

**A Presentation
on
NTPC Limited
by
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Director (Finance), NTPC
at
4th Analysts & Investors Meet**

1st- 2nd August 2008

Corporate vision



Corporate Vision:

“A world class integrated power major, powering India’s growth, with increasing global presence”

Contents

- 1 NTPC today
- 2 Performance Highlights – Year 2007-08 and Q1-2008-09
- 3 Business opportunities
- 4 Way Forward
- 5 Challenges and Strategies

NTPC- Today

Ownership

- Government owns 89.5%
- FIIs own 4.13 % and rest 6.37 % owned by domestic institutions & public

Size

- One of the three largest Indian companies with a market cap of more than Rs. 1621 billion +
- Has a net worth of Rs. 526.4 billion +
- Owns total assets of Rs.893.9 billion +

Stature

- Ranked # 1 independent power producer in Asia in 2007 (by Platts, a division of McGraw-Hill companies)
- The fifth largest generating company in Asia
- 411th Largest company in the world (FORBES ranking – 2007)
- The largest generator in India

Powering People's Progress

NTPC group

6 Subsidiaries

- NTPC Electric Supply Company Ltd. (100%)
- NTPC Vidyut Vyapar Nigam Ltd. (100%)
- NTPC Hydro Ltd.(100%)
- Kanti Bijlee Utpadan Nigam Ltd. (51%)
- Bhartiya Rail Bijlee Company Ltd. (74%)
- Pipavav Power Development Co Ltd (100%)-under winding up

11 Joint Ventures

- PTC India Ltd. (5.28%)
- Utility Powertech Ltd. (50%)
- NTPC SAIL Power Co. (Pvt.) Ltd. (50%)
- NTPC Alstom Power Services Pvt. Ltd. (50%)
- NTPC Tamilnadu Energy Co. Ltd. (50%)
- Ratnagiri Gas & Power Pvt. Ltd. (28.33%)
- Aravali Power Company Pvt. Ltd. (50%)
- NTPC-SCCL Global Ventures Private Ltd. (50%)
- Meja Urja Nigam Pvt. Ltd.(50%)
- NTPC-BHEL Power Projects Pvt. Ltd.(50%)
- BF-NTPC Energy Systems Ltd. (49%)

Figures in brackets indicate holding of NTPC

NTPC Group: Total Assets above Rs.935.5 Billion, Net -worth above Rs.528.6 Billion, Profit after tax above Rs.75 Billion.

Contents

- 1 NTPC Today
- 2 Performance Highlights – Year 2007-08 and Q1-2008-09
- 3 Business opportunities
- 4 Way Forward
- 5 Challenges and Strategies

Performance Highlights – Fiscal 2008 & Q1-09

- 1 Capacity Growth
- 2 Physical Performance
- 3 Commercial Performance
- 4 Financial Performance
- 5 Fuel supply
- 5 Others

Capacity Growth

Capacity added during 2007-08 -1740MW

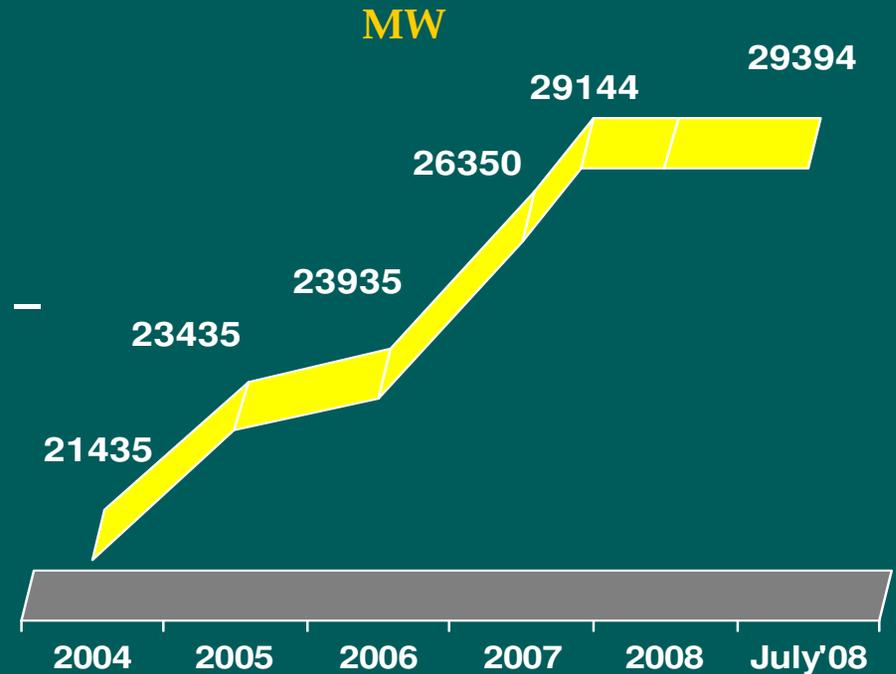
- 500 MW commissioned at Sipat-II
- 500 MW commissioned at Kahalgaon
- 740 MW capacity of Ratnagiri JV

Increase in capacities during Q1/09

- 250 MW commissioned at Bhilai Expansion
- Increase in commercial capacities during Q1-Q2/09
- 500 MW declared commercial at Sipat – II
- 500 MW declared commercial at Kahalgaon

Total capacity

Own	-	27350 MW
Joint ventures	-	2044 MW
Total	-	29394 MW



Additional 2000 MW expected to be declared commercial during 2008-09 including 500 MW under JV

Capacity Growth.....

- ★ Investment approvals accorded for 6570 MW covering investment of Rs. 360 bln. in 2007-08
- ★ 16680 MW capacity under Construction including 3750 MW under construction in JV companies



Projects under construction	(MW)
KAHALGAON – II (COAL) / BIHAR	500
SIPAT – II, UNIT –V (COAL),Chhatisgarh	500
SIPAT – I (COAL) / CHHATTISGARH	1980
BARH – I (COAL) / BIHAR	1980
NCTPP – II DADRI (COAL),UP	980
KORBA – III (COAL) / CHHATTISGARH	500
FARAKKA – III (COAL) / WEST BENGAL	500
SIMHADRI – II (COAL) AP	1000
KOLDAM (HYDRO) / HIMACHAL PRADESH	800
LOHARINAG PALA (HYDRO) / UTTARAKHAND)	600
TAPOVAN VISHNUGAD (HYDRO) UTTARAKHAND	520
MAUDA (COAL) / MAHARASHTRA	1000
BONGAIGAON (COAL) / ASSAM	750
BARH – II (COAL) / BIHAR	1320
BHILAI (COAL) - JV WITH SAIL	250
ARAVALI STPP JHAJJAR (COAL-, JV WITH HPGCL AND IPGCL	1500
VALLUR (COAL) - JV WITH TNEB	1000
NABINAGAR - JV WITH RAILWAYS	1000
TOTAL	16680

Capacity growth and Funding Tie-up

2007-08

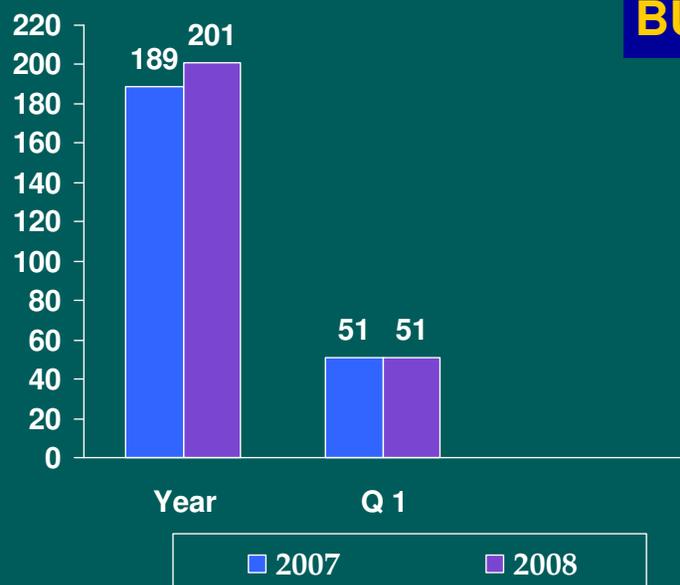
- ★ Achieved highest ever capex of Rs. 86.21 bln
- ★ Rupee Borrowings for Rs 44.750 bln tied up in domestic market
- ★ Forex loans for USD 480 million tied up
- ★ Placed Bonds of Rs. 10 bln.
- ★ Financial Closure of two JV projects achieved under Project Finance structure on non- recourse basis:
 - Rs 51.8 bln for Indira Gandhi STPP (Aravali Power)
 - Rs 37.9 bln for Vallur STPP (NTPC –Tamilnadu Energy Company).

