

NTPC INVESTOR PRESENTATION

# NTPC: Vision, Mission and Core Values



### **Vision**

To be the World's Leading Power Company, Energizing India's Growth

### Mission

Provide Reliable Power and Related Solutions in an Economical, Efficient and Environment friendly manner, driven by Innovation and Agility

### **Core Values**













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# **Outline of the Presentation**







# Powering prosperity... sustainably



**Largest Power Generator in India** 

Installed capacity of 55,786 MW
Generating 22% power with 15% Installed Capacity



**Proven Operational Excellence** 

Highest ever Group Generation of 306 BUs in FY19 Maintaining consistent lead over All India PLF



**Clear Growth Visibility** 

19,321 MW under construction
Plan to become 130 GW company by 2032



**Acquisitions & Diversification** 

Acquired 3,310 MW of Power Assets in FY19 Setting up 400 EV charging stations



**Leading India's Energy Transition** 

Works/planning on in 6 GW RES Capacity in EPC Mode Plan to have 30% Non-fossil fuel basket by 2032



**Strong Coal Mining Portfolio** 

7.3 BT GR / 113 MMTPA ultimate mining capacity7.3 MMT coal extracted in FY19



# **Key Highlights & Targets**



FY 2018-19	
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FY 2019-20

COD

2,180 MW

5,290 MW

**FGD Orders** 

24,580 MW

31,550 MW

Main Plant Orders

245 MW

4,820 MW

**Coal Production** 

7.3 MMT

**11 MMT** 

Acquisitions

3,310 MW

**Actively Pursuing** 

**GCV** Compensation

Nil

85 Kcal

Disincentive

Rs. 800 Crore

Nil



# **Unparalleled Presence across the Nation**



#### **Present + Under Construction Capacity**



#### **Leading Market Share**

Share of Installed Capacity (as on March 31, 2019)



Share of Electricity Generated (during FY19)



Rest of India: 3,00,974 MW NTPC (Group): 55,126 MW Rest of India: 1,070 BUs NTPC (Group): 306 BUs

### **Present Installed Capacity: 55,786 MW**

Fuel Mix	No. of Plants	Capacity (MW)	% Share		
NTPC Owned					
Coal	22	41,580	74.54%		
Gas/Liquid Fuel	7	4,017	7.20%		
Hydro	1	800	1.43%		
Renewables	13	928	1.66%		
Sub-total	43	47,325	84.83%		
Owned by JVs and Subsidiaries					
Coal	9	6,494	11.64%		
Gas	1	1,967	3.53%		
Sub-total	10	8,461	15.17%		
Total	53	55,786	100.00%		





# **Financial Highlights**

# **Growing Revenue with Robust Margins**



Am	ount	in Rs.	Crore
,			

Particulars	FY19	FY18	Chg. (in %)	Q1FY20	Q1FY19	Chg. (in %)
Revenue from Operations	90,307	83,453	8%	24,193	22,704	7%
Fuel & Energy Purchased	55,207	49,629	11%	14,659	13,800	6%
Gross Profit	35,100	33,824	4%	9,534	8,904	7%
Gross Margin	39%	41%	-	39%	39%	-
Other Income	1,872	1,755	7%	326	136	140%
Operating Expenses	12,328	12,156	1%	3,081	2,949	4%
EBITDA	24,644	23,423	5%	6,779	6,091	11%
EBITDA Margin	27%	27%	-	28%	27%	
Depreciation	7,254	7,099	2%	2,051	1,860	10%
Finance Cost	4,717	3,984	18%	1,565	1,220	28%
Profit before Tax	12,673	12,339	3%	3,163	3,011	5%
Тах	(2,919)	5,257	-156%	1,070	1,341	-20%
Movement in Reg. Def. Bal.	(3,841)	3,261	-218%	510	918	-44%
Profit for the period	11,750	10,343	14%	2,603	2,588	1%
Annualized EPS	11.88	10.45	14%	10.52	10.46	1%



