



25th world gas conference
"Gas: Sustaining Future Global Growth"

LNG and NG in India

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Date: 6th June 2012

Venue:



Patron



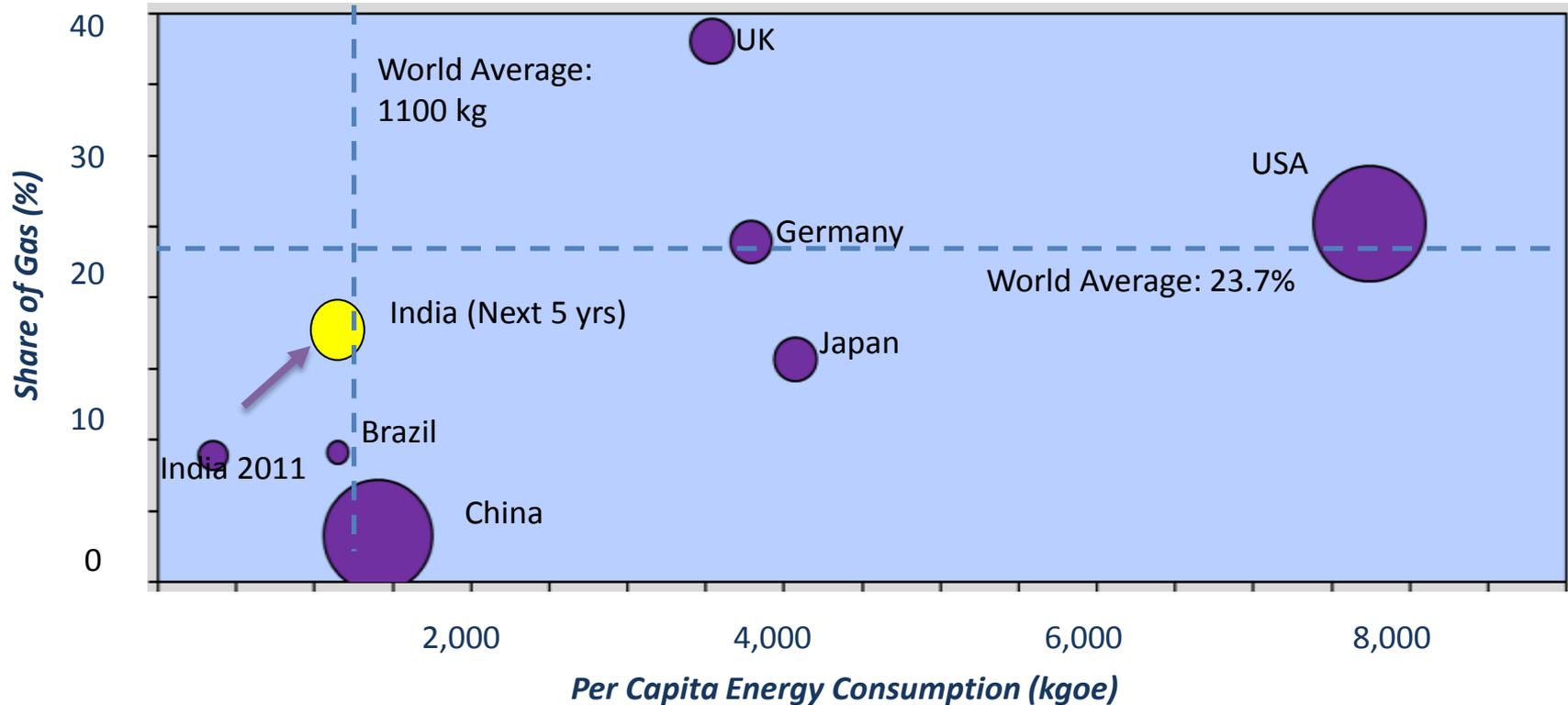
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Indian Gas markets vis-à-vis global markets in 2011



● Bubble size denotes Primary Energy Consumption

Source: BP Global Statistical Review of World Energy

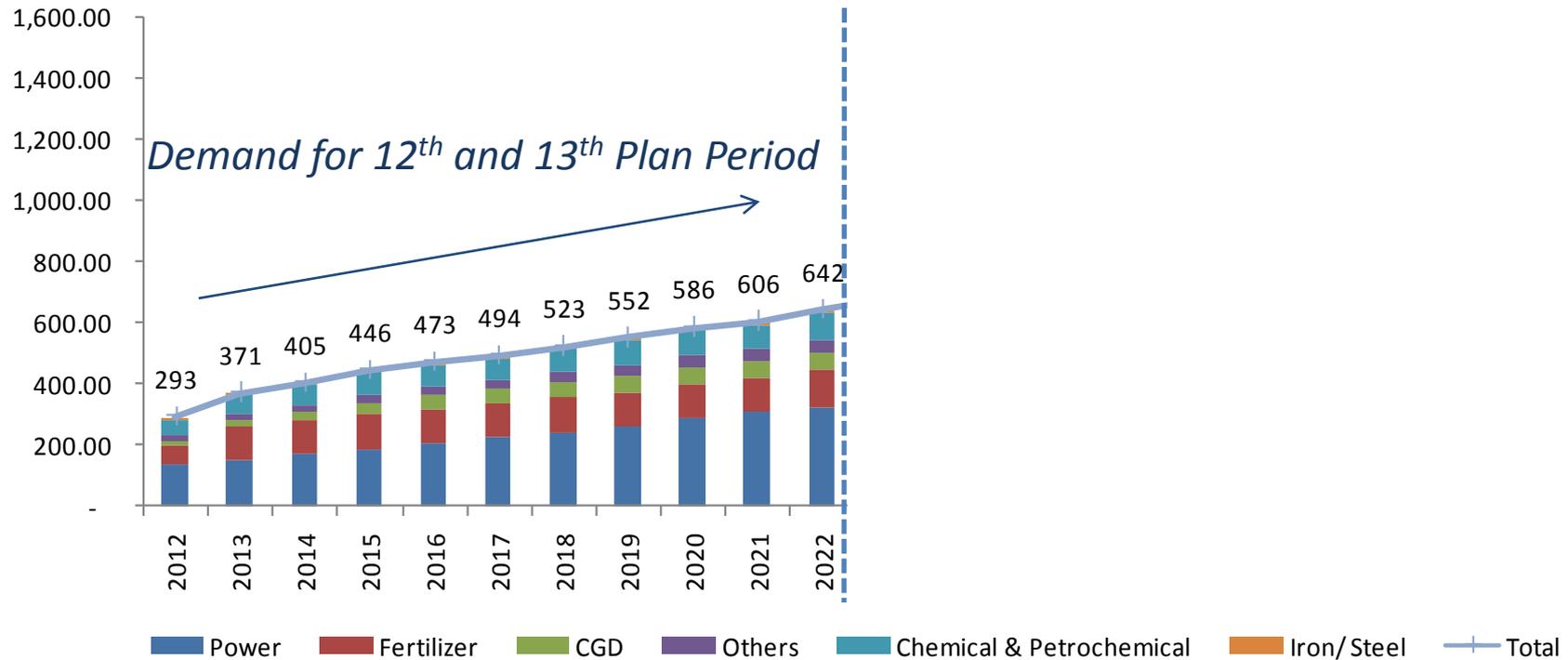
India – A major gas/LNG Consumer



- 13th largest gas consumer—70BCM(~190MMSCMD)
- Economy increasing at CAGR of 7-8%pa with similar increase in Energy Consumption
- 6th largest LNG importer—16BCM (~44MMSCMD or 13.5MMTPA) and increasing every year!
- Share of natural gas in Indian Energy basket to increase from 11% to 20% by 2025
- Despite increase in domestic gas production (and now even with recent decline in production from KGD6 basin), dependency on LNG to increase substantially
- Pipeline network-developing into a nationalgrid-needs to grow faster, connecting new markets (mainly in East Coast)

