Gas & Beyond

INDIA :
A KEY DESTINATION FOR LNG

BY

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WORLD GAS CONFERENCE 2006

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CONTENTS

GAIL (INDIA) LIMITED

AN INTEGRATED GAS COMPANY

E&P
- 16 BLOCKS (3 - OVERSEAS)

LNG
- PLL, RGPPL (10 MMTPA)

GAS TRANSMISSION
- 5,300 KMS
- 45 BCM (1.6 TCF)

GAS MARKETING
- 25 BCM (0.9 TCF)

GAS PROCESSING
- LPG AND LIQUID HYDROCARBONS (1.2 MMTPA)

PETROCHEMICALS
- POLYETHYLENE (310,000 TPA)

GAS RETAILING
- CNG / CITY GAS (IGL, MGL, BGL, CUGL, GGL, TNGCL, MNGL)

GAS AND POWER
- RGPPL, GSEG (2250 MW)

LPG TRANSMISSION
- 1900 KMS
- 3.8 MMTPA

TELECOM
- OFC (8,200 KMS)

GAIL : INDIA'S NO. 1 GAS COMPANY

TURNOVER (2005-06)	US$ 3.2 Billion
NET PROFIT (2005-06)	US$ 513 Million
10-YEAR COMPOUNDED ANNUAL GROWTH RATE (CAGR) % - SALES	13%
- NET PROFIT	16 %
MARKET CAPITALISATION (As on 31st March 2006)	US$ 6.0 Billion
HUMAN RESOURCE	3,442
GLOBAL AWARDS	PLATTS' GLOBAL INDUSTRY LEADERSHIP AWARD (2004-05), TOP 15 GLOBAL GAS UTILITIES

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GAIL: GLOBAL FOOTPRINTS

TARGET COUNTRIES

1) IRAN
2) TURKEY
3) PHILIPPINES
4) BANGLADESH
5) RUSSIA & CIS
6) AUSTRALIA

OVERSEAS PRESENCE

EGYPT

- EQUITY IN 3 GAS RETAILING COMPANIES

MYANMAR

- PARTNER IN A1 AND A3 E&P BLOCKS

CHINA

- EQUITY IN CHINA GAS FOR GAS RETAILING

OMAN

- PARTNER IN E&P BLOCK

SINGAPORE

- 100% GAIL SUBSIDIARY, GAIL Global Singapore (Pte.) Ltd

INDIAN ECONOMY: A MACRO VIEW

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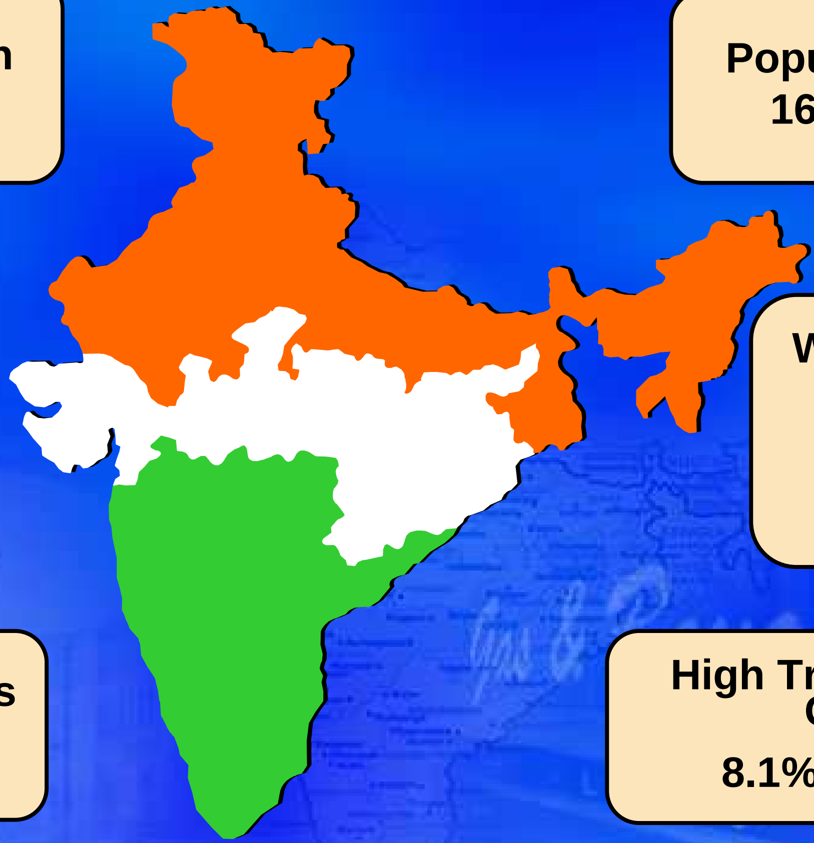
Largest Democracy in the World

