एनटीपीसी
NTPC
A Maharatna Company

NTPC Limited

Investor Presentation
2015

...Leaping forward

NTPC: Vision and Core Values

To be the world's largest and best power producer, powering India's growth

Core Values

OUTLINE

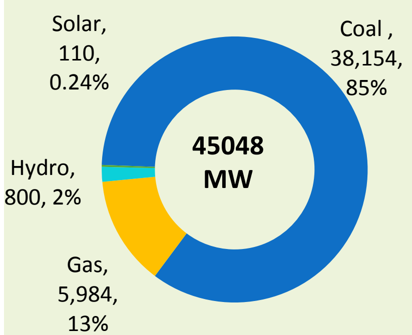
NTPC TODAY .. BEST POSITIONED TO CAPTURE OPPORTUNITIES

Leading Power Generator

- Total installed capacity of 45,048MW* (incl. 6,196 MW through group companies) + 23,504MW* under construction
- Capacity to cross 70 GW by FY20

Global Footprint

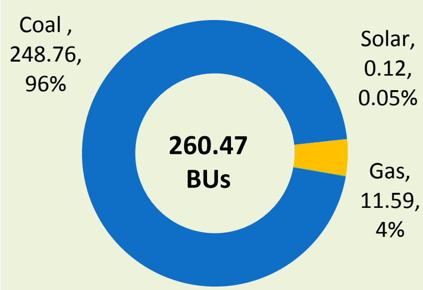
- 2x250MW & 2x660MW coal based plant in Sri Lanka & Bangladesh respectively



Installed Capacity as on 31.07.2015

Diversified Generation Portfolio

- 1st Hydro project commissioned – 800 MW added at Koldam
- 110 MW Solar PV capacity commissioned, 250 MW under construction
- 510 MW Solar PV capacity under tender



Generation for FY 2014-15

Integrated Player

Trading

- Subsidiary NVVN is the prominent power trader in India-traded 10.4 BUs in FY15 as compared to 9.3 BUs in FY 14
- Also trades power with Bangladesh - nodal agency for trading power with Bhutan

Coal Mining

- 8 coal mining blocks allotted by GoI with Geological Reserves of ~5 BT
- Production potential of ~82 MTPA from coal mines,

Manufacturing

- 2 JVs for manufacturing power equipments- high voltage equipment and BoP

Strong Financials

FY 15 — Rs. crore

Balance Sheet	Consol	Stand-alone
Total Debt	1,01,612	85,995
Cash & Bank	14,252	12,879
Net Debt	87,360	73,116
Net Worth	82,094	81,657

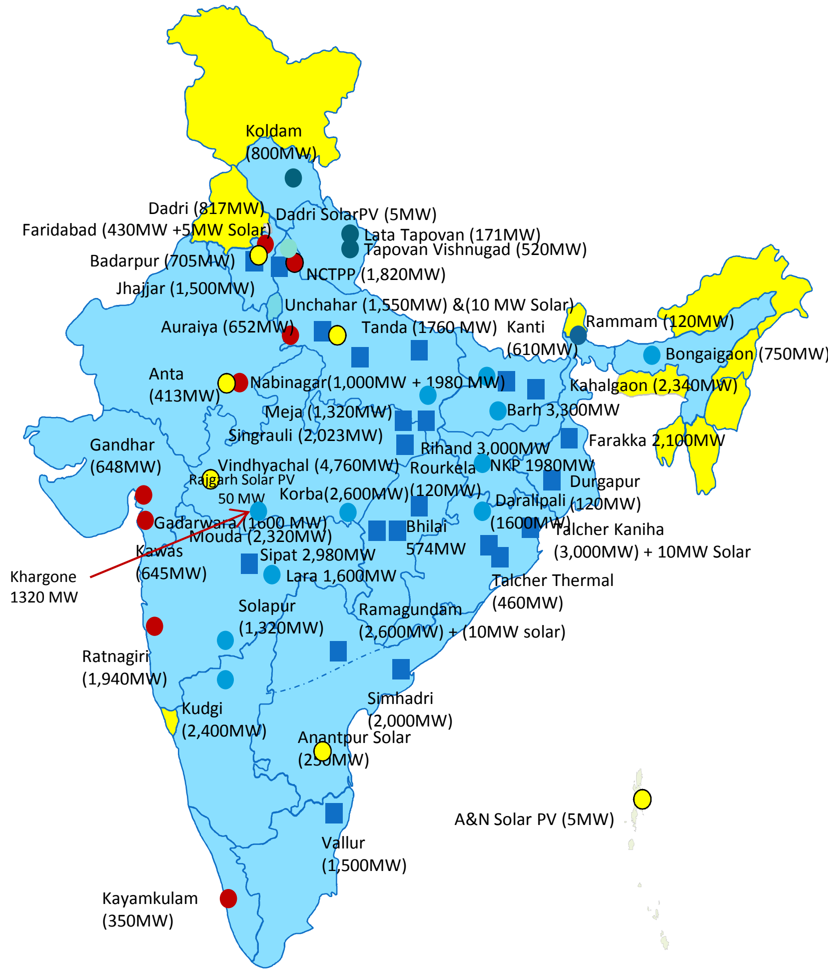
Rs. crore

P&L	Consol	Stand-alone
Revenue	82,701	75,362
EBITDA	19,591	18,202
PAT	9,992	10,291

- ✓ **NTPC Group accounts for 16% of India's total installed capacity and 25% of All India generation as on 31.03.2015**
- ✓ **NTPC Group has made the single largest thermal capacity addition (7,295 MW) in the country during the first three years of the 12th Plan**
- ✓ **NTPC is one of the 7 Maharatnas and clocked the 3rd highest profit amongst PSUs in FY 15**
- ✓ **Ranked as the No.1 IPP and Energy Trader Globally by Platts 2014**
- ✓ **Ranked 431st largest company in the world in the Forbes Global 2000 list 2015**

*As on 31.07.2015

NTPC Group .. Pan India Presence

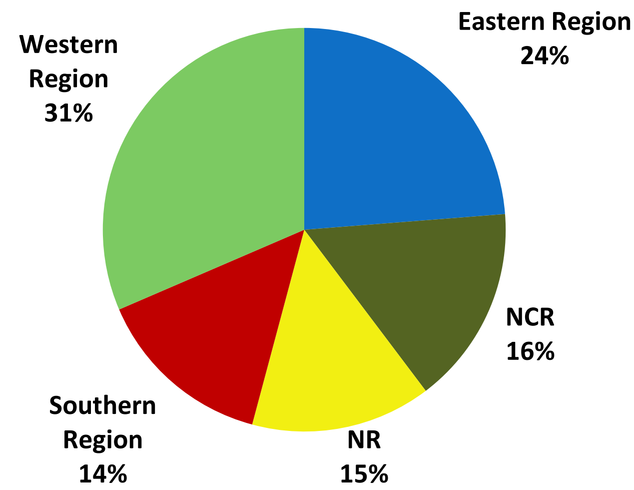


Map not to scale. Includes capacity of under construction plants

Coal Power Station | Ongoing Hydro Power Projects | Gas Power Stations | Ongoing Thermal Projects | Solar PV

NTPC Group currently has projects across 20 Indian States including coal mining projects

Geographical Spread of NTPC Group Capacity[1]



Total: 45,048 MW

Fuel Mix	No. of Plants	Capacity (MW)[1]	% Share
NTPC Owned			
Coal	18	33,925	75.31%
Gas/Liquid Fuel	7	4,017	8.92%
Hydro	1	800	1.78%
Solar	8	110	0.24%
Sub-total	**34**	**38,852**	**86.25%**
Owned by JVs and Subs			
Coal	6	4,229	9.39%
Gas	1	1,967	4.37%
Sub-total	7	6,196	13.75%
Total[1]	**41**	**45,048**	**100.00%**

1. 31.07.2015

WHAT WE PROMISED … IS WHAT WE DELIVERED IN FY15

Actual Performance Against Commitments Made to Investors for FY15

	Guidance	Performance
1	Target PAF (Coal)(FY14) : To achieve CERC norms	PAF (Coal) : All stations achieved CERC norms of PAF (DC) No under recovery of AFC (Annual fixed charges) due to PAF
2	Commissioning of 1798 MW capacity	1290 MW commissioned in FY15 650 MW commissioned in Q1FY16
3	Capex (standalone) Target of Rs.22,400 crore in FY15	Capex incurred Rs. 23,239 crore (104%)
4	New projects award- No explicit target given- under tender 6800 MW	Investment Approval of 2760 MW in FY 15 (Rs.20,442 crore): 1320 MW Tanda-II STPP (Rs.9189 crore) 1320 MW Khargone STPP (Rs.9871 crore) 120 MW Hydro at Rammam (Rs. 1382 crore)
5	Start of mining	Mines cancelled by Hon'ble SC orders MDO contract terminated for PB coal mines for slow progress Fresh MDO to be appointed in current FY

Awarded investment approval to projects worth Rs. 1,36,905 crore* during FY12 to FY15

*NTPC Group

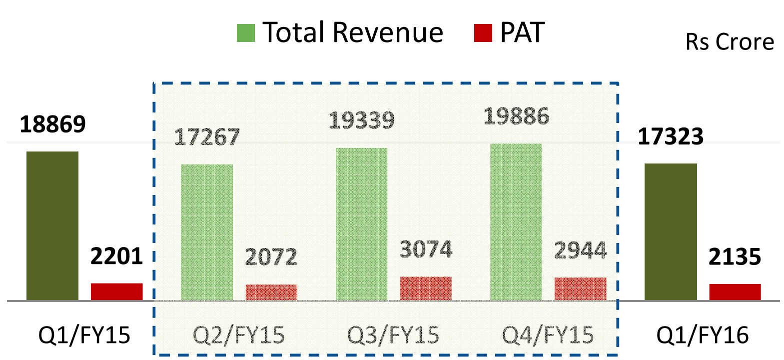
Recent Financial Highlights

FINANCIAL HIGHLIGHTS Q1/FY16 (UNAUDITED)

Position Statement Q1FY16

Quarter Ended	Q1/FY16	Q1/FY15	% change
Key Balance Sheet Highlights			
Fixed Assets incl. CWIP	1,48,467	128,465	+16%
Investments	10,504	12,607	-17%
Cash & Bank Balance	8,472	13,860	-39%
Other Assets	33,156	27,933	+19%
Total Assets	**2,00,599**	**1,82,864**	+10%
Net Worth	83,815	88,011	-5%
Total Debt	85,772	68,483	+25%
Other Liabilities	31,012	26,370	+18%
Total of Liabilities	**2,00,599**	**1,82,864**	+10%

Q-o-Q Revenue and PAT



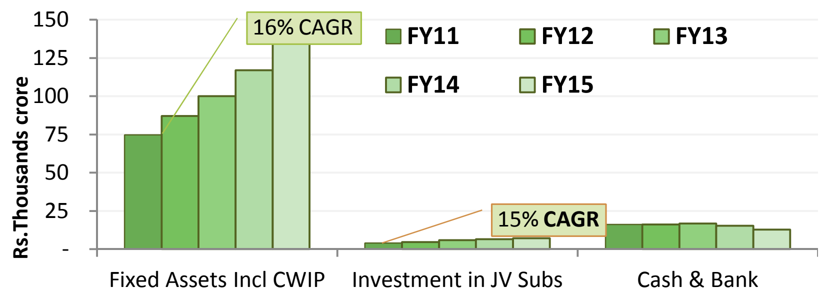
All financial figures in Rs. Crore except where specified

