



**NTPC Limited**

(A Government of India Enterprise)  
CORPORATE CENTRE

Ref. No.:01/ FA/ISD/Compliance/2023-24

Dated: 31 July 2023

Listing Department National Stock Exchange of India Limited 'Exchange Plaza', C-1, Block G, Bandra Kurla Complex, Bandra (E), Mumbai - 400 051. <b>Scrip Code - NTPC</b>	Corporate Relationship Department, BSE Limited, Rotunda Building, P J Towers, Dalal Street, Fort, Mumbai - 400 001. <b>Scrip Code - 532555</b>
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**Sub: Investor Presentation**

In terms of Regulation 30 of SEBI (LODR) Regulations, 2015, we hereby submit the Investor Presentation made at the 19<sup>th</sup> Annual Analysts and Investors Meet of NTPC Limited, held on 31 July 2023.

Yours faithfully,

(Aditya Dar)  
Executive Director (Finance)



# SPEARHEADING ENERGY TRANSITION POWERING NEW INDIA



INVESTOR PRESENTATION

# NTPC - Vision, Mission and Core Values



## Vision

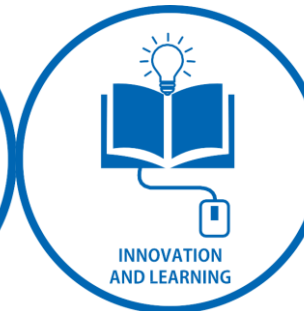
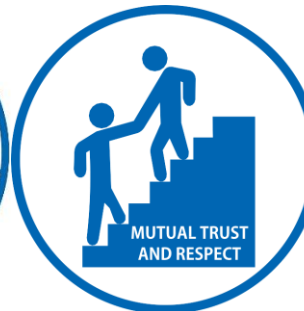
To be the World's  
Leading Power Company,  
Energizing India's Growth



## 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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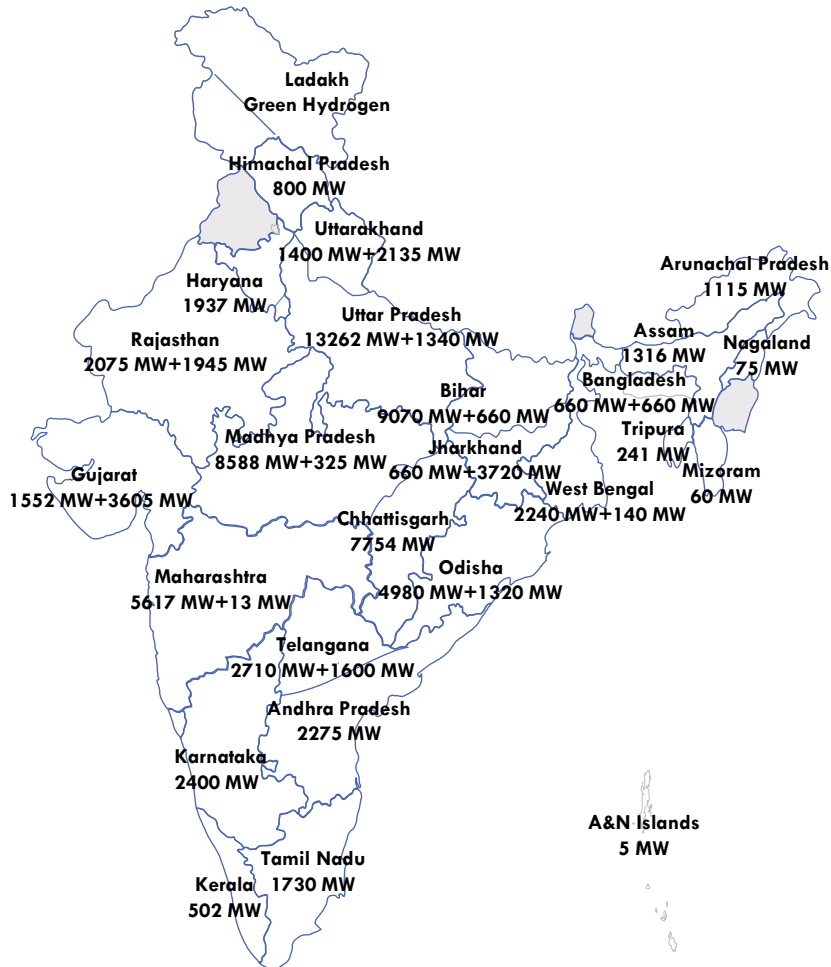
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# Unparalleled Presence across the Nation

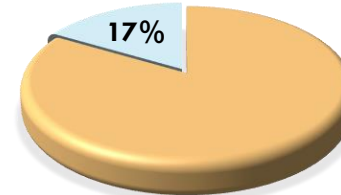


## Present + Under Construction Capacity



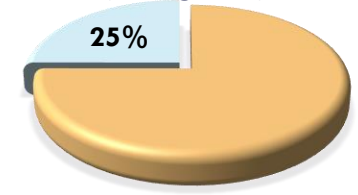
## Maintaining Energy Leadership

Share of Installed Capacity  
(as on 31 March, 2023)



Rest of India : 3,44,465 MW  
NTPC (Group) : 71,594 MW

Share of Electricity Generated  
(during FY23)



Rest of India : 1225 BUs  
NTPC (Group) : 399 BUs

## Installed Capacity as at 30.06.2023 : 73,024 MW

NTPC Owned	Stations	in MW	Mix %
Coal	26	51,810	70.95%
Gas/Liquid Fuel	7	4,017	5.50%
Hydro	1	800	1.10%
Renewables	16	411	0.56%
<b>Sub-total</b>	<b>50</b>	<b>57,038</b>	<b>78.11%</b>
<b>Owned by JVs and Subs</b>			
Coal	9	7,664	10.50%
Gas/Liquid Fuel	4	2,494	3.41%
Hydro	8	2,925	4.01%
Renewables	18	2,903	3.97%
<b>Sub-total</b>	<b>39</b>	<b>15,986</b>	<b>21.89%</b>
<b>Total</b>	<b>89</b>	<b>73,024</b>	<b>100.00%</b>