## **Expanding Profits of our Group Companies**



**Amount in Rs. Crore** 

FY 2018-19

FY 2017-18

Profit/(Loss) of Subsidiaries

168.50

(92.59)

Share of Profit in Joint Ventures

672.07

445.05

Consolidated Profit for the year

12,633.45

10,501.50

**Group PAT grew by 20% in FY19** 



## **Strong Financials with Consistent Dividend Payouts**



**Amount in Rs. Crore** 

Particulars (Stand alone)	31.03.2019	31.03.2018	Absolute Change	Remarks
<b>Gross Fixed Assets</b>	1,52,976	1,39,407	13,569	
CAPEX (for the period)	27,363	24,134	3,229	-' Increase in CWIP -
Capital Work-in-Progress	90,809	78,607	12,202	
Debt	1,27,430	1,15,104	12,326	standalone commercial
Net Worth	1,07,408	1,01,778	5,630	
Book Value per Share (in Rs.)	108.55	102.86	5.69	MW in FY19







# **Operational Highlights**

# **Proven Operational Excellence**

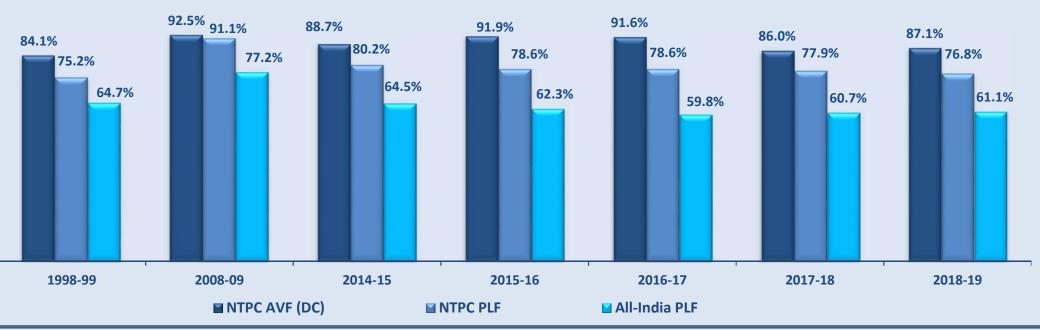


# Maintaining Leadership

## In-depth Monitoring

# Safety at Forefront

- Consistent spread over National PLF during last 2 decades
- NTPC's coal stations achieved PLF of 76.8% against All India PLF of 61.1% in FY19
- 5 NTPC coal stations among top 10 of the country in terms of PLF in FY19
- Sound maintenance practices & real-time monitoring ensure high availability and efficient operations
- Periodic structured technical audits carried out for all units for identifying and correction of gaps
- Safety is integral to our working and we have renewed focus on safety
- We have upscaled our safety standards & inculcated complete safety culture

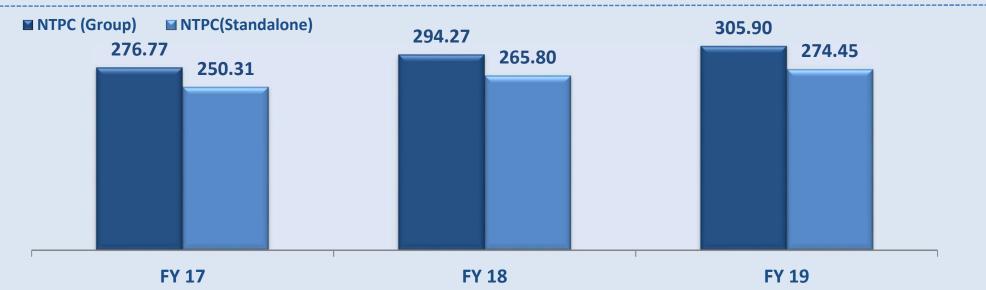




# **Group Generation-Topped 300 BU Mark in FY19**



- NTPC has achieved highest ever generation of 274.45 BUs in FY19, a growth of 3.26% over previous year. On group basis, our generation has crossed 300 BU mark and Company has achieved generation of 305.90 BUs in FY19, a growth of 3.95%.
- NTPC has recorded highest ever standalone quarterly generation of 70.06 BUs and group generation of 78.16 BUs in Q3 FY19 exceeding previous highest achieved in Q1 FY19.
- Group NTPC achieved highest ever daily generation of 935.46 MUs on March 12, 2019.
   We aspire to cross 1 BUs in a day.