2008-09

- ★ Tied large ticket funding of Rs. 100 bln with PFC to finance expenditure of ongoing projects
- ★ Board has approved to seek shareholders' approval for increasing borrowing limit to Rs. 1 trillion

Physical Performance – Generation & Capacity utilization

Generation – Quarter and Year



BUs

PLF - Quarter and Year

	2008	2007
Coal Stations	92.24%	89.43%
Gas Stations	68.14%	71.90%
All India	78.61%	76.80%

	Q1-09	Q1-08
Coal Stations	92.19%	94.00%
Gas Stations	67.20%	77.98%

- Gross Generation declined by 1.22% in Q1/09 over corresponding Qtr. of fiscal 2008 due to planned maintenance undertaken during the Qtr.
- Availability @ 92.56% for thermal and 87.16% for gas in Q1 of fiscal 2009

- Generation crossed 200 Billion Units for the first time since inception
- Coal based stations achieved highest ever PLF of 92.24% against 89.43% PY
- Ten stations achieved over 90% PLF including Dadri which achieved 98.02%

Commercial Performance

- ★ 100% realization for five years in succession.
 - ★ *Same trend continues in the first quarter of fiscal 09*
- ★ Letters of Credit to the extent of 105% of average monthly billing established by all customers
- ★ Timely Servicing of Bonds under One-time-settlement Scheme
- ★ Incentive scheme for encouraging prompt payment continues - *Maximum rebate upto 2.25% allowed for prompt payments within a month.*
- ★ *68% of energy bills realized within a week of presentation of bill for the month*

Financial Performance – For the Year 2007-08

Rs.Million

	Fiscal 2008	Fiscal 2007	Growth over LY
Total income	400,177	353,807	13%
Sale of Energy	369,462	325,344	13.5 %
Other income	30,715	28,463	8 %
Total expenditure	294,883	264,842	11 %
Fuel	220,202	198,181	11 %
Depreciation	21,385	20,754	3%
Interest & finance charges	17,981	18,594	(3%)
PBT	102,549	89,074	15%
Tax	28,401	20,427	39 %
PAT	74,148	68,647	8%
Adjusted PAT	75,133	65,346	15%

★ Gross revenue up by 13% and crosses Rs.400 bln

★ PBT increased by 15% to Rs.103 bln

★ PAT in FY 08 is Rs.74 bln as against Rs.69 bln LY

★ Low gearing of 0.52:1.

★ Net Operating Cash Flow of Rs.102 bln.

Financial Performance – Quarter

Rs. Million

- ✦ The total income have grown by 5.87%
- ✦ Sales have registered an increase of 6.42 %
- ✦ Profits have gone down by 27.15%

	Q1-09	Q1-08	% change
Total income	102,567	96,878	5.87
Sale of Energy	95,119	89,382	6.42
Other income	7,448	7,496	(0.64)
Total expenditure	80,920	67,944	19.10
Fuel	61,386	53,230	15.32
Depreciation	5,524	4,914	12.41
PBT	21,646	28,934	(25.18)
Tax	4,381	5,235	(16.31)
PAT	17,265	23,699	(27.15)

Financial Performance – Quarter-1 /2008-09

Rs.Million

- ★ As in the past the company has disclosed certain adjustments which are included in the reported results
- ★ On a comparable basis the profits for the current quarter have grown by 5.28% over the same quarter of the previous year

	Q1-09	Q1-08	% change
Reported PAT	17265	23699	(27.15%)
Adjustments			
• Previous year sales	-618	-5097	
• FERV adjusted to interest	305	-3828	
• Deferred FERV	-701		
• Prior period adjustments	-1	-14	
• Wage Revision/ Pension/Gratuity	2110	1068	
• Additional Incentive	220	1820	
• Total adjustments	1315	-6051	
Comparable PAT	18580	17648	5.28%

Fuel Supply

✦ Coal Supply

- During the quarter 28.71 million metric tonnes of coal was received as compared to 29.49 million tonnes in the corresponding quarter in the previous year
- Coal stock levels at power stations were satisfactory

✦ Gas Supply

- During the quarter Gas stations received 11.39 MMSCMD of gas in comparison to 14.83 MMSCMD received in the same quarter in the previous year
- Purchased 2.35 MMSCMD of regassified LNG from the spot market during first Quarter

Other key highlights (April to July)

- A Joint Venture Company (JVC) formed with Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited, named "Meja Urja Nigam Private Limited" on April 2, 2008 for setting up a power plant of 1320 MW (2X660 MW) at Meja Tehsil in the state of Uttar Pradesh .
- Sub committee of Board of Directors accorded approval for setting up of "Singrauli Small Hydel Project" of 8 MW located in the state of Uttar Pradesh to utilize hydro potential in Condenser Cooling Water (CW) discharge channel at the existing Singrauli Thermal Power Station.

Contents

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Power Sector Growth Drivers.....

- ✦ The GDP grew at 8.7% during fiscal 2008 and growth projection for fiscal 2009 in the range of 8.0-8.5%
- ✦ The current growth is consumer-led and hence expected to take the economy to even higher growth path. From now to 2017, demand growth in India will be second only to China.
- ✦ At 8% GDP growth, power demand growing to 306 GW by 2017 and 575 GW by 2027
- ✦ Per Capita Electricity Consumption to grow from 704 Kwh in 2007-08 to 1000 Kwh by 2012
- ✦ Present energy deficit is 10.8% and peak deficit is at 14.4%.

Per capita Consumption remains low

Per Capita Consumption of Electricity



Source: UNDP Human Development Report 2007-08 – Data for 2004

Figures in kwh

- Power demand in India poised to grow further
- NEP aims at per capita availability of 1000 kwh by 2012
- India is 5th largest power consuming country in the world with 3.8% share
- India is 3rd largest power consuming country in Asia with 11.3% share

Existing Generating Capacity- March 2008

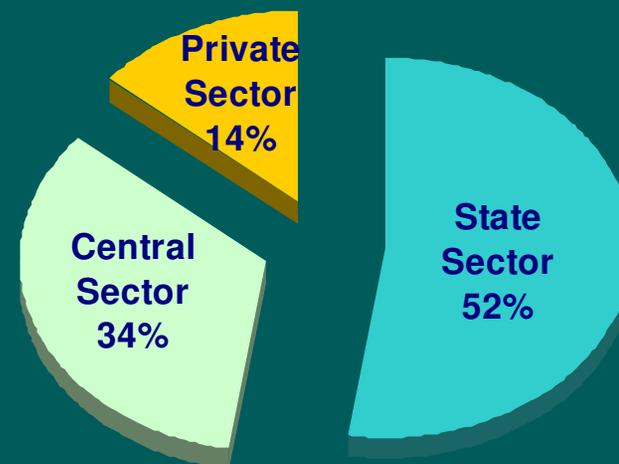
Fuel wise break-up (MW)

Thermal	91,907	64.2%
Hydro	35,909	25.1%
Nuclear	4,120	2.8%
Renewable	11,125	7.9%
TOTAL	143,061	100.0%

(Excluding captive capacity of 14636 MW connected to grid)

(All figures provisional from CEA)

Sector wise break-up (MW)



Total generation in 2007-08 – 704.45 BU

XI plan target-2007-2012

Sector	Thermal			Total Thermal	Hydro	Nuclear	Total
	Coal	Lignite	Gas				
Central sector	24310	1000	1490	26800	9685	3380	39865
State Sector	23135	450	762	24347	3605	0	27952
Private Sector	5460	0	2037	7497	3263	0	10760
Total	52905	1450	4289	58644	16553	3380	78577

NTPC to contribute to 56.67% of central sector share by adding around 22000MW during XI plan

NTPC's XI plan target-2007-2012

	Owned by NTPC				Owned by NTPC JVs	Total
	Coal	Hydro	Gas	Total		
2007-08	1000			1000	740	1740*
2008-09	2320			2320	500**	2820
2009-10	2800	800		3600		3600
2010-11	2820		1300	4120	2500	6620
2011-12	4230	1120	1300	6650	1000	7650
Total	13170	1920	2600	17690	4740	22430

* Commissioned ** 250MW commissioned

Contents

- 1 NTPC Today
- 2 Performance Highlights – Year 2007-08 and Q1-2008-09
- 3 Business opportunities
- 4 Way Forward
- 5 Challenges and Strategies

Way Forward- To become an integrated power major

- **HYDEL POWER**
~9,000 MW BY 2017
- **NUCLEAR POWER**
2000 MW BY 2017
- **RENEWABLES**~1000 MW BY 2017

**LATERAL
INTEGRATION**

- **GLOBALISATION**
 - SETTING UP OF POWER PLANTS ABROAD
 - INTERNATIONAL CONSULTANCY

**FORWARD
INTEGRATION**

- **POWER TRADING**
- **POWER DISTRIBUTION**

**BACKWARD
INTEGRATION**

- **SIX COAL MINE BLOCKS** (~47 MTPA CAP.) ALLOCATED
- **ONE OIL/GAS BLOCK** ALLOCATED.

- **SECTORAL SUPPORT**
 - PIE
 - APDRP
 - RURAL ELECTRIFICATION
 - TRAINING UNDER DRUM

**RELATED
DIVERSIFICATION**

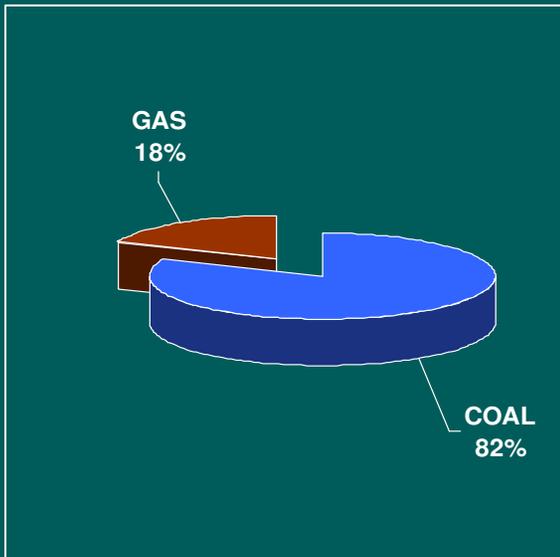
- **R&M OF POWER STATIONS**
- **JV FOR CAPTIVE POWER**

NTPC BY 2017

	Present	2011-12	2016-17
Installed capacity (MW)	29,394	~ 50,000	~ 75,000
Coal mining (production)	--	12 MTPA	~ 47 MTPA
Trading (units traded)	3.3 BU (2007-08)	10 BU	25 BU
Distribution (capacity)	--	1,000 MW	2,000 MW
Employee strength	24547	~ 30000	~35000