Map not to scale



# Outline of the Presentation



1 Company Overview

2 Spearheading Energy Transition

3 Sustainability Initiatives

4 Key Growth Pointers

5 Operational Excellence

6 Robust Financials



# NTPC - Powering New India



## Largest Power Generator in India

Installed capacity of 73 GW  
Generating 25% with 17% Installed Capacity

## Operational Excellence

Consistent lead over All India in PLF  
High Availability coupled with Efficiency

## 130 GW+ Capacity by 2032

4 GW added in FY23, 17 GW under construction & 18 GW under planning



## Setting New Records

Highest Profit & Generation in FY23  
Highest Realization of ₹1.54 Lakh crore

## Leading Energy Transition

Plan to have 60 GW RE Capacity by 2032  
Visible RE pipeline of 20 GW

## Leapfrogging on ESG Front

ESG Strategy - Clearly defined KPIs & targets  
Developing Net Zero Roadmap with Niti Aayog



# NTPC - Not only Growing Bigger but also Growing Faster



## Conventional Capacity Addition

10 GW in next 3 years  
Estimated Capitalization - ₹80,000 crore

## RE Capacity Addition

16 GW in next 3 years  
Estimated Capitalization - ₹85,000-90,000 crore

## Thermal Capacity Ordering

7.2 GW by next fiscal  
Ensuring Nation's Energy Security



## Coal Mining

23 MMT in FY23, growth of 65%  
Target to cross 34 MMT in FY24

## FGD Commissioning

60 GW in next 3 years  
Estimated Capitalization - ₹30,000 crore

## Commercial & Industrial (C&I) Market

Definite Bilateral tie-ups for 10 GW RE capacity  
Discussion on with many other C&I consumers





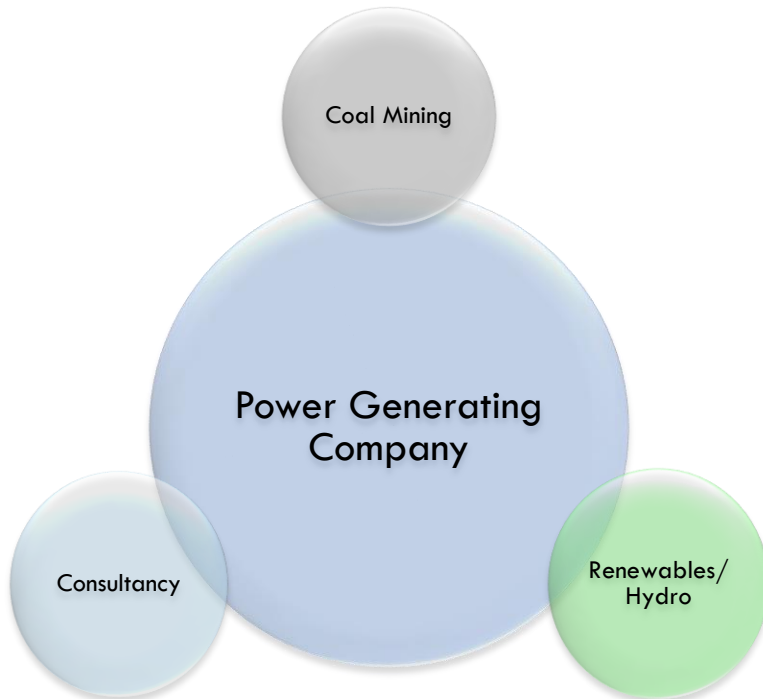


## Spearheading Energy Transition

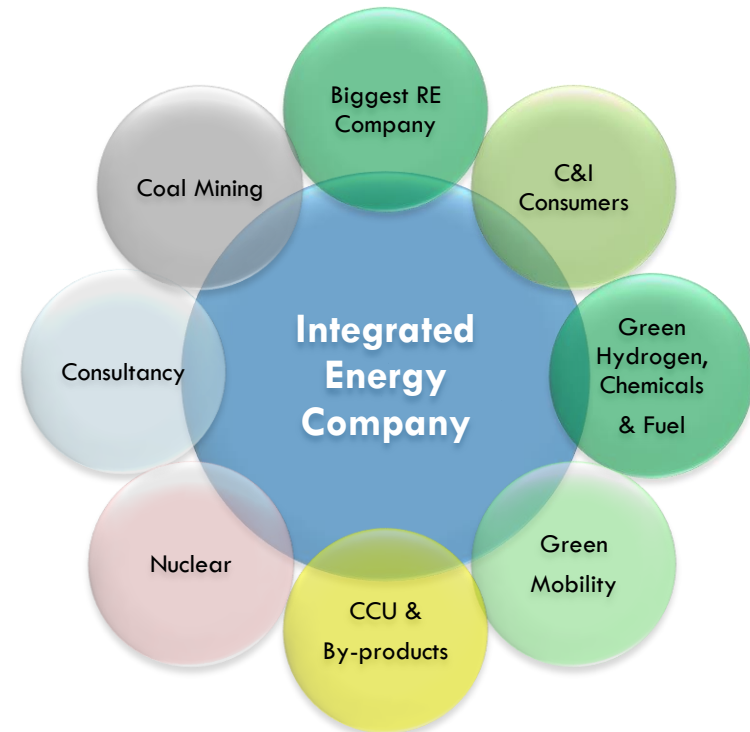




2023















2032



**Supplier of Clean, Green and Affordable Power in India and Abroad**





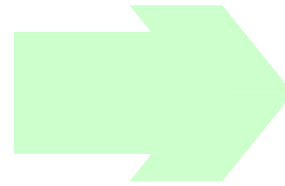
-  Reliable and affordable
-  Cleaner & Greener
-  Efficient
-  Renewables
-  Green Hydrogen
-  Storage
-  Coal Mining
-  Mobility
-  Distribution
-  Nuclear
-  Green Chemicals
-  Global Presence