## **Sustaining Status of Competitive Power Producer**



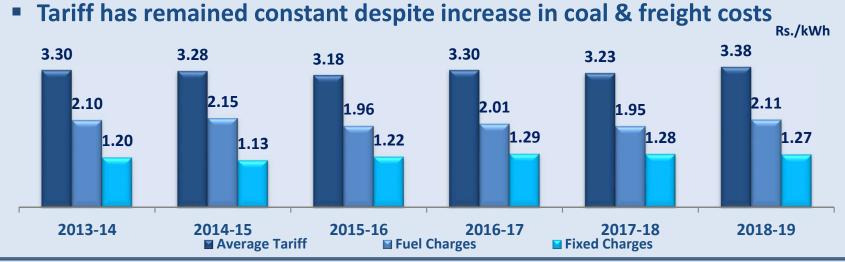
# Payment Security

- Regulatory mechanism assures Returns balancing risks and rewards
- TPA agreements in addition to payment security through LC mechanism
- 100% realization for 16<sup>th</sup> consecutive year in FY19
- Highest ever realization of Rs.91,714 crore in FY19

### New Regulations-2019-24

- RoE remains unchanged at 15.50%
- 85 kcal allowed on account of loss of coal GCV
- Security expenses excluded from normative O&M expenses
- Recognition of cost impact for meeting environment norms
- Time and cost over runs due to land acquisition classified as an "uncontrollable factor"
- Equity of plants, which have completed their useful life restricted to 30%

### Sustaining Competitive Tariff





# **Long-term Fuel Security - Assured Fuel Supply**



Single ACQ

- NTPC through sustained policy advocacy has signed a Supplementary Agreement with aggregation of ACQ (Annual Contracted Quantity) on CIL subsidiary level basis resulting in:
  - **✓** Optimum utilization of coal leading to reduction in ECR
  - ✓ Avoidance of loss of fixed charges due to coal shortage
  - ✓ More efficient outage planning/stock management of power plants

Long-term FSAs

 Long term Fuel Supply Agreements (FSAs) have been signed with CIL and SCCL for supply of coal for total ACQ of ~172 MTPA

**Ensuring Logistics** 

- MoU with Railways for ensuring smooth coal transportation
- 64% of our coal-based capacity, representing 11 out of 22 of our coal plants, is linked by MGR/belt conveyor system to coal mines

Assured Coal
Supply
95.4% ACQ
materialization
during FY19 as
against 94.8% in
FY18





# Competent Manpower driven by Strong Management



#### NTPC HR VISION

To enable our people to be a family of committed world class professionals, making NTPC a learning organization



### **Leading to Consistent Improvement in Productivity of Manpower**

Per Employee	FY17	FY18	FY19
Revenue (Rs. in crore)	3.85	4.32	5.02
EBITDA (Rs. in crore)	1.09	1.19	1.34
Value Added (Rs. in crore)	1.42	1.58	1.83
Generation (in MUs)	12.16	13.47	14.95
MAN-MW Ratio	0.47	0.43	0.39







NTPC stands in the league of "Laureates" for being consistently featured as a great workplace for last 11 years by Great Place to Work and The Economic Times





# **Transforming Power Sector**

## **Strong Growth Drivers for Power Sector in India**



### Demand

- India's GDP is expected to grow significantly over next two decades on the back of our demographic strength
- India has low per capita consumption of electricity which is expected to rise to ~3,000 kWh by 2040

**Increasing Per Capita Consumption (kWh/Year)** 



### Supply

- Electricity requirement in India is expected to grow in tandem with GDP growth
- Both peak load demand and energy requirement are expected to rise at a healthy pace