Sectoral Demand of Gas- Projections

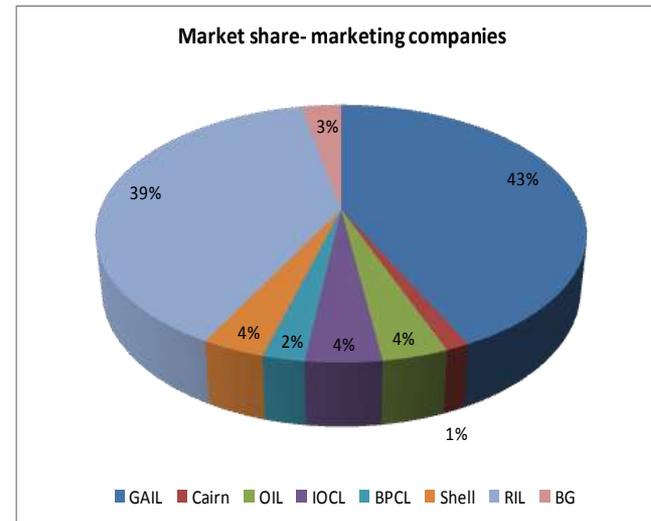
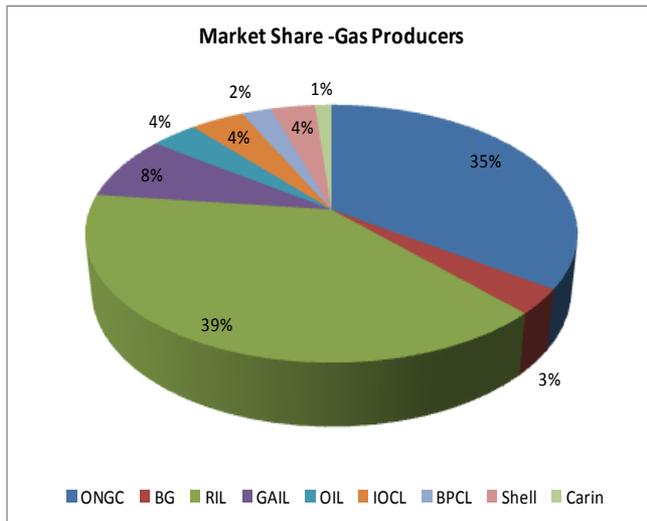
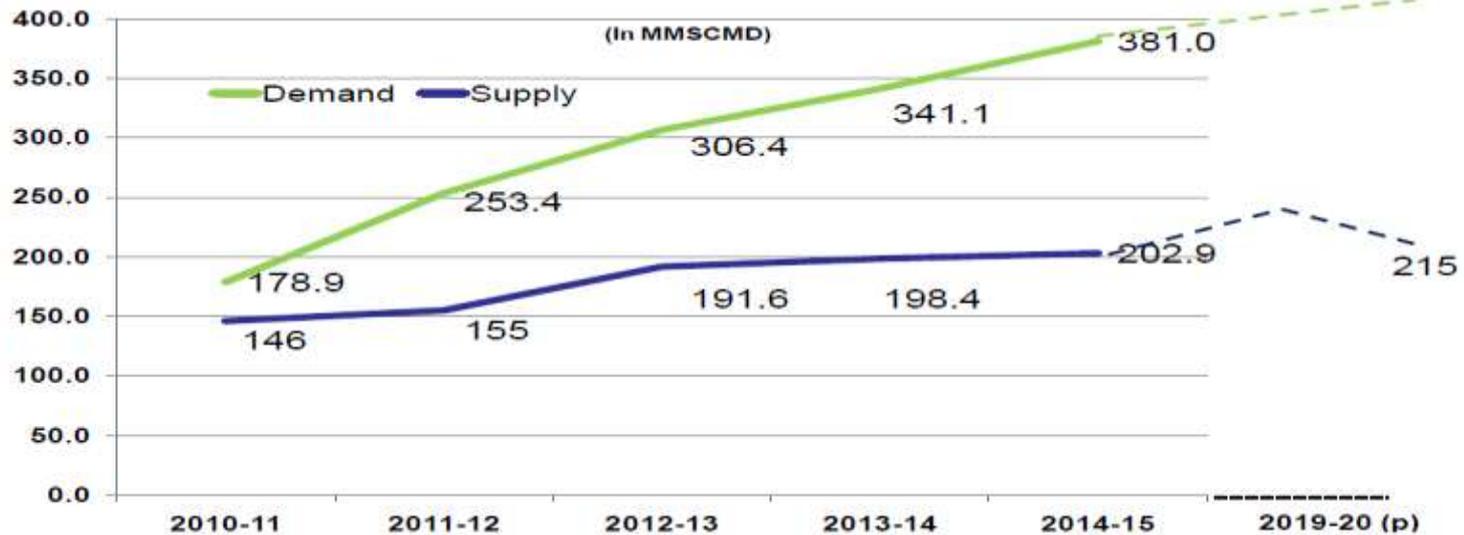
All figures in MMSCMD



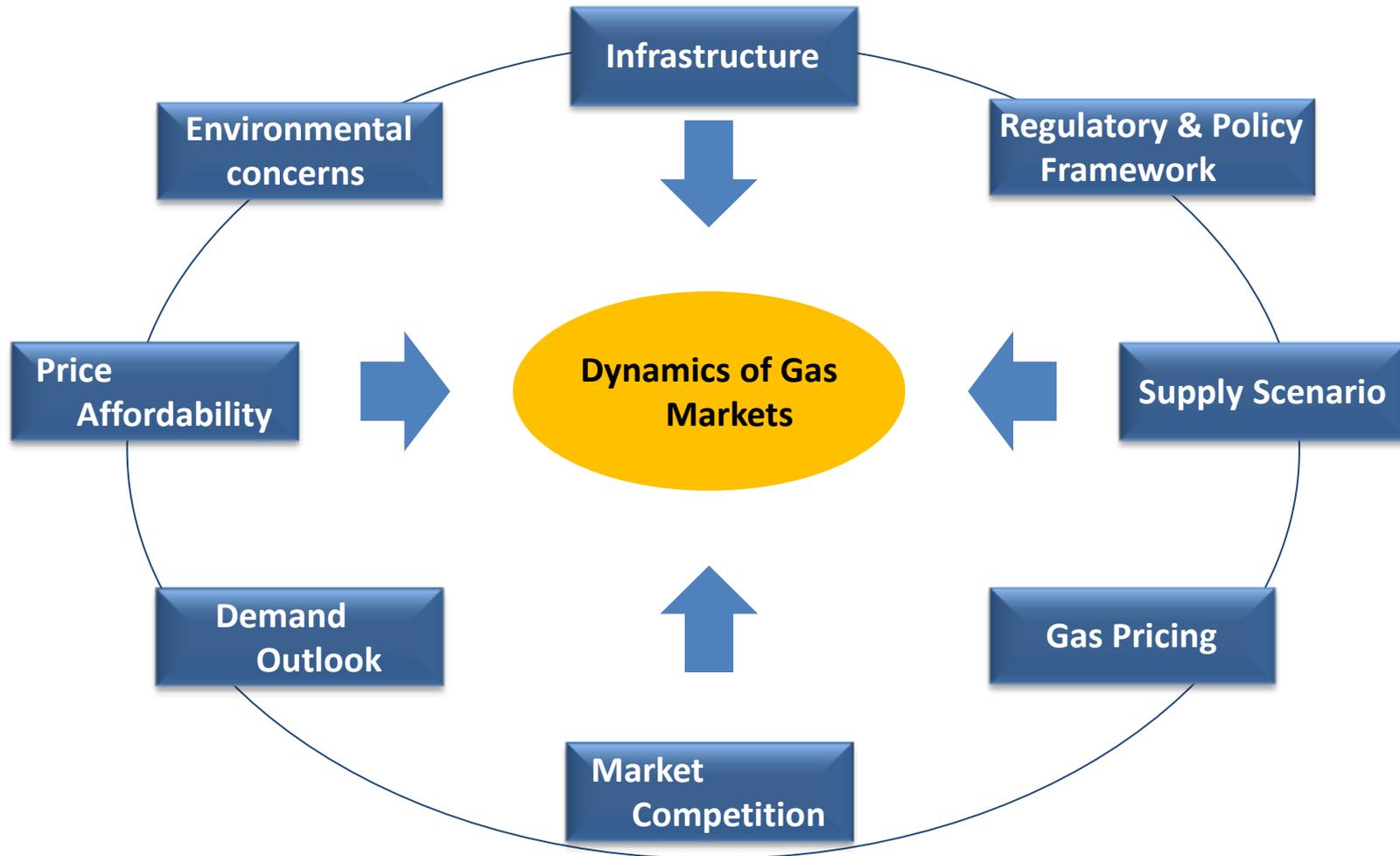
Source: MoPNG

- Demand for 12th and 13th Plan Period based on MoPNG sectoral demand projections
- Power sector will continue to drive the gas demand in the country.
- Fertilizer sector's share in the total demand will remain around 20%
- Price sensitive demand is drastically less