# Leading India's push towards Renewable Energy



<b>NTPC RE@PRESENT</b>	<b>GW</b>
Installed	3.3
Under Construction	5.9
Under Pipeline (Bids won/ Bilateral tie-ups)	10.8
<b>Total</b>	<b>20.0</b>



**60 GW  
Renewable  
Capacity by  
2032**

## Key Highlights

- Highest RE Capacity Addition of 1.35 GW in FY23
- Doubled RE Generation to 4.9 BUs in FY23
- Largest floating solar portfolio of 262 MW in India
- Commissioned our biggest solar project (Shimbhoo Ka Burj) of 400 MW in a single location
- Implementing and planning 36 GW RE capacity in different states through UMREPP scheme
- Pumped Storage Projects of 39 GW indicated to NTPC Group for development



## Green Hydrogen

- First Green hydrogen blending with Piped Natural Gas project commissioned in Gujarat
- First Green Hydrogen Mobility project under implementation at Leh and another at Delhi
- MoU with Indian Army for setting up Green Hydrogen Projects in its establishments

## Carbon Capture & Utilization (CCU)

- Setting up 10 TPD Flue Gas CO<sub>2</sub> to Methanol demonstration plant at NTPC Vindhyachal
- Development of Indigenous Catalyst for hydrogenation of CO<sub>2</sub> to Methanol by NETRA
- Setting up 10 TPD Flue gas CO<sub>2</sub> to Ethanol demonstration plant at NTPC Lara

## Green Chemicals/Fuel

- MOU with GACL and NFL for synthesizing Green Ammonia & Green Methanol
- MOU with Tecnimont to explore commercial scale green methanol production at NTPC
- MOU with Chempolis for exploring the setting up of bamboo based biorefinery

## Hydrogen Hub

- Conceptualised setting up of a Green Hydrogen Hub near Visakhapatnam
- Involves Manufacturing facility for Hydrogen related equipment and production & export of Green Hydrogen
- MOU with govt. of AP signed, project DPR and execution strategy under finalisation





## Sustainability Initiatives



# Key Sustainability initiatives



## Sustainability Strategy

- Sustainability Strategy “Brighter Plan” with clearly defined KPIs and targets is in place
- Developing Net Zero Roadmap in collaboration with Niti Aayog
- Regular interaction with MSCI and Sustainalytics for improvement of ESG rating

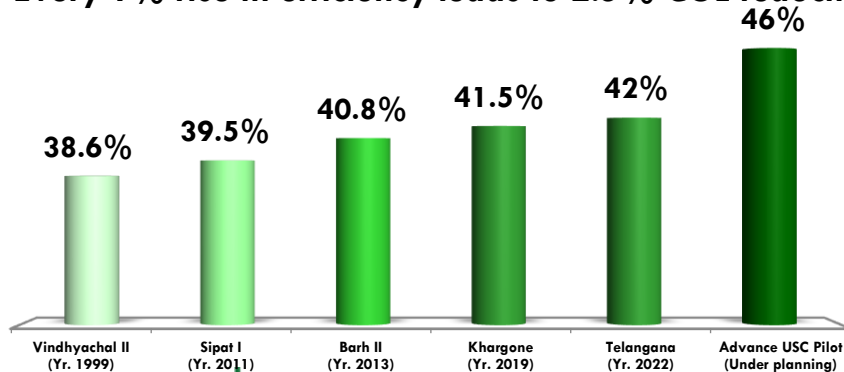
## Tree Plantation

- Carbon sink - 38 million trees have been planted in and around NTPC projects
- Developing Mega Eco park in National Capital which is bigger than New York Central park

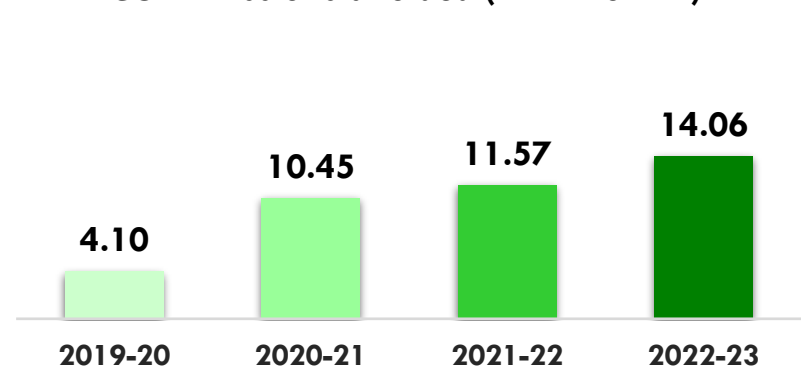
## Water Conservation

- Specific water consumption reduced to 2.69 litre/kWh in FY23, reduction for 4<sup>th</sup> consecutive year
- First Air Cooled Condenser in North Karanpura resulted in saving of around 75% water
- Zero Liquid Discharge implemented at 19 NTPC stations, balance shall be compliant by end of FY24

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



CO<sub>2</sub> Emissions avoided (in Million Tn)





## Leading adoption of SO<sub>x</sub> and NO<sub>x</sub> Emission Control Norms

- Flue Gas Desulphurisation System (FGD) have been commissioned in 3 GW capacity
  - FGD systems are expected to be commissioned in entire operational and under construction capacity in next 3 years
  - Combustion modification for NO<sub>x</sub> control implemented in 19 GW capacity
  - 30% NO<sub>x</sub> reduction obtained after combustion modification
- 

## Blue Sky Initiatives of NTPC

### Desalination of Sea Water

- Producing quality water from sea utilizing the heat from flue gas
- Packaged drinking water bottling facility from desalinated water commissioned at Simhadri

