Looking Beyond Domestic: Are we ready?

I S Rao
ED (LPG) - BPCL
Global LPG Scenario

- **World wide Availability**
  - Natural Gas Wells – 62%
  - Refineries – 38%

- **World wide LPG Consumption**
  - Non Domestic – 51%
  - Domestic – 49%

Auto LPG is preferred alternate fuel across the Globe.
LPG Scenario - INDIA

• Current Annual demand – 24 MMT

• Availability
  - Imports – 52%
  - Refineries – 48%

LPG Consumption
  - Domestic – 90%
  - Non Domestic – 10%

Domestic growth to be low, while Non Domestic Segment to grow
LPG Scenario - INDIA

• 2\textsuperscript{nd} Largest Domestic LPG consumer in the world
• 3\textsuperscript{rd} largest consumer of LPG in the world.
• 2\textsuperscript{nd} largest importer of LPG in the world.
• 7\textsuperscript{th} largest LPG producing country in the world.
• Unprecedented expansion of LPG market in last 3 years.

India is one of the fastest growing economy with average GDP growth of 7.1%.
Trends

Pre PAHAL
- Mainly Domestic
- Negligible Growth in Other Sectors

PAHAL
- Growth witnessed in Commercial Sector
- Domestic growth curtailed

Ujwala
- With 30 million connections Domestic Growth back on track
- Shift from urban to Rural

Future
- Growth expected from non-cooking uses

India is moving from Urban to Rural – can there be other Commercial uses of LPG
Energy Scenario

Where do we stand?

- India is the third largest Energy Consumer in ASIA.
- Per capita energy consumption = 1/3 Global Average (Global average 1920 kg of oil equivalent)
- Energy Intensity of India = 2 X Matured Economies.
- Energy Efficiency is increasing.

Major factors

- Production, Consumption & Assured Supply

Future trends

- Share of Commercial and Domestic to increase.
- Fuel changes in Transport Sector
- Increase in per capita productivity.
Commercial & Industrial Energy Sources

- LPG competes with:
  - Solid Fuels
  - PNG
  - LDO
  - HSD
  - FO
  - Biomass / waste
  - Several others.

Economics and environmental concerns to drive the demand
LPG in Commercial & Industrial Applications

**Drying**
- Food Processing
- Textiles
- Leather
- Furniture

**Direct Air Heating**
- Pharma
- Specialty Chemicals
- Paper
- Laundry

**Metal**
- Soldering
- Welding
- Flame Cutting
- Heat Treatment

**Melting**
- Glass
- Bitumen
- Jewellery

**Aerosols**
- Propellant
- Emulsifiers

LPG is used for Refrigeration and Air Conditioning. It is also a Chemical Feedstock.
Potential Market – TEXTILE INDUSTRY

In Singeing and processing approx.
1 TMT of LPG is Consumed
Approx Potential – 50 TMT /Annum

LPG USAGE
- Drying
- Singeing
- Calendaring
- Dyeing
- Processing

Facts of Indian Textile Industry
- India’s textile industry is one of the economy’s largest.
- The industry scenario started changing after the economic liberalization of Indian economy in 1991.
- It has now become the largest industries in the world.
- Indian textile industry contributes about 14% to industrial production.
- 4% to country’s gross domestic product, 17% to country’s export earnings
- Provides direct employment to over 35 million people
- The textile industry of India also contributes nearly 14% of the total industrial production of the country.
- It also contributes around 3% to the GDP of the country
- It is the largest provider of employment after agriculture.
Potential Market – GLASS INDUSTRY

Melting

Holding

Blowing

Polishing

Stress Reliving

Approx Potential 10 TMT /Annum
Potential Market – AUTOMOBILE INDUSTRY

Approx. Consumption of LPG in Paint baking is 1.5 TMT to 2 TMT /Annum.
Approx Potential -- 100 TMT per Annum.
Potential Market – AEROSOL INDUSTRY

LPG in its natural odorless form best suited for aerosol industry

Ideal ‘propellant’.

Approx. Consumption of LPG in Aerosol Industry will be 4 TMT/Annum

Approx. Potential – 30 TMT/Annum

DEO SPRAYS GROWTH TRENDS - 2016

• Category Growth – Top 12 Brands in the Indian Market

6%

• Category Growth - Last 3 years: Indian Brands. Slowdown in Growth

<table>
<thead>
<tr>
<th></th>
<th>Year 2014</th>
<th>Year 2015</th>
<th>Year 2016 (Trend)</th>
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<tbody>
<tr>
<td>Male Deodorants</td>
<td>7.76%</td>
<td>6.17%</td>
<td>5.69%</td>
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<tr>
<td>Female Deodorants</td>
<td>4.20%</td>
<td>-1.50%</td>
<td>7.48%</td>
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</table>
Potential Segment – STEEL INDUSTRY