Population > 1 Billion
16% of the World



Market Cap crosses US$ 400 billion

- Joins the Big League

Well Established Legal and

Financial Disclosure System

Healthy Forex Reserves

> US $ 150 billion

High Trajectory GDP Growth

8.1% in 2005-06

**Goldman Sachs report ‘India: Realising BRIC’s Potential’ (April 2004) –
“India could become one of the world’s three largest economies in less than 30 years.”**

GROWTH IN ENERGY SUPPLIES CRITICAL FOR INDIA’S ECONOMIC GROWTH

INDIAN ENERGY SECTOR: AN OVERVIEW

	World	Asia Pacific	India
Energy Consumption (MTOE)	10224	3199	376 5th Largest Energy Consumer
Energy Mix (%)			
Coal	27%	47%	54%
Oil	37%	34%	32%
Natural gas	24%	10%	8%
Nuclear	6%	4%	1%
Hydro	6%	5%	5%
Oil & Gas Imports (MTOE)	2467	836	98 (US$ 30 billion)
Growth in Energy (10 yrs)			
Total Primary Energy	2.1%	4.2%	4.8%
Natural Gas	2.6%	6.0%	6.8%

INDIA – A FAST GROWING ENERGY MARKET WITH NATURAL GAS GROWING FASTER THAN OTHERS

Source : BP Statistical Review of World Energy June 2005

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INDIAN GAS SECTOR: SUPPLY OUTLOOK

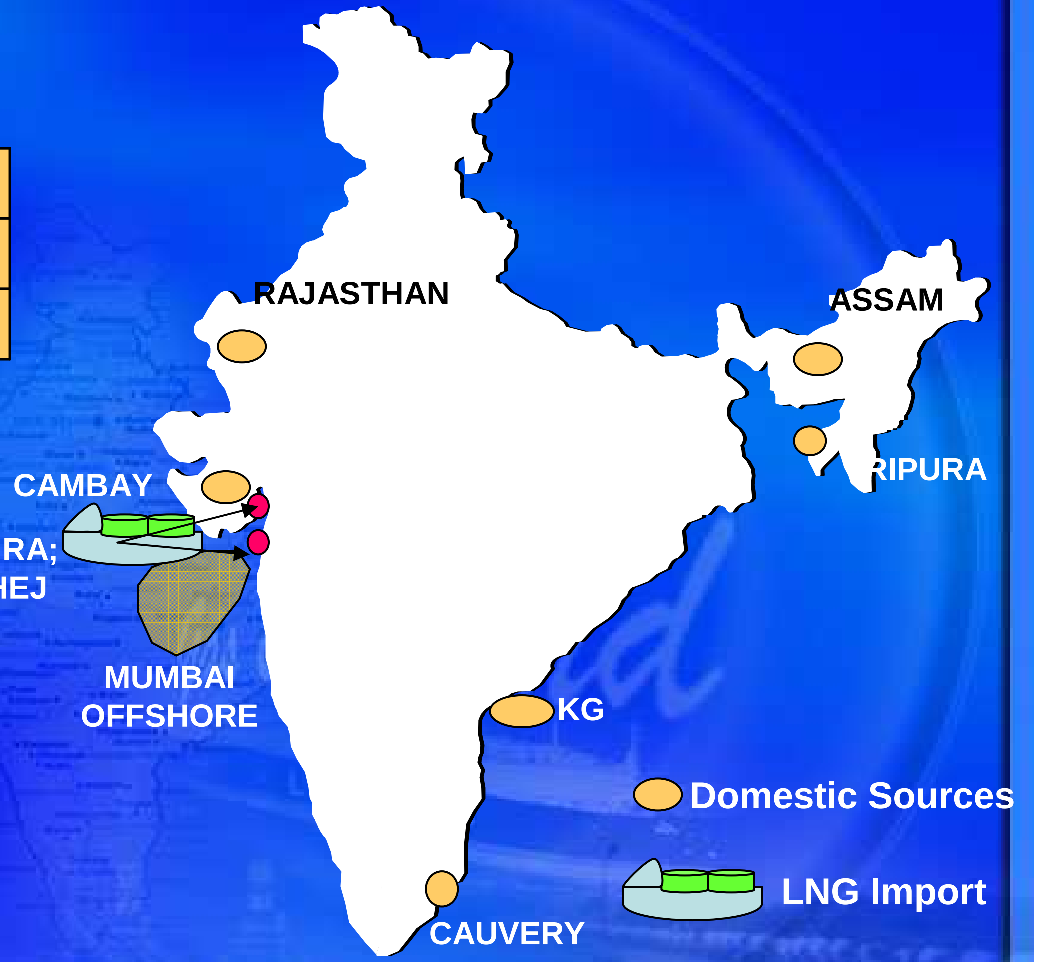
CURRENT SUPPLIES (2005-06)

	BCM (TCF)
Domestic Supplies	27.5 (1.0)
LNG Imports*	6.5 (0.20)
Total Supplies	34 (1.20)

