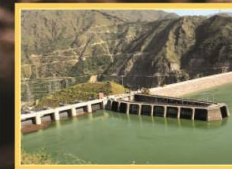


# Generating Growth for Generations



**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



INTEGRITY



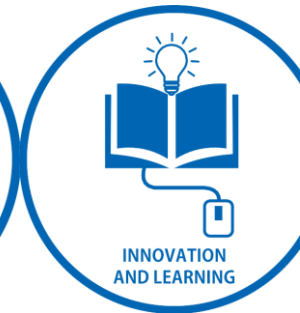
CUSTOMER FOCUS



ORGANISATIONAL  
PRIDE



MUTUAL TRUST  
AND RESPECT



INNOVATION  
AND LEARNING



TOTAL QUALITY  
AND SAFETY

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# Outline of the Presentation



- 
- 1 Company Overview
  - 2 Financial Highlights
  - 3 Operational Highlights
  - 4 Transforming Power Sector
  - 5 Key Growth Pointers
  - 6 Sustainability Initiatives



# NTPC - Generating Growth for Generations



Largest Power Generator in India

Installed capacity of 62,910 MW  
Generating 22% with 17% Installed Capacity

O&M and PM Excellence

Highest ever Commercial Capacity Addition  
Maintaining consistent lead over All India PLF

Clear Growth Visibility

20,533 MW under construction  
Plan to become 130 GW company by 2032

Energy Transition

2,348 MW Renewable Capacity under construction  
Plan to have 30% Non-fossil fuel basket by 2032

Value Accretive Acquisitions

Acquired 6,408 MW of Power Assets in FY20  
Leading to three fold growth in Non-fossil portfolio

Robust Coal Mining Portfolio

7.3 BT GR / 103 MMTPA ultimate mining capacity  
11.15 MMT coal produced in FY20



# Key Performance Highlights



	FY 2019-20	FY 2018-19
Regulated Equity	₹ 61,811 crore	₹ 53,989 crore
Comml Addition	8,260 MW	2,180 MW
FGD Orders	25,810 MW	25,640 MW
RE Orders	2,053 MW	245 MW
Coal Production	11.2 MMT	7.3 MMT
Acquisitions	6,408 MW	3,310 MW

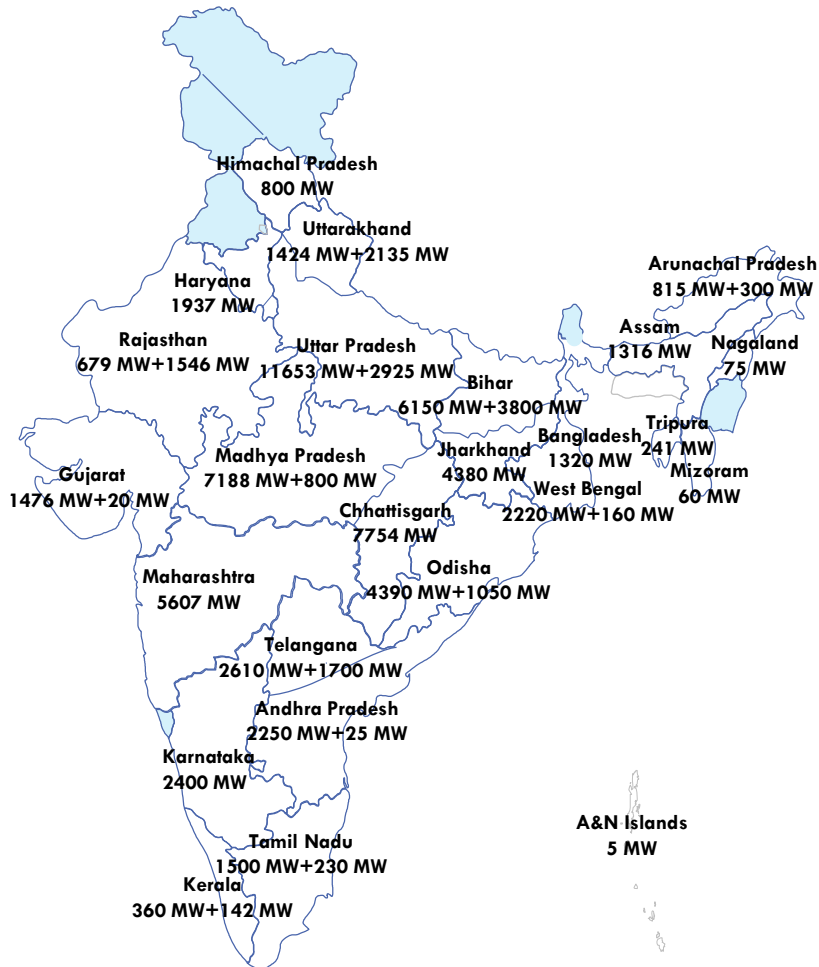
Regulated equity shown above is on standalone basis



