

**Natural Gas Pricing
&
Utilization Policy**



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Energy Pricing



**Integrated Energy Policy –
Review Meeting on 19.09.2008**

**“Energy pricing is a key component of energy policy.
Appropriate energy pricing must provide incentives
needed for **efficient use of energy** and also incentive
for **investment in expanding supplies**”**

**Dr. Manmohan Singh
Hon'ble Prime Minister of India**

Current Gas Prices



	US \$ /MMBtu
APM -Core Sector (@)	2.11
APM-Small consumer & Transport Sector(@)	2.53
APM rate for non core sector APM Consumers(@)	4.75
Lakshmi	4.75
Panna Mukta	5.73
Tapti	5.57
Rawa (*)	3.50
Rawa-Satelite (*)	4.30
ONGC-MSEB	11.00
RLNG-Pooled Price-NCV (*)	5.69
Spot Gas -NCV	24.48
KG D6 Price	4.20

(@) under revision

(*) Prices due for revision in December, 08

APM Price \$ 2.11 - \$ 4.75, Non-APM gas price - \$3.5-\$11
RLNG price - \$5.69-\$24.48
KG D/6 price is lower than non-APM gas prices as well as APM price for bulk consumers other than fertilizer / power

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Pooled LNG Price- India



Likely LNG Pooled Price Trend - India				
	<i>Ex. Terminal Price in \$/Mmbtu</i>			
	Lont Term LNG Price	Short Term LNG Price	Pooled Price(*)	Pooled Price(**)
Current	4.16	10.76	5.69	N.A.
Jan, 09	4.89	16.00	7.46	8.29
Dec,09	6.38	16.00	8.53	9.26

- ❑ **By end 2009 consumers will pay pooled price of \$ 8.5+/MMbtu**
- ❑ **Spot RLNG likely to cost \$ 16+/MMbtu**

Assuming spot price US \$ 16/Mmbtu & JCC at US \$ 100 beyond July,08,

(*) Pooled Price considering short term LNG for Two units of RGPPL

(**) Pooled Price considering short term LNG for Three units of RGPPL

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Pooling of LNG Price- China -2008



Price US \$/MMBtu

Particulars	July	Jan-July
Term Supply – Australia	3.10	3.14
Spot Supply-		
Algeria	15.51	15.51
Egypt	15.37	14.30
Eq. Guinea	-	13.98
Nigeria	15.46	14.37
Average	9.21	6.01
Last year Average	3.95	3.59

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Affordability - Fertilizer



Period	Qty	Price of Gas(US \$/Mmbtu)		Total Cost of Gas/Day (000 Rs.)	Price of Naptha US \$/Mmbtu	Total Cost of Naptha (000 Rs.)	Saving	
		GCV	NCV				Cost per Day (Rs/Lakh)	Cost over supply period (Rs/Crore)
August,08	MMSCMD							
1st to 15	0.75	24.02	26.66	30366	31.50	35884	55	8.28
16th to 30	0.75	26.28	29.18	32847	33.42	37621	48	7.16

RLNG used to replace more expensive Naphtha

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New Urea Pricing Policy



Existing Units up to 110% of capacity to be covered by existing policy	Production through Revamping	Production through Expansion	Production through Revival of closed units /Brown field	Production through Greenfield Project
	85% of Import Parity Price (IPP)	90% of IPP	95% of IPP	Through bidding discount over IPP
Current price mechanism	Floor US \$ 250 PMT Ceiling US \$ 425 PMT			To be decided at the time of bidding

Source: Department of Fertilizer

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Urea Pricing



- ❑ Urea Price of US \$ 250/MT -
Gas Price \$ 4.88/Mmbtu *
- ❑ Urea Price of US \$ 425/MT –
Gas Price for same IRR \$ 13.21/Mmbtu *
- ❑ At ceiling price of urea of \$ 425/MT with gas price remaining unchanged IRR increases from 12% to 27%.

Urea Pricing policy enhances the affordability of fertilizer sector and favourable for investment

* Source: Department of Fertilizer

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Gas Based Electricity Generation – Energy Utilization concerns



	Centralized Generation	Distributed Generation
Availability of primary energy	100%	100%
CCPP efficiency 50%	50%	50%
Transmission loss of power	35%	Almost Nil
Energy used	100%-50%-35% of 50% = 32.5%	100% - 50% = 50%

New generation machines with lower unit heat rate to further improves efficiency

T&D loss to be in single digit to avoid investment in generation of 'negawatt'

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Fuel Mix for Power Generation