Income Statement Q1FY16

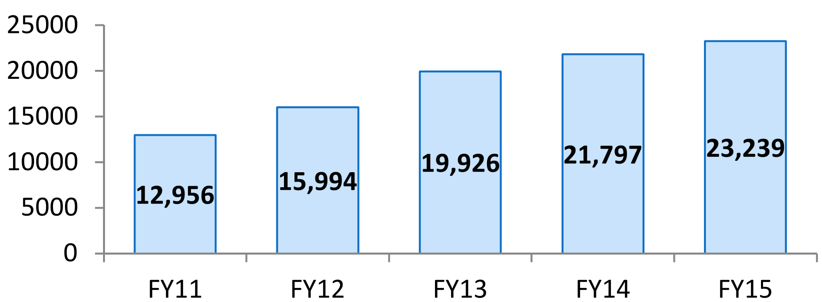
Quarter Ended	Q1/FY16	Q1/FY15	% change
Earnings Highlights			
Revenue from Operation	17,085	18,337	-7%
Other Income	239	533	-55%
Total Revenue	**17,323**	**18,869**	-8%
Expenses			
Fuel Cost	11,509	12,765	-10%
Employee benefit exp	923	918	1%
Depreciation	1,238	1,115	11%
Generation & Other Costs	1,215	1,119	9%
Finance Cost	731	668	9%
Profit Before Tax	**1,708**	**2,284**	-25%
Tax Expense	-428	82	-622%
Profit After Tax	**2,135**	**2,201**	-3%
Other Financial Highlights			
EPS (Rs.)	2.59	2.67	-3%
Book Value Per Share (Rs.)	101.65	106.74	-5%

FINANCIAL HIGHLIGHTS .. 2014-15 (AUDITED)

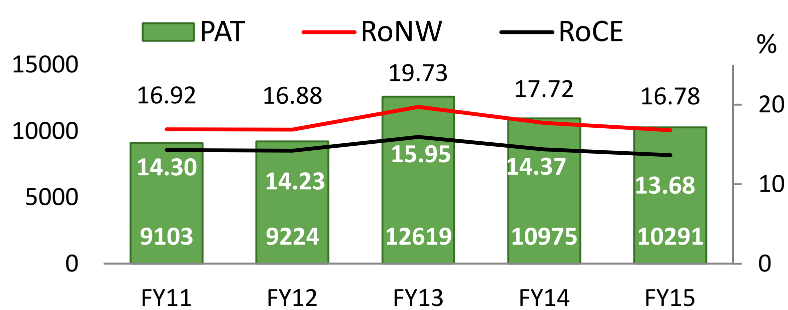
Assets Growth



Capex Growth



Margin Growth



All financial figures in Rs. Crore except where specified

RoNW- Return on Net Worth, RoCE- Return on Capital Employed

Financial Year 2015

Year	FY15	FY14	%Change
Key P&L Highlights			
Total Revenue	75,362.37	74,664.61	+0.93%
Profit Before Tax	10,546.65	13,904.65	-24.15%
Profit After Tax	10,290.86	10,974.74	-6.23%
Key Balance Sheet Highlights			
Total Assets	197,084.72	179,554.18	+9.76%
Capital WIP+ cap adv	64,214.18	53,533.65	+19.95%
Investments (non-current)	7,154.07	8,120.90	-11.91%
Year end Cash Balance	12,878.81	15,311.37	-15.89%
Net worth	**81,657.35**	**85,815.32**	**-4.85%**
Total Debt	**85,995.34**	**67,170.22**	**+28.03%**
Other Highlights			
Operating Cash Flows	14,264.70	15,732.18	-9.33%
Book Value Per Share (Rs.)	99.03	104.08	-4.85%
Dividend per Share (Rs.)	15.00**	5.75	+160.87%
EPS (Rs.)	12.48	13.31	-6.24%
Dividend yield at year end*	10.21%	4.80%	+75bps
Price/Book at year end*	1.48	1.15	-

*Based on year end share price of Rs.146.85 and Rs.119. 90 as on 31.03.2015 and 31.03.2014 respectively

**Including bonus debentures of Rs. 12.50 per share

KEY 5 YEAR FINANCIAL HIGHLIGHTS

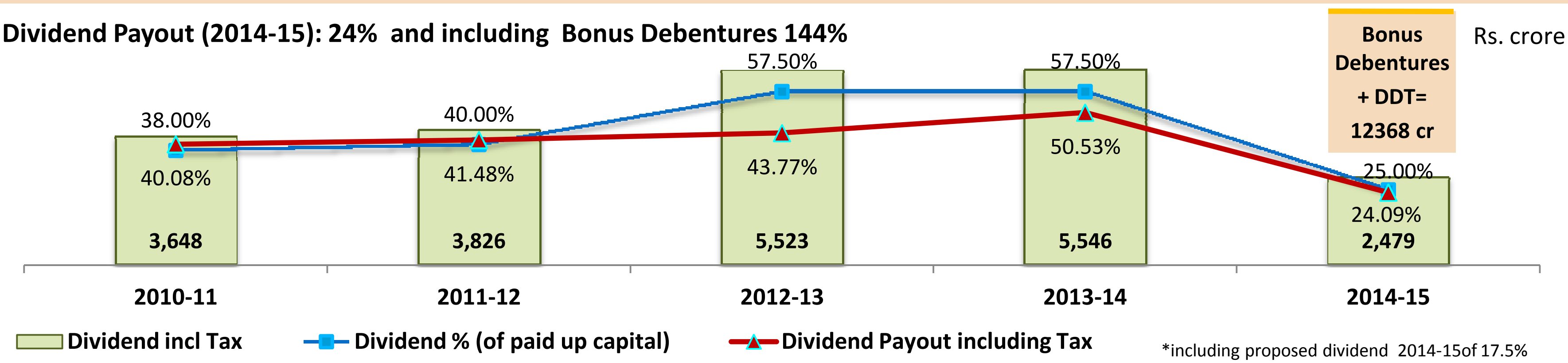
Rs. crore

Particulars	2010-11	2011-12	2012-13	2013-14	2014-15
EBITDA	15,956	16,830	20,216	20,453	18,202
Profit before tax	12,050	12,326	16,579	13,905	10,547
Profit after tax	9,103	9,224	12,619	10,975	10,291
Dividend	3,133	3,298	4,741	4,741	2,061
Total Fixed Assets (Net block)	74,731	87,086	100,046	117,000	135,343
Investments (Non-current)	10,533	9,584	9,138	8,121	7,154
Net-worth	67,892	73,291	80,388	85,815	81,657
Total Debt	43,188	50,279	58,146	67,170	85,995
Value added	19,140	19,738	22,999	25,966	25,078
Debt to equity(times)	**0.64**	**0.69**	**0.72**	**0.78**	**1.05**

- ✓ **CERC revised norms- Full recovery of AFC in FY15**
- ✓ **Improved Financial Leverage to improve RoE from FY 15 onwards**
- ✓ **Realign-ment of net-worth improved RoE**

High Dividend payouts

Dividend Payout (2014-15): 24% and including Bonus Debentures 144%



*including proposed dividend 2014-15of 17.5%

Paying dividend for last 22 years.

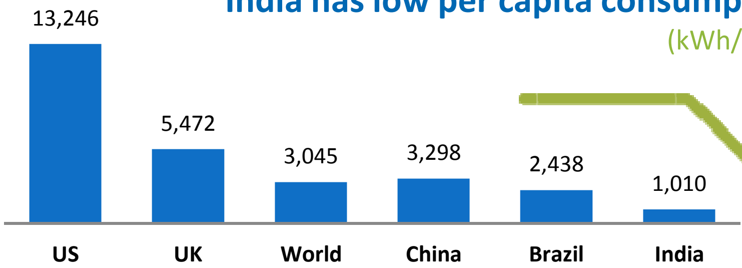
Additionally, the Company paid bonus debentures @ Rs. 12.50 against equity share of Face value of Rs. 10 each during 2014-15

Opportunities and Growth

DEMAND DRIVERS.. INCREASE IN ACTIVITY DEMAND AND SHARE OF ELECTRICITY IN ENERGY DEMAND

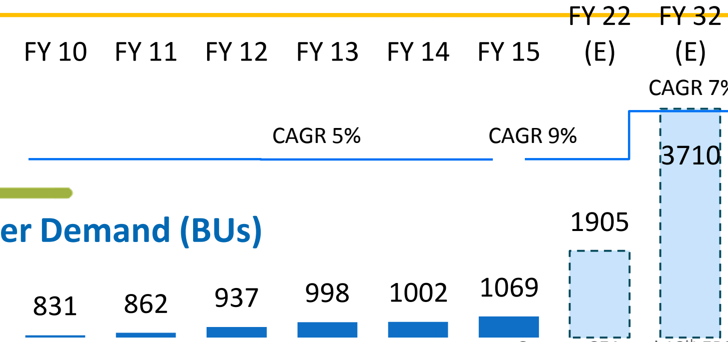
India has low per capita consumption

(kWh/Year)



Source: CEA Report, GoI Economic Survey ; World Bank indicator EG.USE.ELEC.KH.PC (web site) except India data for 2011 and India's data as on 30.04.2015 (source CEA, India).

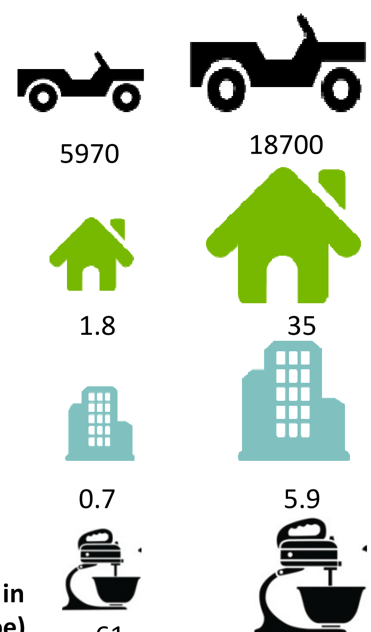
Power Demand (BUs)



Source: CEA and 18th EPS

Growth in economic activity will lead to demand for energy as well [1]

Per Capita	2012	2047
Transport Demand (km)	5970	18700
Residential Space (m^2)	1.8	35
Commercial Space (m^2)	0.7	5.9
Modern Energy Use for Cooking in Rural Areas (kgoe)	61	183

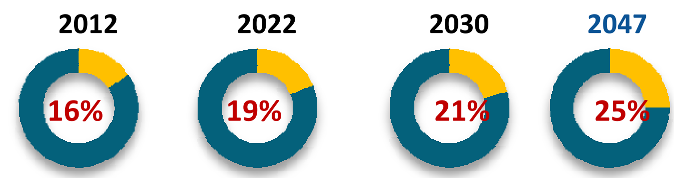


Source : 1. Niti Aayog Energy Mix report ; 2 CEA

Make in India

- 25 sectors on top priority – develop mfg. capabilities
- Vision to increase manufacturing growth to 12-14% per annum over medium term
- Aim to oncrease manufacturing share in GDP from 16% in FY 14 to 25% in FY 22
- Reduce reliance on imports for defence by 30% in 5 years

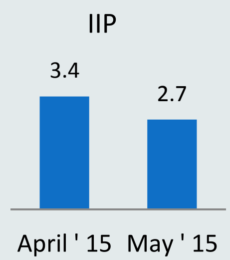
Share of electricity in energy demand [1]



Different demand sectors .. existing consumption patterns [2]