LPG Usage
Annealing
Billet Heating
Melting
Descaling
Stress Relieving
Pre-heating

Approx. LPG Consumption
Mini Steel plant – 2 TMT
Integrated Steel Plant – 6 TMT
Approx. Potential – 1.5 MMT/Annum

Current maximum uses in Orissa
Potential Segment – AUTO LPG INDUSTRY

Current Consumption of Auto LPG – 350 TMT/Annum
Approx. Potential – 500+ TMT/Annum

Number of automobiles sold in India (in millions)

Source: Society of Indian Automobile Manufacturers (SIAM)
Future Scope - AGRICULTURE

Flame Weeding

LPG is used in intensive cropping systems where a high level of heat is required in order to kill weeds, germs or diseases that may be present in the ground. LPG provides solutions to create a healthy seedbed economically, efficiently and environmentally friendly.

Crop drying

LPG is often used in this agricultural application because of its highly controllable nature.

Large Potential Available

AGRICULTURE IN INDIA
Total Geographical Area - 328 million hectares
Net Area sown - 142 million hectares
Gross Cropped Area - 190.8 million hectares
Net Irrigated Area - 56.9 million hectares
New Avenue - TEA INDUSTRY

In a tea factory, machineries run with electricity and heating, drying activities are done with coal.

Electricity & Coal requirements for heating and drying can converted from Coal to LPG,

Expected Annual volume 300 TMTPA for approx. 4500 Million Kg Tea production of India
Potential available

Total Approx. Potential – 6 MMT (Excluding Agriculture Sector)

30% of Potential can be converted into the sales i.e. 2 MMT.

Current Sales of ND Sector – 0.5 MMT.

Factors which may impact the Growth –
PNG Penetration in Domestic/Industrial Market.
Low cost availability of Coal, CNG, Furnace Oil.
LPG Demand & Availability Projection

Dependence on imports will continue
LPG Import Terminals – Name Plate / Achieved (2017-18) Capacity in MMTPA

Details of Sectors can be shifted through LPG like Power generation

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Company</th>
<th>Capacity Achieved 2017-18</th>
<th>Capacity Proposed Addition</th>
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<tr>
<td>Kandla</td>
<td>IOC</td>
<td>0.60 / 1.06</td>
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<tr>
<td>Haldia</td>
<td>BPCL</td>
<td>0.60 / 2.1</td>
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<tr>
<td>JNPT</td>
<td>BPCL</td>
<td>0.60 / 0.68</td>
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<tr>
<td>Mangalore</td>
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<tr>
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<td>Ach. 2017-18</td>
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<td>11.0 MMT</td>
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<td>Proposed Addition:</td>
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<td>Sikka</td>
<td>RIL</td>
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<td>IOC</td>
<td>0.60 / 2.1</td>
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<tr>
<td>Paradip</td>
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<tr>
<td>Ennore</td>
<td>SHV</td>
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<tr>
<td>Proposed Terminal</td>
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Proposed LPG Pipeline Network

**Existing Pipelines:**
1. Jamnagar - Loni: GAIL, 1415 KMs, Rated Capacity 2.50 / 3.25 MMTPA
2. Visakapatnam - Secunderabad: GAIL, 623 KMs, Rated Capacity 1.13 MMTPA
3. Panipat - Jallundhar: IOC, 273 KMs, Rated Capacity 0.70 MMTPA
4. Mangalore – Mysore – Yediyur: HPC, 356 KMs, Rated Capacity 1.94 MMTPA
5. Uran – Chakan: HPC, 168 KMs, Rated Capacity 1.00 MMTPA

**Under Implementation Pipelines:**
1. Paradip – Haldia – Durgapur – Barauni – Muzaffarpur – Patna: IOC, 1278 KMs, Rated Capacity 2.00 MMTPA
2. Ennore – Trichy – Madurai: IOC, 615 KMs, Rated Capacity 0.90 MMTPA

**Proposed Pipelines:**
2. Mangalore – Hassan – Cherlapally: HPC, 620 KMs, Rated Capacity 1.5 MMTPA

**Constraints:** ROW issues

All future pipelines based on investment – volume economics – needs to be incorporated in subsidy (Tariff equivalent or more than road tariff)
Infrastructure to Support LPG Growth

- Refineries & Fractionators – 12 MMTPA
- Existing Imports facilities – 13 MMTPA
- Proposed Import facilities - 5 MMTPA
- Bottling capacity – 16 MMTPA being augmented to 25 MMTPA
- LPG Pipelines – 2600+ km, capacity 7.2 MMTPA, being augmented to 8500 km, 19 MMTPA
- Rail wagons are being inducted to increase rail movement by 30%
Thank you