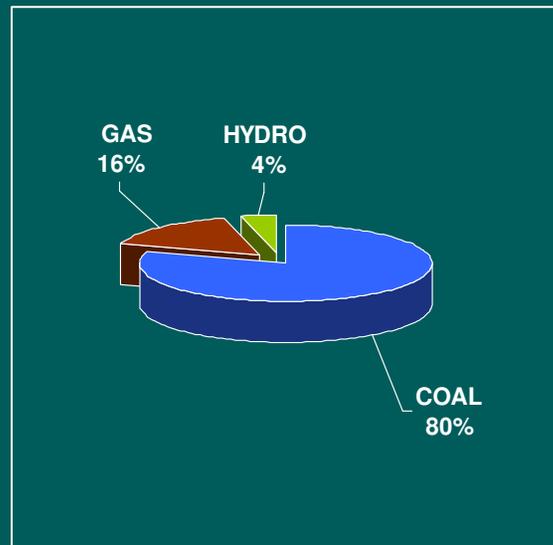
NTPC FUEL MIX BY 2017

**CAPACITY MIX - TODAY
(29,394 MW)**



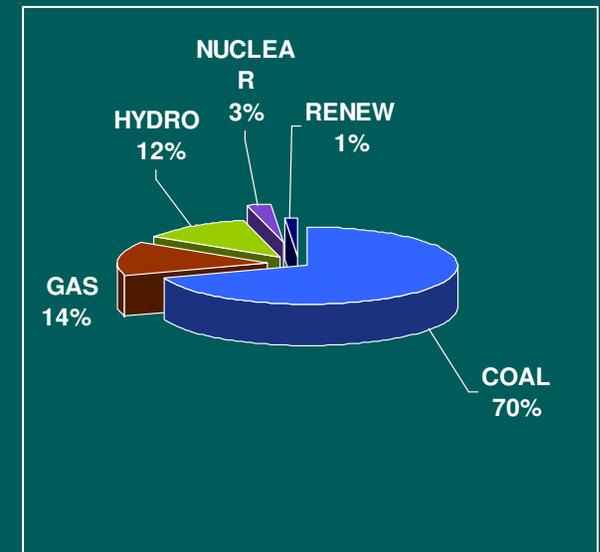
COAL	23959
GAS	5435

**CAPACITY MIX - 2012
(50,000 MW)**



COAL	40000
GAS	8000
HYDRO	2000

**CAPACITY MIX - 2017
(75,000 MW)**



COAL	53000
GAS	10000
HYDRO	9000
NUCLEAR	2000
RENEWABLE	1000

Expected CAGR of capacity of INDIA upto 2017 - 9.6%
Expected CAGR of Capacity of NTPC upto 2017 - 10.6%

Strategic diversification initiatives

- ★ **Acquisition of 44.6% stake in TELK** – for manufacturing and repair of high voltage transformers and associated equipment
 - Business collaboration and shareholders agreement signed with Govt of Kerala and TELK
 - Permission from SEBI awaited for delisting of shares
- ★ **JV with BHEL** – for manufacturing and supply of equipments for power plants and other infrastructure projects in India and abroad
 - “NTPC- BHEL Power Projects Private Ltd” incorporated and has started functioning as a 50:50 JV
 - Office has been established at Noida, UP
- ★ **JV with Bharat Forge Ltd** – for manufacture of castings, forgings, fittings and pressure piping required for power and other industries, balance of plant equipment for power sector
 - “BF NTPC Energy Systems Ltd” incorporated
 - NTPC shall have 49% and BFL 51%
 - A Joint Business Development Group has been formed for identification of areas of manufacturing to be undertaken by JV company

Setting up global footprints

- ★ MOA signed with the Government of Sri Lanka and Ceylon Electricity Board for setting up a 500 MW coal based thermal power plant in Sri Lanka:
 - ★ Site identified subject to establishing techno-economic feasibility
 - ★ PPA under discussion
 - ★ Draft JV Agreement under preparation
- ★ MOU signed with Kyushu Electric Power Co. Inc., Japan for establishing an alliance for exchange of information and experts from different areas of the business
- ★ MOU signed with the Govt. of Nigeria for setting up power plants against allocation of LNG on long term basis.
- ★ Entered into an MOU with SAIL, RINL, CIL AND NMDC for securing thermal coal from outside of India.
- ★ Exploring coal mining ownership/long term buy back opportunities in Indonesia, Australia and Africa including South Africa

Leveraging NTPC's capabilities for growth of power sector

- ✦ Under Partnership In Excellence (PIE), 2859 million units added during fiscal 2008. This amounts to capacity addition of 440 MW at 77.7% PLF.
- ✦ Decentralised Distributed Generation (DDG) projects commissioned at six villages in UP, Rajasthan and Chattisgarh.
- ✦ Associated in electrification of about 40000 villages in 6 states under Rajiv Gandhi Gramin Vidyutikaran Yojana – 1253 villages charged, work in progress in over 9414 villages.

Contents

- 1 NTPC today
- 2 Performance Highlights – Year 2007-08 and Q1-2008-09
- 3 Business opportunities
- 4 Way Forward
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Key Challenges

1. Human Resource Development & Compensation Package
2. Land Acquisition
3. Managing Environment – generating clean power
4. Regulatory Environment
5. Fuel security
6. Sustaining present level of operational efficiency
7. Competition
8. Financial viability of Customers
9. Limited Financial Resources
10. Technological Upgradation
11. Sustaining Market Share

The company has formulated its plans and strategies on the basis of -

- ✓ opportunities in the sector,
- ✓ company's strengths,
- ✓ challenges

Human Resource Development...

Strategy –to retain experienced manpower and attract new talent

- ✦ 24,547 highly trained employees
- ✦ Senior executives possess extensive experience of the industry
- ✦ Executive Turnover Rate 3.1%
- ✦ Planned interventions at various stages of career
- ✦ Systematic training ensures 7 man days training per employee per year
- ✦ Knowledge sharing & development through various HR initiatives

Improving Productivity



Ranked as number 1 in “Best work place for large Organisations” to work for in India as per survey conducted by Great Places to Work in collaboration with Economic Times

Human resource.....Compensation Package.

Strategy: adopt measures to make compensation package attractive

- ✓ Implementation of PRP (Performance Related Pay) by paying upto 5% of distributable profit to employees
- ✓ Merger of DA for all employees from January 1, 2007
- ✓ Enhancement of Children Education Reimbursement & Hostel Subsidy.
- ✓ Devised special compensation package for employees working in Hydro projects
- ✓ Payment of ad hoc advance pending wage/salary revision
- ✓ Allowing junior executives to undertake air journeys on business trips
- ✓ Enhancement of entitlement for Company Leased accommodation

Land Acquisition

Strategy – Well laid down CSR and R&R Policies

- ✓ The welfare of project affected persons and the local population around NTPC projects is taken care of through well drawn Rehabilitation and Resettlement policies
- ✓ The company has also taken up distributed generation for remote rural areas
- ✓ Providing sponsorship to candidates for ITI training at recognized private ITIs in the trades of welder, fitter, instrument mechanic and electrician. Close to 750 village youth sponsored during fiscal 2008.
- ✓ Proposal to set up an ITI at Chatra District in Jharkhand State at an estimated cost of Rs. 67.10 million on land to be provided by the State Government of Jharkhand.
- ✓ NTPC Foundation formed to address Social issues at national level
- ✓ NTPC has framed Corporate Social Responsibility Guidelines committing up to 0.5% of net profit annually for Community Welfare Measures on perennial basis

Key Challenge – Managing Environment – generating clean power

Strategy – Sound environment management

- ✓ “For sustainable energy development NTPC has adopted the vision-
“Going Higher on Generation, lowering GHG intensity”
- ✓ 0.5% of profit to be set aside annually for undertaking/sponsoring research leading to sustainable energy development.
- ✓ Design criteria for ESP ensures SPM emissions below norms
- ✓ Clean Development Mechanism initiatives to ensure future reductions in emissions
- ✓ Induction of Super-Critical Technology and development of IGCC plant for enhanced efficiencies and to reduce CO2 emissions
- ✓ Per capita CO2 emissions 1.05 tonnes in India as compared to 4.22 tonnes of world’s average 
- ✓ All stations ISO 14001 certified
- ✓ Environment Impact Assessment studies before project is taken up
- ✓ Setting up of Integrated effluent treatment plants, Ash water recycling system and others initiatives to reduce effluent discharge
- ✓ Ash mound formation for the first time in Asia in NTPC’s Dadri Plant 

Financial viability of customers

Strategy – Commercial prudence & incentives

- ✦ Since 2003-04, the realization of dues by CPSUs improved to about 100 % current billing:

2001-02	76%
2002-03	95%
2003-04	Almost 100%
2004-05	Almost 100%
2005-06	Almost 100%
2006-07	Almost 100%
2007-08	Almost 100%

- ✦ NTPC has realized 100% for the last 5 years- a substantial improvement from 76% realization in 2001-02
- ✦ Attractive incentive scheme in place for ensuring prompt payment
- ✦ AT&C losses are showing declining trend- reduced from 38.86% in 2001-02 to 32.07% (provisional) in 2006-07.
- ✦ Proactive Customer Relationship Management programme undertaken- the Company has started to offer services/support to customers in selected areas such as Operation & Maintenance, IT etc for overall power sector growth.