Industrial 42%

- Make in India to lead to spurt in the industrial cycle



Residential & Commercial 32%

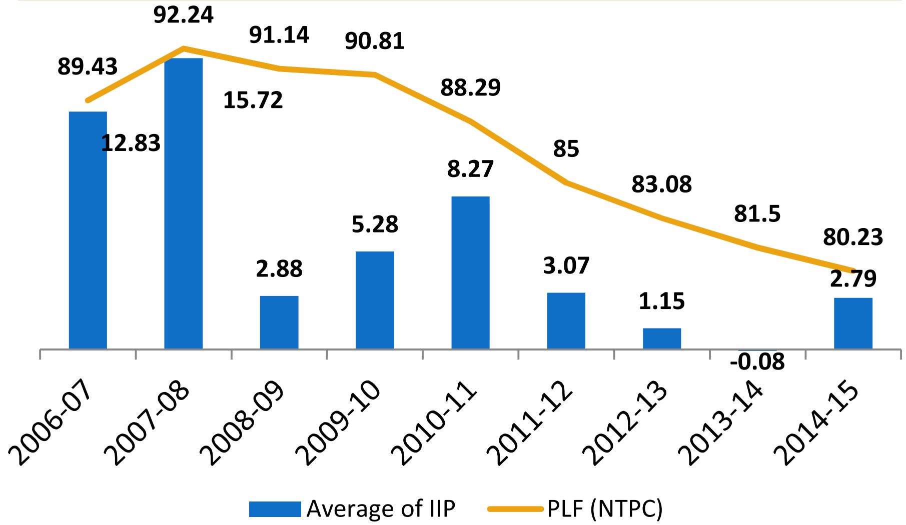
- 24 x 7 power supply
- India on brink of urban revolution – urban area to go up from 31% to 40% by 2031.
- Metros, bullet trains ,100 smart cities
- Rising share of services sector in the GDP

Others 26%

- Demand in agriculture to grow
- Digital Penetration - E-governance initiative targeting high speed internet villages by 2018

NTPC … THE BEST BET FOR TOMORROW IN POWER SPACE

NTPC poised to take advantage when industrial growth accelerates

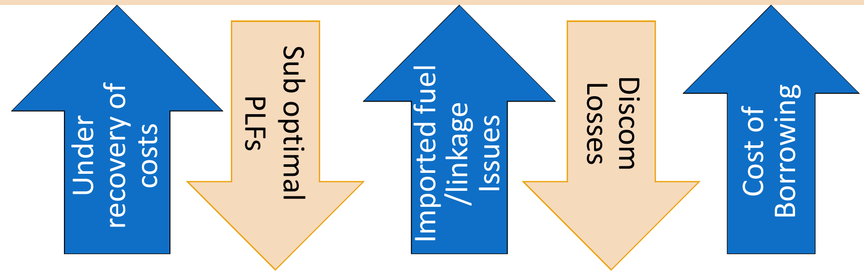


NTPC vs PEERS

Rs Crore	NTPC	Reliance Power	Tata Power	Adani Power	JSW Energy
Market Cap as on 31.03.2015	1,21,085	15,849	20,853	13,584	19,549
Installed Capacity(GW) as on 31.03.2015	44.4	5.95	8.62	9.2	3.1
FY15 Assets*	219576	56021	75543	58474	19420
FY15 EBITDA*	19591	248	3009	1360	528

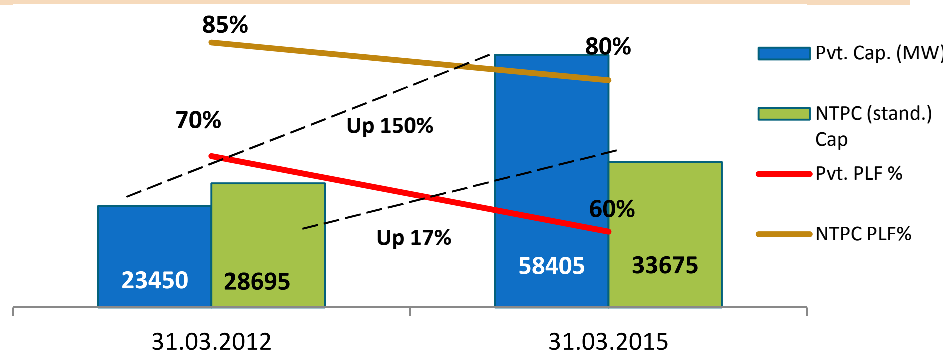
*Consolidated financials

Private Sector capacity under distress because

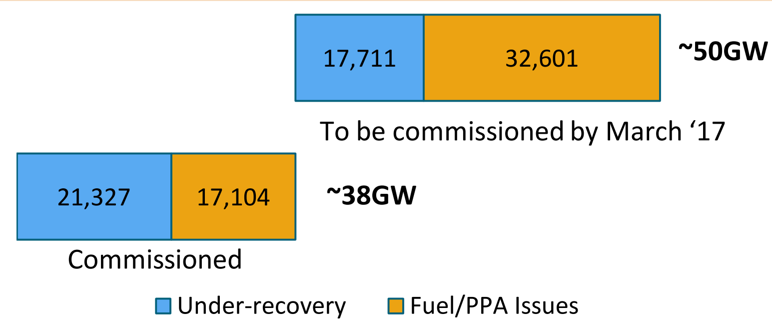


Proposing migration from competitive tariff to regulated tariff

Pvt. Sec. Investment in Coal Capacity rapid but unsustainable



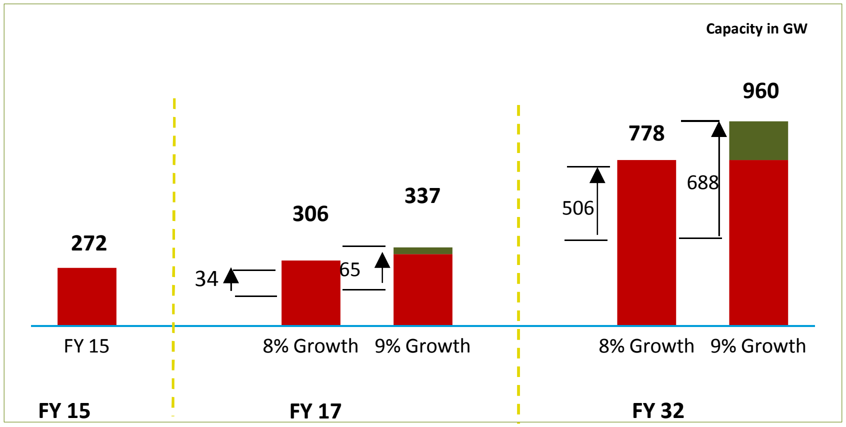
Coal Capacity stranded (MW)



Source : Presentation by Association of Power Producers June 2014

12TH PLAN

India has a Large Capacity Requirement …

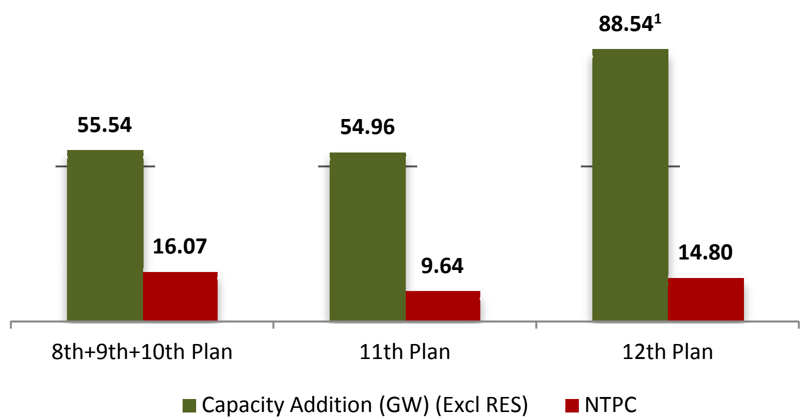


- 14% of existing capacity needs to be added by FY17 to achieve 8% GDP growth
- Average annual capacity addition of ~19 GW required till FY17

… with Significant Investments Planned in the Sector

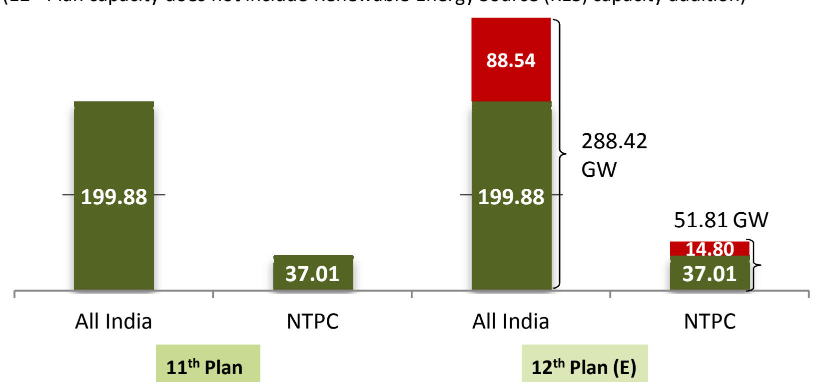
	12th Plan (2012–17)
Capacity excl. RES (MW)[1]	88,536.6
Expected Investments in Power Sector (Rs. Crore)[2]	14,99,914
Expected Investments in Non-Conventional Energy (Rs. Crore)[2]	2,47,409

Capacity Expansion Plans (GW)



Cumulative Capacity (GW)

(12th Plan capacity does not include Renewable Energy Source (RES) capacity addition)



12th Plan NTPC Own Capacity Addition: 11388 MW, Through JVs/Subs: 3410 MW, Total Capacity Addition: 14798 MW

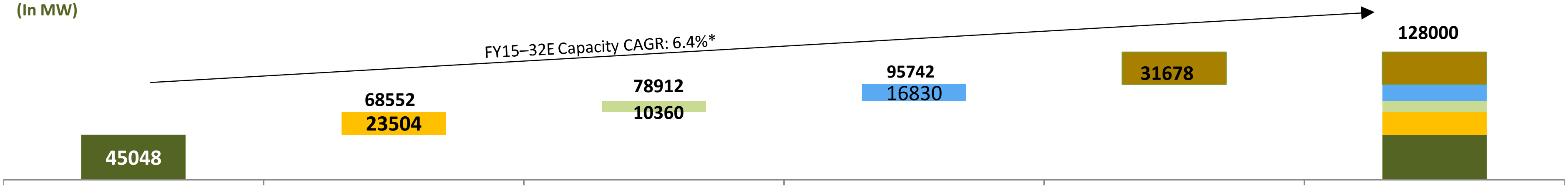
1. Draft12th Plan revised the earlier target of 75785 MW. 2. Report on financing of infrastructure – Planning Commission

GROWTH TRAJECTORY OF NTPC

NTPC takes the decision to proceed with a new project only once it is satisfied on the availability of land, water, fuel, off-take arrangements and environmental clearances.