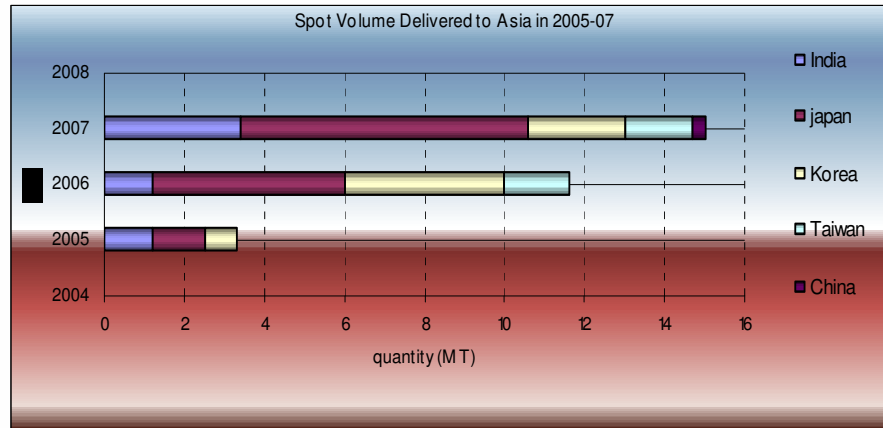


- Power generation by gas with current T&D cost / losses is not a cheaper option
- Gas price unlikely to be lower than
 - Imports – \$9/MMBTU
 - Domestic NELP \$6/MMBTU
- Coal would continue to drive growth of thermal power generation
- Gas based capacity for power generation is to be on strategy / policy considerations on fuel mix and not on coal replacement basis

Power sector using Spot RLNG at \$16-18/MMBtu for optimization of existing capacity

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Spot/Short term LNG Delivery in Asia



Consumption of spot RLNG in power and fertilizer sector put India along with Japan as main drivers of spot/short term Trading in region in 2007

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Reported RLNG offer for Kayamkulam Power Plant of NTPC



□ Source of LNG	Gorgon (Australia)
□ Total volume for LNG	
Regasification Terminal (PLL)	2.5 MMTPA
□ Requirement of NTPC's Kayamkulam Power plant (Capacity to be expanded from 350 MW to 1500 MW)	2.1 MMTPA
□ Delivered price (basis \$1.2 + 0.16XJCC/bbl)	\$21.1/MMBtu

Is power plant at such price is sustainable?

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High Gas Price Trend



- ❑ US, Europe and Japan, Korea, Taiwan in Asia are paying higher gas prices
- ❑ Asian buyers are paying and will continue to pay premium for diverting volume from West to East
- ❑ India and China
 - Some sectors can pay higher price but core sector, except where gas replaces liquid fuel are reluctant to pay prevalent high prices
 - Price pooling strategy currently being adopted to reduce the impact of high LNG prices but how far the strategy can help?

Gas price relationship to oil is on increase resulting in higher base price. Trend seems to be irreversible.

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Gas Utilization Policy

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Imputed Value



- **Imputed Value determines Priority utilization**
 - Economic Cost Equivalent to alternate option
 - Higher the imputed value higher the priority
- **Imputed value adopted for sectorial priority**
- **Imputed value needs periodical updating**

Higher imputed value results in higher savings to the economy

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Methodology - Imputed value of gas



Cost of generation/production	Gas based	Competing technology
Capital cost	a	c
Operation and maintenance cost	b	d
Fuel cost	x (unknown)	e
Total cost (f)		=c+d+e
Imputed value of gas (x)		=f-a-b

The imputed value is the price of gas at which the cost of generation or production in a gas based plant equals the cost of generation/producing using an alternative fuel.

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Guidelines on Utilization of Gas – NELP as approved by EGOM



- ❑ Ensuring Value addition - Stripping higher fractions
- ❑ Marketing Priorities - determined by Government
- ❑ Formulae for determination of Price - approved by Government
- ❑ Marketing priority – no reservation
- ❑ Next priority consumer if higher priority consumer not ready
- ❑ Priority for consumers connected to the source

Guidelines to be reviewed after 5 years

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Change in Attitude - India and China



- ❑ Nature gas price higher than \$4-5/MMBtu is not viable. No tie-up of LNG for expansion and new terminals. Global market being tight
- ❑ Current purchases on short terms / spot basis of RLNG indicate change in attitude
 - Demand is not a problem
 - Price is not a problem
 - Creating additional storage capacity to increase ability to accommodate more spot cargoes
 - But getting supply is difficult

Core sectors need to revisit issue of affordability to secure sustained supply of gas

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Conclusions



- ❑ Gas pricing to promote efficient use and investment in sector
- ❑ Government is taking pro-active measures to enhance value of gas in its utilization.
- ❑ Gas be supplied to sectors as per utilization guidelines at market price.
- ❑ Urea pricing policy would increase affordability of the sector to encourage additional capacity.
- ❑ Natural gas utilization as replacement of liquid fuel in industrial / automotive sector have higher imputed value and unlock value of gas.
- ❑ Core sectors need to revisit issue of affordability to secure sustained supply of gas

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Growth is Life

Thank You