Fuel security

Strategy – Backward integration & diversification

■ Strategies for coal sourcing

- Long term fuel tie up for required quantities with Coal PSUs – more than 80% of NTPC's coal based capacity located at /near pit head.
- Import as and when required
- Develop coal mines – 7 coal mines including 2 in JV
- Coal production to commence from 1st mine by 2009-10
- Planning to import 8 Million tonnes of coal during current year

■ Strategies for gas sourcing

- Tie up with GAIL, PMT under Administered price mechanism
- Purchase for short term / from spot market
- Exploration activity progressing at NELP V
- Participate in gas value chain to secure long term supplies

■ Diversification into hydro

- 1,920 MW - under implementation
- 5,000 MW - Agreement signed for implementation

■ Exploring nuclear and renewable power options

Broad-basing the fuel mix

Fuel security

Status of coal mine development

- ★ 7 coal blocks allotted of which two would be developed in joint venture with Coal India Limited
- ★ Estimated mine-able reserves of 3 billion MT
- ★ Estimated total production capacity of 48 MTPA by the year 2017
- ★ NTPC Board has approved an advance expenditure of Rs. 5430 million for development of these mines

Status on Pakhri Barwadih, Chatti Bariatu and Kerandari mines

- ★ Mining plans approved by Ministry of coal.
- ★ Bids under evaluation for appointment of MDO for Pakri Barwadih
Public hearing held for Chatti Bariatu block

About 20% of Coal consumption by own mines by 2017

Sustaining present level of operational efficiency

Strategy – focussed attention on efficient running of stations

- ✓ Introduction and roll-out of RCM (Reliability Centred Maintenance) including REAP (Risk Evaluation and Associated Practices)
- ✓ Enhancing quality of plant overhauls to target 'zero' Forced Outage by design
- ✓ Focussing on reduction of Boiler tube failures
- ✓ Implementation of Overhauling Performance Index (OPI) for systematic and advanced planning of overhauls
- ✓ Hand-holding and upgrading overhaul vendors & service providers
- ✓ Creation of peer group Knowledge Teams (KTs) for each equipment to harmonize the best practices at enterprise level
- ✓ Continuously plant efficiency tracking and enhancement

Sustaining present level of operational efficiency

Strategy – focussed attention on efficient running of stations

Consistent improvement in PLF.



PLF in 10 out of 14 stations >90% out of which PLF of 4 stations >95%
PLF improved in 10 out of 14 Coal Stations during 2007-08

Sustaining present level of operational efficiency

Strategy – focussed attention on efficient running of stations

Forced Outage

- For the year 2007-08, forced outage <0.2 % in 9 out of 14 stations
- Overall reduction of 0.65%, forced outage reduced from 2.5% to 1.9% during 2007-08

Planned Outage

- For the year 2007-08, planned outage <7.0 % in 9 out of 14 stations
- Overall reduction of 1.3%
- Planned outage reduced from 7.2% to 5.9% during 2007-08

Sustaining present level of operational efficiency.....

Performance Benchmarking with world standards

- ✦ NTPC became a member of North America Electric Reliability Corporation (NERC). NERC maintains a database of more than 5000 generating units around the world through its Generating Availability Data System (GADS).
- ✦ NTPC obtained database of these 5000 units from NERC for the period 1982-2005 for benchmarking.

Parameter selection for comparison

- Gross Capacity Factor (PLF) for last year
 - Unplanned Outage Factor (Forced Outage) for last year
 - Availability Factor for last year
 - Planned Outage Factor for last three years.
- ✦ Since utility wise data is not available, the units were compared in two clusters of 200-220 MW capacity and 475-525 MW capacity.

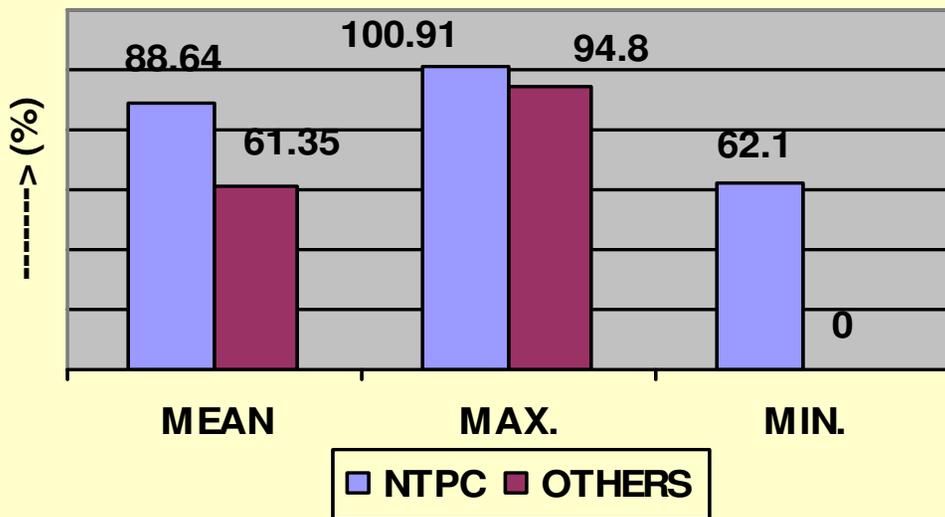
Sustaining present level of operational efficiency

Performance comparison (475 – 525 MW)

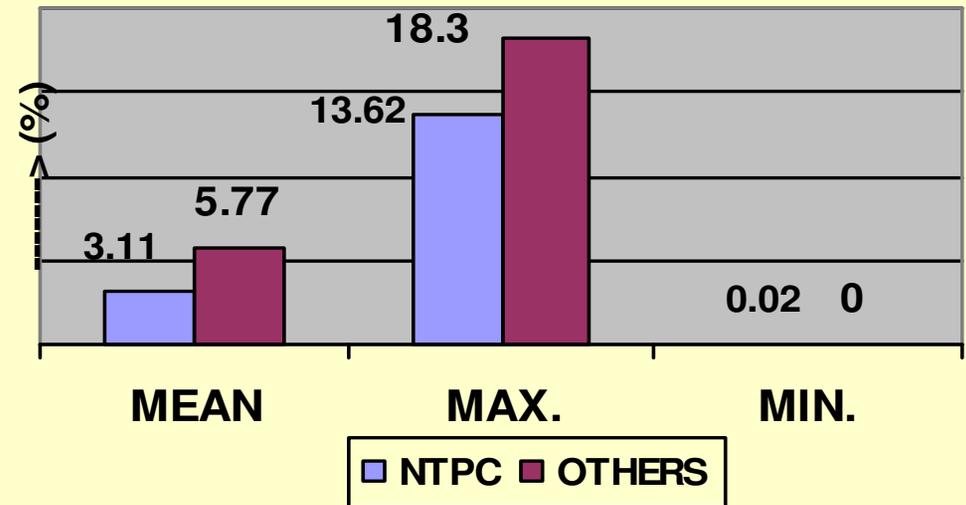
No. of international units in the cluster = 74

No. of NTPC units = 26

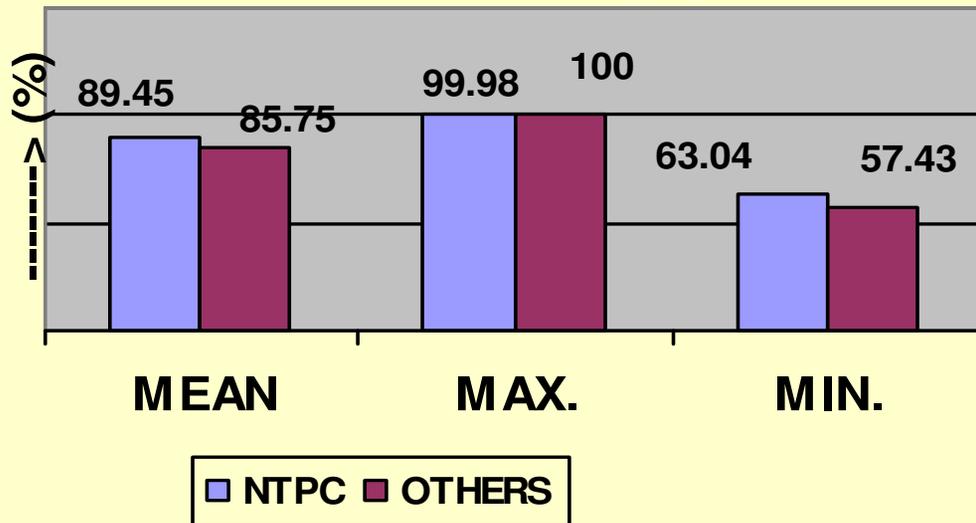
GROSS CAPACITY FACTOR(PLF)