Vision to maintain leadership position in India…Current development pipeline of ~ 34GW

(In MW)



Jul/15	Under Construction	Invited Bids from vendors	Feasibility Report Approved	Under feasibility & balance	Total by 2032
41 power plants Coal- 33925 MW Gas- 4017 MW Hydro- 800 MW Solar- 110 MW JVs & Subs- 6196 MW	22 projects 18 owned, 2 under JVs and 2 subsidiaries Under different stages of completion	Projects with 10360 MW bids invited from vendors [Barethi 2640, Khulna 1320, Telangana 1600 MW, Pudimadaka 4000 MW, Rourkela 250 MW, Durgapur 40MW Solar 510 MW]	Approximately 16620 MW capacity with feasibility report approved In addition, 4000 MW at Patratu will be under NIT shortly	Approximately 15955 MW capacity with feasibility report under preparation Balance to be taken up later	Capacity set to expand by 2.8x

NTPC's Projects Under Construction

Projects	Fuel	Capacity (MW)	Expected Commissioning	Technology	Land	MoEF Clearance: Environmental Clearance	Forest Clearance	NTPC/JV
Barh I	Coal	1,980	FY17, FY17+	Super-Critical	Yes	Yes	Yes	NTPC
Tapovan Vishnugad	Hydro	520	FY17+	–	Yes	Yes	Yes	NTPC
Bongaigaon	Coal	500	FY17	Sub-Critical	Yes	Yes	Yes	NTPC
Singrauli Hydro	Hydro	8	FY16	–	Yes	Yes	Yes	NTPC
Solapur	Coal	1,320	FY17, FY17+	Super-Critical	Yes	Yes	Yes	NTPC
Mouda II	Coal	1,320	FY17	Super-Critical	Yes	Yes	Yes	NTPC
Vindhyachal V	Coal	500	FY16	Sub-Critical	Yes	Yes	Yes	NTPC
Kudgi	Coal	2,400	FY16, FY17, FY17+	Super-Critical	Yes	Yes	Yes	NTPC
Unchahar	Coal	500	FY17+	–	Yes	Yes	Yes	NTPC
Lara	Coal	1,600	FY17+	Super-Critical	Yes	Yes	Yes	NTPC
Gadarwara	Coal	1,600	FY17+	Super-Critical	Yes	Yes	Yes	NTPC
Daralipali	Coal	1,600	FY17+	Super-Critical	Yes	Yes	Yes	NTPC
North Karanpura	Coal	1,980	FY17+	Super-Critical	Yes	Yes	Yes	NTPC
Tanda- II	Coal	1320	FY17+	Super-Critical	Yes	Yes	Yes	NTPC
Khargone	Coal	1320	FY17+	Ultra SC	Yes	Yes	Yes	NTPC
Lata Tapovan	Hydro	171	FY17+	–	Yes	Yes	Yes	NTPC
Rammam	Hydro	120	FY17+	-	Yes	Yes	Yes	NTPC
Nabinagar (BRBCL)	Coal	1,000	FY16,FY17, FY17+	Sub-Critical	Yes	Yes	Yes	Sub
Nabinagar (JV with BSEB)	Coal	1,980	FY17+	Super-Critical	Yes	Yes	Yes	JV
Kanti	Coal	195	FY16	Sub-Critical	Yes	Yes	Yes	Sub
Meja	Coal	1,320	FY17, FY17+	Super-Critical	Yes	Yes	Yes	JV
Ananatpur Solar PV	Solar	250	FY17	Solar PV	Yes	Yes	Yes	NTPC
Total		**23504**						

**NTPC Group YE FY12 capacity was 37,014MW, 41184 MW as at FY13 end, 43108 MW as at FY14 end and 44398 at FY 15 end*

CAPACITY ADDITION .. SCHEDULED IN 12TH PLAN (FY13 TO FY17)

Commissioned

Year	Project	Target MW
FY13	Sipat	660
	Indira Gandhi STPP JV	500
	Mouda – I, Unit - 1	500
	Vindhyachal – Unit 11	500
	Rihand – III	500
	Vindhyachal – Unit 12	500
	Mouda – I, Unit- 2	500
	Vallur – I JV	500
	Solar PV (A&N, Dadri)	10
	Total FY 13	**4,170**
FY14	Rihand – III	500
	Barh-II	660
	Solar PVs	65
	Vallur – I JV	500
	Kanti- Subsidiary	110*
	Total FY 14	**1,835**
FY15	Rajgarh (Solar PV)	20
	Singrauli (Solar PV	15
	Barh-II (Unit#5)	660
	Koldam- Hydro (U#1 &2)	400
	Kanti – Subsidiary (Unit #3)	195
	Total FY 15	**1290**
	Total (FY13-15)	**7295**

Target –FY16 & FY17

Year	Project	Target MW	
FY16	Bongaigaon (Unit#1)	250	**Commissioned In FY 16**
	Koldam (Unit #3 &4)	400	
	Vindhyachal -V (Unit #3)	500	
	Kanti – Subsidiary (Unit #4)	195	
	Nabinagar (BRBCL) (Unit#1)	250	
	Kudgi-I (Unit#1)	800	
	Singrauli Hydro	8	
	Total FY 16	**2403**	
FY 17	Barh I (Unit#1)	660	
	Bongaigaon (Unit #2 & 3)	500	
	Nabinagar (BRBCL) (Unit# 2&3)	500	
	Kudgi (Unit#2)	800	
	Mouda –II (Unit#1 & 2)	1320	
	Solapur (Unit #1)	660	
	Meja	660	
	Total FY17	**5100**	
	Total capacity to be commissioned in FY16 & FY17	7503	
	Capacity Commissioned in FY13 to FY15	**7295**	
	Total Capacity Target FY13-17	**14798**	

Renewable

Year	Projects	Target MW
FY17	Ananatpur Solar	250

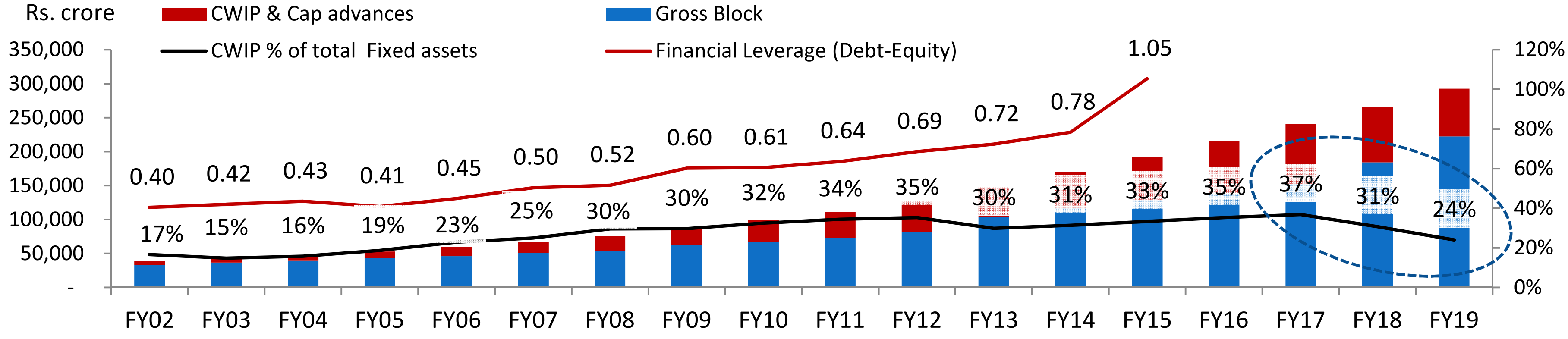
As against 11920 MW target of CEA, NTPC is likely to achieve 15GW+ during 12th Plan

TENTATIVE COMMISSIONING TARGETS FOR 13TH PLAN

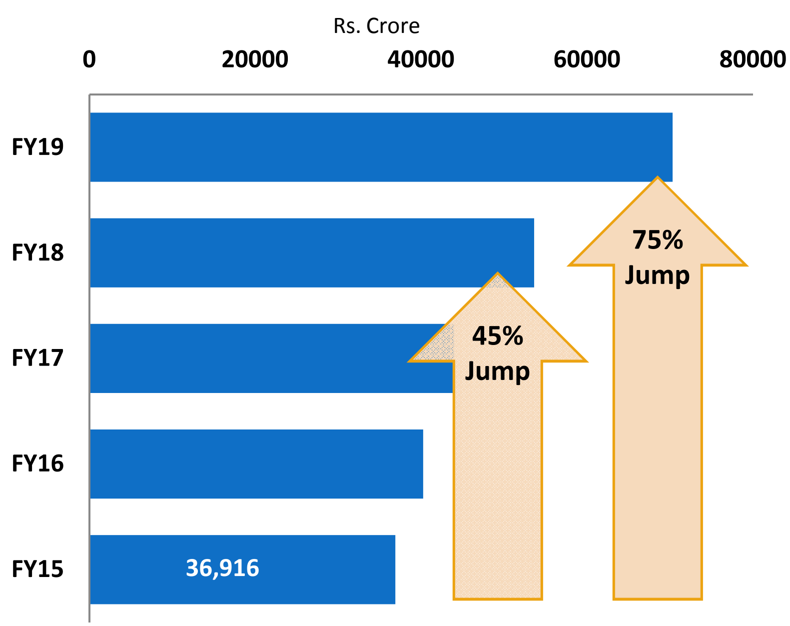
Projects already under construction and likely year of commissioning				
Year	**Project**	**Target MW**	**NTPC**	**JV Projects**
FY18	Barh –I (Unit 2&3)	1320	1320	
	Kudgi (Unit#3)	800	800	
	Solapur	660	660	
	Lara	1600	1600	
	Gadarwara	1600	1600	
	Unchahar- IV	500	500	
	Nabingar (BRBCL JV) (Unit#4)	250		250
	Meja (JV) (Unit#2)	660		660
	Nabinagar (NPGCPL- JV)	660		660
	Total FY 18 E	**8050**	**6480**	**1570**
FY 19	Tapovan HPP	520	520	
	Daralipali (Unit# 1& 2)	1600	1600	
	North Karanpura (Unit #1, 2 & 3)	1980	1980	
	Tanda-II	1320	1320	
	Nabinagar (NPGCPL- JV)	1320		1320
	Total FY19 E	**6740**	**5420**	**1320**
FY20 & beyond	Rammam (Hydro)	120	120	
	Lata Tapovan (Hydro)	171	171	
	Khargone	1320	1320	
	Total FY 20 & beyond	**1611**	**1611**	**-**
	Total capacity to be commissioned in 13th Plan	**16401**		

INVESTMENT RATIONALE: THE FUTURE PERFECT

Growth in Gross Block, CWIP & Financial leverage



Expansion in Regulated Equity:



Investment Rationale- RoE expansion

- Gross block increased at a CAGR of 11% while CWIP grew at a CAGR of 19% FY 02 to FY15 .
- From FY02-FY07, CWIP to Total fixed assets (incl. CWIP) remained between 15%-25% and later ranged between 30% - 35%.
- Reversal in this ratio expected after FY 17 due to massive commissioning and CoD - entire capacity awarded in bulk tender will be on stream.
- Going forward, growth continues but the turnaround from CWIP to Gross block is quicker because of greater mix of solar capacity having a shorter gestation of 12-18 months.
- **Fall in CWIP ratio leads to RoE expansion as the equity blocked in CWIP will start earning**
- **Benefit of financial leverage will also result in higher RoE**

All financial figures on standalone basis

Competitive Position

Key Competitive Strengths

Leadership Position in the Indian Power Sector

Long-term Fuel Security

High Operational Efficiency

Low Cost Power Producer

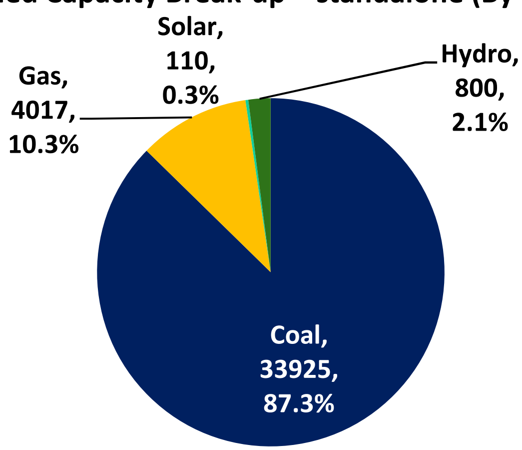
Prudent Off-take Policy

Strong Balance Sheet

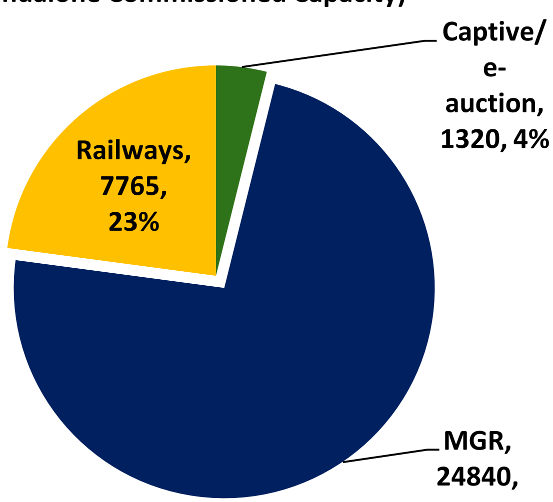
Competent and Committed Workforce

LONG-TERM FUEL SECURITY

Current Capacity Break-up



Coal: Long-term Fuel Security



[1] as on 31.07.2015

- NTPC implements projects only upon establishing availability of fuel.
- 'Maharatna' status provides very high level of autonomy with regard to investments in backward integration and new fuel sources
- Standalone thermal Capacity of 32605 MW is covered by long term Coal Supply Agreements (CSA) which have been signed with CIL & SCCL.
- Additionally, CSA for 910 MW yet to be commissioned projects have been signed.
- 72% of coal capacity is linked by own merry go round rail system/belt conveyor system to coal mines representing 10 out of 18 coal plants.
- For group companies, CSAs for 4390 MW have been signed
- Import of coal is resorted to meet the short term shortages – around 10% coal imported previous year.

