORS

- Consumption per Capita for Fertilizer

•Cote D' Ivore	-	21kg/hr
•Malawi-		22kg/hr
•Malaysia	-	150kg/hr
•Nigeria-		13kg/hr

Dangote
cement and
other private
sector
initiative to
the rescue

- CONSUMPTION TO INCREASE BY 7MM MT IN THE NEXT FIVE YEARS.

- NIGERIA- LARGEST IMPORTER OF CEMENT, TOTAL DEMAND 6 MILLION METRIC TON/ANNUM, 50% IMPORTED.

- NIGERIA NEEDS NEW CEMENT AND FERTILIZER PLANTS

POTENTIAL...

DISTRIBUTION / TRANSPORTATION

GAS DISTRIBUTION:

- Greater Lagos,- GASLINK LTD
- Otta & Agbara, - SHELL NIGERIA GAS
- SPDC AND NNPC ESTATES WARRI- NGC
- Ekpe-Lekki- GASLAND LTD
- Ukorodu - FALCON NIG LTD
- Aba Distribution -SPDC

- TRANSPORTATION - CNG PROPAGATION.

- New commercial CNG stations being planned in 2007
- In country CNG conversion technology resident in NGC

EXPORT MARKET POTENTIALS OF NIGERIA'S GAS

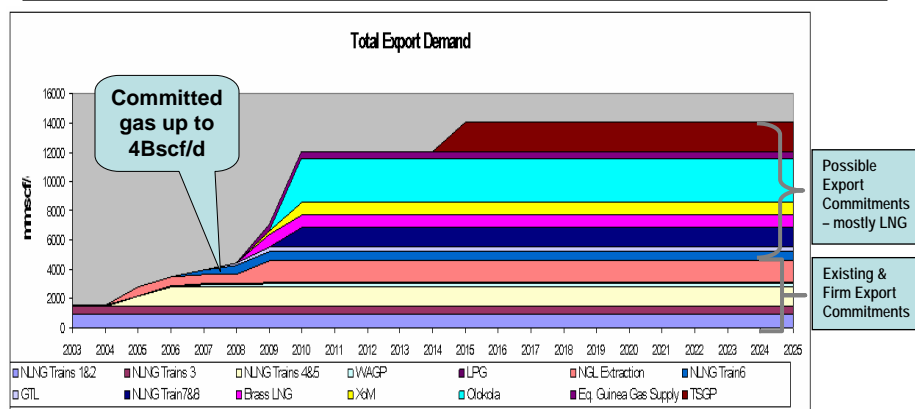
NGL/LNG/GTL

- Chevron GTL
- NLNG T1 –T6
- Brass LNG
- Olokola LNG
- Kwandoro Floating LNG

EXPORT PIPELINES

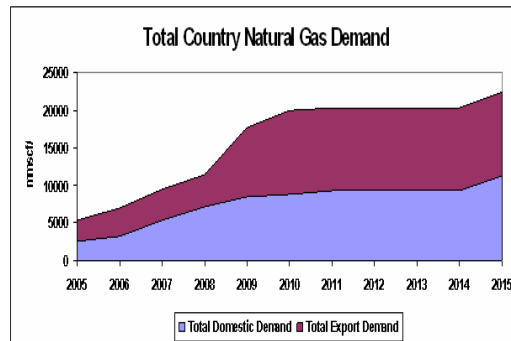
- WEST AFRICAN GAS PIPELINE PROJECT
- TRANS-SAHARA GAS PIPELINE
- EQUATORIAL GUINEA EXPORT GAS SUPPLY

Export Demand Breakdown



Export demand driven by a highly diversified mix of very firm and possible projects. However, despite diversity of possible projects, LNG still accounts for over 70% of the possible projects