### Bio-Mass Co-firing

- Policy advocacy by NTPC has resulted in mandate to fire bio-mass pellets in power plants
- Awarded 4.5 MMT of Biomass pellets and developing biomass pellet plants

### Waste to Charcoal

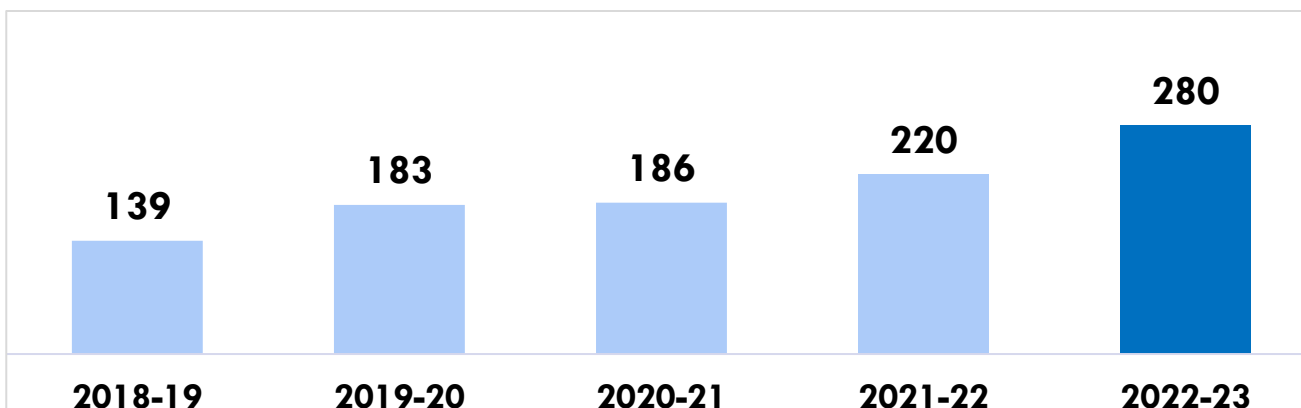
- Successful demonstration of 600 TPD plant at Varanasi
- Developing plants in Noida, Bhopal and Hubli-Dharwad totaling 1500 TPD capacity



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



## R&D Expenditure (in ₹ Crore)



# NTPC CSR Initiatives - Touching Lives of People



**₹353 crore spent on CSR activities during FY23 at Group level**

## Key CSR Activities



Focus areas of NTPC's CSR activities are Health, Sanitation, Safe Drinking Water and Education

NTPC hospitals provide quality care to more than 3,00,000 patients from the community every year

Supported GOI's Swachh Bharat Abhiyan by making available 24,000 toilets in 16,000 schools

Schools in NTPC Townships provide subsidized education to rural community children

GEM program has benefited 7,400 girls with the objective to make them self-reliant and confident

MoU with NSDC to develop more than 30,000 youth including 8,000 youth from Ladakh and J&K

Developing Archery sport from grassroot level

CSR initiatives have touched lives of 16 lakh people in one or the other way, at remote locations





## Key Growth Pointers

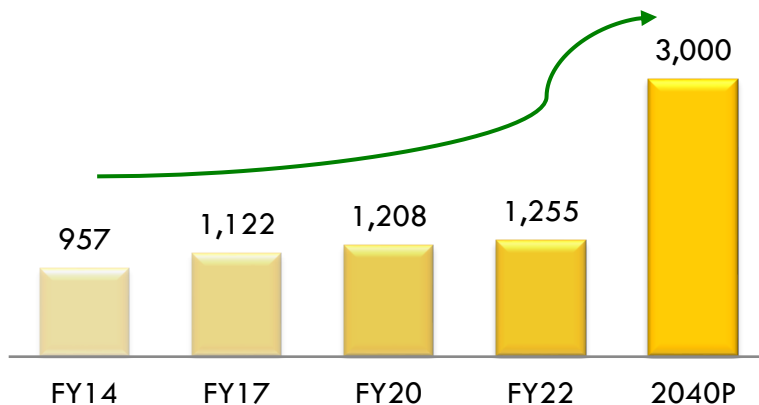


# Strong Growth Drivers for Power Sector in India

## 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

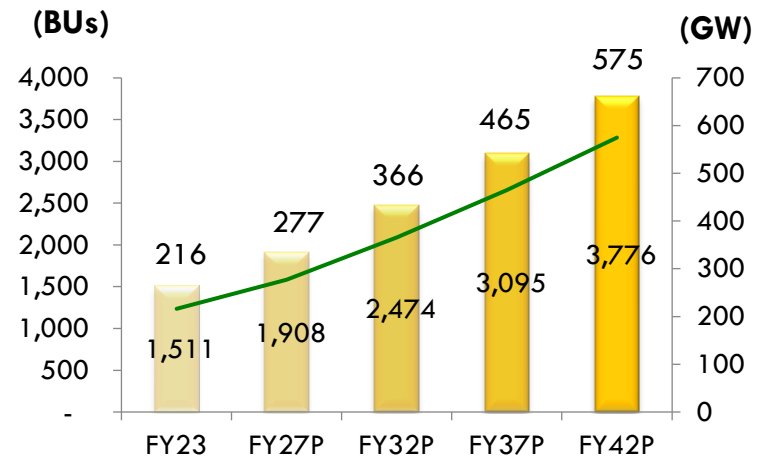
### Increasing Per Capita Consumption (kWh/Year)



## 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



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



# Power Sector Transformation ...



	FY23		FY32
Installed Capacity	416 GW	➔	900 GW
Renewable Capacity (Incl. Large Hydro)	172 GW	➔	596 GW
Generation (in BUs)	1624 BUs	➔	2,666 BUs
Peak Load Demand	216 GW	➔	366 GW
Per Capita Consumption	1,255 kWh	➔	2,100 kWh
Coal Requirement	800 MT	➔	1026 MT