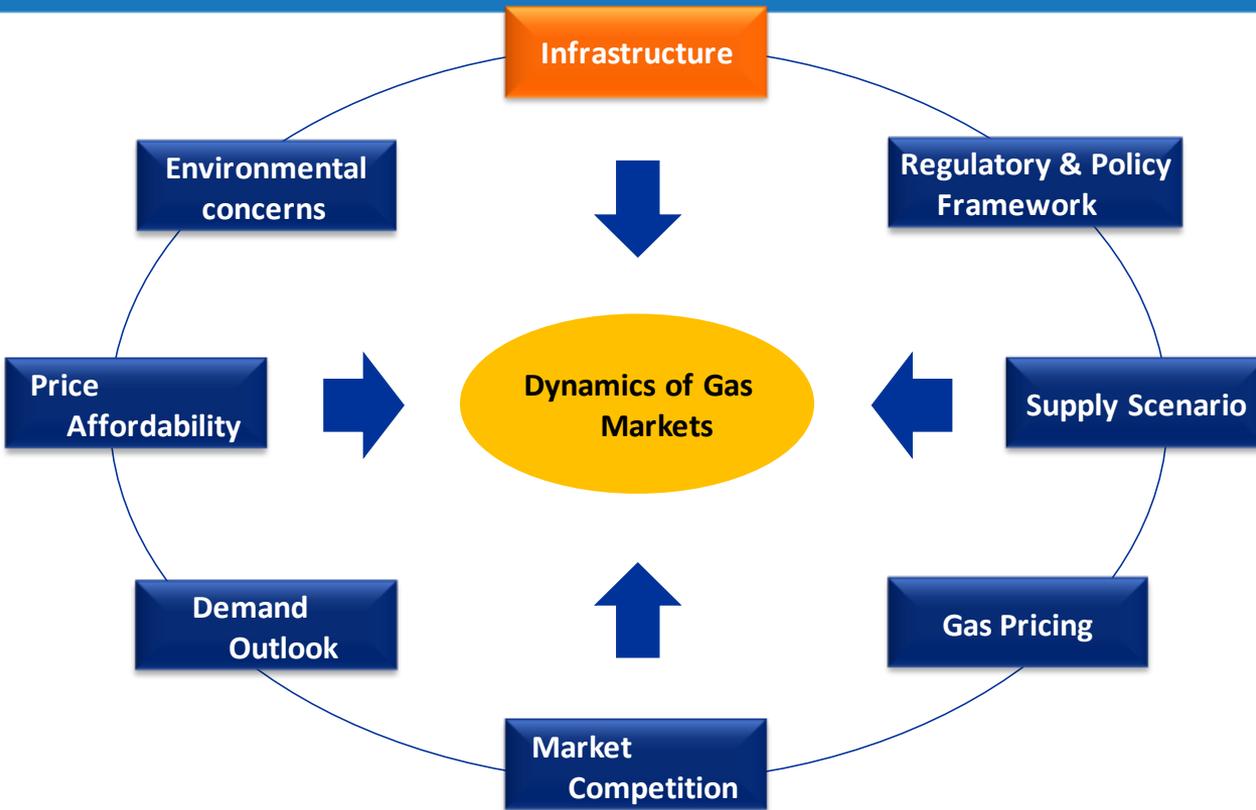
India`s current gas demand & Domestic Supply scenario



Key factors impacting gas markets in India



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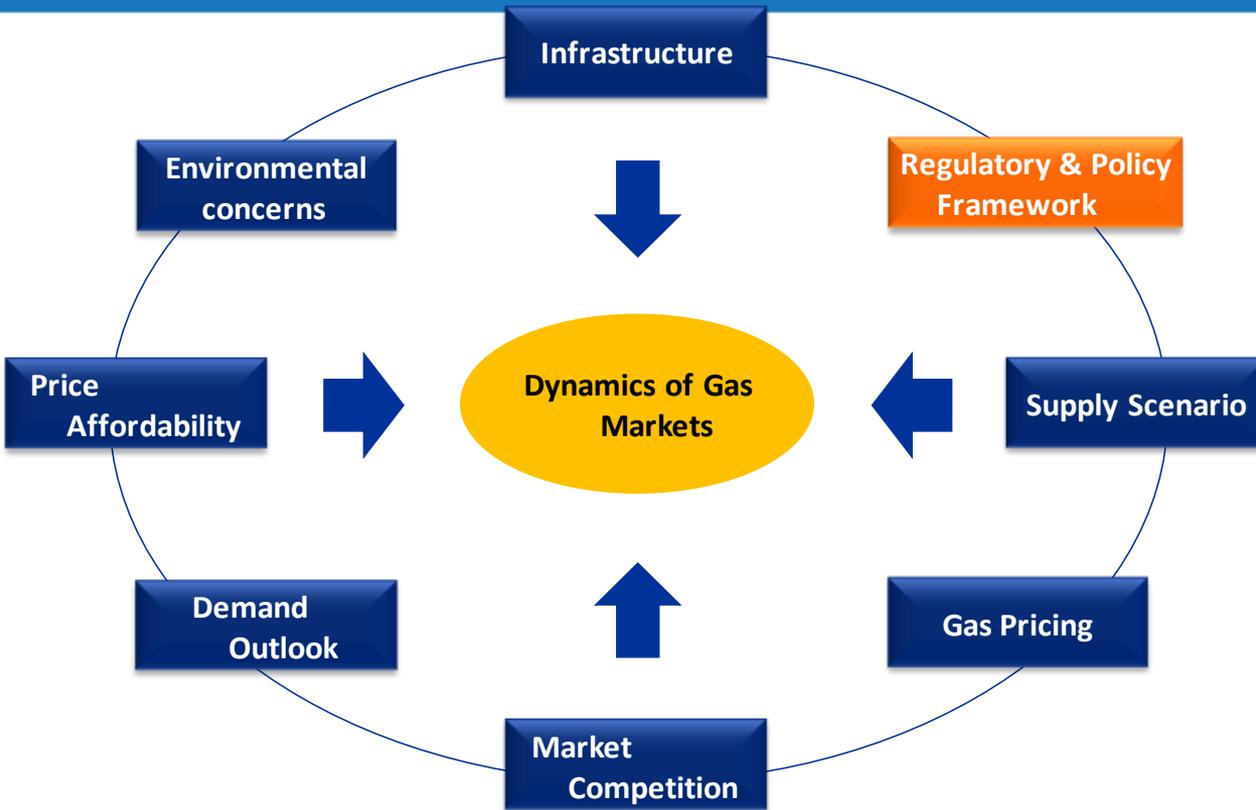


- Current pipeline network of 11,600 kms.
- Proposed network of 14,600 Kms

- Two operational re-gas terminal in the west coast of the country
- Two terminals under construction in the west coast
- Two terminals proposed on east coast of the country (IOCL-Ennore, PLL)
- One FSRU proposed by GAIL

- Upcoming pipeline network will aid in the creation of national gas grid thereby connecting the supply sources to the consumption centers
- Creation of new re-gasification terminals will enhance the LNG import capacity of the country which would facilitate in decreasing the demand supply gap for natural gas in the country