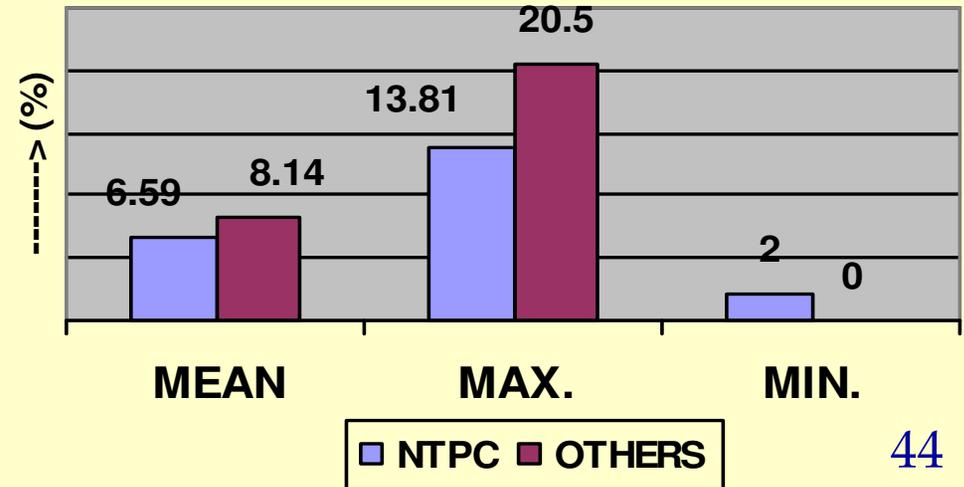
UNPLANNED OUTAGE FACTOR



AVAILABILITY FACTOR



PLANNED OUTAGE FACTOR



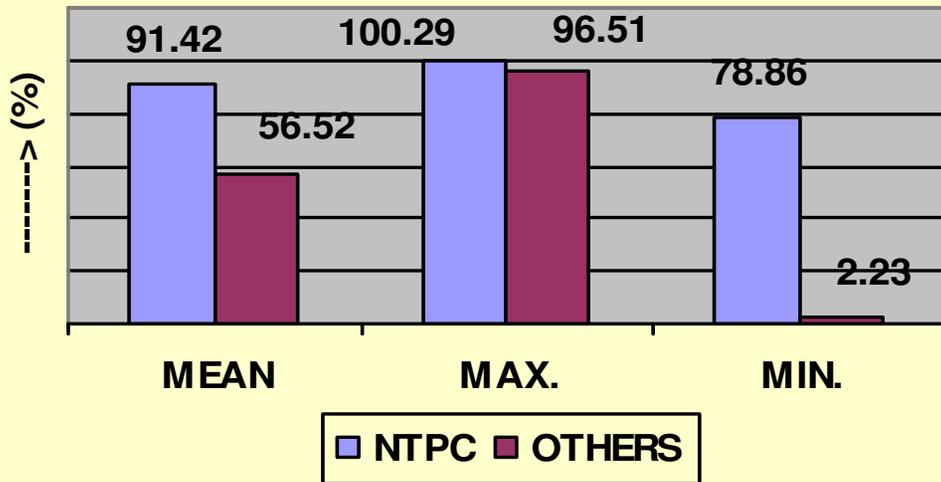
Sustaining present level of operational efficiency

Performance comparison (200–220 MW)

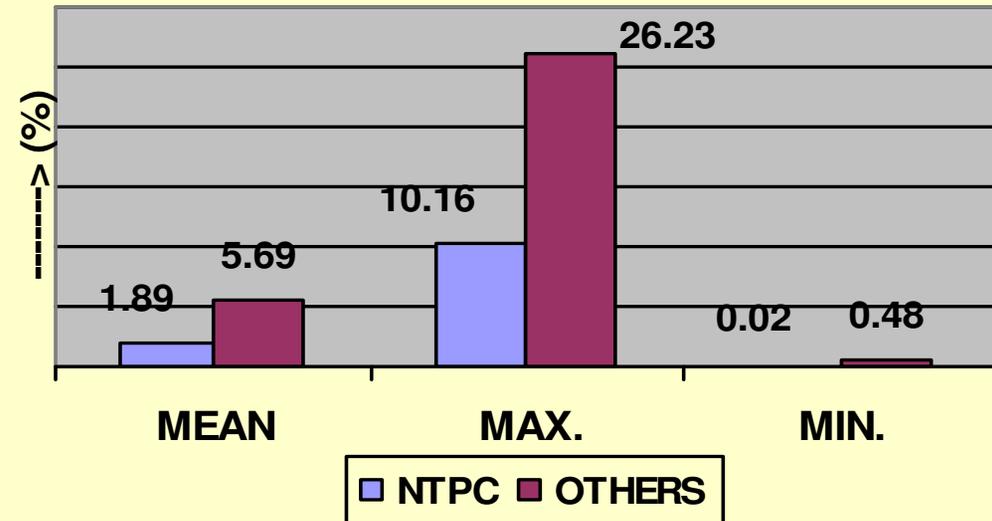
No. of international units in the cluster = 81

No. of NTPC units = 35

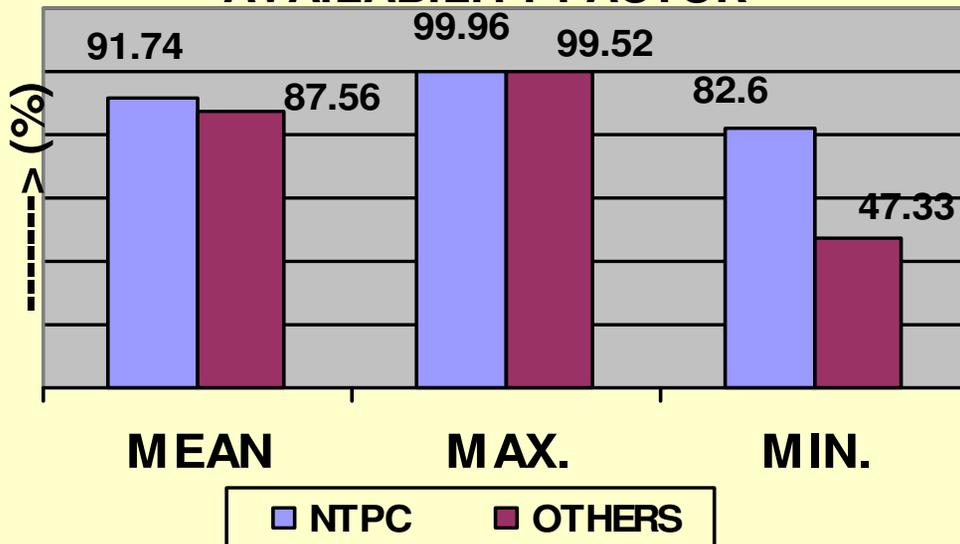
GROSS CAPACITY FACTOR (PLF)



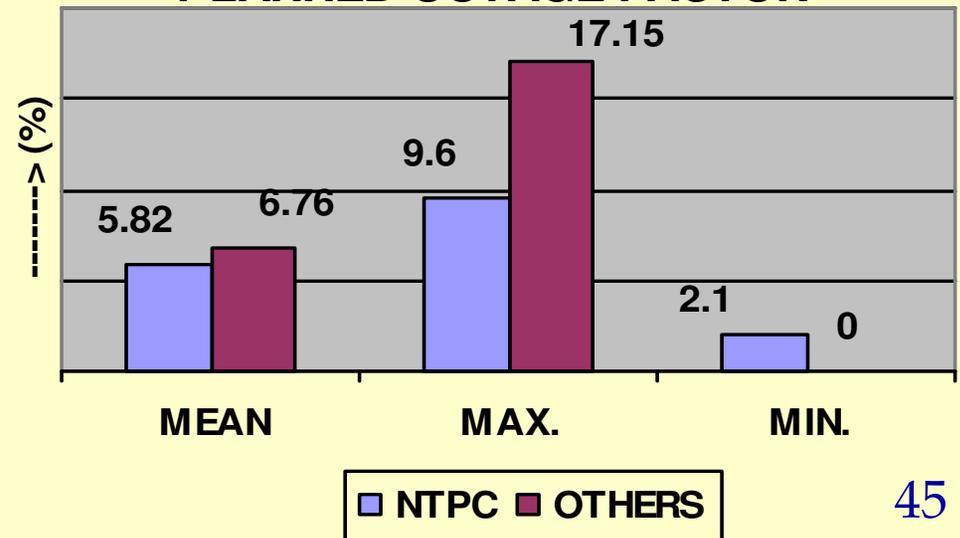
UNPLANNED OUTAGE FACTOR



AVAILABILITY FACTOR



PLANNED OUTAGE FACTOR



Sustaining present level of operational

Performance comparison (200– 220 MW)

		2005-06		
		AEP (USA)	ESCOM (SA)	NTPC
CAPACITY	MW	38354	39810	26912
EQ. AVAILABILITY FACTOR (DC)	%	82.87	88.70	89.74
EQ. CAPACITY FACTOR (PLF)	%	60.98	87.40	89.43

On all the parameters NTPC performed better

Competition

Strategy – Rapid Capacity Expansion

- ✦ Indian Power sector has enormous opportunities for growth and NTPC can benefit from enhanced competition
- ✦ The next largest power utility owns 9621 MW i.e. 6.72% of market share in terms of capacity
- ✦ Rapid capacity expansion under way, NTPC to add 45000 MW + by 2017
- ✦ NTPC to sustain its dominant position since CAGR of capacity addition in next 10 years for sector is 9.6% as compared to 10.6% of NTPC.

Regulatory Environment

Strategy –policy advocacy

- ✦ In the last 10 years, Regulatory Framework has matured.
- ✦ Regulatory system is working in a transparent manner to promote efficiency in the sector.
- ✦ One of the key outcome of the regulatory mechanism has been in the distribution area where Discoms are provided tariffs to recover their cost of power thereby improving their financial viability.
- ✦ Private investors more comfortable in making investment in the power sector.
- ✦ With open access in transmission, alternate option for sale by generators have increased. These are no more captive generators to states. Now the power can be sold to any purchaser across the country.
- ✦ Tariff Policy is indicative of continuing with a regime of reasonable return for all the utilities in the sector

Regulatory Environment.....

Strategy –policy advocacy

- ✦ Setting up of Power Exchange has also provided alternate sale mechanism to generators.
- ✦ Policy frameworks by Govt. of India -- National Electricity Policy and Tariff Policy provide for reasonable return to the utilities to ensure investment in the sector.
- ✦ Regulations issued by CERC are providing reasonable return based on normative operating parameters to incentivise utilities to perform better.
- ✦ With open access in transmission and alternate sale options, it is now feasible to set up merchant power plants for development of market.

Regulatory environment.....