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

Source: NITI Aayog, MOP, CEA, NTPC





# Huge Capacity Addition Lined up



Ensuring  
Availability

Land

Water

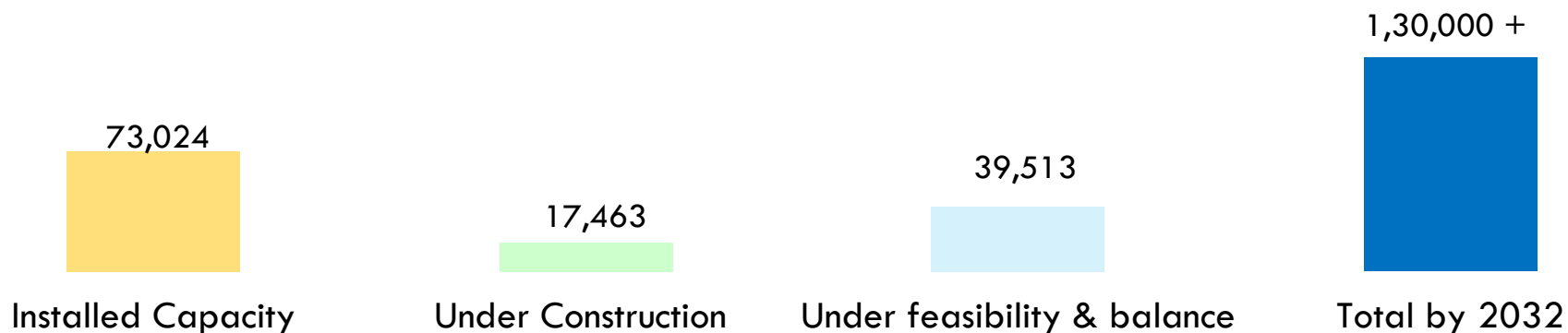
Fuel

EC/FC

PPAs

Investment  
Approval

## Current Capacity pipeline (in MW)



## Snapshot of Projects Under Construction

Fuel Mix	In MW
Coal	9,300
Hydro	2,255
RE	5,908
Total	17,463

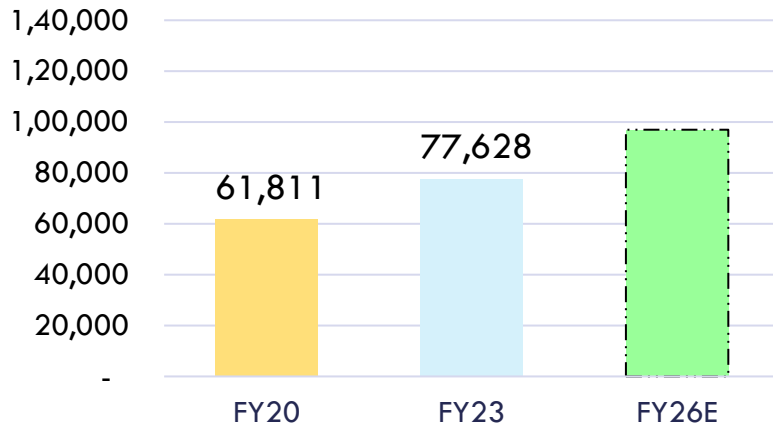
Coal Technology	In MW
Ultra Super Critical	6,640
Super Critical	2,640
Sub Critical	20
Total	9,300