Key factors impacting gas markets in India

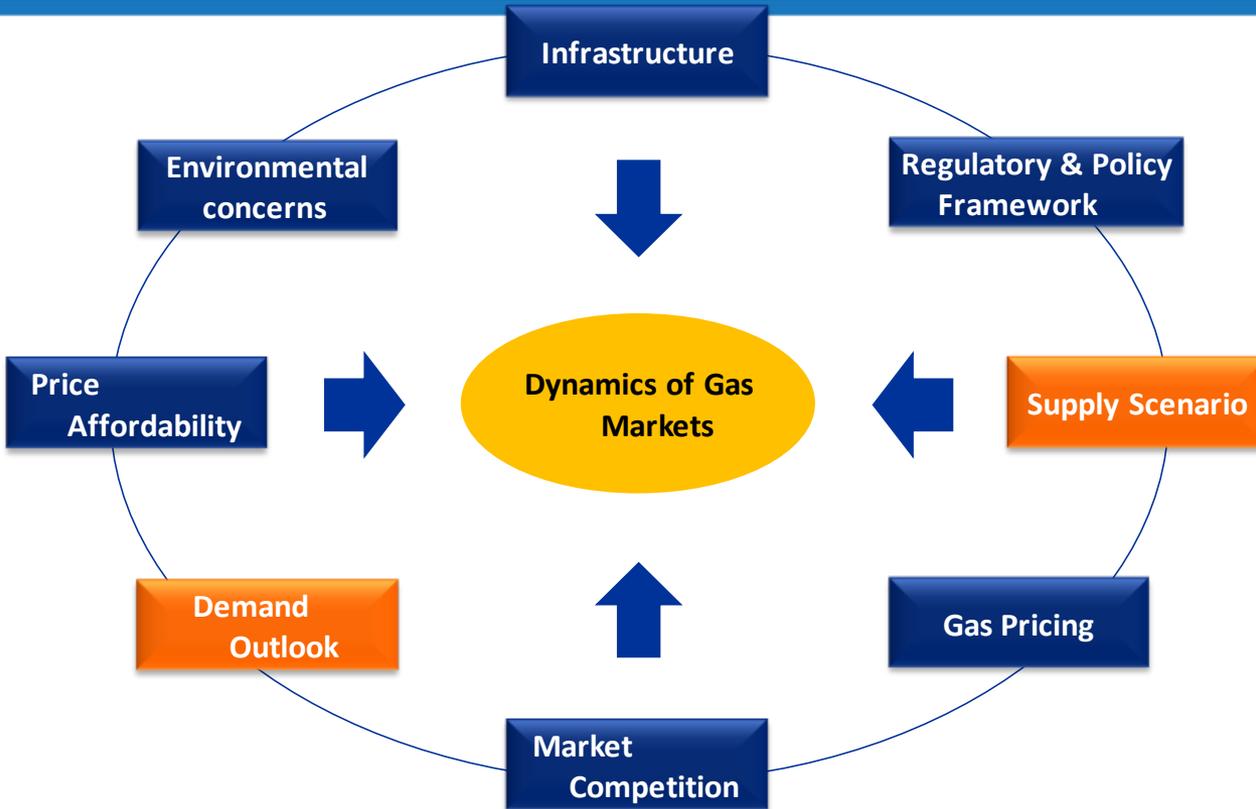


- The formulation of regulatory body has facilitated in growth of infrastructure

- Policy initiatives such as pooling of prices, preferential allocation will impact the gas market dynamics
- Recent recommendations in the new urea investment policy will have a significant impact on the gas demand from fertilizer sector

- The recent policy initiatives by Government of India and the structured monitoring from the regulator will be facilitative in creation of a mature gas market

Key factors impacting gas markets in India

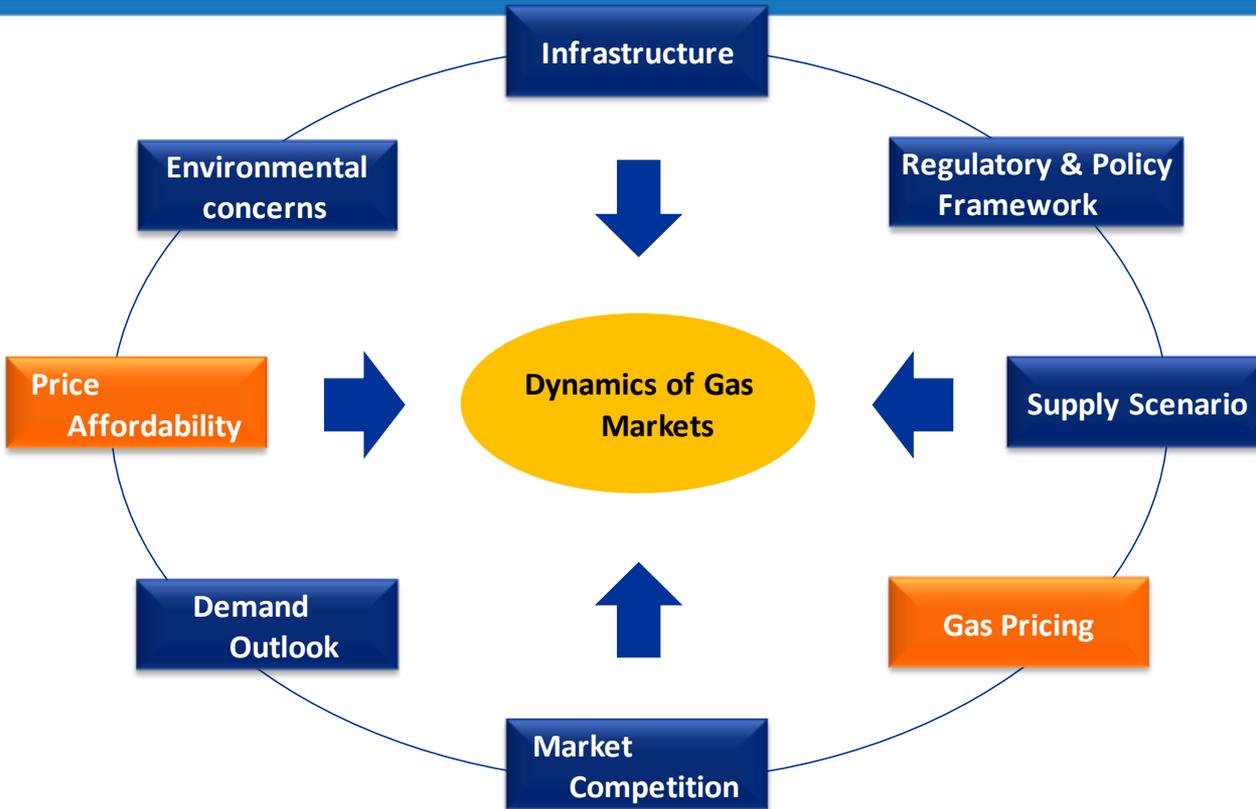


- Demand to increase due to many factors such as shortage of alternative fuels such as coal, environmental concerns and liquid fuel substitution, industrial growth in the country

- Domestic supplies tied up for the existing demand
- No substantial domestic supplies for the incremental demand
- Decline in KGD6 gas supplies is a grave concern

- No clear visibility of substantial domestic supplies in near future
- Increase in demand from key consuming segments such as power, fertilizer, refinery and petrochemicals
- The only tenable option to bridge this demand supply gap is import of LNG

Key factors impacting gas markets in India



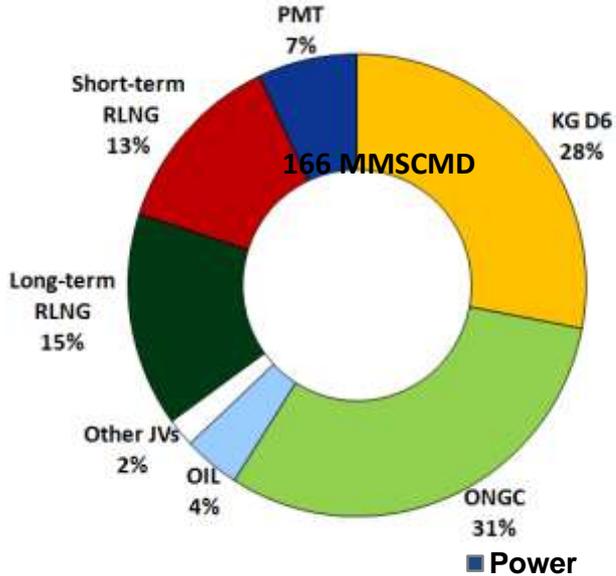
- The Indian gas market has a relatively complex pricing regime.
- The pricing is heterogeneous in nature and does not have a single market benchmark / index
- Will Indian gas industry have a single market benchmark price ?