*HAZIRA (3.2BCM) YET TO STABILISE AND NOT INCLUDED UNDER CURRENT SUPPLIES

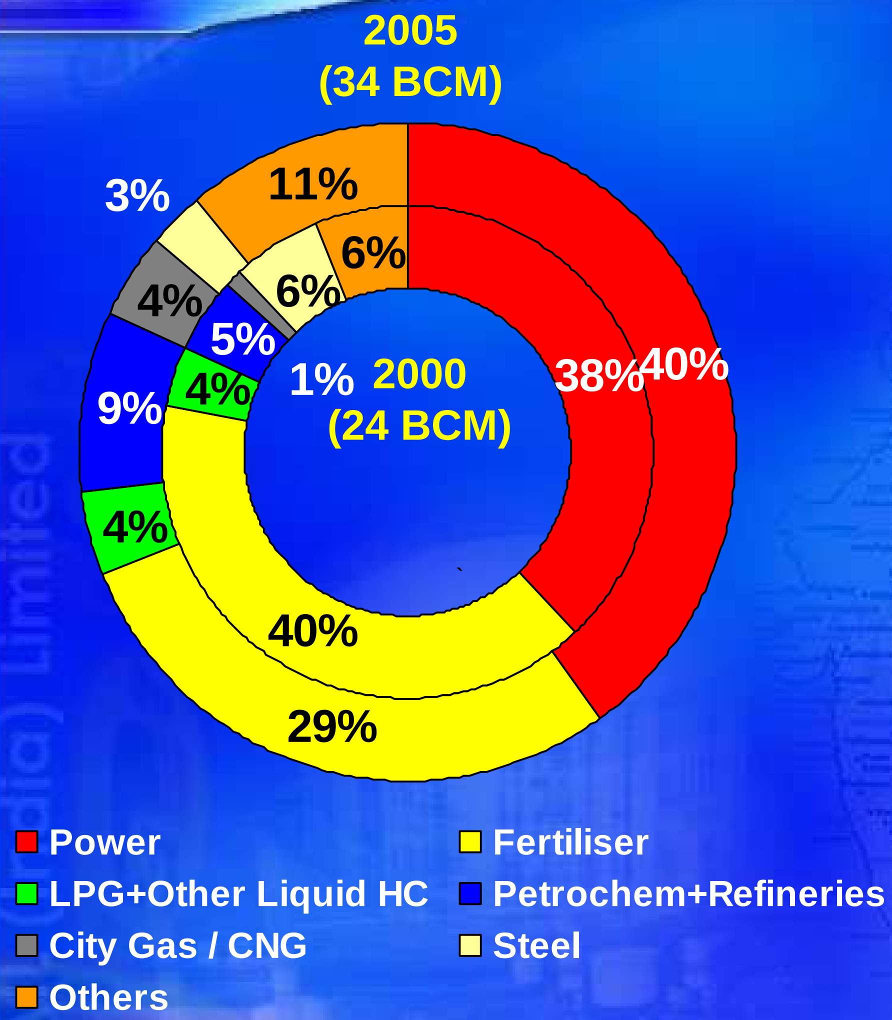
- Domestic Reserves : 1,072 BCM (37.8 TCF) [Balance Recoverable Reserve as on April 1, 2005]
- R/P : 33.5 yrs