#### **Projected Energy requirement & Peak Load**





# **Supportive Policy Ecosystem**



### **Tariff Policy**

#### 5Es

- Ensuring electricity for all
- Effective metering
- Efficiency for affordable tariffs
- Environment for sustainable future
- Ease of Doing Business

# Index of ease of getting Electricity

INDIA's rank has improved from 111

in 2014 to **29** in 2018 in World Bank's ease of getting Electricity ranking, a jump of 82 places

### UDAY (A new dawn for distribution sector)

- Turning around DISCOMs through Financial & Operational Efficiency Improvements
- Major savings on Interest costs
- Significant reduction in AT&C losses and revenue gap

## Integrated approach towards making 24x7 affordable power for All

#### **SHAKTI**

Scheme for Harnessing Koyala Transparently in India

Transformational Policy for auction and allocation of coal linkages leading to:

- Affordable Power
- Access to coal
- Accountability in allocation of coal

#### **SAUBHAGYA**

Pradhan Mantri Sahaj Bijli Har Ghar Yojana

- Provide energy access to all
- Last mile connectivity
- Electricity connections to all remaining un-electrified households

### **Coal Reforms**

- Flexibility in utilization of coal
- Coal Swapping & Rationalization of Coal Linkages
- Reduction in Coal Imports
- Coal quality improvement through third party sampling , supply of crushed coal

SAUBHAGYA has added 4 crore un-electrified Households as new consumers during FY19



# **Transforming Power Sector**



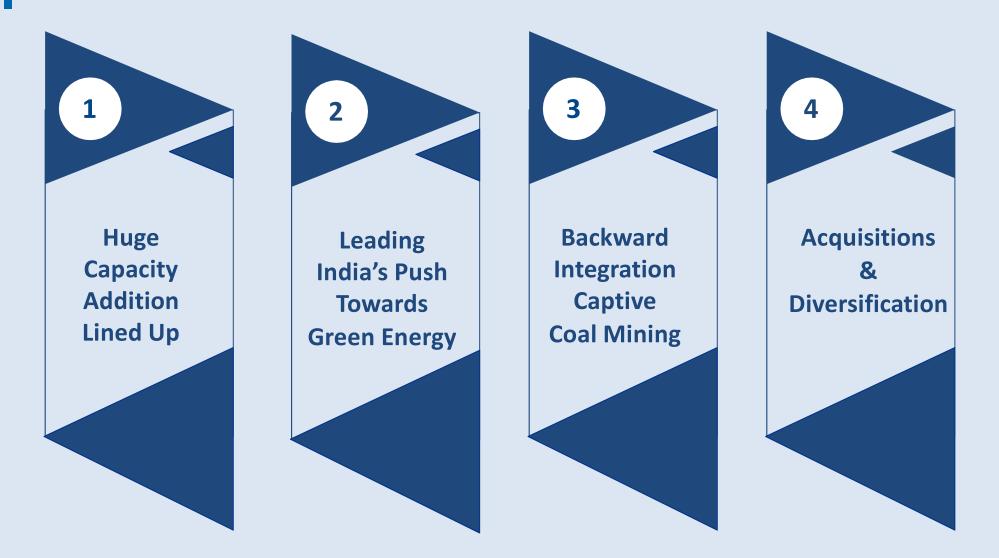
	FY19	Target
Installed Capacity	~356 GW	~ 500 GW by FY22
Generation (in BUs)	~1,376 BUs	~1,566 BUs by FY22
Peak Load Demand	~177 GW	~226 GW by FY22
Per capita consumption	~ 1,149 kWh	~ 3,000 kWh by 2040
Renewable capacity	~78 GW	175 GW by FY22
Coal Requirement	~650 MT	735 MT by FY22
AT & C Losses	~18.22%	13% by FY22

A wave of new reforms – In the form of revised tariff policy and smart prepaid metering