Strategy – to strive to remain commercially attractive source of power

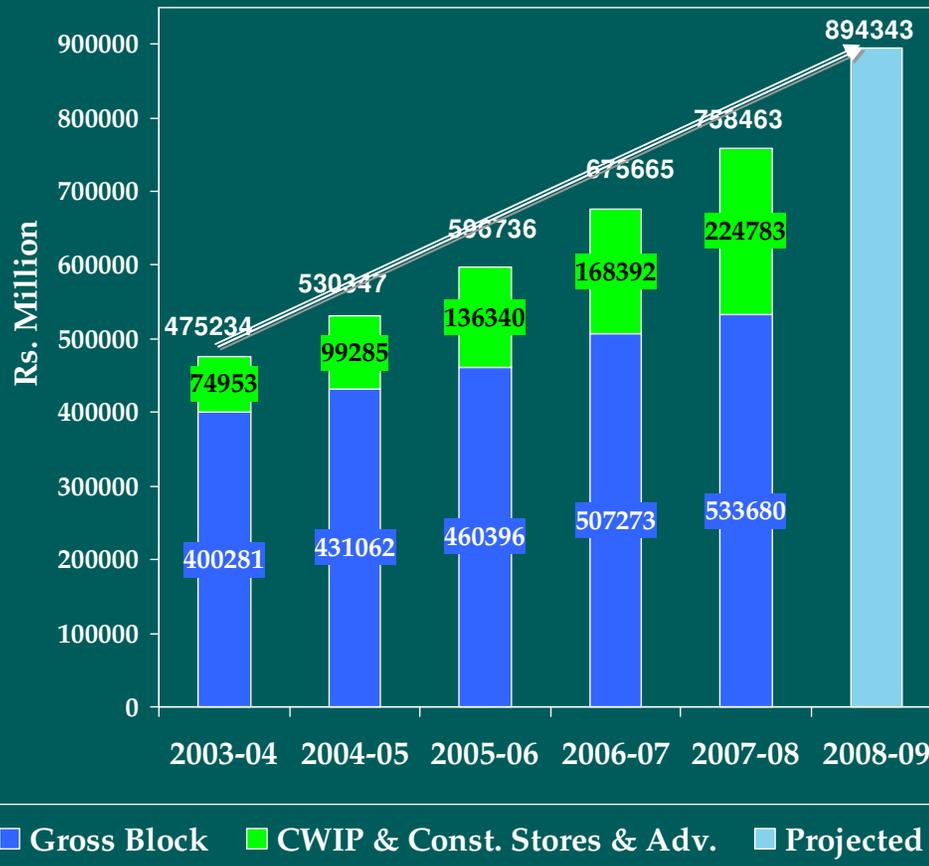
Average selling price is Rs. 1.84 per unit in fiscal 2008

- ★ **Supply decisions based on commercial principles**
 - Allocation of power to customers with ability to pay
 - Regulation/reallocation in case of default
- ★ **Long-term Power Purchase Agreements**
 - Off-take secured for entire output
 - Payment security arrangement in place – TPA upto 2016 and escrow thereafter
- ★ **Adequate evacuation arrangement**
 - Associated transmission system for each project being developed by CTU matching with project schedule
 - Regional grids being integrated to provide flexibility in evacuation of power across the country
 - *National grid capacity expansion from 17000 MW to 37700 MW under way*

Limited Financial Resources

Strategy – ensuring robust financial growth

Growth in Gross Block +
CWIP, Construction Stores, & Advance.



Last 5 Years' CAGR of Fixed Assets & CWIP is 12.02% indicating sustenance of future increase in Top line.

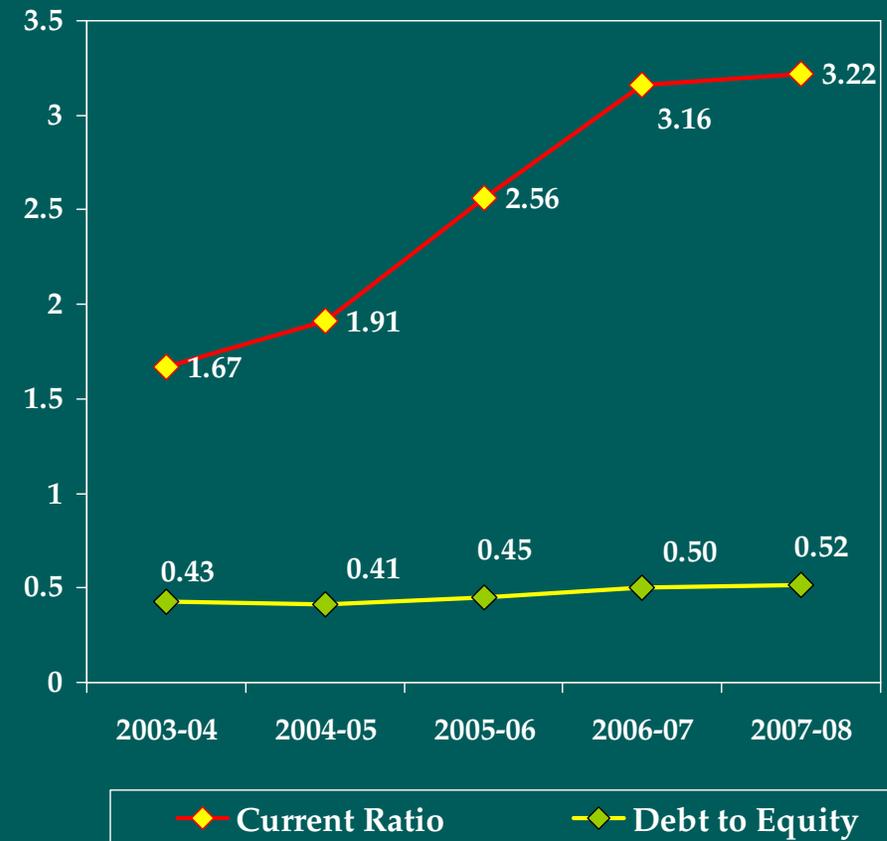
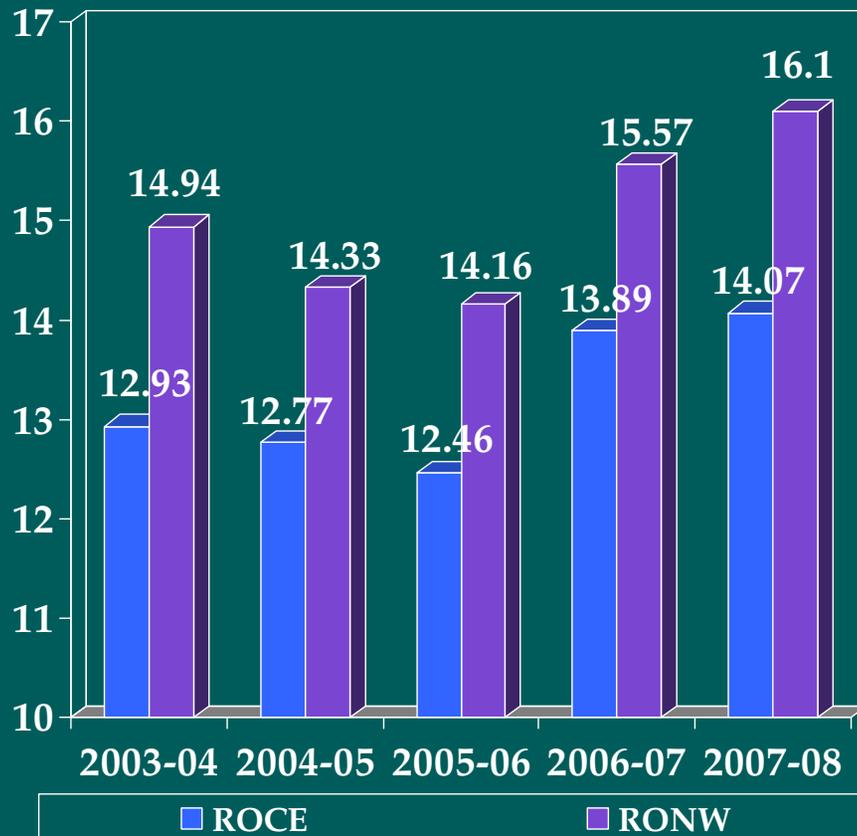
Growth in PAT



Last 5 Years' CAGR of PAT is 15.50% indicating increase in operational efficiencies.

Limited Financial Resources.....

Strategy –sustaining strong key ratios



- Low gearing ratio ensures favoured borrower status amongst lenders
- Financial Leverage to improve RoNW due to higher debt deployment

Technological Upgradation

Strategy - Technology Initiatives along with R&D

Introduction of State of Art technology

- ✦ Introduction of unit size of 800 MW
- ✦ Super critical technology and 765 KV transmission are some of the technologies adopted.
- ✦ Development of Integrated Coal Gassification Combined Cycle (IGCC) technology suitable to Indian coal through its collaborative effort with USAID
 - Possibility of continuous run 6.2 MW IGCC plant at BHEL Trichi, being explored by NTPC and BHEL
 - Possibility of setting-up IGCC Plants of 125 MW at Auraiya & 100-200 MW at Dadri being explored by NTPC & BHEL

Enhanced R&D focus

- ✦ The company sets aside upto 0.5% of the profits for R&D
- ✦ Energy Technologies Centre is working in both fundamental and applied fields and has a well-defined mandate to develop various technologies which will enhance plant reliability, efficiency etc.
- ✦ Renovation and modernization of old existing units to be taken up for capacity enhancement, life extension and improvement in availability, reliability and efficiency.

MOU signed with Bhabha Atomic Research Centre for development of “Automated Boiler Tube Inspection System” in coal based thermal power plants

Technological Upgradation

Strategy- adoption of higher efficiency units

	Sub - critical units		Super - critical units		
	Old	Recent	Sipat-I	Barh-I	Barh-II
Unit Size	500 MW	500 MW	660 MW	660 MW	660 MW
MS Pressure kg/cm ²	170	170	247	247	247
MS Steam Temp(O C)	537	537	537	537	565
RH Steam Temp (O C)	537	565	565	565	593
Gross Efficiency (HHV) %	38.00	38.26	38.84	39.14	39.96

Plant	Turbine Heat Rate	CO ₂ Emission / MW	SO ₂ Emission / MW
500 MW (170 bar/537 C/537 C)	BASE	BASE	BASE
660 MW (246 bar/537 C/565 C)	2.6% ↑	2.6 % ↓	2.6 % ↓
660 MW (246 bar/565 C/593 C)	5.1% ↑	5.1 % ↓	5.1 % ↓

Technological Upgradation.....