Coal Mining

- Allotted coal mining coal blocks with estimated geological reserves of 5.1BT .
- Estimated capacity of coal mines 82MTPA .
- Coal mining to commence from PB block shortly.
- Coal transport through inland waterways on east cost already started for Farakka STPS.

Gas Supply

- Long-term gas supply agreements with GAIL under APM for supply of gas to all directly-owned gas power stations at regulated pricing under Government orders

STATUS OF PAKRI BARWADIH CMB & OTHER MINES

EC	**Available**
FC	**Available**
Land	**Available for starting initial mining**

→ Mining Plans: Two pronged- West Side Mining by MDO- MDO very close to be appointed

→ East side mining by separate contracts- consent received from MoC- integrated mining plan under preparation- MoEF & CC consent pending

Evacuation of Coal - Arrangements

→ From Mine mouth to Banadag Railway link: Conveyer belt -13Km long- under construction- Temporary arrangement thru roads planned

→ From Banadag railway link coal to move to Koderma via Hazaribag rail link – Entire rail link is ready

Other Mines Status

	GR (MT)	Mining Capacity MTPA	Status			
			EC	FC	Acq. Notice	MDO
Pakri Barwadi	1436	15	Yes	Yes	Yes	
Chatti Bariatu	549	7	Yes	Yes	Yes	
Kerandari	285	6	Yes	1st Stage	Yes	in process
Talaipalli	1267	18	Yes	Yes	Yes	
Dulanga	196	7	Yes	1st Stage	Yes	

Other mines with Geological reserves of 1442 MT are Banai, Bhalmuda and Kudanali- Laburi- GR being carried out

Work going on at Conveyer

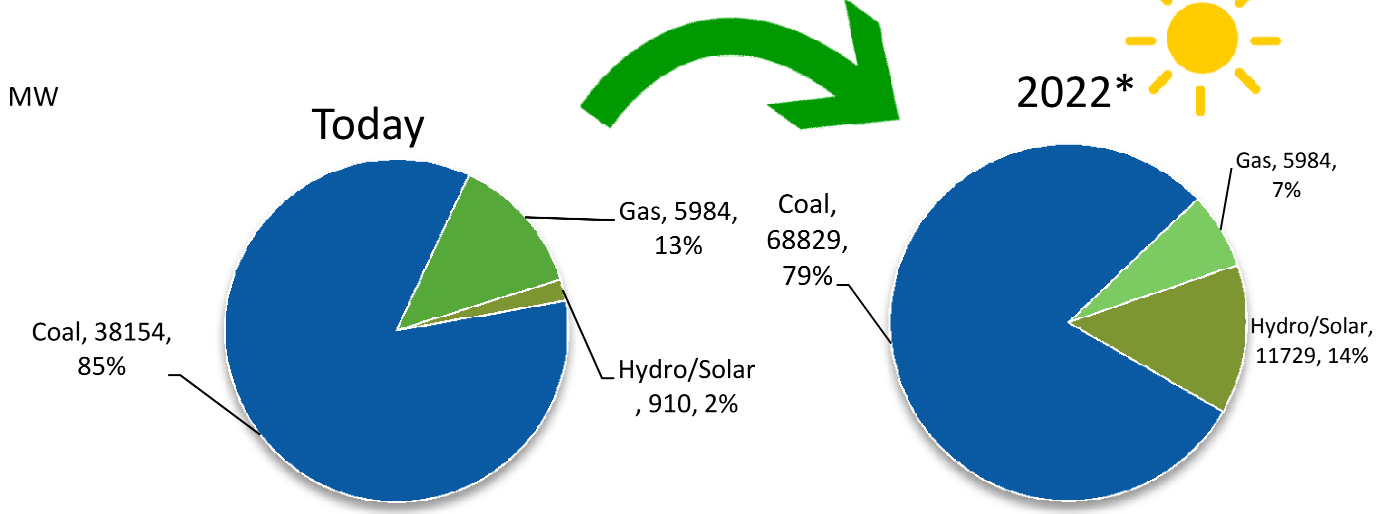
Engine trial run at Hazaribagh-Banadag Section (NTPC rail track)

Structure erection under preparation at Coal Handling plant

LONG-TERM FUEL SECURITY CONT..

Diversifying Fuel Mix : Adding Renewables

- Planning to reduce its carbon footprint and reduce dependence on existing fuel sources
- Dependence on fossil fuel to reduce from 86% to 56% by FY 2032
- 110 MW Solar PV projects under operation, 250 MW under construction ; 510 MW solar pv projects under bidding
- NTPC to bundle and sell 15GW solar capacity under NSM
- 800 MW Hydro Capacity commissioned till 31.07.2015 ; 819 MW hydroelectric under construction
- Formed JV with Nuclear Power Corporation of India in January 2011 with the objective of setting up a nuclear power project -Planning to set-up 1,400MW PWHR nuclear power plant



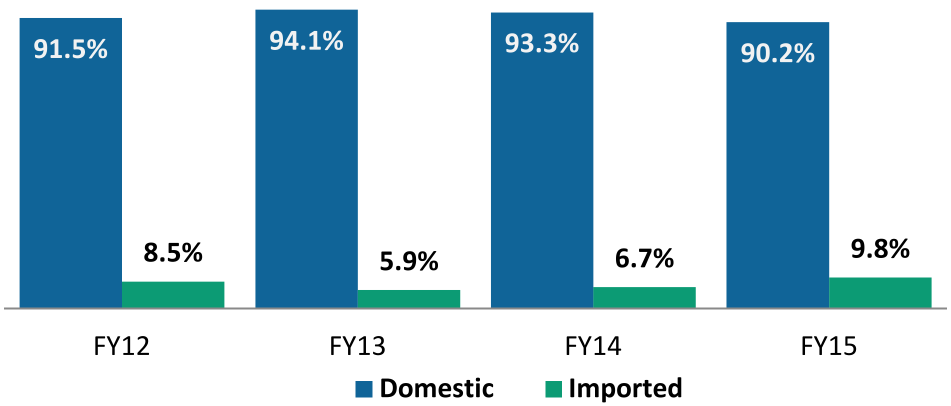
***Incl. renewable commitment for 10 GW in next 5 years**

NTPC is ready for the huge solar business opportunity in the Country revised NSM target 100 GM

85% capacity of NTPC’s old plants to be bundled with solar capacity - creates certain & viable market

LONG-TERM FUEL SUPPLY (CONT'D)

Coal Supply (For NTPC Own Plants)

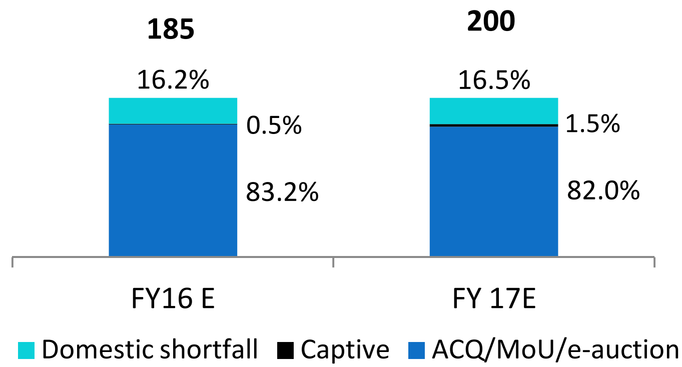


(In MT)	FY 2012	FY 2013	FY 2014	FY 2015
Domestic	129.0	145.9	149.8	151.0
Import	12.0	9.1	10.8	16.4
Total Supply	**141.0**	**155.0**	**160.6**	**167.4**

51% increase in imported coal supply in FY15 vs FY14

0.8% increase in domestic coal supply in FY15 vs. FY14

Coal Requirements FY16E to FY17E (In MT)



Equivalent Imports (MT) 20 22

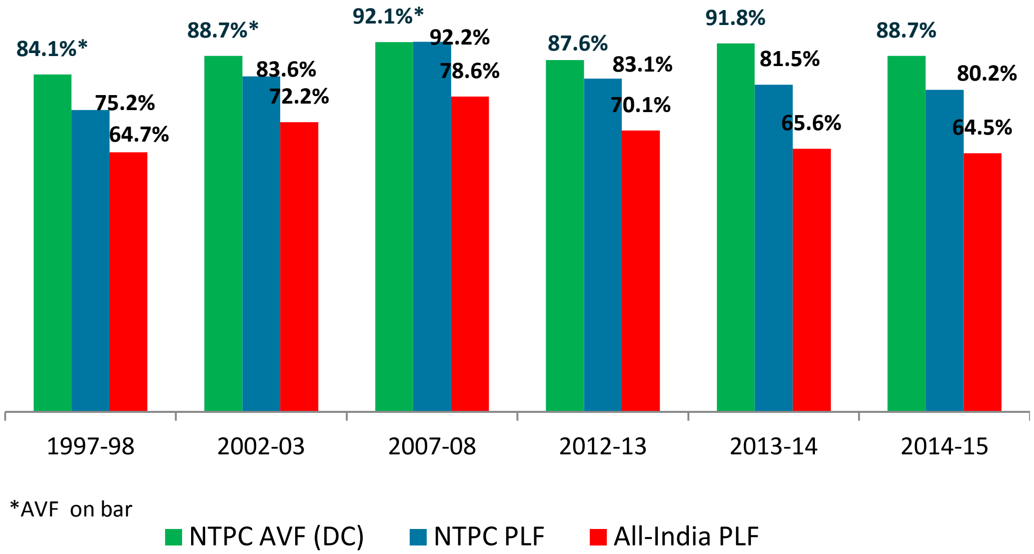
In MT

	FY 16 E	FY 17E
Coal Requirement	185	200
Domestic (ACQ/LoA/MoU /E-auction)	154	164
Captive	1	3
Domestic shortfall	30	33
Import equivalent	~20	~22

- 89% materialisation under ACQs during 2014-15 as compared to 96% materialisation in FY13-14
- Coal transport through inland waterways on east cost already started for Farakka STPS.

