Domestic LPG Market Growth – Infrastructural Challenges & Opportunities

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Outline

• Nigeria LPG Facts & Figures

• Nigeria LNG Domestic LPG Supply Scheme: *Gains of Intervention*

• Supply Chain Analysis: *Key Challenges*

• Barriers to Market Development: *Opportunities*
Nigeria is a net exporter of LPG in Africa, producing over 2 MTPA, consumes barely 15% of the volumes & exporting the rest.

LP Gas is the least utilized of the four major cooking fuels – Firewood, Kerosene, Charcoal, Gas.

Per capita consumption is just above 1kg in Nigeria which is comparatively less than other West African countries like Ghana (4.7kg) and Senegal (9kg) per capita (WLPGA).

Nigeria spends over $1bn p.a. on kerosene subsidy and faces increasing environmental challenges with continuous deforestation as over 50% of households still rely on firewood as cooking fuel.
Nigeria LPG Supply/Demand Potential

- Total verifiable LPG production in 2014 is in excess of 2.15 mtpa of which less than 15% was supplied into the domestic market.

- NLNG have reserved 250,000 tons per annum for the domestic market.

- Current per capita consumption of just above 1kg is significantly lower than similar LDCs (Indonesia – 24kg, Egypt – 85kg & South Africa – 8.5kg).

- Projected consumption figure based on 2004 World Bank estimated market potential is 3.2mt/year.

- Significant latent demand that requires focused stimulation.

### 2012 Consumption - Million Tonnes/Annum

<table>
<thead>
<tr>
<th></th>
<th>India</th>
<th>Egypt</th>
<th>Indonesia</th>
<th>South Africa</th>
<th>Nigeria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption</td>
<td>25.21</td>
<td>4.23</td>
<td>7.96</td>
<td>0.59</td>
<td>0.17</td>
</tr>
</tbody>
</table>

Source: EIA and Population Reference Bureau
Over 700,000 Metric Tonnes delivered into the DLPG market since inception of NLNG supply scheme.

- Annual Allocation increased from 150,000 Metric Tonnes to 250,000 Metric Tonnes in 2013 due to growing demand.
- Improved Jetty Availability/Capacity & increased revenue for owners – Navgas (NIPCO & PPMC) and NOJ.
- Increased Participation – Growth of New Entrants & Plants with number of off-takers increased from 6 to over 20

Source: NLNG In-house data

- Encouraging infrastructural investments: Conditional SPAs signed with some storage developers and discussions ongoing with terminal/storage infrastructure investors
- Increased awareness of gains of LPG over competing fuels and advocacy with key stakeholders over deepening the DLPG industry in Nigeria.

Volume (KT)

- **Volume Supplied**
- **Annual Allocation**
- **Cumm. Supplied**

Cumm. Volume (KT)

- **Volume Supplied**: 41, 57, 56, 76, 99, 125, 156, 119, 730
- **Annual Allocation**: 0, 0, 0, 0, 0, 0, 0, 0, 0
- **Cumm. Supplied**: 41, 108, 164, 240, 365, 521, 677, 796

Source NLNG In-house data
Supply Chain Analysis: Key Challenges

Production/ Supply

Bulk Transportation

Bulk Storage

Inland Transportation & Distribution

Cylinders & Accessories

Retail Outlets/ End users

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Supply Chain Analysis: Key Challenges

**Production / Supply**
- Sub-standard products from some supply sources
- Product quality specification compliance and monitoring issues (sub-standard imported products?)

**Shipping**
- Inadequate low-draft vessels (only 1 in Nigeria)
- Inefficiencies in shipping operations leading to high unit freight cost
- Channel Draft restrictions (Calabar access)
- Maritime Security
- Jetty occupancy, availability & turnaround times

**Receiving Facilities**
- Inadequate and unevenly spread receiving terminals – Only 2 operational terminal in Lagos
- Limited jetty availability – few jetties & low priority for LPG in Lagos Terminals
- Restricted access- Limited Open Access
- Inefficient/unsafe operations
Supply Chain Analysis: Key Challenges

**Inland Transportation & Distribution**
- Inadequate Transportation Infrastructure – Road network/functional pipeline/ rail network
- Few & mostly Sub-standard trucks – Truck specification monitoring for safety in operations
- Inadequate secondary/bulk storage facilities (size/spread) & few bottling plants – 301 nationwide mainly in the south.