Group Mix	In MW
NTPC	6,569
Domestic JVs	10,234
International JV	660
Total	17,463

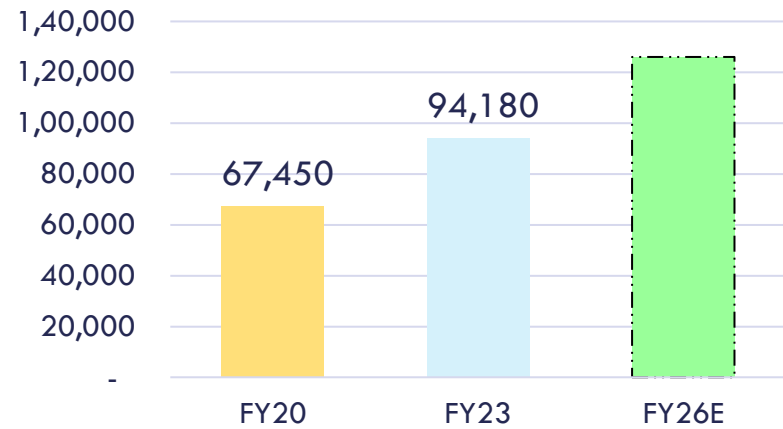


## Standalone Regulated Equity

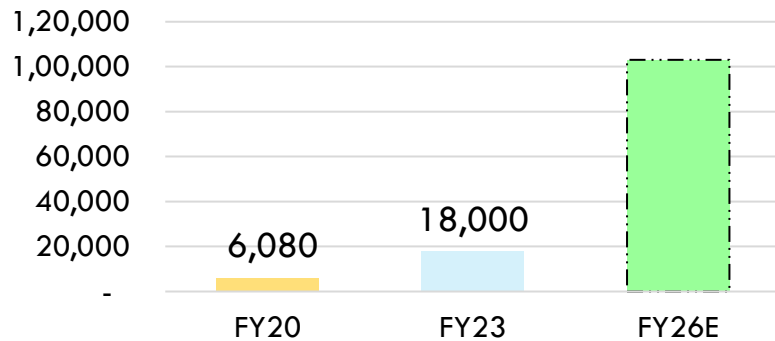
Amount in ₹ Crore



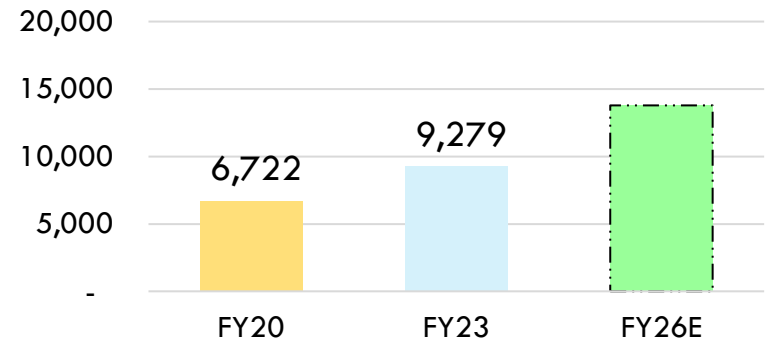
## Consolidated Regulated Equity



## Cumulative RE Capitalisation



## Cumulative Investment in Coal Mining



## 8

Coal Blocks

## 5 BT

Geological Reserves

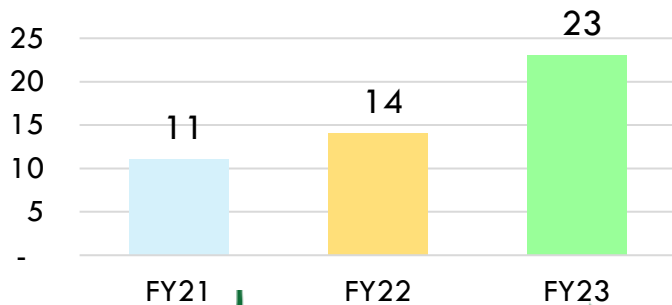
## 77 MTPA

Mining Capacity

Operational Coal Blocks	Capacity (MTPA)	Production FY23 (in MT)
Pakri-Barwadih	18.0	13.2
Dulanga	7.0	7.0
Talaipalli	18.0	2.4
Chatti-Bariatu	7.0	0.6

Other Coal Blocks	Capacity (MTPA)	Status
Kerandari	6.0	Mining started
Badam	3.0	Under Development
Banhardih (PVUNL)	12.0	
Amelia (THDC)	5.6	Mining started

### Remarkable growth in Coal Production



- Achieved highest ever quarterly production of 8.59 MT in Q1FY24 registering growth of 101% over Q1FY23 production of 4.27 MT**
- Cumulative Coal Production has crossed 78 MT since inception**

## Tapping C&I Consumer Market

- JVs with IOCL & DVC
- MOUs/ Bilateral Agreements have been entered into with Greenko, GACL, REMCL, HPCL etc. for supply of Renewable Energy power on Round the Clock basis (RE- RTC) for their requirements
- Discussions are on with many other entities

## Foray into Nuclear Power Sector

- Signed a Supplementary JV Agreement with Nuclear Power Corporation of India for development of Nuclear Power Projects.
- Projects totalling 4.2 GW under consideration for implementation.
- Exploring Small Modular Reactor technology in collaboration with BARC

## Global Footsteps

- First overseas unit commissioned in Bangladesh
- PMC for implementation of 6.5 GW projects in 12 countries of Africa & Latin America
- PMC for setting up solar demonstration projects in 11 ISA member countries
- Developing a 50 MW (extendable to 135 MW) solar power project in Sri Lanka

## Collaboration with State Governments

- UP - 2x800 MW supercritical Thermal Power Plants at Obra and Anpara with UPRVUNL
- AP - Development of 20 GW renewable energy capacity in the state
- Tripura - Development of RE Projects
- Meghalaya - PMS for Discom, setting up of Pump Storage Power Plants (PSPs), and Floating Solar projects in the state





Operational Excellence



# Proven Operational Excellence



## Maintaining Leadership

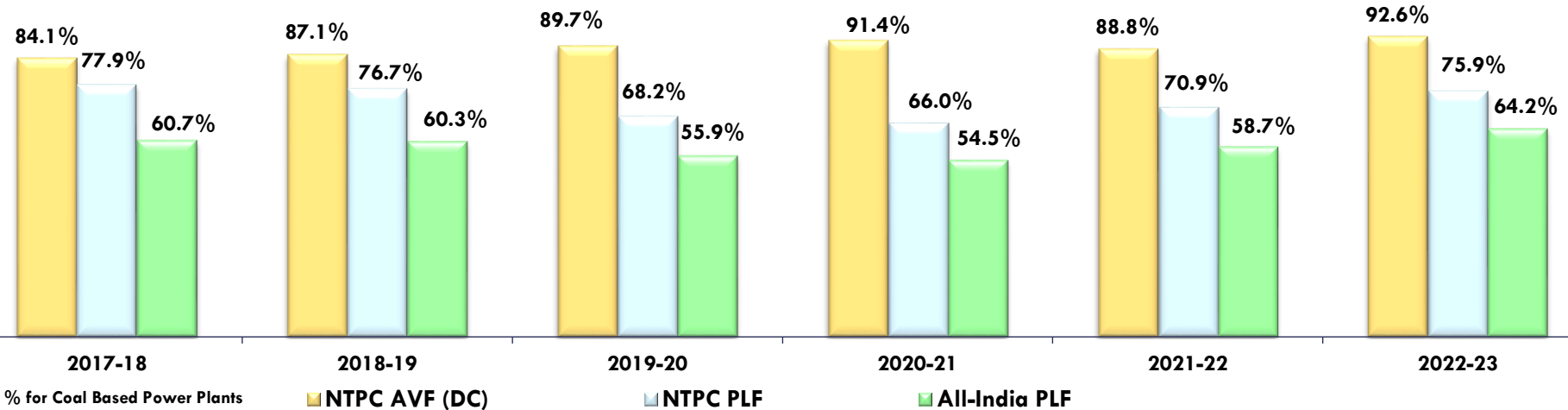
- Consistent spread over All India PLF
- NTPC Coal Stations achieved PLF of 75.9% against All India PLF of 64.2% in FY23
- Highest ever Group generation of 399 BUs in FY23, growth of 11%

## In-depth Monitoring

- Sound maintenance practices & real-time monitoring ensure high availability and efficient operations
- Periodic structured technical audits 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