Gas Demand Growth in Nigeria



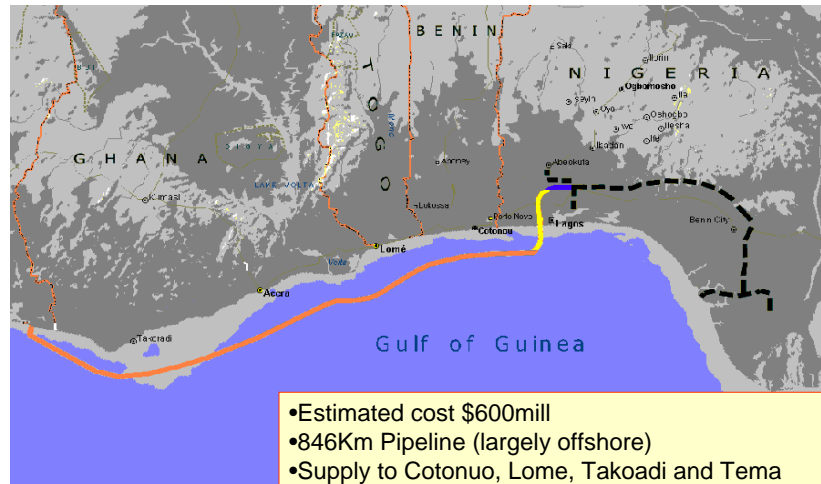
- Domestic Sector
 - 22 Power plants
 - 6 Fertilizer plants
 - 3 Methanol plants
 - 3 GTL plants
- Export Sector
 - 1 Existing LNG plant
 - 2 Planned new plants



There is a significant growth projected for the export market. This was largely anticipated. Of significance however, is the unprecedented and unanticipated growth in the domestic sector. Underpinning both markets is a robust mix of opportunities which provide a platform for economic growth

Export Pipelines

West African Gas Pipeline Project



- Estimated cost \$600mill
- 846Km Pipeline (largely offshore)
- Supply to Cotonou, Lome, Takoadi and Tema
- Commissioning Nov. 2007
- Initial Vol 133mmscfd and 400mmscfd by 2025
- NNPC own 25% of investment

Trans-Sahara Gas Pipeline Project

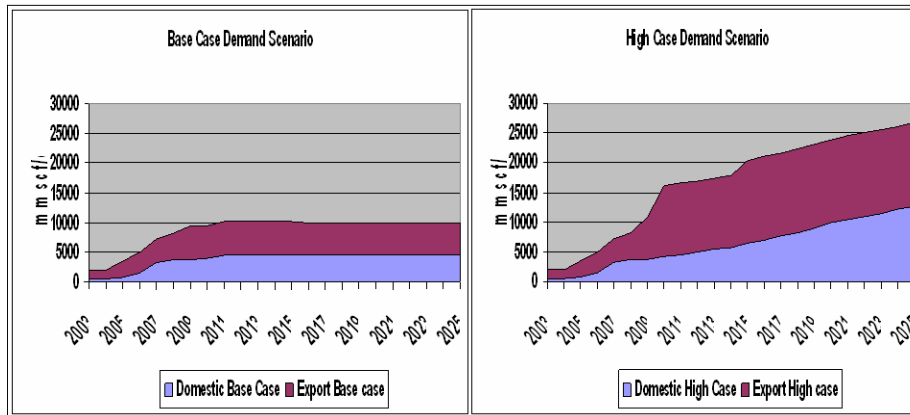
- A Collaborative effort by Nigeria and Algeria to Supply Nigerian Gas to Europe.
- Feasibility Study phase completed, definitional stage being pursued

Estimated 4188km of 56" pipeline at 100barg to be laid across Nigeria, Niger and Algeria with 18 compressor units to boost pressure
Gas to be sourced from gas Fields operated by CNL and MOBIL
Estimated cost \$12.2Billion
Over 2.0Bscfd to be supplied to Europe from 2016
Project viable and bankable
Netback price of pipeline gas competitive with that of LNG transport
Current sponsors are NNPC and SONOTRACH (Algeria)

- Will consolidate Regional Co-Operation and Diversify World's Energy Supply Sources.

Gas Demand Overview

Demand Forecast – Domestic Demand Relative to Export



In both scenarios, domestic gas demand shows significant increase (about 40-50%) as a proportion of total demand than previously observed levels (of about 20%)