# Unparalleled Presence across the Nation

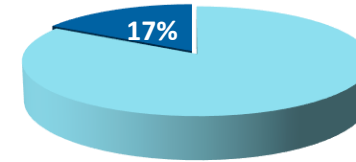


## Present + Under Construction Capacity

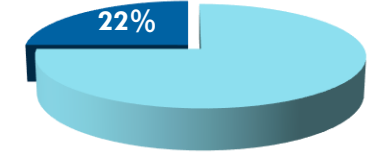


## Leading Market Share

Share of Installed Capacity  
(as on June 30, 2020)



Share of Electricity Generated  
(during Q1FY21)



Rest of India : 3,08,944 MW  
NTPC (Group) : 62,110 MW

Rest of India : 247 BUs  
NTPC (Group) : 68 BUs

## Present Installed Capacity : 62,910 MW

NTPC Owned	Stations	in MW	Mix %
Coal	24	45,410	72.18%
Gas/Liquid Fuel	7	4,017	6.39%
Hydro	1	800	1.27%
Renewables	13	928	1.48%
<b>Sub-total</b>	<b>45</b>	<b>51,155</b>	<b>81.32%</b>
<b>Owned by JVs and Subs</b>			
Coal	9	6,494	10.32%
Gas/Liquid Fuel	4	2,494	3.96%
Hydro	8	2,625	4.17%
Renewables	4	142	0.23%
<b>Sub-total</b>	<b>25</b>	<b>11,755</b>	<b>18.68%</b>
<b>Total</b>	<b>70</b>	<b>62,910</b>	<b>100.00%</b>

Map not to scale





## Financial Highlights

# Growing Revenue with Robust Margins



Amount in ₹ Crore

Particulars (Standalone)	FY20	FY19	Chg. (in %)	Q1FY21	Q1FY20	Chg. (in %)
Revenue from Operations	97700	90307	8%	23453	24193	-3%
Fuel & Energy Purchased	57018	55207	3%	12369	14659	-16%
<b>Gross Profit</b>	<b>40682</b>	<b>35100</b>	<b>16%</b>	<b>11085</b>	<b>9534</b>	<b>16%</b>
<b>Gross Margin</b>	<b>42%</b>	<b>39%</b>		<b>47%</b>	<b>39%</b>	
Other Income	2778	1872	48%	568	326	74%
Operating Expenses	13589	12329	10%	3339	3081	8%
<b>EBITDA</b>	<b>29871</b>	<b>24643</b>	<b>21%</b>	<b>8313</b>	<b>6779</b>	<b>23%</b>
<b>EBITDA Margin</b>	<b>30%</b>	<b>27%</b>		<b>35%</b>	<b>28%</b>	
Depreciation	8623	7254	19%	2530	2051	23%
Finance Cost	6782	4717	44%	2083	1565	33%
PBT (incl. exceptional item)	14466	12672	14%	2897	3162	-8%
Tax	9182	-2919	-415%	1230	1070	15%
Movement in Reg. Def. Bal.	4829	-3841	-226%	803	511	57%
Profit for the period	10113	11750	-14%	2470	2603	-5%
Annualized EPS (in ₹)	10.22	11.88	-14%	2.50	2.63	-5%





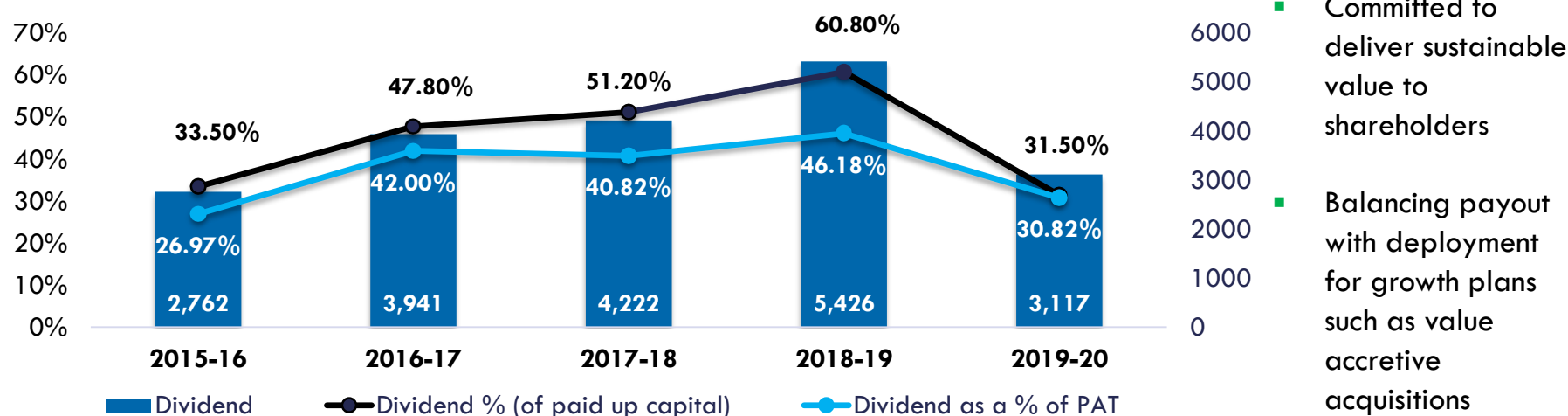
# Strong Financials with Balanced Pay-outs