# Long-term Fuel Security - Assured Coal Supply



## Single ACQ

- Sustained policy advocacy resulted in aggregation of ACQ (Annual Contracted Quantity) on CIL subsidiary level basis leading to :
  - ✓ Optimum utilization of coal and reduction in ECR
  - ✓ Avoidance of loss of fixed charges due to coal shortage
  - ✓ More efficient outage planning/stock management at power plants

## Long-term FSAs/Other Sources

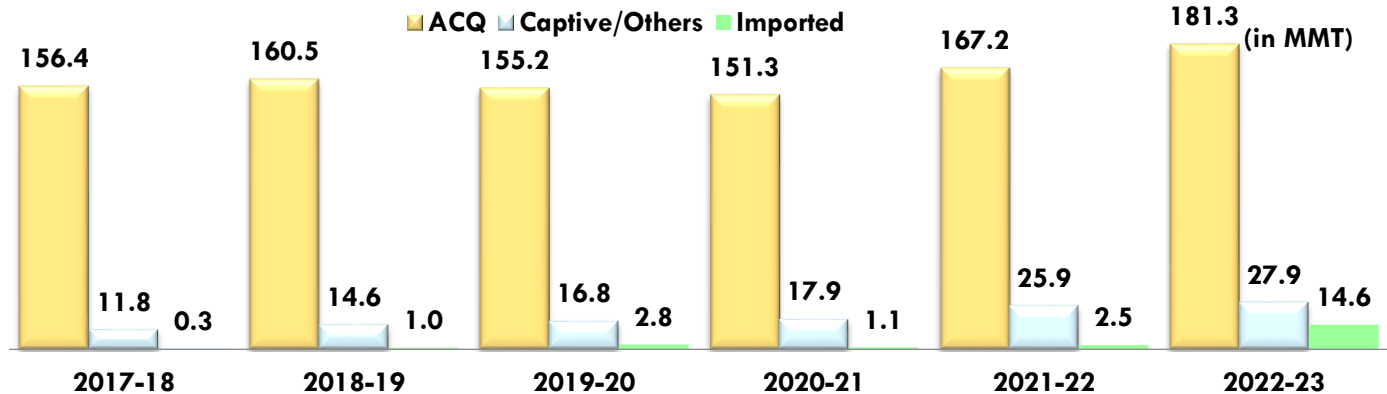
- Long term Fuel Supply Agreements (FSAs) have been signed with CIL and SCCL for supply of coal
- Coal is also available through bridge linkages, captive mines, e-auction etc.

## Ensuring Logistics/Coal Import

- 60% of our coal-based capacity is linked by MGR/belt conveyor system to coal mines
- To mitigate the shortage of coal, 15 MMT of coal imported in FY23

## Assured Coal Supply

94% ACQ materialization during FY23



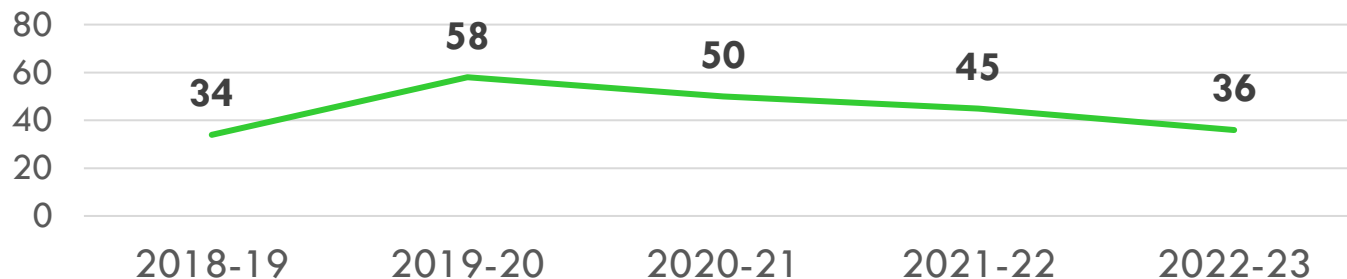
# Sustaining Competitive Tariff & Realization



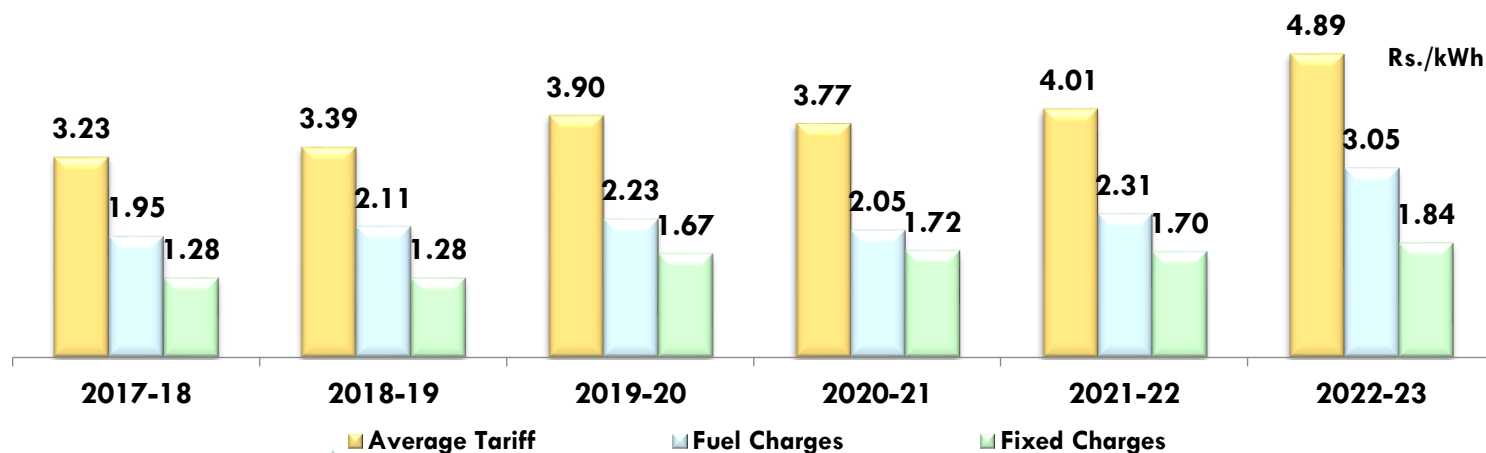
## Payment Security

- Regulatory mechanism assures Returns balancing risks and rewards
- TPA agreements in addition to payment security through LC mechanism
- Highest ever realization of more than ₹1.54 Lakh crore during FY23