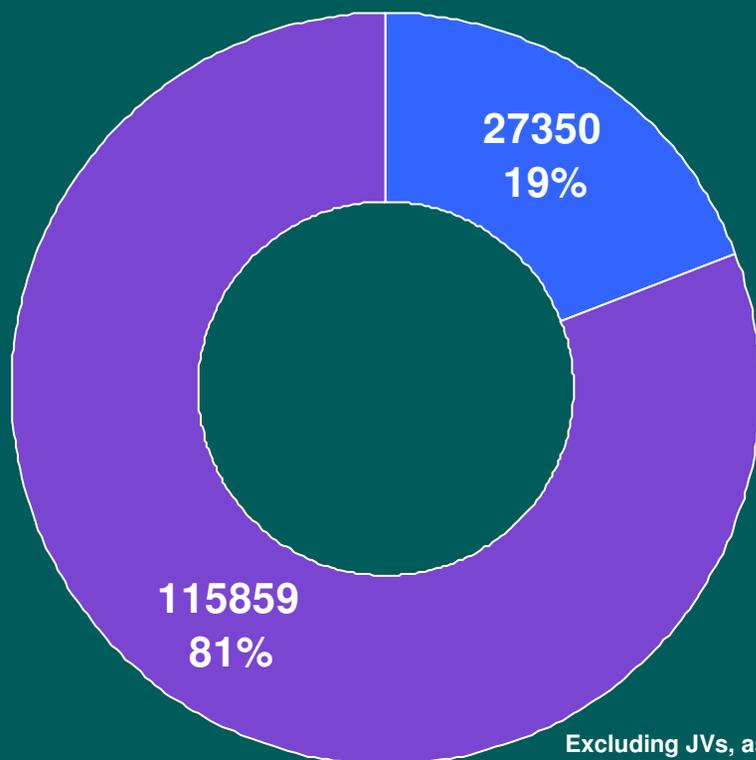
Strategy- adoption of higher efficiency units

- **By 2012, these units could reduce CO2 emissions by almost 1 Million Tons**
- **The methodology developed for supercritical power plants in respect of North Karanpura project has been approved by “United Nations Frame Work Convention on Climate Change (UNFCCC)” as “ACM 0013” which will be globally used for CDM projects related to supercritical power plants.**

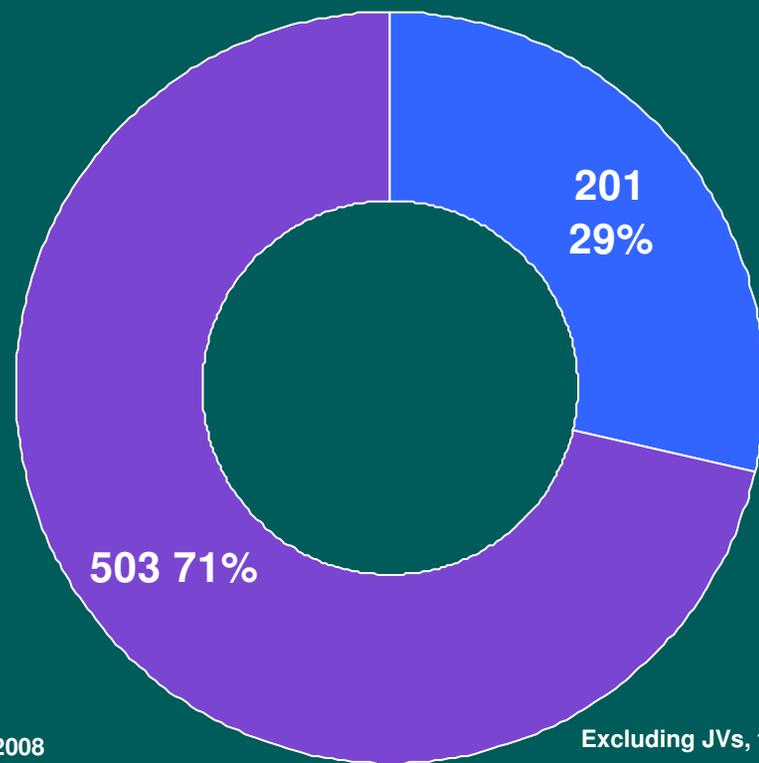
Challenge-Sustaining Market share

Existing Business strength- Dominant Market Share

Capacity (MW)



Generation (BUs)



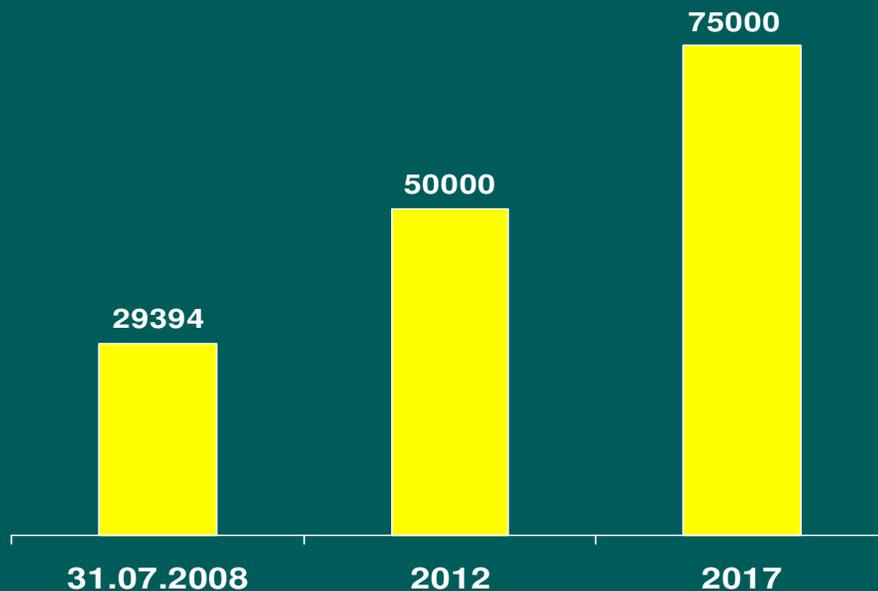
NTPC's CAGR in terms of capacity since inception - 20%

NTPC's CAGR since inception for generation- 24%

Challenge-Sustaining Market share.....

Strategy – Rapid capacity expansion

INSTALLED CAPACITY



MULTI-PRONGED GROWTH STRATEGY

- Multi pronged approach to capacity addition
 - Greenfield projects
 - Brownfield expansion
 - Joint ventures
 - Acquisitions
- Diversification in related business areas
 - Hydro projects
 - Coal mining
 - Power trading
 - Oil / gas exploration
 - LNG value chain
 - Renewable
 - Nuclear

Projects commissioned	1,990 MW
Projects under construction	16,680 MW
Projects under Tendering	3,760 MW+

Estimated Market Share by Capacity 23% by 2012 and 25% by 2017

The information contained in this presentation contains forward looking statements. Actual result may vary materially from those expressed or implied, depending upon economic conditions, government policies and other factors. Any opinion expressed is given in good faith but is subject to change without notice. No liability is accepted whatsoever for any direct or consequential loss arising from the use of this document.