**Cylinder & Accessories**
- No functioning Cylinder manufacturing plant in-country
- Lack of Standardization
- High startup/switching cost
- Cylinder availability & Ownership Issues

**Retail Outlets/End Users**
- Fragmentation and lack of control
- Low per capita household coverage – limitations on accessibility
- Unethical, Sub-standard & unsafe operations - impact on acceptability
Barriers to Market Development: Demand pull vs. Supply Push

Accessibility

Demand Side
- Local LPG Supply to households
- Smaller Cylinders
- Full local sales and service
- Fast and convenient refills
- Plenty of cylinders frequently refilled

Supply Side
- Dispersed Customers
- Long supply chains
- Inadequate supply Infrastructure
- Need several local agents
- High investment, Risk & Mtce costs

Affordability

Demand Side
- Ability to Pay
- Need for Credit
- High start-up cost
- Access to Credit
- Below Poverty line Households
- Subsidized competing fuels

Supply Side
- Low LPG Prices
- Small Margins
- Economic Viability
- Subsidies for Entry Appliances
- Need to Reduce Overheads
- Third party financial Support

Acceptability

Demand Side
- Low or zero cost fuel alternatives
- Higher Fuel Cost
- Safety and proper Usage
- Friendly Household Energy policy
- Zero Rated Taxes
- Many Competing Suppliers

Supply Side
- Cost of Competitive Marketing
- Low Margins
- Costly User Education
- Small Volumes of LPG
- Gov’t Policy Favor Other Fuels
- VAT on LPG Sales
- Exclusive Supply Territories

Both demand & supply-side development initiatives are key to unlocking market potential
# Barriers to LPG Adoption

## Reasons for not using LPG

<table>
<thead>
<tr>
<th>Rank</th>
<th>Concerns</th>
<th>Description</th>
<th>Critical</th>
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<tbody>
<tr>
<td>1</td>
<td>Affordability</td>
<td>I can't afford LPG. I don't have a cylinder and can't afford one.</td>
<td>• 71% of non-users are willing to spend up to N2000 /per month on LPG</td>
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</table>
| 2    | Awareness      | I don't see the difference between LPG and other cooking fuel.               | • 89% do not have gas cylinder in their home  
  ✓ Of those, 97% willing to spend up to N2000 in buying cooking gas in cylinder |
| 3    | Availability   | Nobody sells LPG/ cooking gas around here.                                   |          |
| 4    | Safety         | Can cause fire outbreak                                                     |          |
| 5    | Others         | I prefer other fuels (kerosene, firewood, charcoal).                          |          |

If the issues of affordability, awareness, availability and safety are addressed, 69% of non-users can be converted.

Source: KPMG Domestic LPG Market Survey 2015

Accessibility, Affordability and Acceptability are key barriers to LPG adoption.
Conclusion: Making It Happen

1. Favorable Govt. Regulation
   - LPG Utilization Policy?
   - Phased removal of Kerosene Subsidy?
   - LPG Pricing policy?

2. Granting Incentives
   - Tax Holidays?
   - LPG VAT Removal
   - To Suppliers, Offtakes, Bottling, Storage, trucking Retailers & other industry players
   - Credit Schemes

3. Improving Infrastructure
   - • Facilitating Investment along the supply chain
   - • Financing

4. Creating Awareness
   - Safety campaigns
   - • Adverts,
   - • Media campaigns,
   - • Branding,
   - • Workshops, Seminars

5. Empowering Consumers
   - Kero – LPG Switching Schemes
   - • Subsidized Switching Cost?
   - • Cylinder Fund?
Thank you