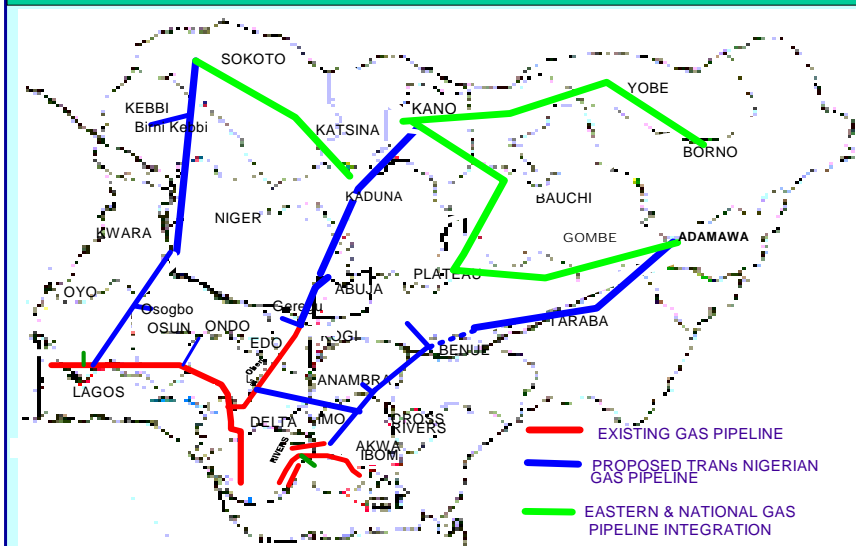
Issues of Growth in Gas Demand

- Power to grow from about 0.60Bscfd to about 3.0Bscfd
 - The mandate to generate 10,000MW by 2007
 - New opportunities for IPP
 - The race to set up gas based and process industries, Methanol, Urea Fertilizer, NGLs etc
- Gas supply is not growing at the same magnitude
- New gas supply projects are being encouraged by export opportunities thus neglecting domestic supplies
 - High export price of gas reaching \$13.7/mmbtu in cold seasons
 - High comparable oil price reaching \$77 barrel
 - High energy consumption of the growing economies –China, India
 - Lack of assurances in the supply scenario from the Middle east
 - Terrorism and its wider implication
 - The quest by advanced countries to meet their energy supplies

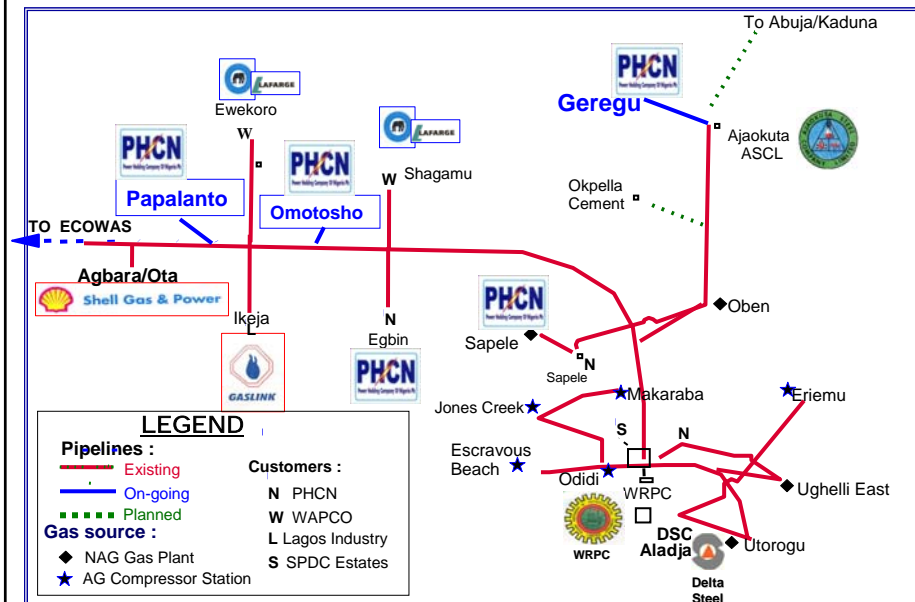
Impediments

Limited pipeline Infrastructure.....

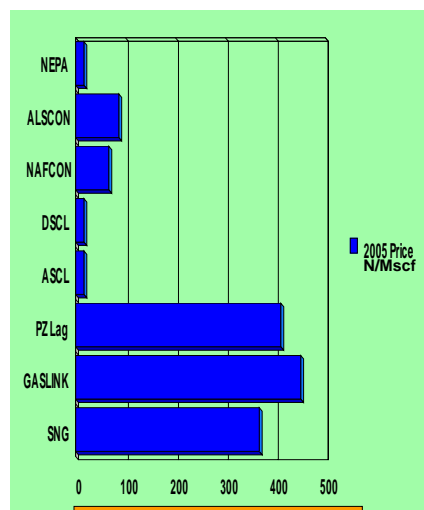
NGC has 1200Km of pipelines that limits its activities to the west and east of the Niger
ELP the major trunk pipeline capacity is almost fully committed
Need to expand the system by building trunk pipelines as part of National infrastructure



The Western pipeline is the backbone



2005 NGC's end consumer gas prices =N=/Mscf



NEPA to pay N70/mscf in 2006
=N=128/\$

- Government owned companies paying non-commercial prices
- Commercial companies pay prices relative to competitive fuels
- Wide disparity in prices
- Bundled prices that are highly subsidized
- Subsidies borne by NGC and producers