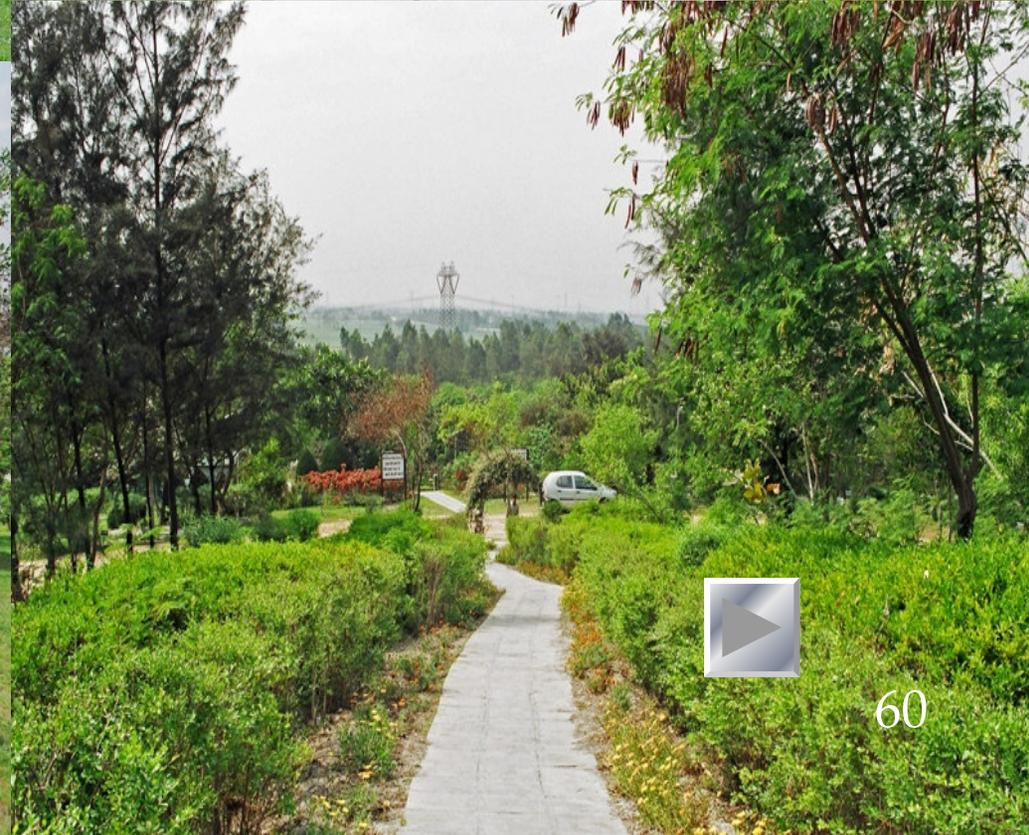
Power Producer of International Repute

Thank you

www.ntpc.co.in

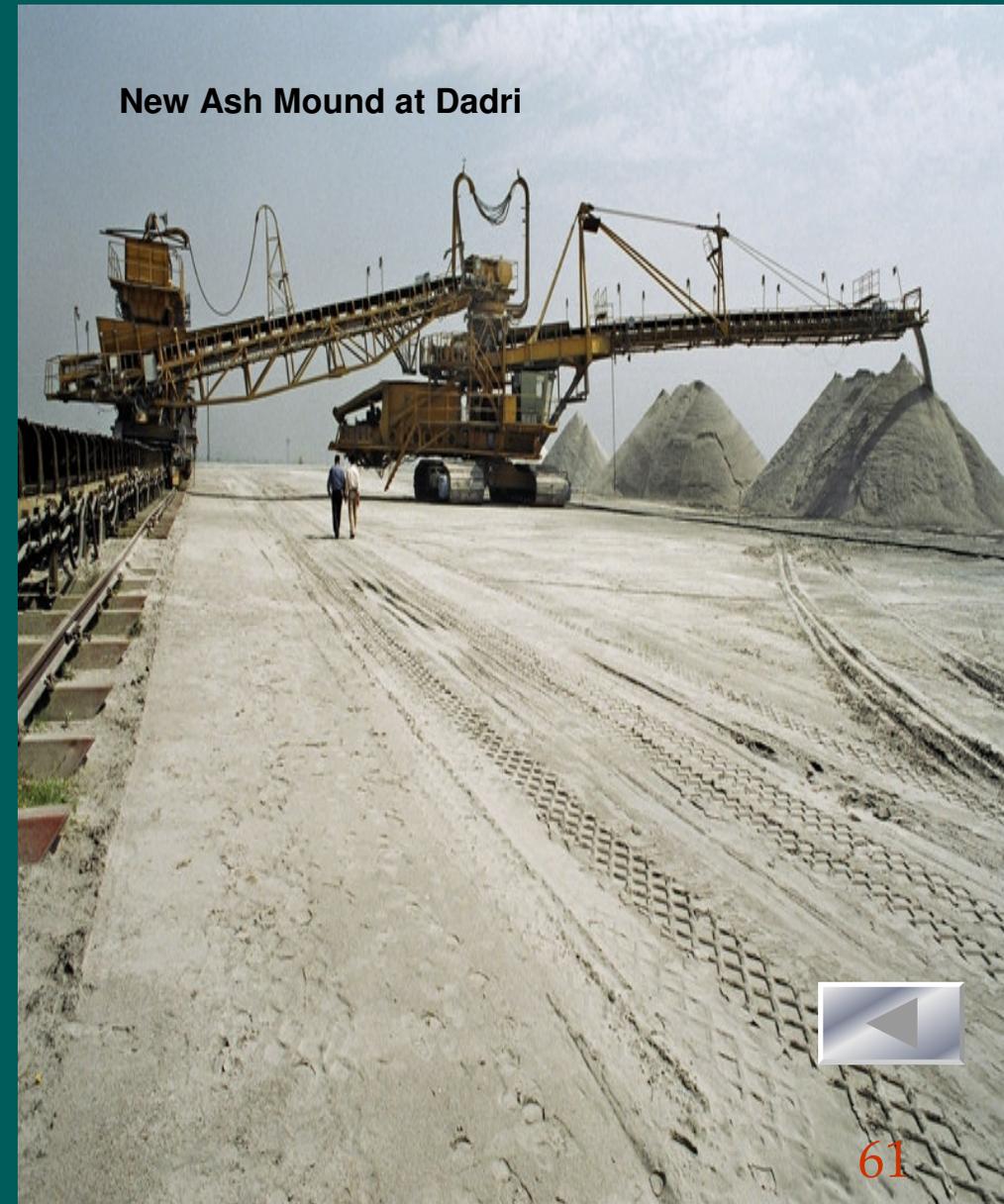


**Picturesque view of Ash Mound
of NCTPP-Dadri**



Ash Utilisation

- ✦ During FY 08, about 23.7 million tonne of Ash has been utilised which is about 55.1% of the ash generated.
- ✦ Full utilisation targeted within 9 years of operation for New Projects.
- ✦ Major areas of Ash utilisation:
 - Cement and Asbestos
 - Road Embankment
 - Mine Filling
 - Ash dyke raising
 - Brick manufacturing



SIPAT-I (3x660 MW)



STAGE - I, U #1 - ID FAN

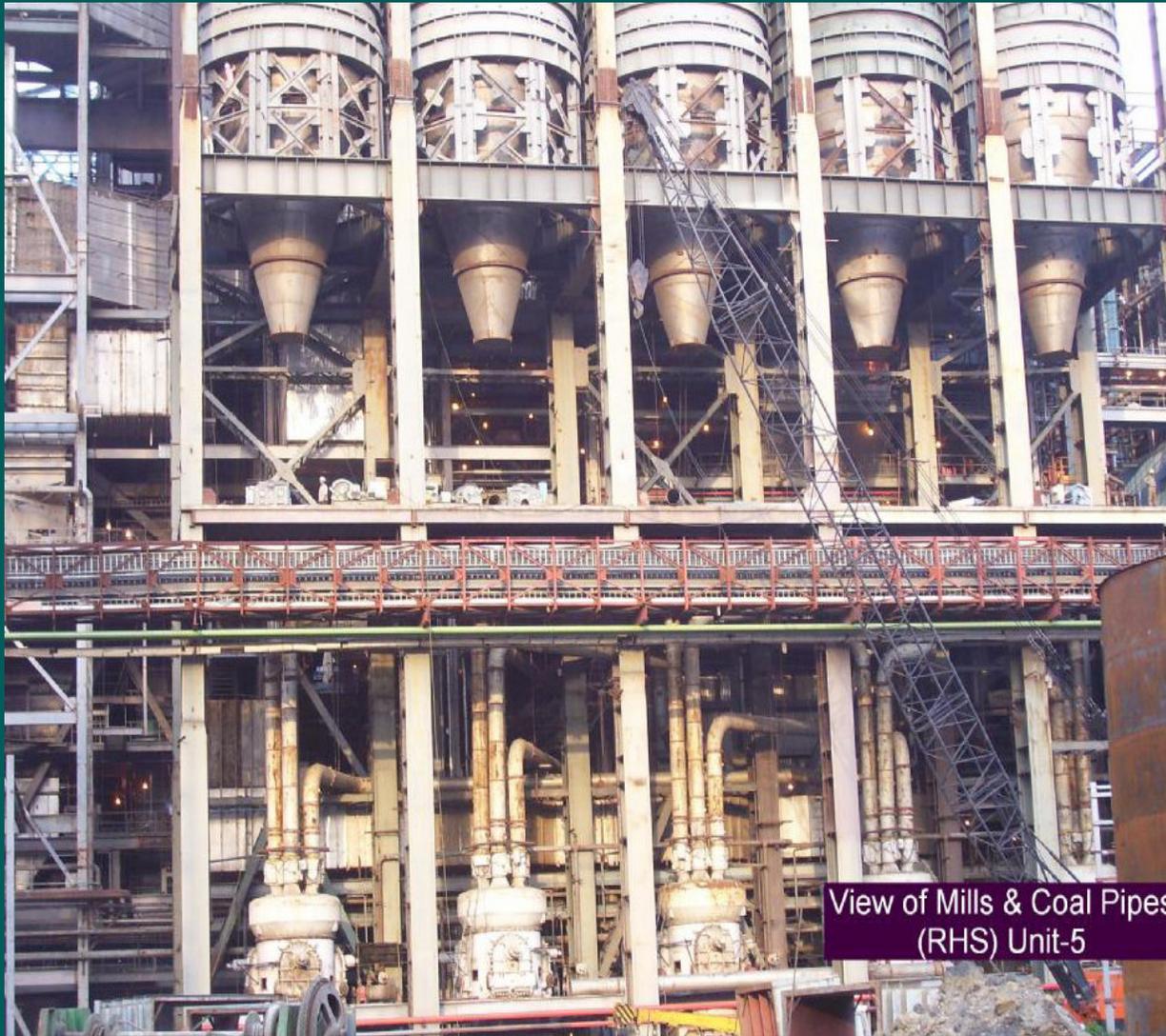


DADRI (2x490 MW)



BOILER DRUM OF UNIT #1 IN POSITION

KAHALGAON- II (3x500 MW)



View of Mills & Coal Pipes
(RHS) Unit-5



A VIEW OF MILLS & COAL PIPES (RHS) UNIT - #1

KOLDAM HEPP (4x200 MW)



SPILLWAY CONSTRUCTION IN PROGRESS

LOHARINAG PALA HEPP (4x150 MW)



SURGE SHAFT BOTTOM ADIT IN PROGRESS



Key Energy Indicators

Sl. No.	Parameter	World	India
1.	TPES /GDP (Kgoe/'\$PPP)	0.21	0.16
2.	Per Capita CO2 Emission (Tonnes)	4.22	1.05
3.	TPES Per Capita (Toe /capita)	1.78	0.49
4.	Per Capita Electricity Consumption (kWh)	2596	631

Source: IEA's Publication, 'Key Energy Indicators-2007'

- ✧ Based on per capita emission, Carbon Capture & Sequestration (CCS) may not be the immediate need for the country
- ✧ However, concerted efforts are required to go for higher efficiency technology options, in-turn reducing specific Carbon emission