HIGHLY EFFICIENT PLANT OPERATIONS

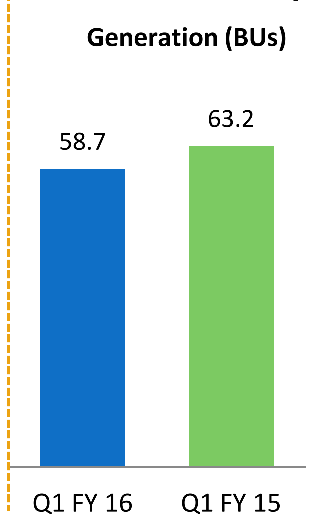
Proven Operational Excellence

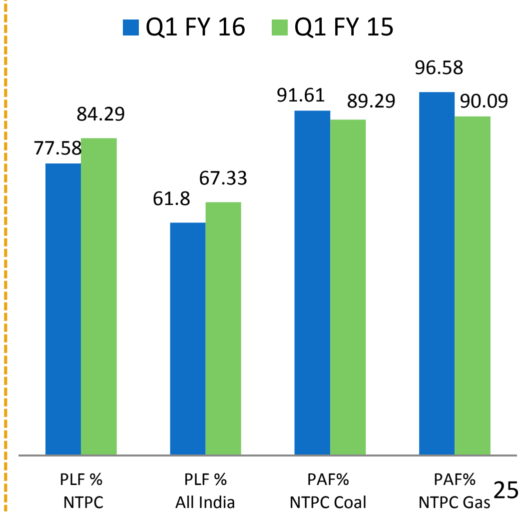


- Successful in growing and achieving high PLF despite fuel shortage concerns in India
- On forefront of adopting latest and most efficient technology—commissioned its first super-critical project at Sipat in 2011
- Market leader in terms of setting up of projects based on super-critical technology
- Maintenance practices and real-time monitoring system ensure high availability and efficient operations
- Implementing Perform Achieve Trade (PAT) Scheme under National Mission on Enhanced Energy Efficiency at 22 power stations.

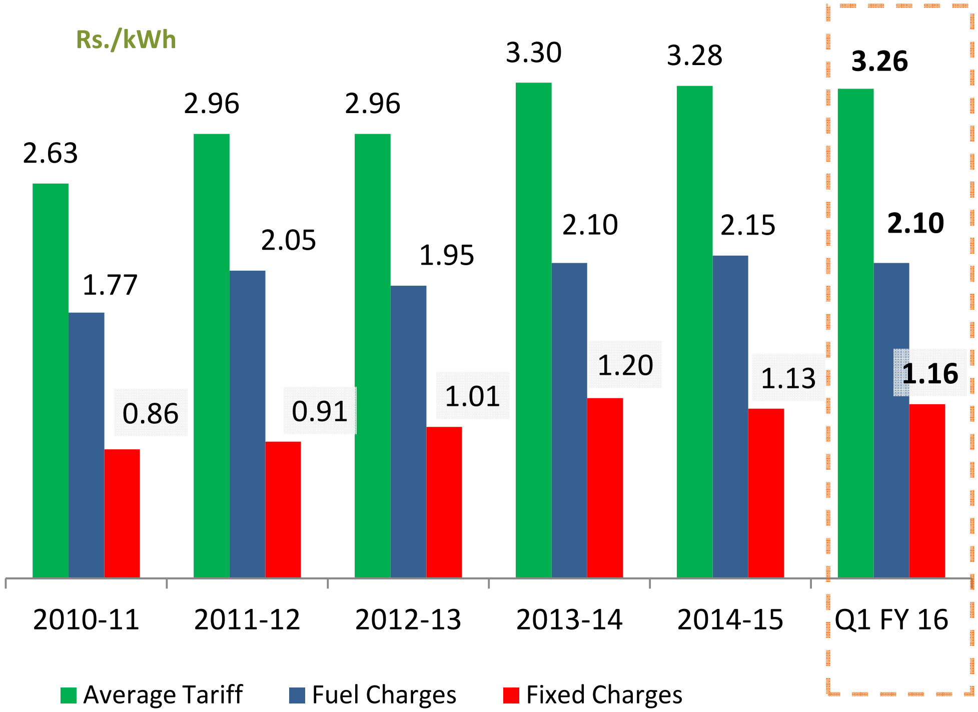
- Four NTPC coal stations amongst the top 10 stations of the country in terms of PLF - Talcher TPS (PLF 93.9%) is ranked 3rd in FY 2014-15
- Forced outage of NTPC coal stations have reduced to 2.54% in FY 15 from 2.76% in FY 14
- All stations recovered full Annual Fixed Charges under CERC regulations in FY 2014-15
- Opportunity loss due to grid restrictions was 23 BUs in FY15 as well as in FY14
- Through in-depth engineering, renovation and management capabilities has turned around sick plants across India
- Experience of operating and managing power plants with varied fuel sources and technologies

Q1 Operational Highlights





SUSTAINING ITS STATUS OF COMPETITIVE COST POWER PRODUCER



Overall Tariff (Coal+gas+ Solar)

Average Coal Based Power Cost (Rs/kWh)

	2010-11	2011-12	2012-13	2013-14	2014-15	Q1 FY 16
Fixed Charges	0.85	0.89	0.98	1.14	1.09	**1.11**
Variable Charges	1.61	1.89	1.73	1.99	2.02	**2.04**
Average Coal tariff	2.46	2.78	2.71	3.13	3.11	**3.15**

- Tariffs based on Regulations notified by CERC. Regulatory mechanism assures Returns balancing Risk -reward Ratio.
- PPAs have been signed for all operating and under construction projects
- Policy of securing PPAs for all new plants before approval is given for investment
- Entire power output of NTPC power stations has been contracted under PPAs
- NTPC does not presently sell any power in the merchant market- revenues are immune to volatile merchant power prices

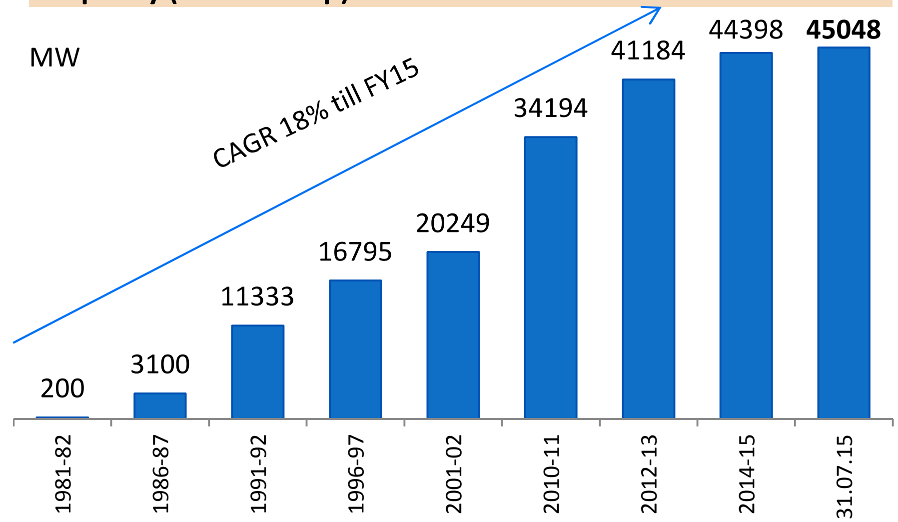
- 100% realization continuing in 13th year in succession
- Payment Security Mechanisms
  - LC coverage from SEBs adequate to cover monthly billing
  - Tripartite Agreements between Government, RBI and each state in terms of the Scheme for One Time Settlement of SEB dues valid till October 31, 2016
    - Recourse to Reserve Bank of India (RBI) in case of default in making payment
  - Supplementary agreements signed with all discoms for first charge over State utilities' receivables after 2016

Coal Based Plants Close to Pit Head Stations Ensure Competitive Variable Cost of Generation

Based on NTPC stand-alone data.

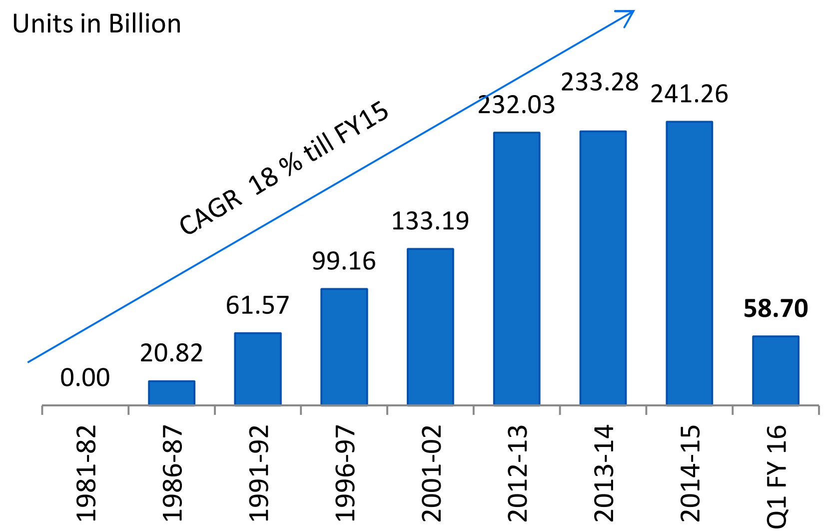
ROBUST FINANCIALS- PROVEN ALL ROUND TRACK RECORD

Capacity (NTPC Group) *

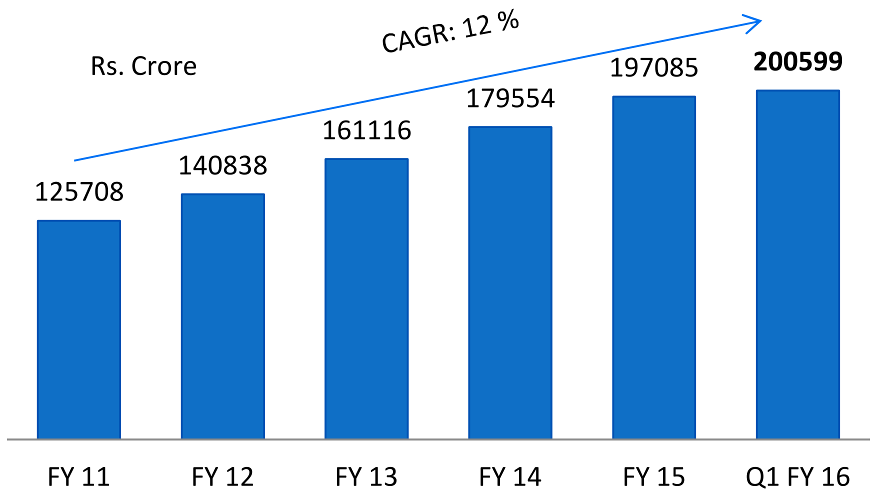


*including rating difference of 89 MW in case of gas stations

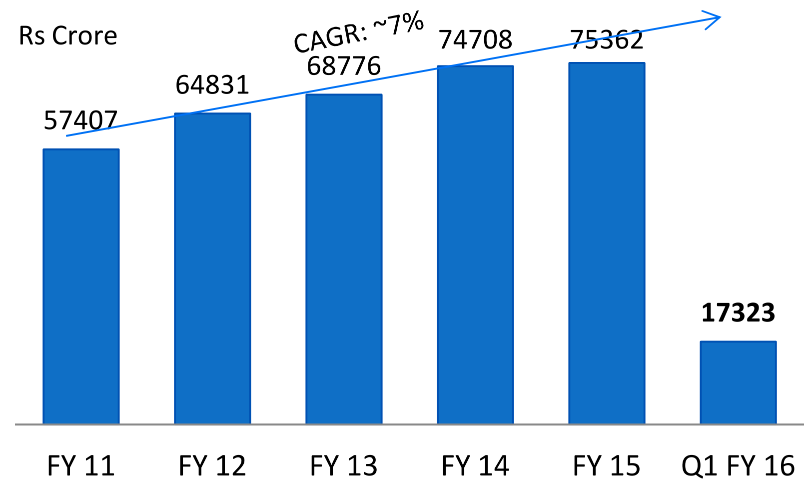
Generation (NTPC Standalone)



Total Assets[1]