Amount in ₹ Crore

Particulars (Standalone)	31.03.2020	31.03.2019	Change	Remarks
Gross Fixed Assets	1,92,898	1,52,976	<b>39,922</b>	■ Increase in GFA and Decrease in CWIP
CAPEX (for the period)	36,618	27,363	9,255	
Capital Work-in-Progress	73,067	90,809	<b>(17,742)</b>	■ Addition of standalone commercial capacity of 3970 MW in FY20 as against 1930 MW in FY19
Debt	1,52,692	1,27,430	25,262	
Net Worth	1,13,569	1,07,408	6,161	
Book Value per Share (in ₹)	114.78	108.55	6.23	

## Balanced Payouts



# Expanding Consolidated Financials



Amount in ₹ Crore

Particulars (Group)	31.03.2020	31.03.2019	Change	Change (in %)
Gross Fixed Assets	2,36,104	1,88,852	47,252	25%
Capital Work-in-Progress	98,211	1,17,298	-19,087	-16%
Debt	1,84,073	1,55,689	28,384	18%
Net Worth	1,22,156	1,14,264	7,892	7%
<b>Regulated Equity</b>	<b>77,233</b>	<b>60,294</b>	<b>16,939</b>	<b>28%</b>
Revenue	1,12,373	1,02,533	9,840	10%
<b>EBIDTA</b>	<b>34,445</b>	<b>28,927</b>	<b>5,518</b>	<b>19%</b>
Profit before tax	16,378	15,326	1,052	7%
Profit for the period	11,902	14,034	-2,132	-15%





## Operational Highlights

# Proven Operational Excellence



## Maintaining Leadership

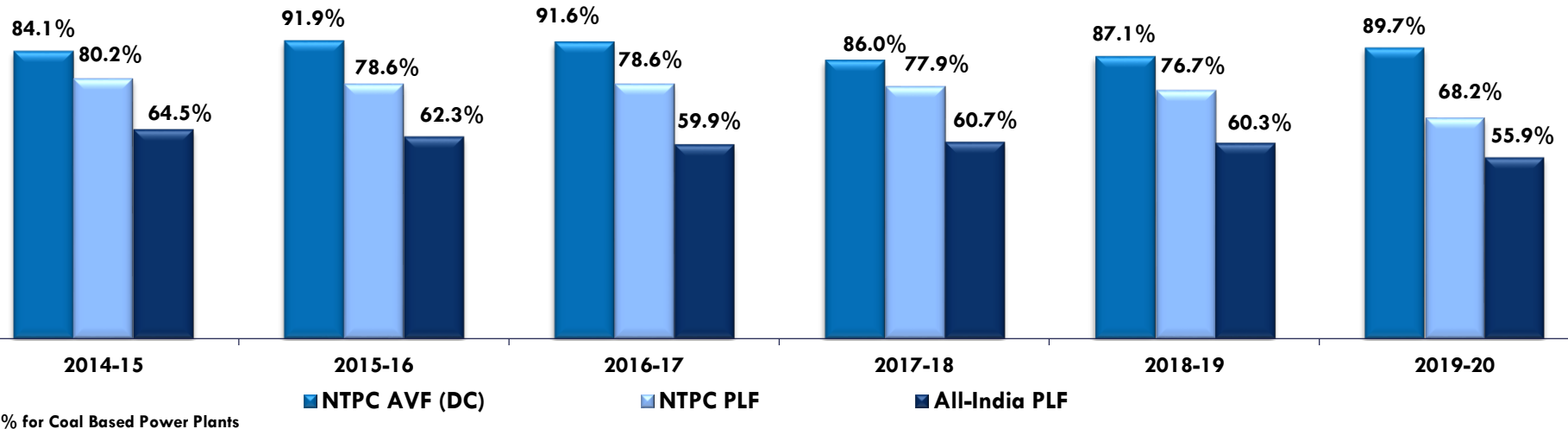
- Consistent spread over National PLF during last 2 decades
- NTPC's coal stations achieved PLF of 68.2% against All India PLF of 55.9%
- 4 NTPC coal stations among top 10 of the country in terms of PLF