# **Our Key Growth Pointers**





# **Huge Capacity Addition Lined up**





Land

Water

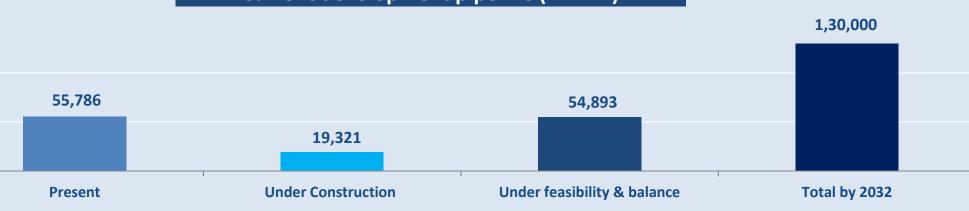
Coal

**Environment Clearances** 

**PPAs** 

Investment Approval

### **Current development pipeline (in MW)**



### **Snapshot of Projects Under Construction**

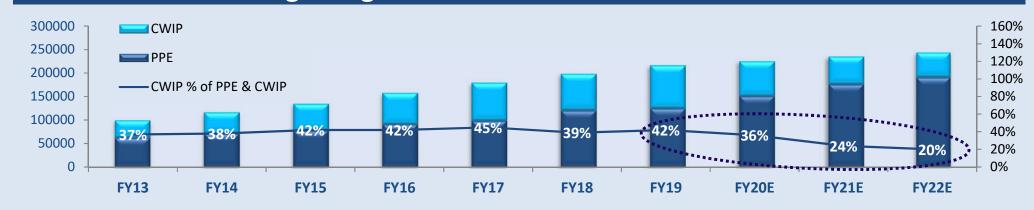
Fuel Mix	In MW	Coal Technology	In MW	Group Mix	In MW	Target	In MW
Coal	18,140	Ultra Super Critical	5,320	NTPC	13,081	2019-20	5,290
Hydro	811	Super Critical	11,780	Domestic JVs	4,920	2020-21	8,030
Solar	370	Sub Critical	1,040	International JV	1,320	Post FY21	6,001
Total	19,321	Total	18,140	Total	19,321	Total	19,321



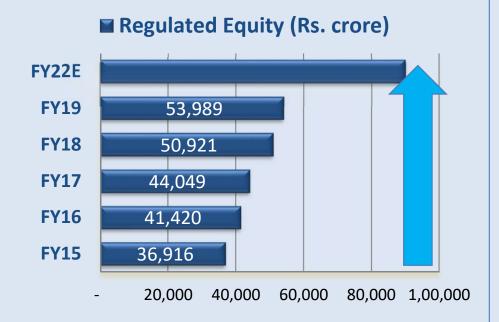
# Why to Invest in NTPC



### FY20 will mark the beginning of Reversal in CWIP ratio



### **Expansion in Regulated Equity**



- FY20 will mark the beginning of Reversal in CWIP ratio and this will continue due to commercialization of ~5 GW/year.
- Fall in CWIP ratio will lead to RoE expansion as the equity blocked in CWIP would start earning.
- Growth will continue and the turnaround from CWIP to PPE would be quicker in Renewable energy projects.



# **Leading India's Push towards Green Energy**



### NTPC RE Plan - Moving towards 30% Non-fossil fuel basket by 2032

Present	In GW	In %
Thermal	54.1	97.0%
RES	0.9	1.6%
Hydro	0.8	1.4%
Nuclear	-	-
Total	55.8	100%



NTPC@2032	In GW	In %
Thermal	91	70.0%
RES	32	24.6%
Hydro	5	3.8%
Nuclear	2	1.6%
Total	130	100%

### NTPC RE Portfolio (in MW)

Status	EPC	Developer
Installed	928	3,683
Under Implementation	370	3,950
<b>Under Tendering</b>	2,141	1,200
<b>Under Planning</b>	2,510	2,400
Total	5,941	11,233