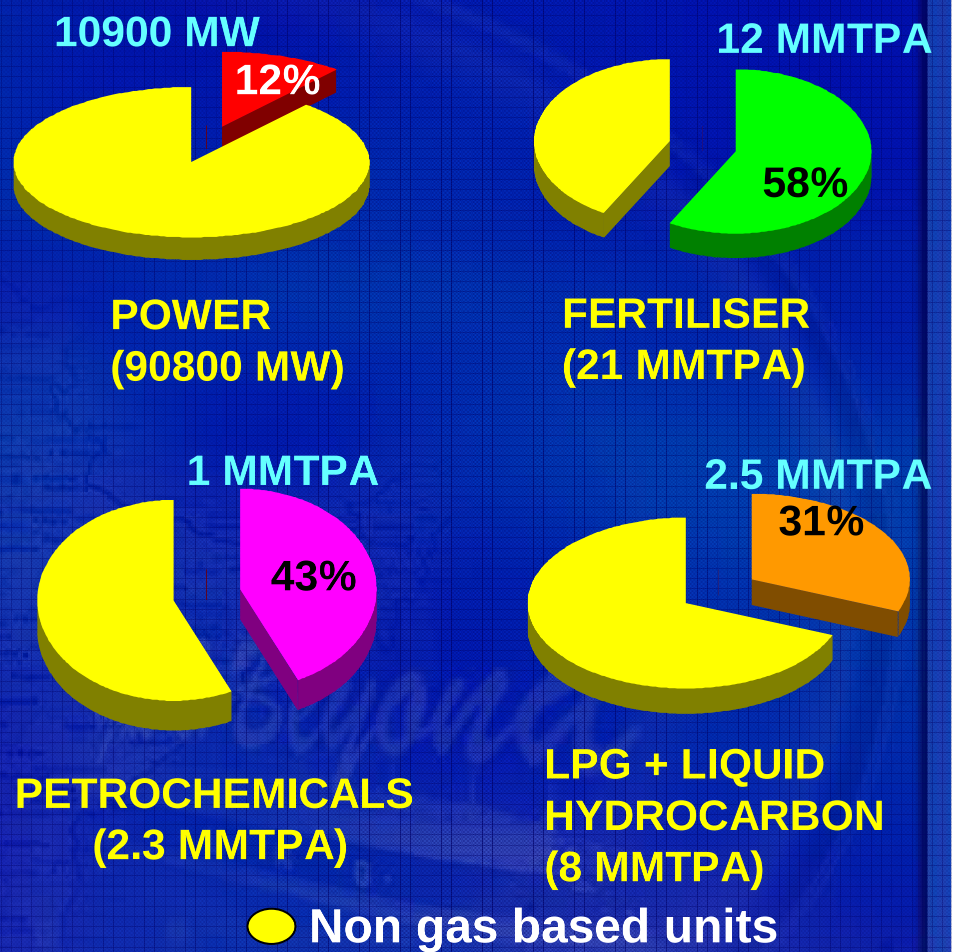
CURRENT SUPPLY SOURCES



CURRENT SUPPLIES (34 BCM) ARE LIMITED AND SCATTERED

INDIAN GAS SECTOR: CONSUMPTION PATTERN





POWER AND FERTILISER – ANCHOR MARKETS
INDUSTRIAL AND CITY GAS – GROWING MARKETS

SIGNIFICANT POTENTIAL FOR GAS IN ALL END USE SEGMENTS

INDIAN GAS SECTOR: DEMAND PROJECTIONS

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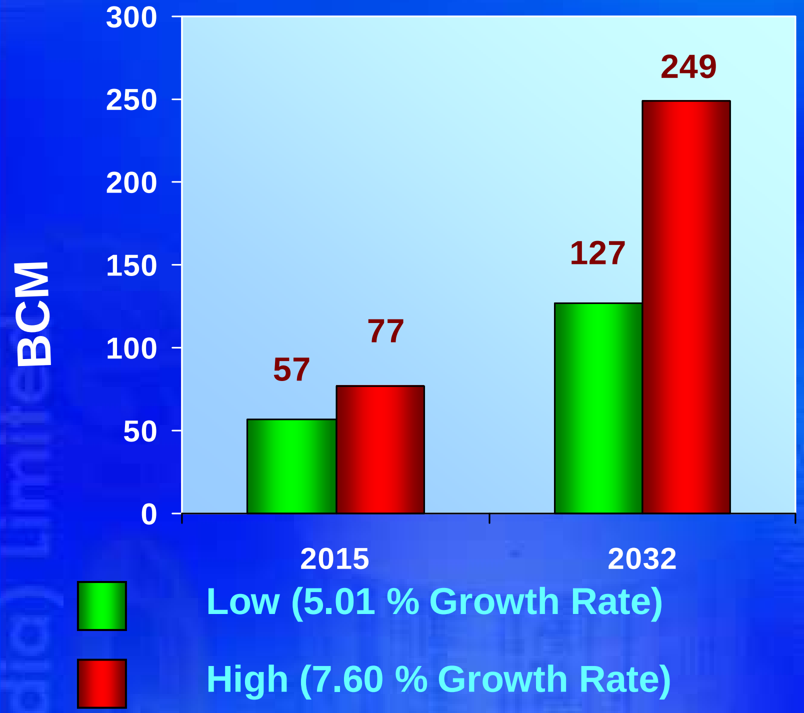

Source : Planning Commission of India Integrated Energy Policy (December 2005)

Key Assumptions (High Case)

- **GDP Growth Rate - 8%**
- **<u>Power</u> - Gas share to rise from 12% to 20%**
- **<u>Fertiliser</u> - 100% gas based**
- **<u>Other End Users</u> – 7% growth rate**

STRONG DEMAND POTENTIAL EXISTS:
PURSUIT OF ALL AVAILABLE SUPPLY OPTIONS IMPORTANT

INDIAN GAS SECTOR: SUPPLY OPTIONS

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New domestic discoveries (East Coast)

- Offshore Finds (Reliance, GSPC, ONGC)

Transnational Pipeline Imports (North-West and North-East)

- Iran – Pak – India
- Turkmenistan-Afghanistan-Pakistan-India
- Myanmar – India

Additional LNG Imports (West Coast)

- Dabhol
- Kochi
- Dahej Expansion

SUPPLY - DEMAND TO BE DRIVEN BY KEY GROWTH DRIVERS

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KEY GROWTH DRIVERS

PRICING

INFRASTRUCTURE

REGULATION

END USE REFORMS

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GAS PRICING: THE CHANGING PHASES