## In-depth Monitoring

- 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 at Forefront

- Safety is integral to our working and we have renewed focus on safety
- We have upscaled our safety standards & inculcated complete safety culture



% for Coal Based Power Plants



# Sustaining Status of Competitive Power Producer



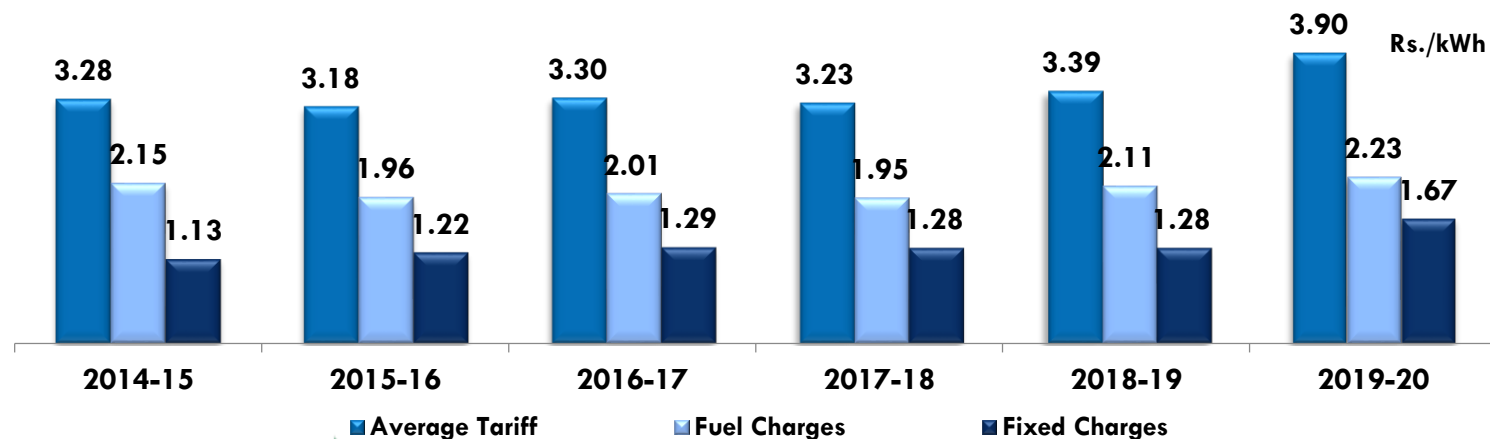
## Payment Security

- Regulatory mechanism assures Returns balancing risks and rewards
- TPA agreements in addition to payment security through LC mechanism

## 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 Coal 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

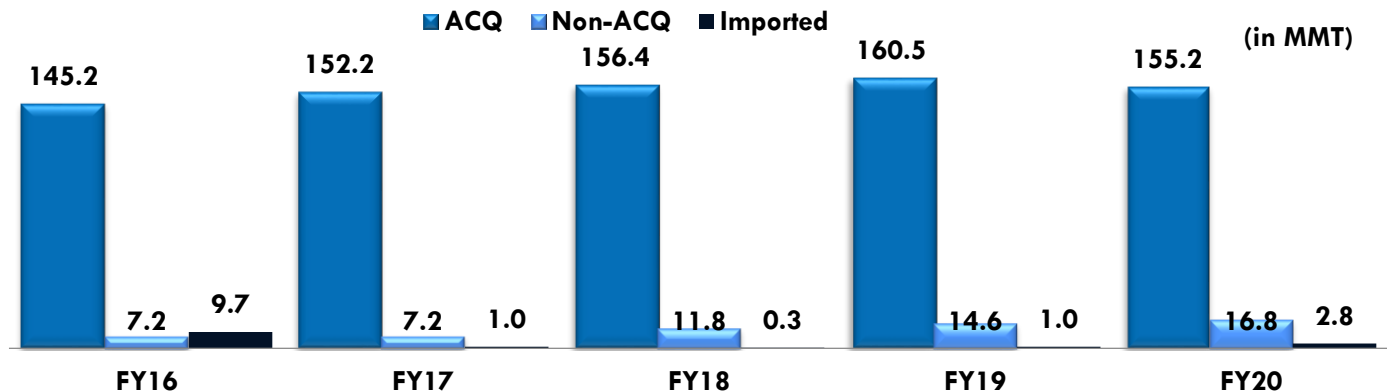
- Long term Fuel Supply Agreements (FSAs) have been signed with CIL and SCCL for supply of coal for total ACQ of ~175 MTPA