- Affordability of each segment primarily depend on parameters viz.
 - Alternate fuel used
 - Type of requirement- heating/ Feedstock
 - End product pricing

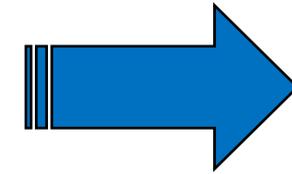
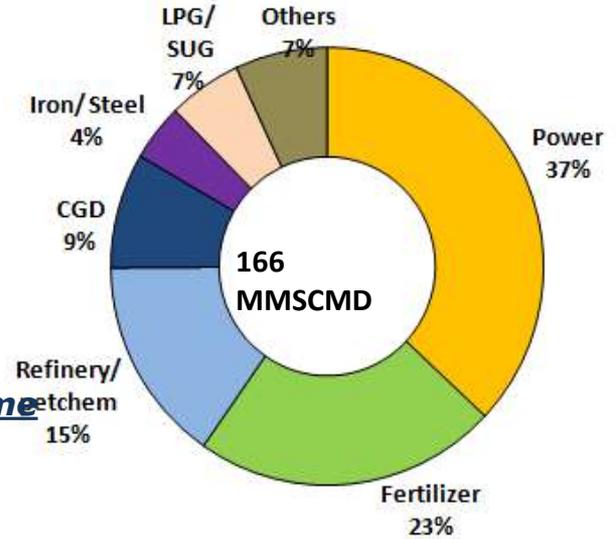
- Price revision from various gas sources–
 - ✓ APM – Till further MoPNG orders
 - ✓ PMT – 2017
 - ✓ RIL KGD6 – 2013
 - ✓ PLL Dahej long term – 2014

Current Natural Gas Demand Supply

Current Supply

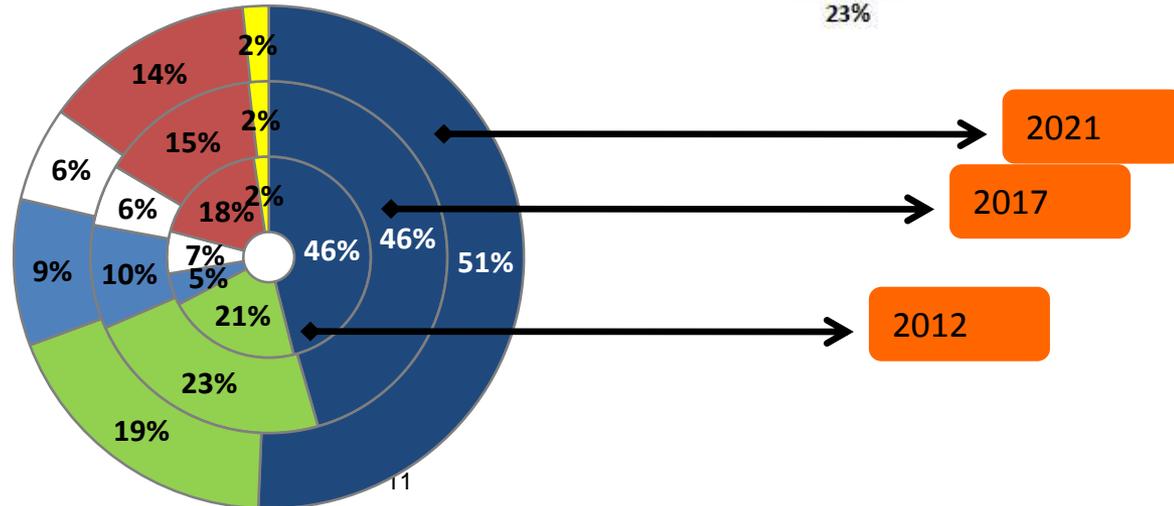


Current Sector-wise Consumption



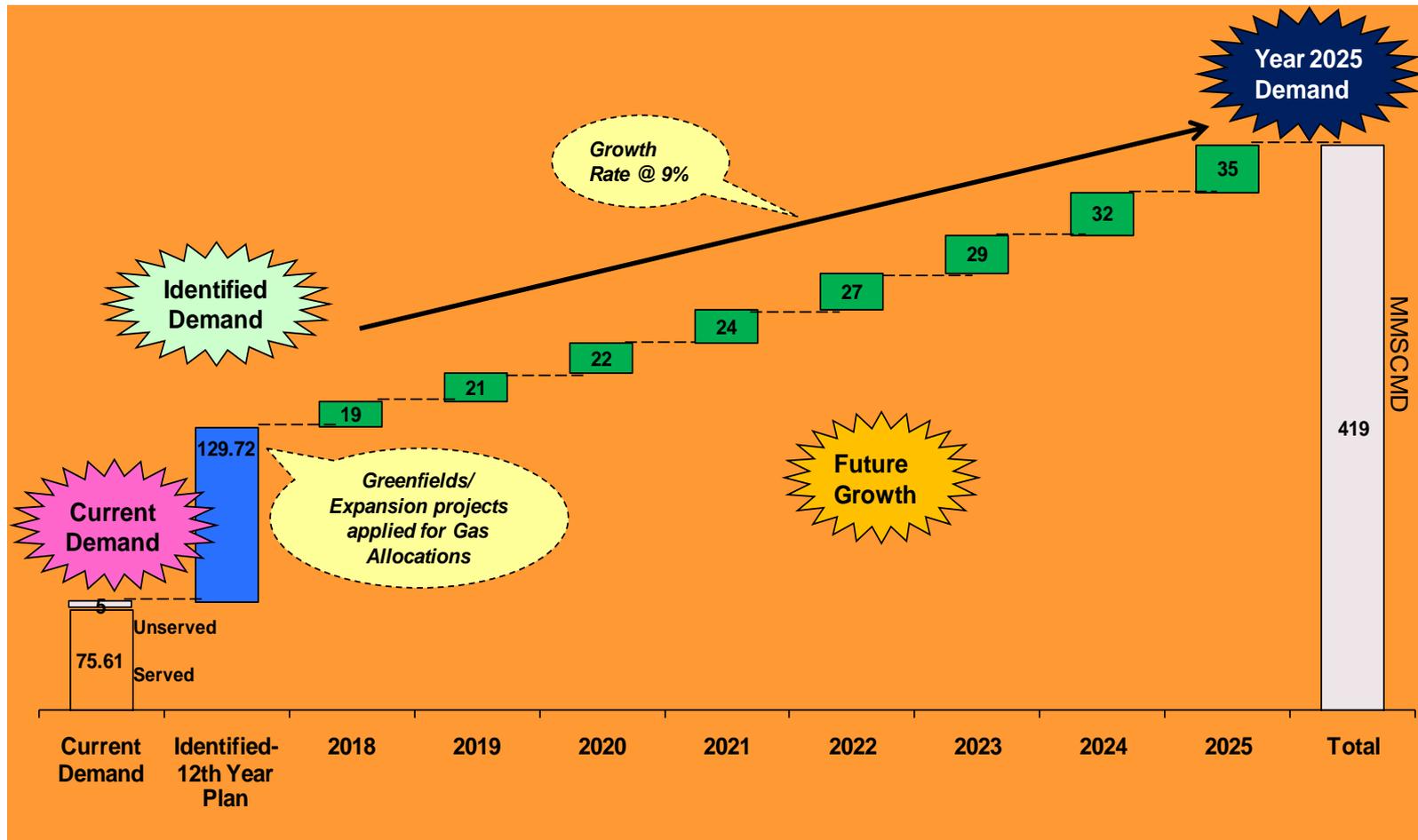
Sector Wise consumption over time

- Power
- Fertilizer
- City Gas
- Industrial



Gas to Power demand (43%)

Overall power demand



Gas Supply –Issues

Volume

- Present natural gas supply to the power sector is 72 MMSCMD and present additional unserved demand is 8.22 MMSCMD*
- MoP has indicated an additional demand of around ~76.5 MMSCMD (inclusive of current unserved demand), thus resulting in total demand requirement by 2014 of 148.52 MMSCMD for Power Sector