Past (Pre 2004)	Present (2005-2006)	Future
• 100% Government Controlled • Single Price for all users and sources • Cost plus basis	• 60% Government Controlled - Power, Fertiliser, Small Customers • Multiple Prices (US$ 2 – 10 / MMBTU) - NOC's – Administered - Private – Market Related - RLNG – Market Related	• Free Market Pricing • Competitive to alternatives • Alignment with global trends

PRICING – MOVING TOWARDS DEREGULATION

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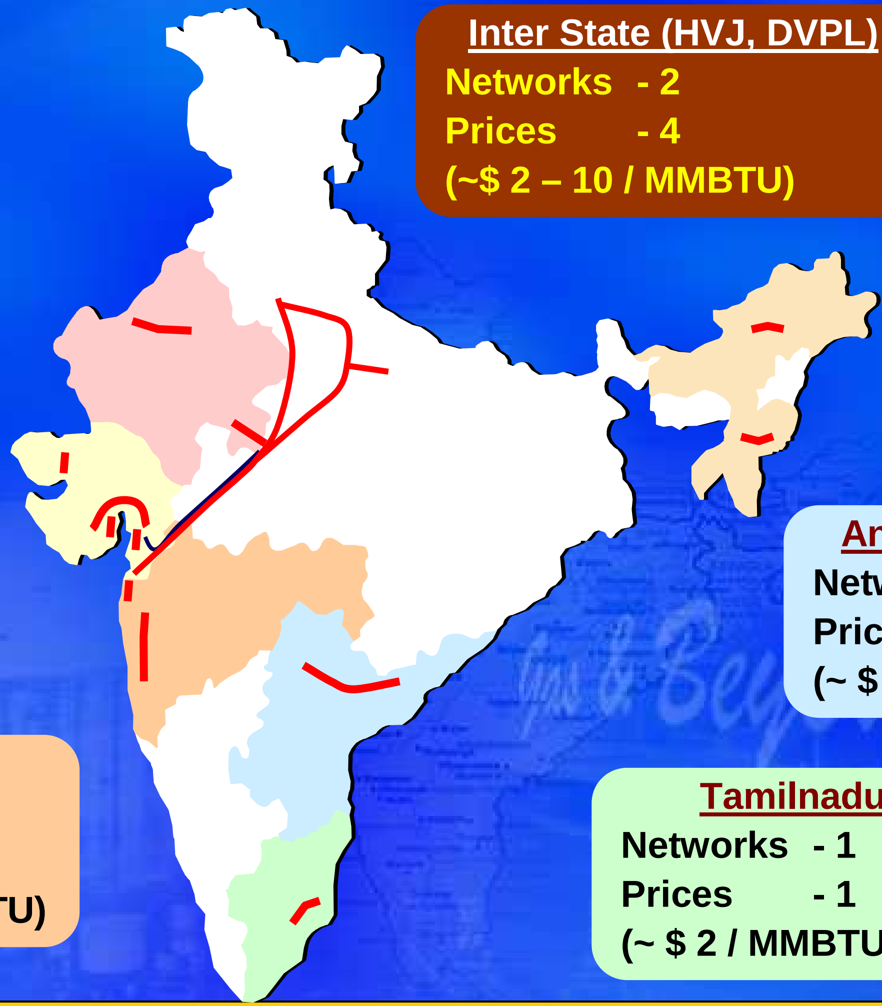
GAS PRICING MAP OF INDIA



Inter State (HVJ, DVPL)
Networks - 2
Prices - 4
(~$ 2 – 10 / MMBTU)

Rajasthan
Networks - 1
Prices - 2
(~ $ 2 – 2.5 / MMBTU)

North East
Networks - 2
Prices - 2
(~ $ 1 - 2 / MMBTU)

Gujarat
Networks - 5
Prices - 6
(~ $ 2–10 / MMBTU)

Andhra Pradesh
Networks - 1
Prices - 2
(~ $ 2–3.5/ MMBTU)

Maharastra
Networks - 1
Prices - 2
(~ $ 2 – 5 / MMBTU)

Tamilnadu
Networks - 1
Prices - 1
(~ $ 2 / MMBTU)