## Ensuring Logistics

- Agreement with Railways for ensuring smooth coal transportation
- 62% of our coal-based capacity, representing 12 out of 24 of our coal plants, is linked by MGR/belt conveyor system to coal mines

## Assured Coal Supply

92.8% ACQ materialization during FY20



## 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	FY20	FY19	FY18
Revenue (₹ in crore)	5.78	5.02	4.32
EBITDA (₹ in crore)	1.72	1.34	1.19
Value Added (₹ in crore)	2.16	1.83	1.58
Generation (in MUs)	14.92	14.95	13.47
MAN-MW Ratio	0.35	0.39	0.43

- Only PSU to consistently feature for the past 12 years in Top 50 Best Companies to work for in India
- Proud of Building a High-Trust, High-Performance Culture





Transforming Power Sector



# Strong Growth Drivers for Power Sector in India



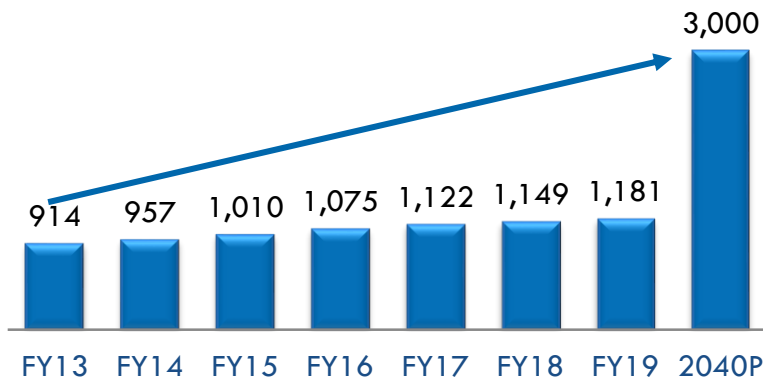
## Demand

- 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

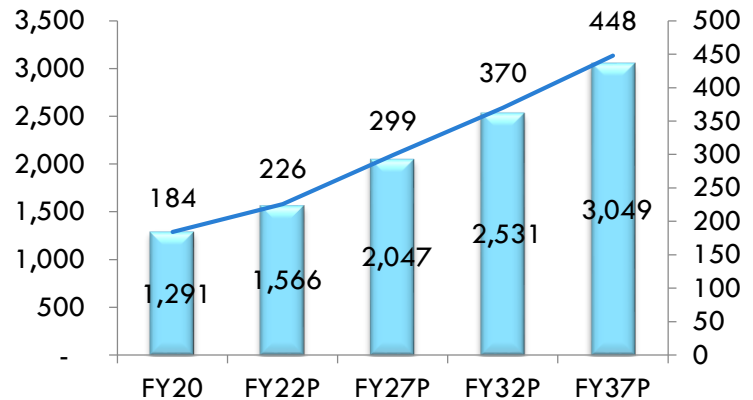
## Supply

- 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

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



### Projected Energy requirement & Peak Load (BUs) (GW)



With every Indian now having access to electricity power sector is poised for Long-term Growth



# Decade of Transformation Begins...



	FY20		FY30
Installed Capacity	~370 GW	➔	~817 GW
Generation (in BUs)	~1,391 BUs	➔	~2,518 BUs
Peak Load Demand	~184 GW	➔	~340 GW
Per Capita Consumption	~ 1,181 kWh	➔	~2,100 kWh
Renewable Capacity	~87 GW	➔	~435 GW
Coal Requirement	~650 MT	➔	~892 MT

A wave of new reforms - In the form of revised tariff policy & smart prepaid metering