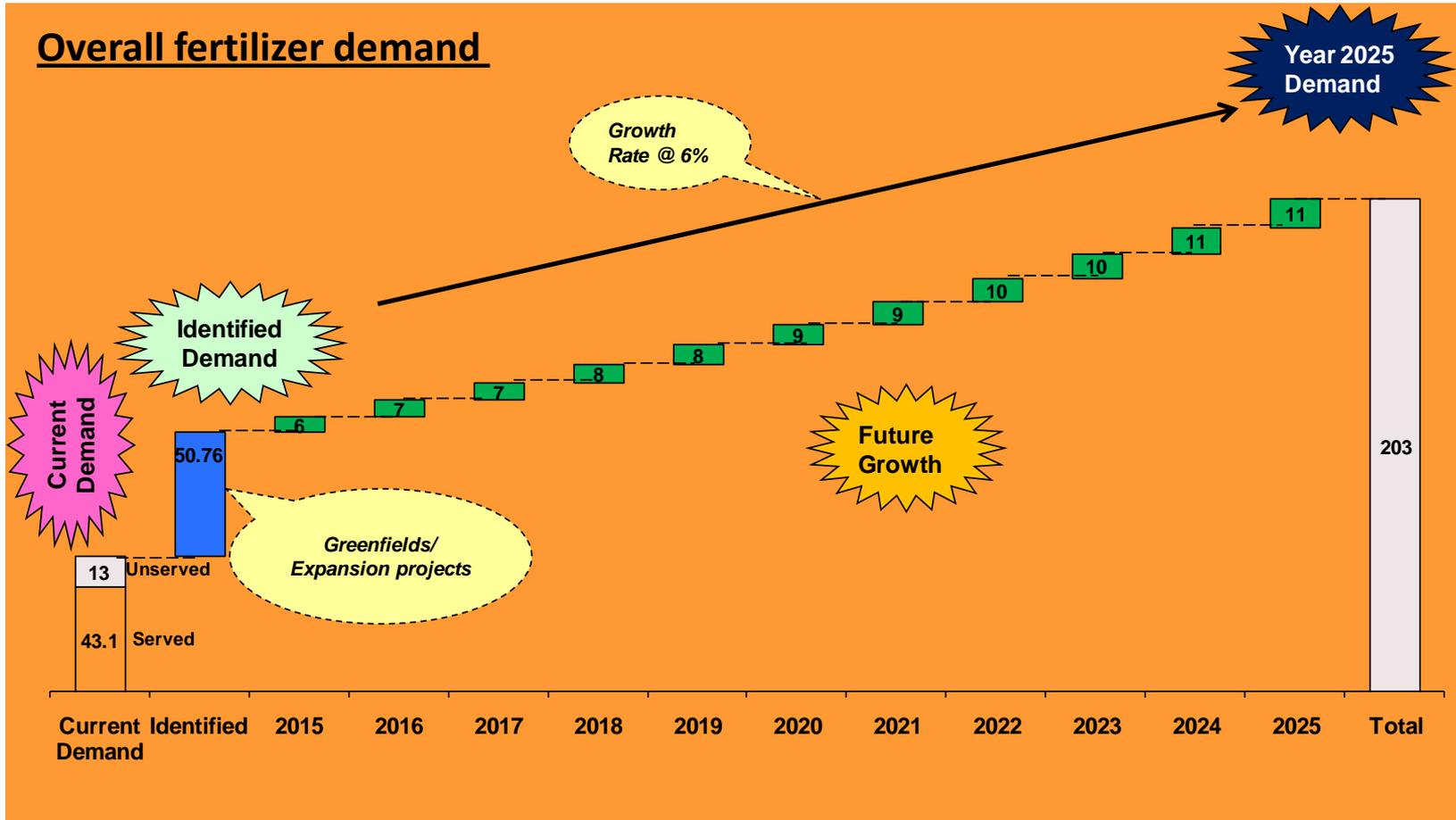
Demand-Supply for Power Sector (MMSCMD)	10-11	11-12	12-13	13-14
Current Demand	80.22	-	-	-
Current Supply	72.00	-	-	-
Un-served Demand	8.22	-	-	-
Additional demand indicated by MoP	-	8.30	0	60.00
Total expected demand requirement up to 2014	148.52			

- Domestic Gas availability will be insufficient to meet demand for gas by the power sector considering limited visibility of future domestic gas supplies
 - Of the total current supply of 169.03 MMSCMD (for all sectors), 72 MMSCMD is provided to power sector
 - Gas supply is likely to increase to 248.98 MMSCMD (for all sectors) by 2014
 - Assuming a similar percentage allocation, the gas available to power sector 106.06 MMSCMD, leaving a supply shortage of 42.46 MMSCMD by 2014

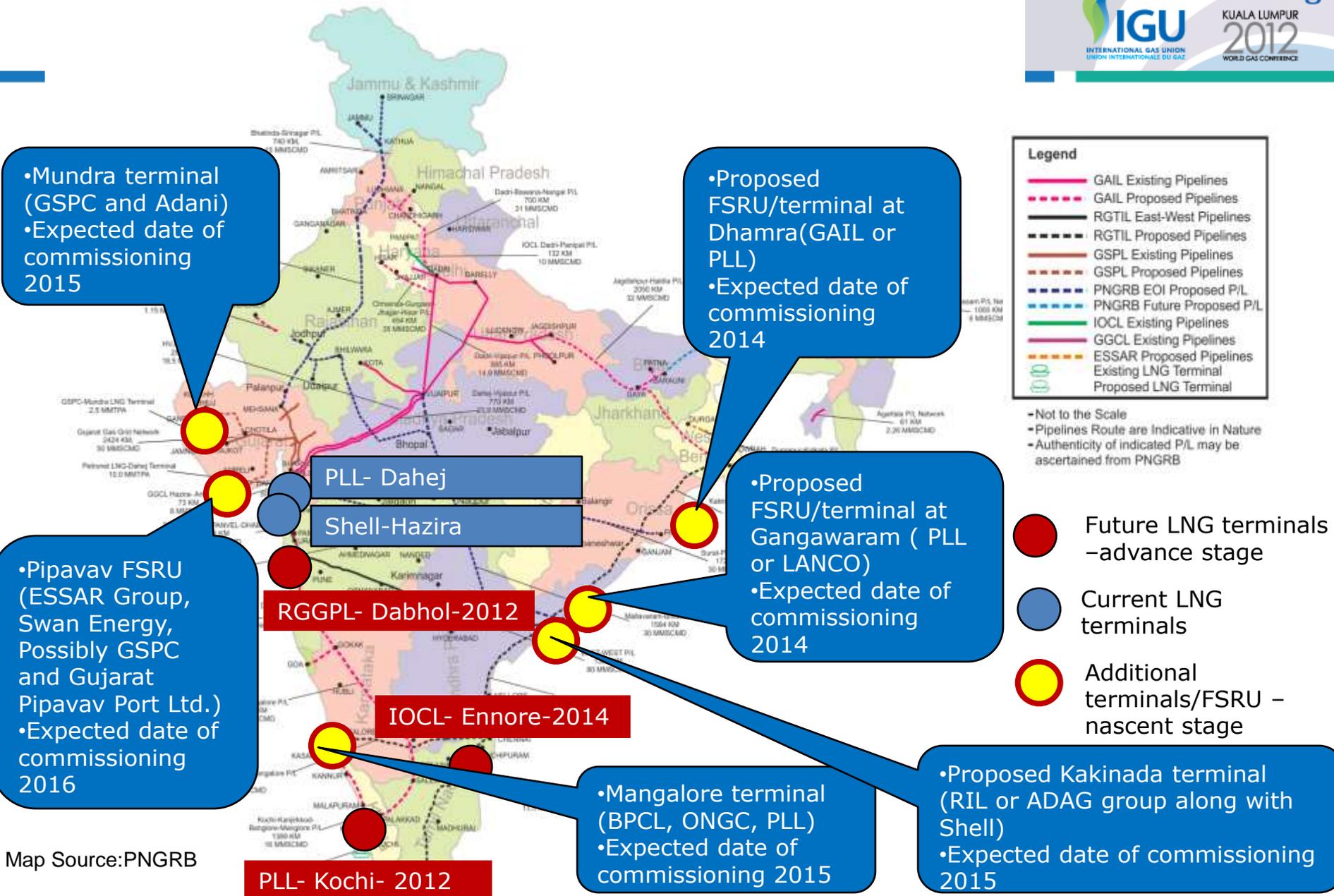
Considering the current percentage allocation gas to continue in future for the power sector, there would be a shortage of 42.46 MMSCMD of natural gas by 2014 - LNG is the only option to fuel this demand

* Source: Ministry report on allocation and pricing of natural gas dated December 2010