Pricing issues

- Current prices are too low to support constant investment flow
 - Prices to strategic sectors to remain regulated with in-built concessions to support the power and heavy government industrial concerns which together consume over 90% of domestic sales
 - Power sector currently pays \$0.25/mscf as compared to between \$3-\$4/mscf by commercial private companies
 - Gas sales to Commercial companies is indexed to price of most competing alternative fuel e.g. LPFO
 - While the power sector dominates the domestic gas sector in terms of volume consumption, it distorts investment flow due to its ridiculously low gas price
 - Economic indicators to supply to new PHCN plants shows that it may not be profitable to supply gas even at \$0.55/mscf

Overbearing influence of NNPC

- NGC/NNPC over involvement
 - Regulator
 - Producer
 - Transporter
 - Distributor
 - Marketer
 - Policy maker
 - Government Agent
- Renders Bundled service with limited transparency

Gas Sector Reforms

Pricing Reforms

NNPC is pursuing a reform of the Gas pricing framework

- Strategic sectors (power, fertilizer etc.) to be give concessionary price
- Non-strategic sectors to be driven by commercial principles
- Transitional prices need to ramp up prices in the non-strategic sectors to commercial levels

Status:

- Pricing structure Regulation being finalised
- The New policy will cure the current problem in gas supply shortfall

Fiscal Reforms

New Fiscal law being pursued

- Provide equitable share of economic rent to FGN
- Eliminate FGN subsidy of existing project-specific regimes – they will not be renewed
- Level the playing field for all investors
- Provide incentives for investment in local infrastructure
- Use gas to drive the economy
- Improve revenue stream from gas to a level comparable to that of oil
- **Progress:**
 - New fiscal Bill before the Legislature to be passed into Law before May 2007

Legal & Regulatory Reforms

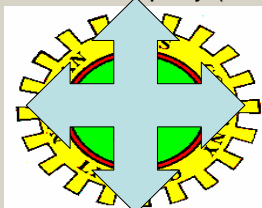
- **Enactment of the Downstream Gas Act to:**
 - Create the Gas Regulatory Commission to regulate the Commercial aspect of the Downstream Gas Sector
 - Create licensing regimes
 - Legislate for Open Access rights to pipelines
 - Promote competition and prevent anti-competitive behaviour
- DPR will continue to regulate technical and safety aspects of the sector

Progress:

The Downstream Gas Bill is being discussed at the National Assembly- Public hearing just concluded

Unbundling of NGC

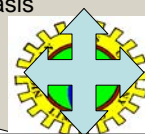
- NGC to be Unbundled into; :
- Nigerian Gas Marketing Company (NGMC)
- Nigerian Gas Transportation Company (NGTC)



To liberalize and loosen boxed-up activities for expansion of the operations and commercialization of the Nigerian gas industry leading to competition in the downstream gas market.

The Downstream Gas Bill

- Regulation of Downstream Gas Business
 - Create the Gas Regulatory Commission to regulate the Commercial aspect of the Downstream Gas Sector
 - Independence of the Regulator to be assured
 - Government involved only in Policy direction
 - Regulator to generate its own funds through surcharges
 - DPR will continue to regulate technical and safety aspects of the sector
 - GRC can issue 4 types of Licenses
- Unbundled Service and fair competition
 - NGC to be unbundled:
 - NGCT to be 51% owned by strategic investor
 - NGMC to be owned by NNPC and will compete on equal basis



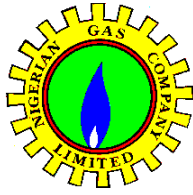
The Downstream Gas Bill

- Issues around the Bill
 - The boundaries of Downstream activities
 - Are LNG, GTL NGL covered by the Bill? – definitional
 - What about legacy issues with LNG gas supply contracts?
 - Legacy issues on existing GDZ
 - Open Access or Third party access
 - Should the minister control the GRC
 - Should NGMC be own 100% by NNPC
 - What are the boundaries between GRC and DPR activities
 - What is in the Bill for the Host Communities?



Summary

- Nigeria is regarded as a Gas Province with some oil
- While rapid expansion is being witnessed in oil E&P activities, Gas development has remained at the infancy stage
- Govt. has identified the barriers to gas development, and has devised strategies to overcome them- the policy and Gas Bill
- Strategies designed to encourage investment
- Domestic and export potentials exist for gas
- LNG, GTL currently dominated the current gas monetization programme- should they be ring fenced and seperately regulated?
- Domestic utilization present great opportunity for investment
- Funding of gas projects is a big industry challenge



*NGC powering the nations
economy through gas.....*

Thank you