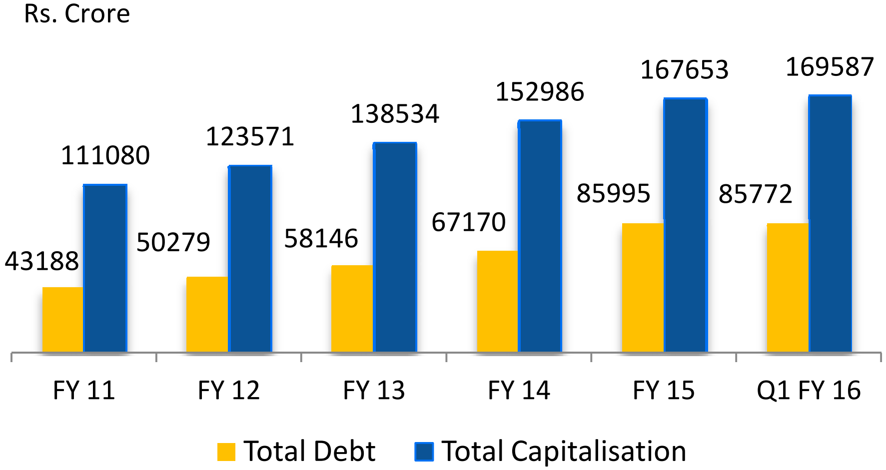
Total Revenue[1]



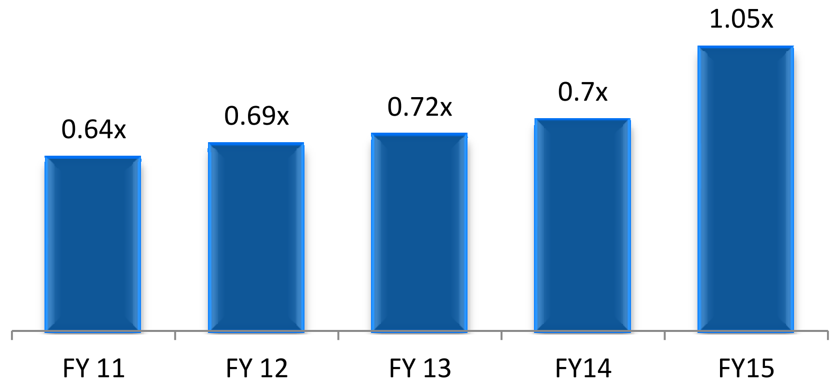
Note:.
1. Based on stand-alone NTPC numbers.

ROBUST FINANCIALS CONTD..

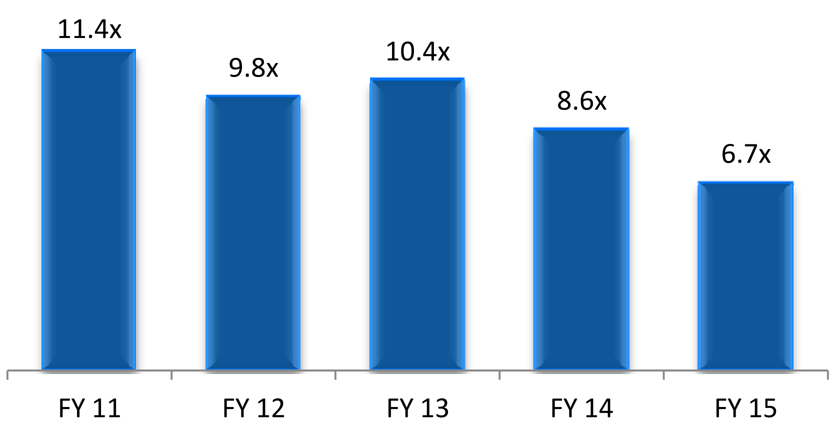
Total Debt and Capitalization[1]



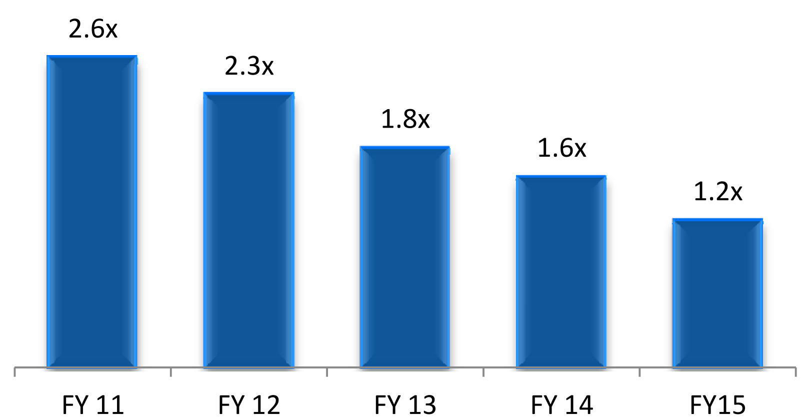
Debt/Equity



Interest Service Coverage Ratio[1]



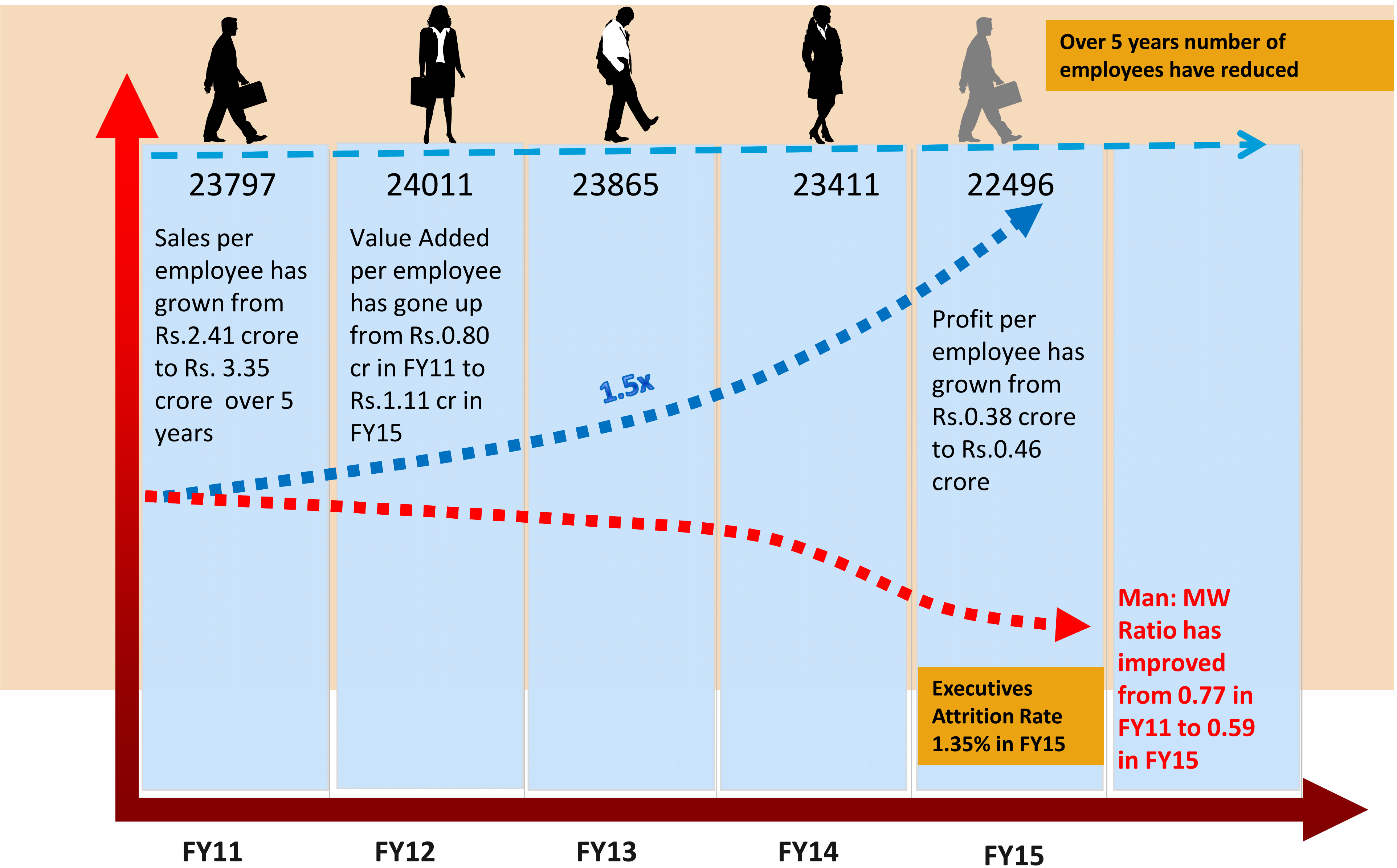
Current Ratio[1]



Strong Credit Metrics Ensure Debt at Optimal Cost

1. Based on stand-alone NTPC numbers.

HUMAN RESOURCE METRICS



Awarded 1st in the Public Sector Category and 1st in Energy Gas and Oil Sector at the India's Best Companies to Work for 2014 by Great Place to Work Institute

Technological Progression

TECHNOLOGY PROGRESSION—INCREASED EFFICIENCY AND GREATER ENVIRONMENTAL PROTECTION

Leader in introducing new technologies in the power sector.

Technologies Introduced

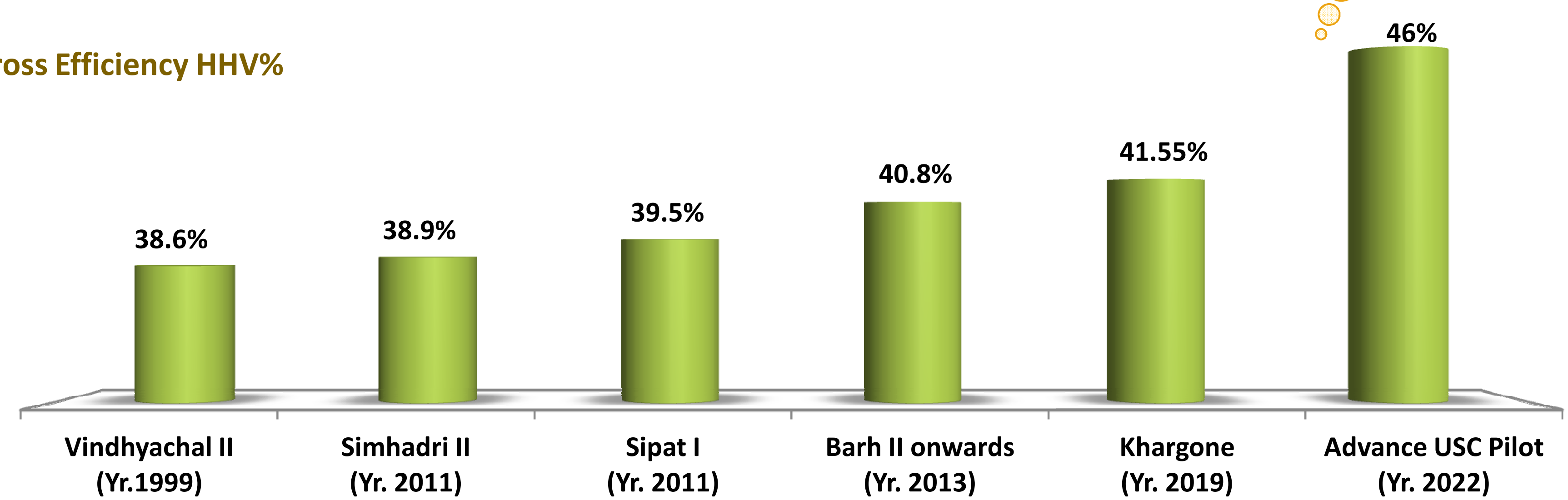
- Adoption of super critical parameters for higher efficiency
- Higher size units of 660 and 800MW
- Adoption of high reheat parameters for smaller units
- 765KV AC switchyard
- State of art automation technologies for C&I and Electrical systems
- Tunnel Boring machines
- Flue gas desulphurisation
- High concentration slurry disposal system & Dry Ash extraction and disposal system

Technologies Under Development

- Development of IGCC suitable for Indian coal
- Development of Adv Ultra supercritical power plant along with IGCAR and BHEL for inlet steam temperature in the range of 700°C
- Use of advanced technologies in the renovation and modernization of aging power stations