Source: NITI Aayog, MOP, CEA, NTPC



# Our Key Growth Pointers



1

**Huge  
Capacity  
Addition  
Lined Up**

2

**Leading  
India's Push  
Towards  
Green Energy**

3

**Rising  
Captive  
Coal  
Production**

4

**Acquisitions  
&  
Diversification**



# Huge Capacity Addition Lined up

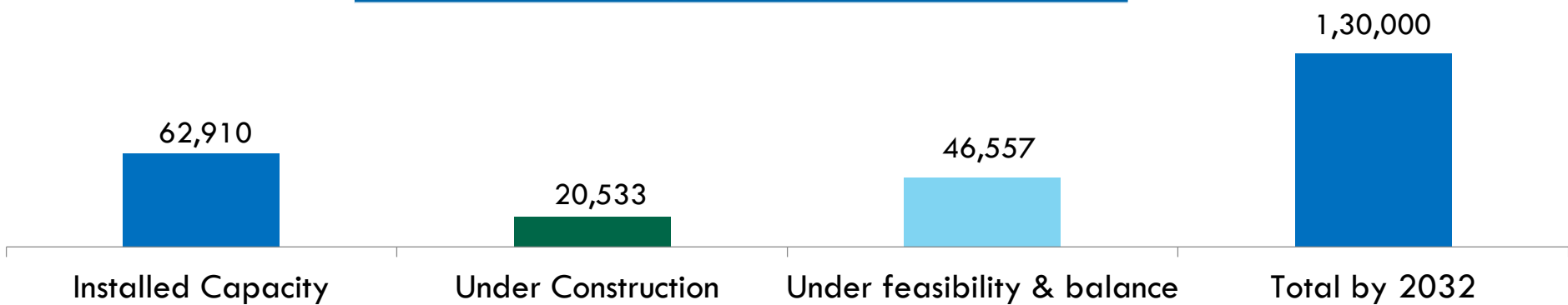


Ensuring Availability



Investment Approval

## Current development pipeline (in MW)



## Snapshot of Projects Under Construction

Fuel Mix	In MW
Coal	15,630
Hydro	2,555
RE	2,348
<b>Total</b>	<b>20,533</b>

Coal Technology	In MW
Ultra Super Critical	4,000
Super Critical	10,840
Sub Critical	790
<b>Total</b>	<b>15,630</b>

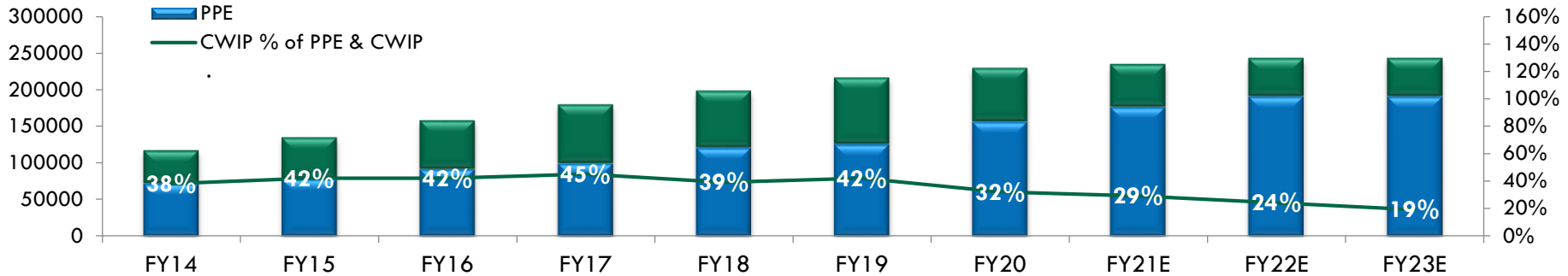
Group Mix	In MW
NTPC	11,179
Domestic JVs	8,034
International JV	1,320
<b>Total</b>	<b>20,533</b>



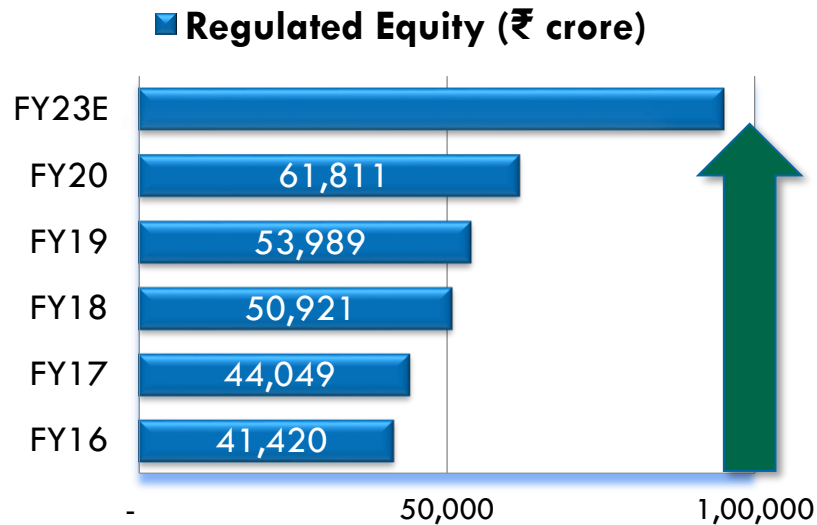
# Why to Invest in NTPC



## FY20 marked beginning of Reversal in CWIP ratio



## Expansion in Regulated Equity



All financial figures on standalone basis.