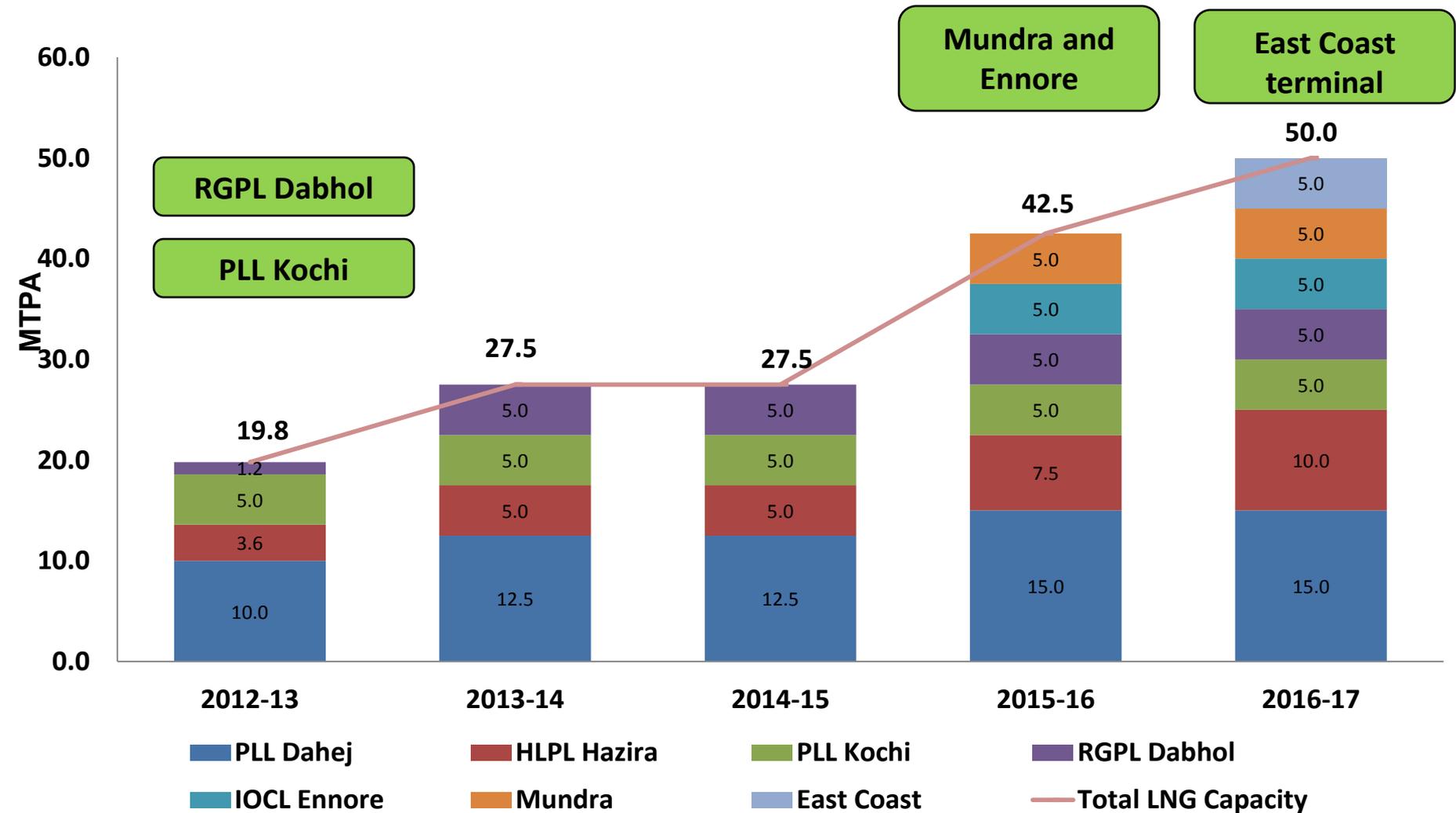
Fertilizer sector demand (24%)