### **Highlights**

- Won 545 MW Capacity in competitive Solar tenders
- 125 MW Floating Solar projects under implementation for Merchant Sale
- NTPC notified as "Designated Agency" for RE projects

### NTPC to play a Pivotal Role

- NTPC being the largest power producer in the country is best placed to support intermittent nature of Renewable Energy Sources
- Our base load plants will play a key role in taking care of RE integration through Flexibilization



## **Backward Integration Captive Coal Mining**



# NTPC Coal Mining Portfolio

- Coal blocks with estimated geological reserves of about 7.3 BT
- Ultimate capacity of 113 Million Metric Tonnes of coal per annum

#### Pakri Barwadih

- Mine declared commercial w.e.f. 1<sup>st</sup> April 2019
- 6.81 MMT of coal produced in FY 2018-19
- Target to produce 8.5 MMT in FY 2019-20

### **Dulanga**

- Coal extraction started in March 2018
- 0.5 MMT of coal produced in FY 2018-19
- Target to produce 2.5 MMT in FY 2019-20

### Talaipalli (South)

- Contract awarded for start of mining operation
- Scheduled target for production is Nov'19
- All statutory clearances are in place

## Other Highlights

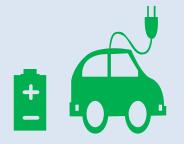
- Cumulative expenditure of Rs.6,245 Crore incurred till FY19
- Deed of Adherence assigning Badam Coal Block to NTPC signed on 5<sup>th</sup> July 2019 - Link mine for acquired Barauni plant



## **Acquisitions & Diversification**











#### **Acquisition of Power Assets**

- Acquired JV partner's equity in KBUNL (610 MW) and NPGCL (1,980 MW) at par
- Acquisition of Barauni TPS along-with linked Coal Block (720 MW)
- NTPC is also looking for acquisition of operational projects referred to NCLT with good intrinsic value

#### **EV Business Segment**

- Award placed for setting up of 400 charging stations across the cities and highways for creation of Charging Infrastructure Ecosystem
- NVVN entering e-Bus segment 500 e-buses are being procured through ICB
- Setting pilot project for 50 e-Autos for Battery charging and swapping

### **Waste to Energy Project (WtE project)**

- JVA signed with EDMC for setting up Integrated WtE project
- Facility will have 2,000 TPD MSW handling capacity
- The power plant capacity will be 12 MW

#### **International Business**

- International Office opened in Myanmar
- Construction activities of a coal based project in Bangladesh are under progress
- Actively looking at East Asia, Middle East and Africa for business opportunities
- Qualified for RFQ submitted for 600 MW Solar Project in Egypt





# **Sustainability Initiatives**

# **Technology Progression - Increased Efficiency**



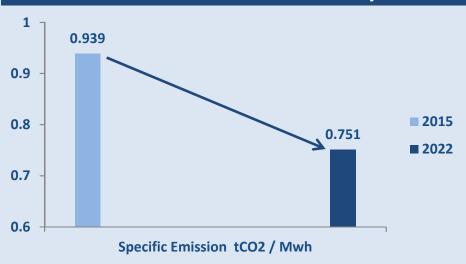
### **Technologies Introduced/Under Development**

- MoU signed, for setting up Indigenous Advanced Ultra Super Critical (AUSC) technology based most efficient power plant in the world.
- NTPC, Sipat selected as site for 800 MW Technology Demonstration Plant (TDP).
- Target efficiency of 46%, benefits include ~12.5% reduction in coal consumption & GHG (CO<sub>2</sub>) reduction of ~20% annually.
- Air Cooled Condenser being introduced to save water.
- Higher Cycle of Concentration (COC >5) to conserve water.
- Zero Liquid Discharge completed at various stations.
- Specific water consumption has been reduced by 1.3%
   (3.02 l/kWh) when compared to FY18.
- Various digital initiatives being taken in the field of process control & maintenance optimization, enhancing process visibility, virtual reality based training, digital worker etc.
- e-Office implemented for working in paperless mode.
- Pilot testing started for retrofitting of units for enhancing Flexibilization characteristics to meet the requirement in line with increased penetration of renewables.