FRAGMENTED PIPELINES, REGIONAL MARKETS
IMPERATIVE : INTEGRATED GAS GRID

CURRENT GAS SECTOR INFRASTRUCTURE IN INDIA

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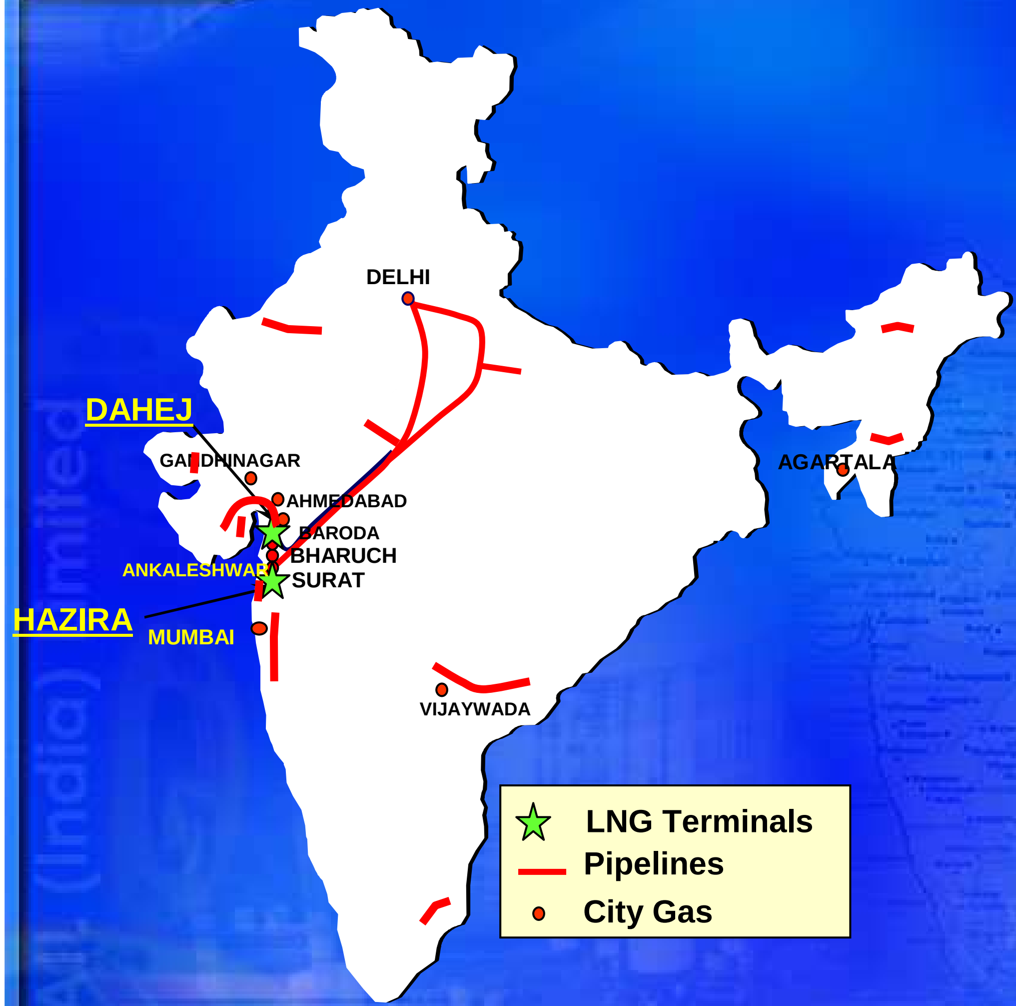

- **LNG Terminals**
  - 2 Terminals in West Coast (Dahej, Hazira)
    7.5 MMTPA capacity
- **Transmission Network**
  - 6,300 Kms : Mainly connecting West to North
- **City Gas Distribution (10 Cities)**
  - Network - 6,000 Kms
  - CNG Stations - 278
  - In 10 Cities in proximity to existing Transmission P/Ls

(Delhi, Mumbai, Ankaleshwar, Bharuch, Surat, Baroda, Agartala, Vijaywada, Ahmedabad, Gandhinagar)

CURRENT INFRASTRUCTURE LIMITED IN SCOPE AND REACH

GAS SECTOR INFRASTRUCTURE: CURRENT AND FUTURE – A COMPOSITE PICTURE

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TOTAL INVESTMENT – US$ 9 Billion

LNG

Existing (7.5 MMTPA)

Upcoming (15 MMTPA , US$ 1.5 Billion)

Transmission Pipelines

Existing (6,300 Kms)

Planned (8,400 Kms, US$ 4.5 Billion)

City Gas/ CNG

Existing (10 cities)

Planned (40 cities, US $ 3 Billion)

Gas By Sea Receipt (Likely Location)

LNG Terminal

INTEGRATED GRID TO LINK ANY SOURCE TO ANY MARKET

INDIA : A NET DESTINATION FOR LNG

GAS SECTOR REGULATION IN INDIA

- **Petroleum and Natural Gas Regulatory Board Act, 2006 enacted**

INDEPENDENT REGULATORY BOARD FOR DOWNSTREAM SECTOR

Pipeline Transmission	• Open Competitive Bidding • Non-discriminatory Open Access • Uniform Regulated Tariff
City Gas Distribution / CNG	• Open Competitive Bidding • Exclusivity Period
Storage, Regasification, Marketing of LNG / NG	• No Licensing ; Simple Registration • Free Market Price

- **Regulations to be guided by Govt. Policies**

• 100 % FDI Permitted in
  - Pipelines/ LNG/ Marketing & Trading
• Fiscal Incentives Under Consideration
  - 0% Custom Duty on LNG imports
  - Infrastructure Status for Gas Pipeline