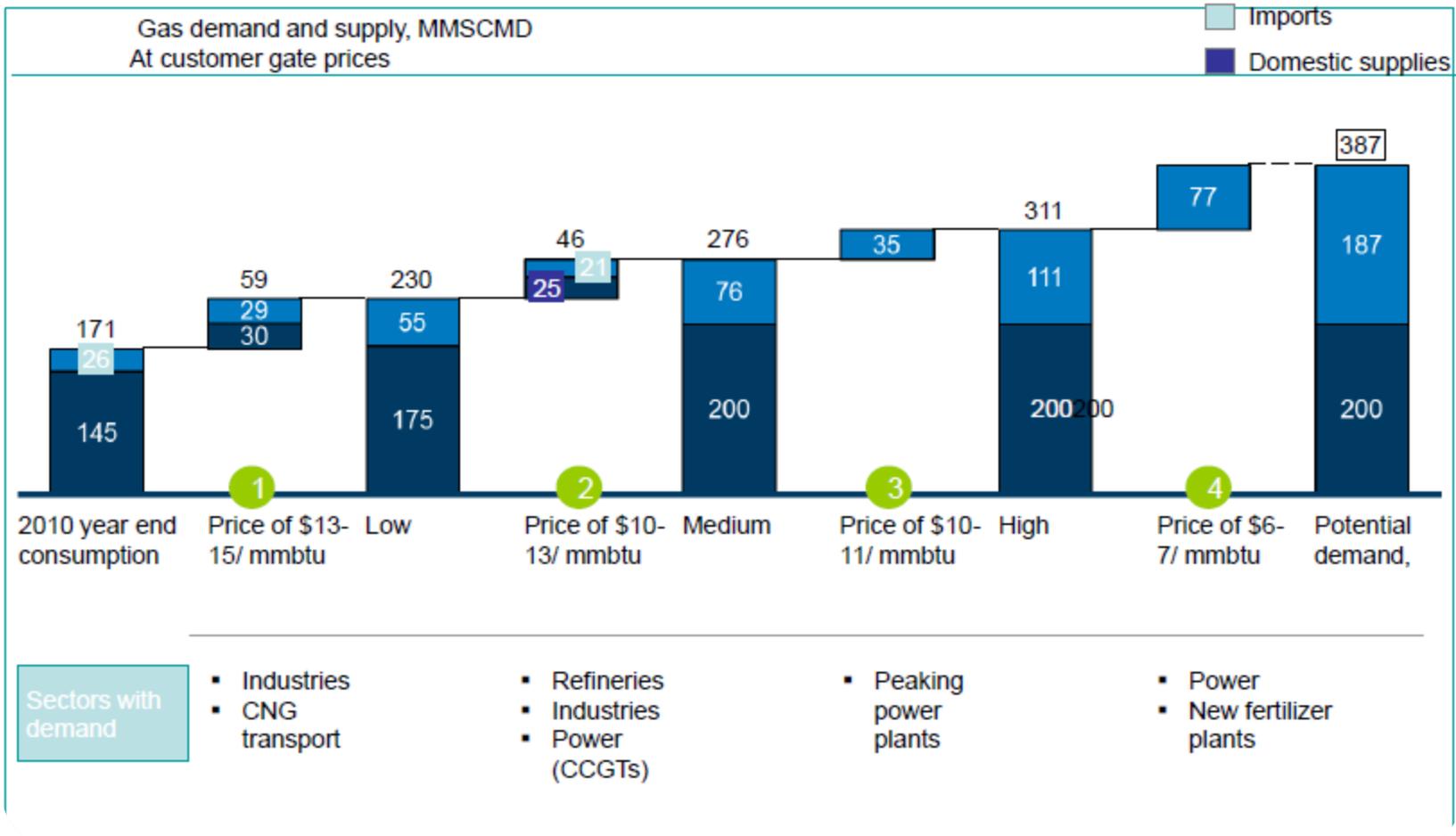
Current and Proposed LNG Terminal



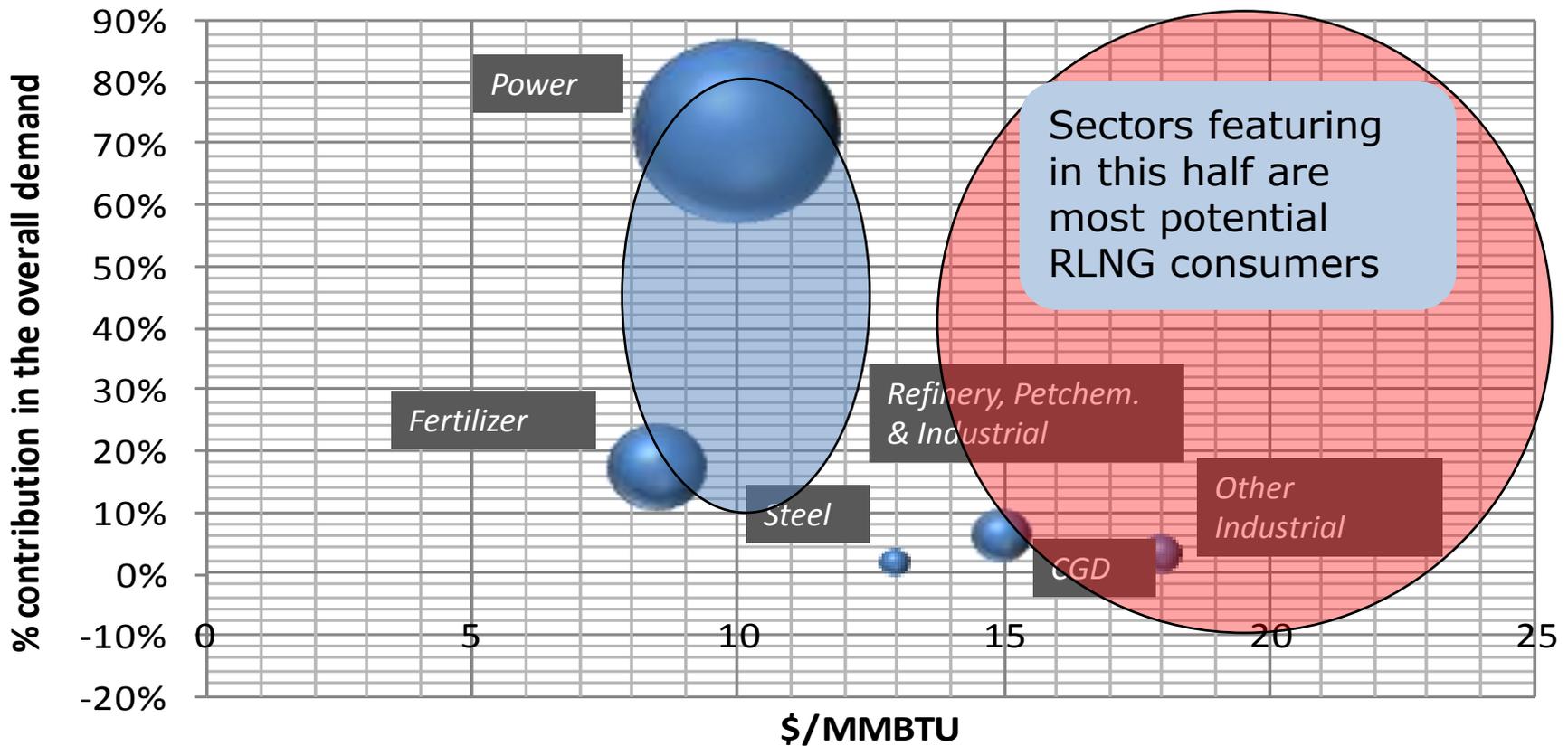
Gas Infrastructure - Re-gas terminals



Large demand for LNG but sensitive to price

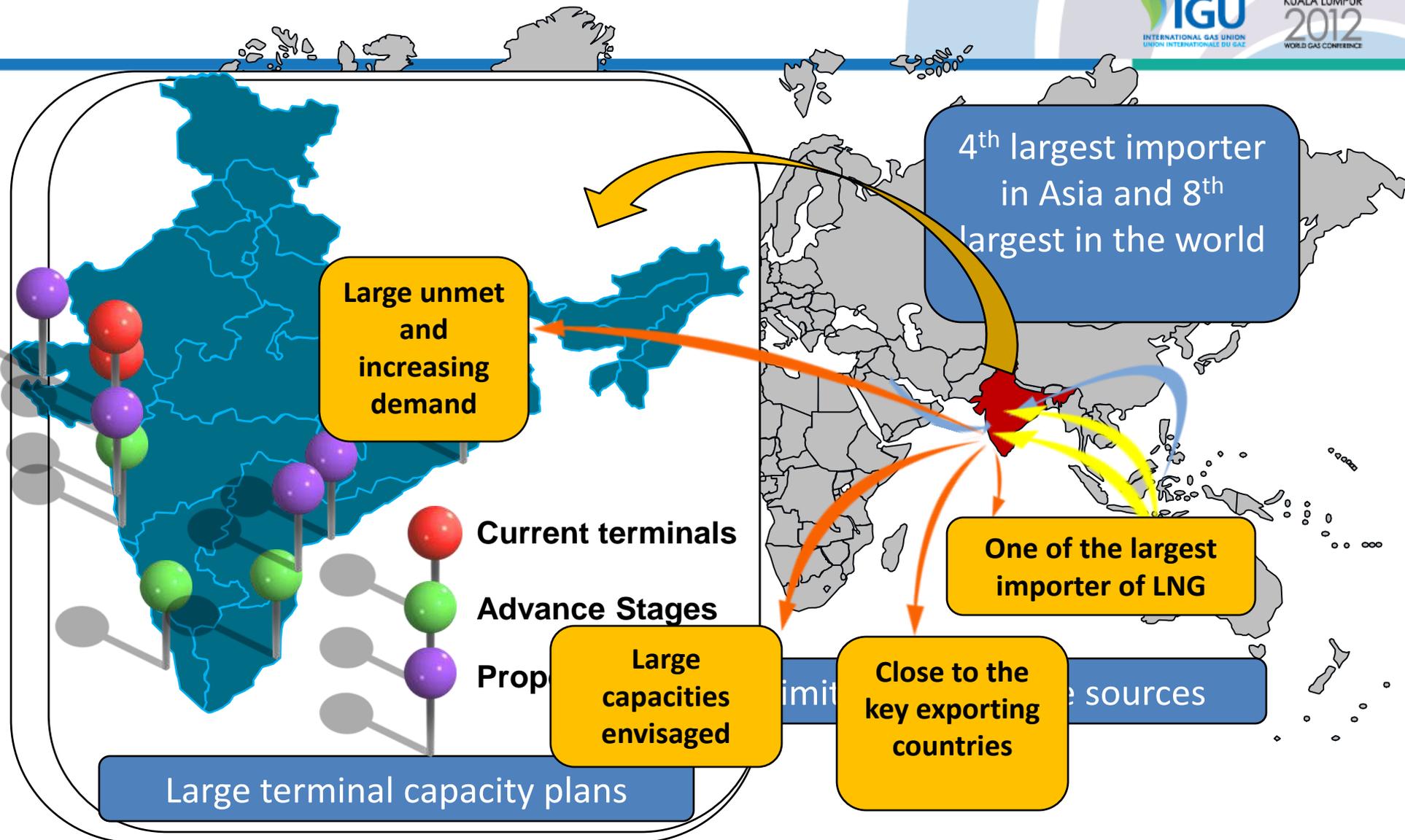


Affordability of Gas for End Consumers



- The price sensitivity of the demand for various segments is based on the alternate fuel economics and market dynamics for the end product
- Refinery, Petchem. , CGD and other Industrial segments like Ceramics etc have higher affordability as the primary fuel used in these industries is FO, naphtha, LSHS etc.

LNG Market- Advantage India





Recent Policy Initiatives

Inter-Ministerial Committee on

Committee on Allocation of Natural Resources (CANR)

Continuation of prevailing domestic gas pricing till the time the direct subsidy regime/ nutrient based regime is operationalized

Gas allocation to be made to power units committed to regulated tariffs and not to merchant units

Formulation of natural gas trading platform (exchange) for development of competitive gas market

Enforcement of open access and affiliate code and percentage of capacity for open access to be increased

Current Drivers for growth in LNG

- **A substantial gap between demand and supplies to emerge in next 5-10 years**
- **Indian consumers have realized the market dynamics and are ready to pay the market determined prices (but... at what max level?)**
- **Indian majors do not have access to gas in the international market BUT they are starting...**
- **The country is likely to be connected through Gas Grid which would widen the market for Gas/LNG**
- **Planning Commission (GOI) has targeted additional power generation of 10 GW every year out of which 50% is likely to be based on gas**
- **Indian consumers have become familiar with the peculiarities of LNG contracts**
- **New Indian utilities are opened to JV schemes to accelerate investments and share risk all along the Gas-Power chain**

Thank You!

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