- FY20 marked beginning of Reversal in CWIP ratio and this will continue due to accelerated commercialization
- Fall in CWIP ratio will lead to ROE expansion as the equity blocked in CWIP starts earning
- Growth will continue and the turnaround from CWIP to PPE would be quicker in Renewable energy projects

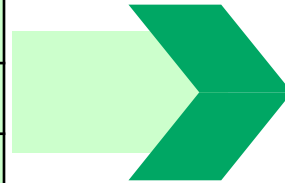


# Leading India's push towards Green Energy



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

Present	In GW	In %
Thermal	58.4	92.9%
RES	1.1	1.7%
Hydro	3.4	5.4%
Nuclear	-	-
Total	62.9	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%

### Highlights

- Solar Projects of 2 GW awarded under EPC mode
- MOU with MAHAGENCO for setting up 2.5 GW UMREPP
- MOU with ONGC for offshore wind & other RES
- Bids invited for acquisition of up to 1 GW RE capacity

### NTPC RE Portfolio (in MW)

Status	EPC	Developer
Installed	1,070	3,983
Under Implementation	2,348	1,600
Under Tendering	2,104	1,200
Total	5,522	6,783

### 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



## NTPC Coal Mining Portfolio

- Coal blocks with estimated geological reserves of about 7.3 BT
- Ultimate capacity of 103 Million Metric Tonnes of coal per annum when all mines reach their peak capacity

## Pakri Barwadih

- Mine declared commercial w.e.f. 1 April 2019
- 9.42 MMT of coal produced in FY20 (FY19 : 6.81 MMT)
- Cumulative coal production of 19.14 MMT till FY20

## Dulanga

- Coal extraction started in March 2018
- 1.54 MMT of coal produced in FY20 (FY19 : 0.50 MMT)
- Cumulative coal production of 2.04 MMT till FY20

## Talaipalli

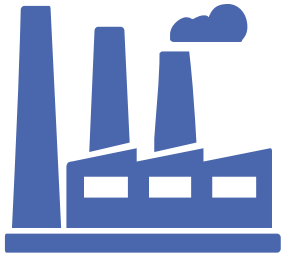
- Contract awarded for start of mining operation
- Coal extraction commenced in Nov'19
- 0.19 MMT of coal produced in FY20

## Other Highlights

- Cumulative expenditure of ₹ 6,722 Crore incurred till FY20
- Mining operations are expected to start in Kerandari & Chatti-Bariatu coal blocks in FY21

**Target to produce 15 MMT of coal in FY21 as against 11.15 MMT produced in FY20**



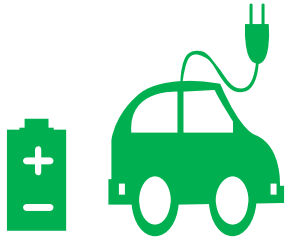


## Acquisition of Power Assets

- Acquired entire GOI stake in THDC and NEEPCO
- THDC and NEEPCO have installed capacity of 3294 MW and under construction capacity of 3114 MW
- Acquisition of Jhabua Power Plant (under NCLT) in progress

## E-Mobility enabler

- Setting up 250 charging stations across the cities and highways for creation of Charging Infrastructure Ecosystem, 90 chargers installed
- NTPC is offering complete e-bus solutions to STUs through its subsidiary NVVN
- Pilot project with complete value chain of Hydrogen being designed



## Waste to Energy Plants (WtE)

- JV with EDMC for setting up Integrated WtE project in East Delhi
- Plasma Gasification based WtE Pilot Plant for 50 TPD MSW jointly by NTPC and IOC is being pursued with SDMC
- Processing capacity of about 3800 tonnes per day tied up

## International Business

- Construction activities of a 1320 MW project in Bangladesh are under progress
- Ten countries finalized with ISA to implement 1500 MW solar projects
- Appointed as PMC by Govt. of Mali for 500 MW solar projects
- Actively looking at East Asia, Middle East and Africa for business opportunities