REGULATIONS AND POLICIES TO PROMOTE INVESTMENTS AND COMPETITION

END USE REFORMS IN INDIA

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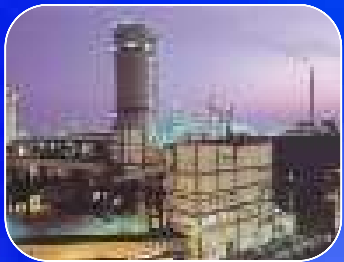
Power

- Electricity Act 2003
- Accelerated Power Development and Reform Programme (APDRP)
- Major Thrust on Reforms



Fertiliser

- Recommendations for switch over to 100% gas based capacities

CNG / City Gas

- Driven by Environment Concerns – CNG
- Clean Fuel Mandatory in Specified Major Cities
- Delhi, Mumbai
  – Huge Success

REFORMS IN END USE SEGMENT TO PROMOTE EFFICIENCY IN FUEL / FEEDSTOCK
GAS EMERGING AS THE PREFERRED CHOICE

LNG : ITS GROWING IMPORTANCE IN INDIA

KEY MILESTONES

Early 2007
Dabhol :
First Integrated LNG and Power Plant

May 2006
Dahej :
Arrival of First Spot Cargo

April 2005
Dahej :
Additional 2.5 MMTPA LNG Supply

March 2005
Hazira :
Commissioning of 2.5 MMTPA LNG Terminal

April 2004
Dahej :
Commencement of 2.5 MMTPA LNG Supply

LNG TERMINALS IN INDIA

Terminal	Capacity (MMTPA)	Year of Operation	Target Market	Capacity after Expansion (MMTPA)
Dahej	5.0	2004	West & North	10 Under Expansion
Hazira	2.5	2005	West & North	5
Dabhol	5.0 Power - 2.1 Mer.Sale – 2.9	Early 2007	West & South	10
Kochi	2.5	2009-10	South	5

ADEQUATE TERMINAL INFRASTRUCTURE TO RECEIVE LNG
COMPETITIVE PRICE – A KEY FACTOR

LNG SOURCING : INITIATIVES
LONG TERM LNG SUPPLY

Already tied-up	-	12.5 MMTPA
★ Qatar	-	7.5 MMTPA
★ Iran	-	5.0 MMTPA
Under tie-up	-	12.5 MMTPA

Potential Supply Sources (Till 2013)

★	Available Quantity (MMTPA)
Australia	13
Malaysia	3
Brunei	4
Oman	1.5
Abu Dhabi	1.3
Qatar	2.5 – 5.0
Algeria	8

LNG : TO HAVE MAJOR SHARE IN INDIA'S GAS SUPPLY MIX

LNG SOURCING : SPOT CARGO

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- Current Spare LNG Receiving Capacities

  Dahej - 1.25 MMTPA
  Hazira - 2.5 MMTPA

- Current Shortfall

Power	- 0.75 BCM (Peak Load)
Fertiliser	- 0.75 BCM
Other Industries	- 0.5 BCM

- LNG sourcing from the spot market – Shell, GAIL
- First spot LNG cargo of GAIL reached India in May, 2006
- Spot Cargo at US$ 8 - 10 / MMBTU Sold Out to Industrial and Power Sector (Peak Load)
- 8-10 spot LNG cargoes envisaged in 2006