#### Every 1% rise in efficiency leads to 2.5% CO2 reduction



### 20% reduction in CO<sub>2</sub> emissions by 2022





## **NETRA- OUR TECHNOLOGY DEVELOPMENT CENTRE**



- Focus Areas- Efficiency & Availability Improvement and Cost Reduction, Renewables and Alternate Energy,
   Climate Change and Environment and Scientific Support to Stations
- Spent Rs.139 crore on R&D activities during FY19

#### **Energy Efficiency Improvement**

Flue Gas Based Sea-Water Desalination Plant at Simhadri



Flue Gas based Air Conditioning System at Talcher-Kaniha

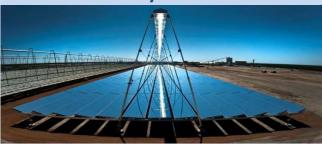


Nano Lubricant for ID Fan & Coal Mill



#### **Renewables and Alternate Energy**

**Solar Thermal Hybrid at Dadri** 



Solar Wind Hybrid at Kudgi



**Floating Solar PV** 



#### **Climate Change and Environment**

Geo-polymer road using fly ash



CO<sub>2</sub> capture from Flue Gas & conversion into Soda Ash, Urea or Methanol



**Hydro Thermal based MSW to Solid Fuel Plant** 





## **Unwavering Commitment to Environment**



### Firm Action Plan to comply with New Environment Norms

#### **SOx Action Plan**

- The first Flue Gas Desulphurisation System (FGD) has been implemented at Vindhyachal Stage-V-500 MW unit
- FGD systems are under implementation at ~47 GW and are under tendering for balance ~17 GW capacity
- Year-wise tentative implementation schedule is as under (in GW):

FY20	FY21	FY22	FY23	Total
1	5	29	29	64

#### **De NOx Action Plan**

■ For low NOx combustion system, contracts have been awarded for 18 GW capacity. Combustion modification has been implemented in one unit of Dadri & one unit of Jhajjar totalling 990 MW

### **Blue Sky Initiatives of NTPC**

Farm to Fuel	Bio-Mass Co-firing	Circular Economy	Waste to Energy
<ul><li>Air Pollution due to burning crop residues</li></ul>	<ul> <li>Dadri has become first plant to commercialize the Biomass Co-firing</li> </ul>	Plan to establish Integrated facility in Delhi where Bio-Waste will be used to	<ul> <li>Plans to develop WtE plants supporting in improving people's</li> </ul>
<ul> <li>Utilization of agro residue as secondary fuel in coal fired power plant</li> </ul>	<ul> <li>240 tonnes of agro residue based bio-fuel co-fired till now</li> </ul>	produce Bio-CNG, C&D waste to construction material and combustible fraction will be used for energy recovery	health & welfare  To be developed in association with Municipal Corporations

## **NTPC CSR Initiatives - Touching Lives of People**



### **Rs.285 crore** spent on CSR activities during FY19

#### **Girl Empowerment**

- Set up NTPC All girls Super 30 at Varanasi, UP for providing free residential coaching and mentoring.
- One-month residential workshop for about 400 young girls under Girl Empowerment Mission (GEM) wherein interventions were taken to make the girls self-reliant and confident in all walks of life.
- Sanitary Napkin "Stree Swabhiman" Mini Manufacturing units (MMU) in the state of Odisha.

#### **Other Key CSR Activities**

- NTPC has adopted 18 Industrial Training Institutes (ITIs) and is setting up 8 new ones.
- Installation of Solar street lights and solar high mast lights at various locations.
- Promotion of Archery Sports by funding National Level
   Archery Tournaments and championships.
- Setting up Burn Units at AIIMS Patna & Bhubaneswar
   & King George Medical University Lucknow.
- Installation of Energy Efficient Pump System in the fields of farmers residing near NTPC stations.















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# NTPC - LEADING THE POWER SECTOR





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