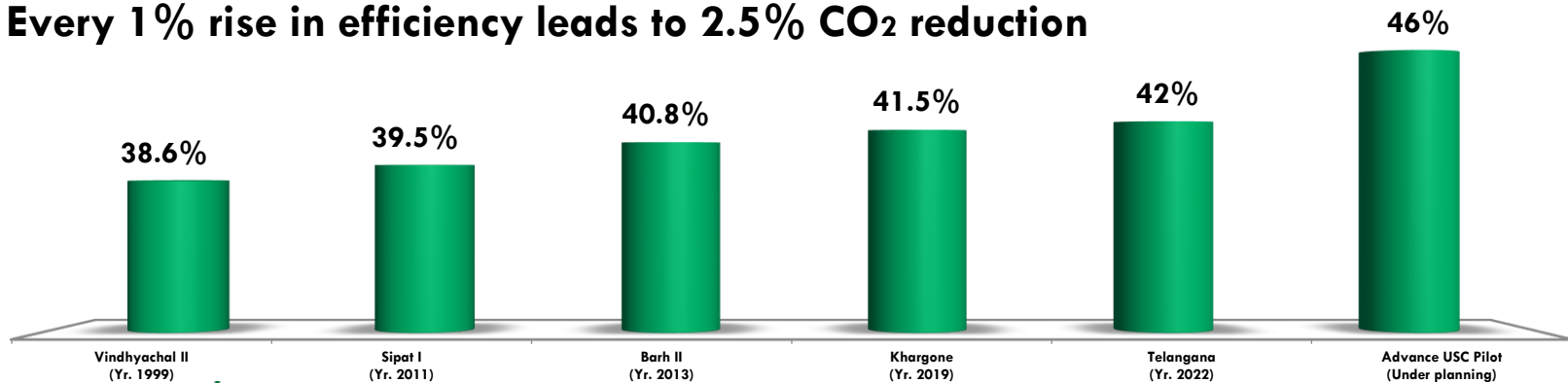


## Sustainability Initiatives

## Sustainability Strategy & Technologies Introduced/Under Development

- NTPC's Sustainability Strategy with clearly defined KPIs and targets under finalisation
- Cumulative CO<sub>2</sub> emissions of 49.61 million tonnes avoided by sustained efficiency improvements
- Initiative taken for flexibilization of existing fleet of thermal power plants through advance process control (APC) solutions keeping plant parameters within acceptable band at part load
- Higher Cycle of Concentration (COC >5) to conserve water
- Zero Liquid Discharge completed at various stations
- Developing Mega Eco park at Badarpur Ash Dyke Area bigger than New York Central park
- 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

## Every 1% rise in efficiency leads to 2.5% CO<sub>2</sub> reduction



## Firm Action Plan to comply with New Environment Norms

### SO<sub>x</sub> 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 ~59 GW capacity and are under tendering for ~5 GW capacity
- FGD systems are expected to be commissioned in entire operational and under construction capacity well within the timelines set by CEA
- Contracts amounting ₹ 28,060 crore have been awarded till now for FGD implementation

### De NO<sub>x</sub> Action Plan

- For low NO<sub>x</sub> combustion system, contracts have been awarded for 18 GW capacity
- Combustion modification implemented in 2.5 GW capacity and is under various stages for 44 GW capacity

## Blue Sky Initiatives of NTPC

### Farm to Fuel

- Air quality improvement due to avoidance of farm fires
- Projected reduction in carbon foot print by saving about 6.4 MMTPA of CO<sub>2</sub>

### Bio-Mass Co-firing

- Dadri has become first plant to commercialize the Biomass Co-firing
- More than 6500 tonnes of agro residue based bio-fuel co-fired till now

### Circular Economy

- Establishing integrated facility in Delhi where Bio-Waste will be used to produce Bio-CNG, C&D waste to construction material and combustible fraction will be used for energy recovery

### Waste to Energy

- Developing WtE plants supporting in improving people's health & welfare
- Being developed in association with Municipal Corporations



## R&D wing of NTPC – Technology Focus Areas

### Carbon Capture & Utilization

- Design, Engineering & Development of 10TPD CO<sub>2</sub> to Methanol Plant
- Development of Indigenous Catalyst & Reactor for Methanol Synthesis

### Green Hydrogen

- Design, Development of Sea Water Electrolyser
- Development of Photo-electro-chemical Reactor
- Waste to Hydrogen

### Water Technologies

- Desalination Technologies
- ✓ 120 TPD Solar Desalination Plant
- ✓ 120 TPD Flue gas desalination plant
- High Yield Water Technologies
- Non Thermal /Thermal Forward Osmosis

### Ash Technologies

- Geo Polymeric Paver blocks – all NTPC stations
- Geo Polymer Roads / Tetra Pods / Hume pipes



₹ 305 crore spent on CSR activities during FY20

## Girl Empowerment Mission (GEM) & Education

- One-month residential workshop for more than 1800 young girls under GEM wherein interventions were taken to make the girls self-reliant and confident in all walks of life. <https://www.youtube.com/watch?v=Y4z6vKFYeUg>
- Awarded prestigious FICCI “Jury Commendation Certificate” under category “Women Empowerment” for GEM.
- More than 450 schools have been benefitted due to NTPC’s various CSR initiatives at different locations.

## Other Key CSR Activities

- NTPC has adopted 18 Industrial Training Institutes (ITIs) and is setting up 8 new ones.
- 50 Nos. of sanitary napkin mini manufacturing units installed in Odisha .
- MoU with NSDC to develop skills of more than 30000 youth including 8000 youth from J&K.
- Supporting redevelopment of KEDARNATH town and its surrounding areas.
- NTPC’s CSR initiatives have touched the lives of around 18 lakh people in one or the other way, at remote locations.



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