LNG – GROWING IN IMPORTANCE

LNG REQUIREMENT IN INDIA

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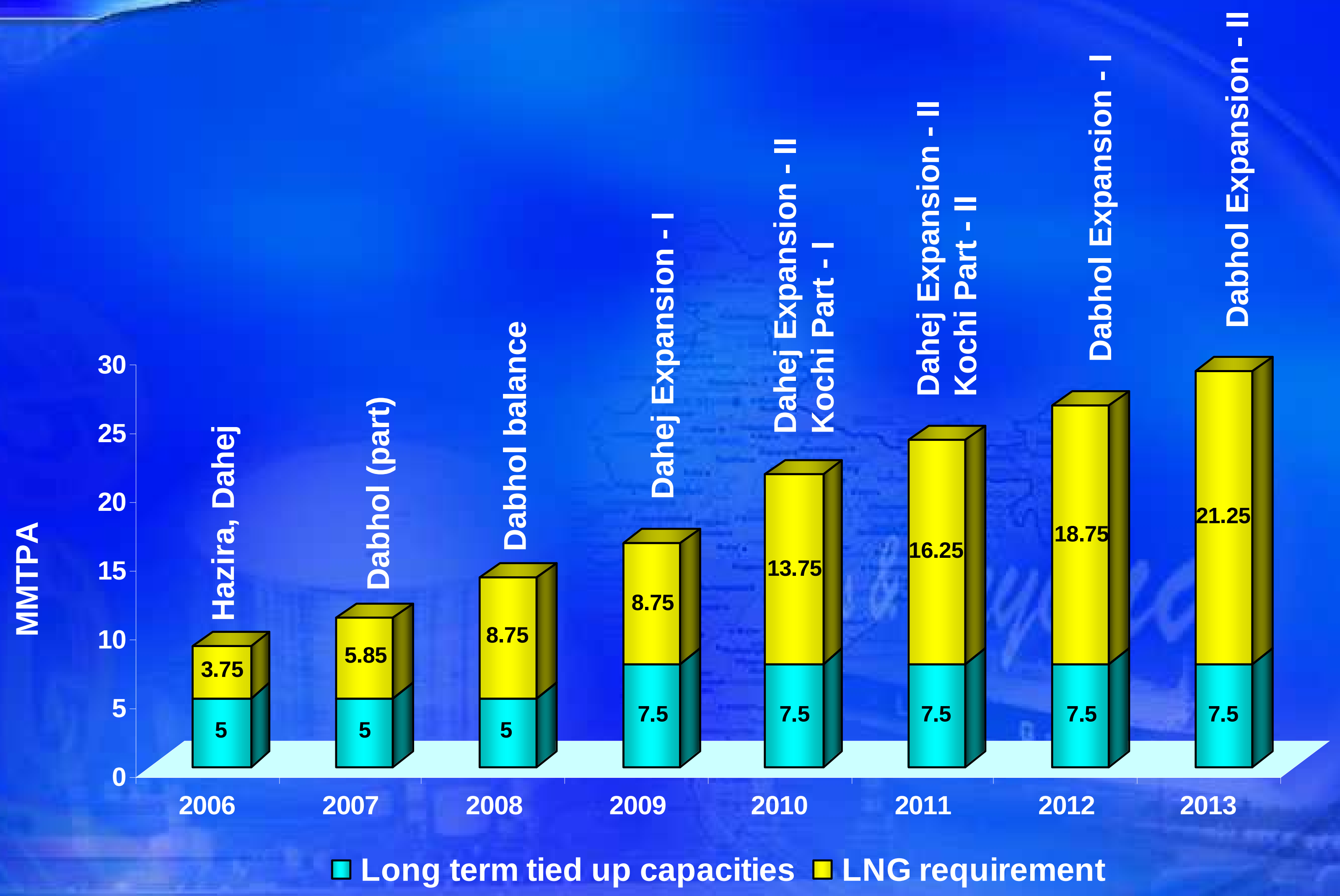

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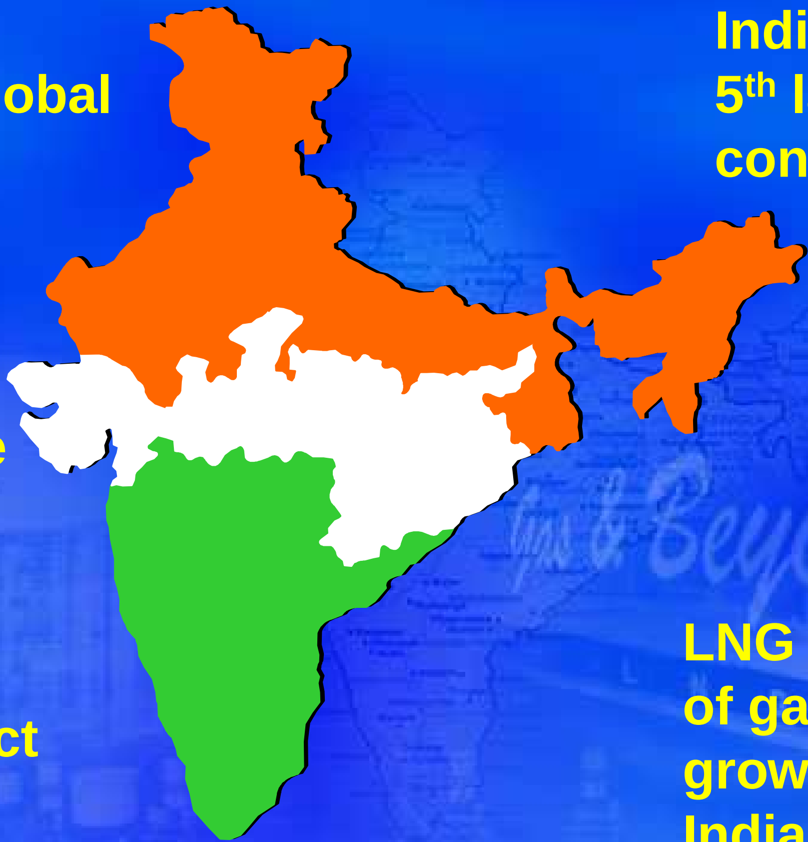
SUMMARISING…

INDIA BECKONS…

India : One of the fastest growing global economies

India : World's 5^{th} largest energy consumer



Fast paced Gas infrastructure Development in the Next 5 years

Share of Natural Gas growing at 7% annually

LNG - Major source of gas to meet the growing demand in India

Regulatory Act in place

INDIA - A KEY DESTINATION FOR LNG

THANK YOU