Every 1% increase in efficiency yields 2.5% CO_2 reduction

Gross Efficiency HHV%

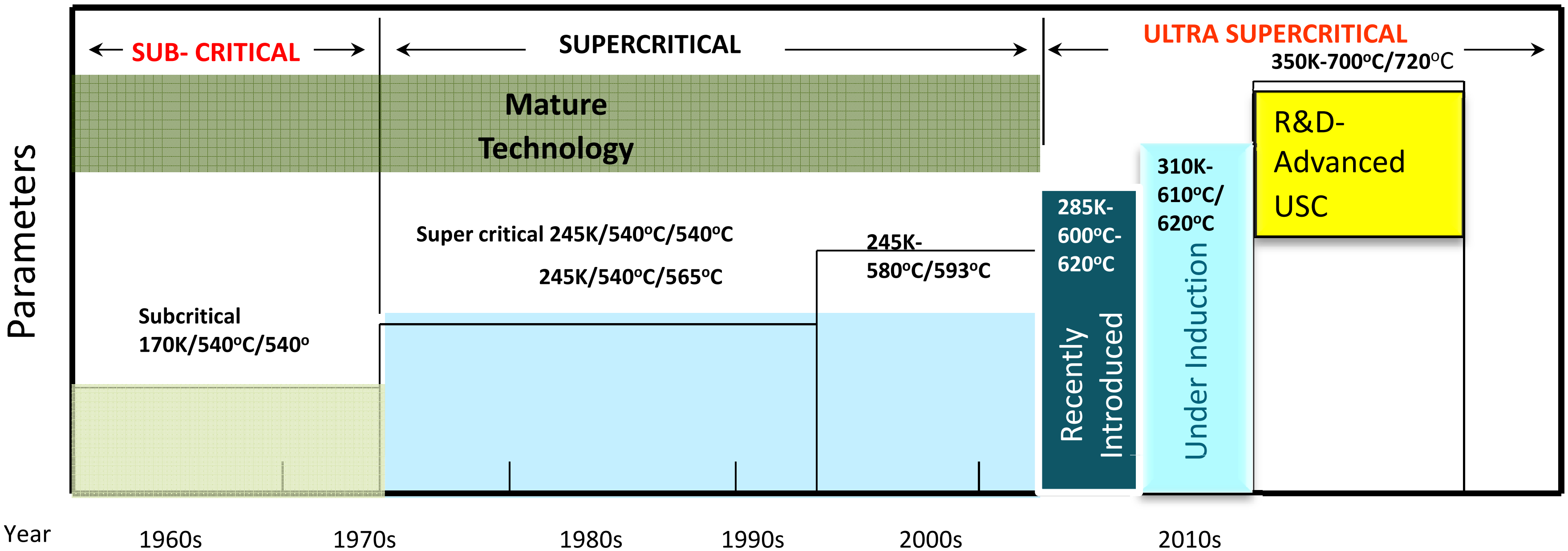


Constant endeavor to reduce CO2 emissions- steps to increase cycle efficiency

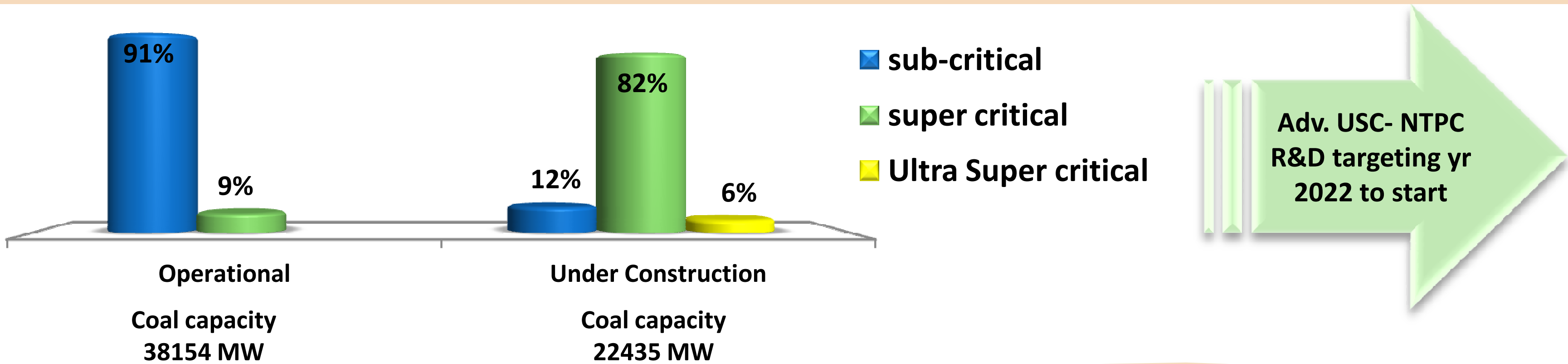
Paradigm shift in future technology fast catching up

International Scenario of Supercritical Technology to be at par after 2019

International Scenario



NTPC catching up fast



NTPC adopted Super critical technology in 2004

Adopted Ultra Super critical technology in 1320 MW Khargone TPP which may result in savings of 154kcal in SHR

All USC units now ordered are with temperature upto 600°C/ 600°C

Risks and Mitigation

KEY RISKS AND MITIGATION

Risk	Mitigation
Coal and Gas Supply Constraints	⌿ Long term Fuel Supply Agreements signed with CIL for supply of coal for a period of 20 years for stations set up prior to March 2009 – ACQ supply tied up ~124.9MT, ⌿ FSA of 39.67 MT signed for post 2009 stations for 9.6 GW capacity ⌿ captive coal blocks - expect to start production soon ⌿ Long Term APM/PMT Gas Supply Agreement with GAIL for supply of 14.48 MMSCMD gas upto 2021/2019 ⌿ Long term Agreement with GAIL for supply of 2.5 MMSCMD of RLNG till 2019 ⌿ Fallback agreements with GAIL BPCL,IOC and GSPL for supply of gas on Reasonable Endeavour basis
SEB Financial Distress	⌿ Tripartite agreement in place with RBI – SEB's required to issue LCs covering 105% of the average monthly billing – Continuing 100% realization from customers for 13th year in succession ⌿ FRP Implementation and tariff revision by majority SEB's during 2012–2013 & 2013-14
Land Acquisition Uncertainty	⌿ Progressive R&R Policy, focus on consultation and participation, negotiated settlement ⌿ Institutional mechanisms like Village Development Advisory Committees and Public Information Centers ⌿ Project head in place at site well in advance to expedite land acquisition ⌿ Appointed Chief Forest Officer for expeditious forest clearance ⌿ Land acquisition cell created at corporate centre to support the activities at site ⌿ Land acquisition in willing buyer and willing seller concept
Accelerated Capacity Addition	⌿ Multi-pronged strategy developed and enhanced delegation of power for quick decision making ⌿ Total 23,504 MW already under construction.
Consistent RoE	⌿ Capex intensive model delivering consistent earnings and dividends ⌿ Upsides from PLF incentives ⌿ Supplementary agreements signed for first charge over state utilities' receivables after 2016
Competition from Private Players	⌿ Relatively robust business model with regulated returns ⌿ GoI ownership ⌿ Strong management expertise and high standards of corporate governance
Funding Requirements for New Projects	⌿ Strong balance sheet and healthy leverage ratios ⌿ Easy access to domestic and overseas debt market; mobilized debt on most optimal rates from both domestic and international markets due to low gearing and healthy coverage ratios ⌿ Targetting capex of Rs. 23000 crore (standalone) in FY16 and Rs. 6429 crore for group companies.
Environmental Laws and Regulations	⌿ Excellent track record ⌿ Environmental clearances for all under construction projects received ⌿ Strong focus on sustainability and fuel diversification- 110 MW solar plants commercialized, 250 MW under construction ⌿ 510 MW solar under bidding, targeting 10 GW solar capacity in next 5 years

Sustainability Initiatives

R&D- NETRA

Committed to invest up to 1% of distributable profit for R&D Activities and Climate Change Technologies.

Efficiency & Availability Improvement	New & Renewable Energy	Climate Change & Environment
Flue Gas based Sea Water Desalination	Solar Thermal Hybrid Plant	Modified Amine based CO2 capture
Flue Gas based Air conditioning	Floating Solar PV System	Micro Algae based CO2 fixation
Flue Gas based Organic Rankine Cycle	Solar Thermal Cooking System	Pressure Swing Adsorption based CO2 capture technology
Back Pressure Micro Steam Turbine	Solar Thermal Air Conditioning	Light Weight Aggregate
CFD Applications - Flue gas duct modification, ESP, Rotary Equipment	Solar PV with battery charger	
Artificial Intelligence Plant Advisory	Indigenous Concentrated Solar Thermal	
Multi Utility Heat Pump	Setup of Solar Thermal & PV Lab	
	Hydrokinetic Turbine	

- **Infrastructure:** 18 number of Labs in place, 2 more in offing , NETRA Labs are accredited with ISO - 17025
- **Manpower:** 91 Executives including 16 PhD's and 29 M.Tech's
- **IPR:** 22 Patent Applications Filed, one patent granted, several more in pipeline
- **National Networking:** R&D Collaboration with 12 national R&D institutions
- **International Networking:** Solar Thermal & PV Labs with DLR & ISE, Germany and ESP with VGB Germany
- **Membership:** NETRA is a member of (1) IEA GHG R&D Program, France; (2) CSLF France (3) IERE Japan (4) GCCSI Australia

An amount of Rs 129.56 crore spent on R&D in FY 2014-15

NETRA: NTPC Energy Technology Research Alliance.

Extensive Engagement with Society

NTPC has committed to contribute 2% of Net Profit towards CSR from FY 2014-15 onwards.
Spent Rs. 205 crore on CSR activities during the year 2014-15

Social Inclusiveness

- Land acquisition through a participatory process
- Progressive R&R and CSR policies
- Compensation and R&R entitlement finalized through consultative process with stakeholders
- Efforts for negotiated settlements
- Focus on capacity building
- Intensive community and peripheral development activities

Stakeholder Engagement

- Information sharing through Public Information Centers ('PIC')
- Multi Stakeholder Engagement mechanisms like Village Development Advisory Committees
- Socio Economic Surveys / Audits / Evaluation through independent agency/ academic institute of repute
- Grievance redressal mechanisms
- Effective institutional set up

Skill Creation

- Adopted 17 ITIs and creating 7 new ITIs.
- Solapur Power Training Institute in Maharashtra.
- Information and Communication Technology Centre for physically and visually challenged students at Delhi University, Guwahati University and Devi Ahilya Vishwa Vidhyalaya at Indore by NTPC Foundation.
- Skill up gradation & vocational training for rural youth & women for employability

Education

- IIIT at Raipur, Engg colleges in Chhattisgarh, Jharkhand and Madhya Pradesh.
- Setting up/Supporting Medical College cum Hospitals in Odisha and Chhattisgarh.
- Two polytechnics in Uttarakhand and one Jharkhand.
- Education through 20 schools for community children.

Health & Sanitation

- Operation of Mobile Health Clinics and Free Medical Camps & surgeries during Camps
- Construction of Girl's toilets in schools, Individual & Community Toilets in villages.
- Partnering Govt. of India in Clean India Drive

Drinking Water

- Installation of hand pumps, bore wells, RO plant & piped water supply schemes for providing potable water.
- Rain water harvesting at projects

Initiatives like Social Infrastructure creation, Women Empowerment, Animal Healthcare, Culture and Heritage, Promotion of sports etc.





स्वच्छ भारत
एक कदम स्वच्छता की ओर

For details of CSR activities please visit ***http://www.ntpc.co.in/download/list-csr-activities-ntpc-2014-15***

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