## Trade Receivables (in days) back to pre-covid levels



## Sustaining Competitive Tariff



## 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	2022-23	2021-22	2020-21
Revenue (₹ in crore)	11.06	7.90	6.16
EBITDA (₹ in crore)	3.11	2.51	1.97
Value Added (₹ in crore)	3.91	3.07	2.56
Generation (in MUs)	22.71	19.66	16.13
MAN-MW Ratio	0.27	0.28	0.32

- Proud of Building a High-Trust, High-Performance Culture
- Bestowed with the prestigious ATD BEST Award
- Recognized as one of the “Most Preferred Workplaces of 2023-24”





Robust Financials



# Growing Revenue with Robust Profit



Amount in ₹ Crore

Particulars (Standalone)	FY23	FY22	Chg. (in %)	Q1FY24	Q1FY23	Chg. (in %)
<b>Revenue from Operations</b>	<b>163770</b>	<b>121175</b>	<b>35%</b>	<b>39122</b>	<b>40026</b>	<b>-2%</b>
Fuel & Energy Purchased	100508	70020	44%	23863	26605	-10%
Gross Profit	63262	51154	24%	15259	13421	14%
Other Income	3955	3575	11%	558	699	-20%
Operating Expenses	20034	15129	32%	3890	3676	6%
<b>EBITDA</b>	<b>47183</b>	<b>39600</b>	<b>19%</b>	<b>11928</b>	<b>10444</b>	<b>14%</b>
Depreciation	13137	12058	9%	3260	3144	4%
Finance Cost	9979	8217	21%	2515	2173	16%
PBT	24067	19325	25%	6153	5127	20%
Tax	6279	4458	41%	1654	1380	20%
Movement in Reg. Def. Bal.	-591	1414	-142%	-432	-30	1344%
<b>Profit for the period</b>	<b>17197</b>	<b>16282</b>	<b>6%</b>	<b>4066</b>	<b>3717</b>	<b>9%</b>
<b>EPS (in ₹)</b>	<b>17.73</b>	<b>16.79</b>	<b>6%</b>	<b>4.19</b>	<b>3.83</b>	<b>9%</b>



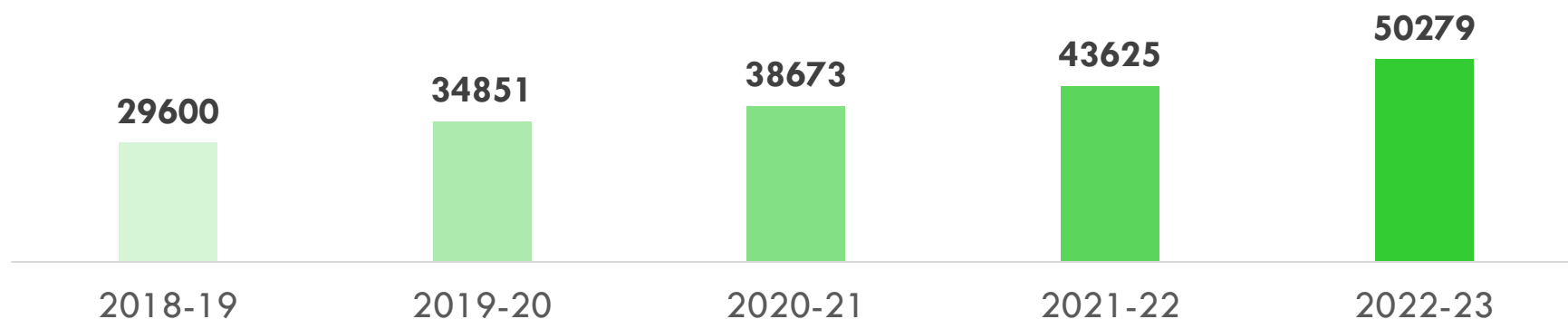
# Broadening Group Financials



Amount in ₹ Crore

Particulars (Group)	31.03.2023	31.03.2022	Change	Change (in %)
Dividend from JVs/Subs.	2,336	1,736	600	35%
Group Debt	2,19,805	2,09,555	10,250	5%
Group Net Worth	1,50,954	1,39,134	11,820	8%
Group Regulated Equity	94,180	91,054	3,126	3%

**Group EBITDA crosses Rs. 50,000 crore**



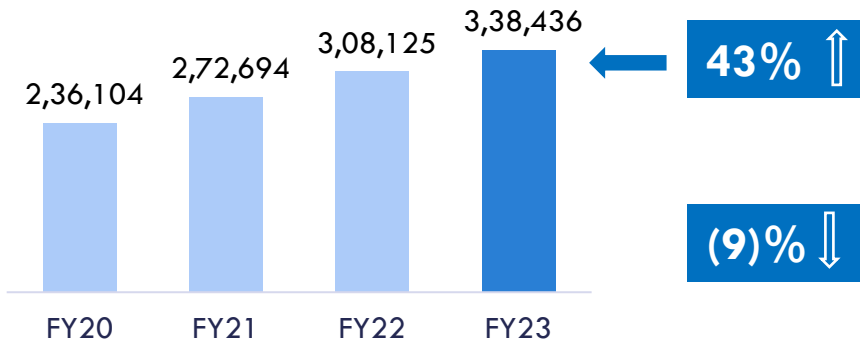


# Walking the Talk - ROE Expansion with Balanced Payouts

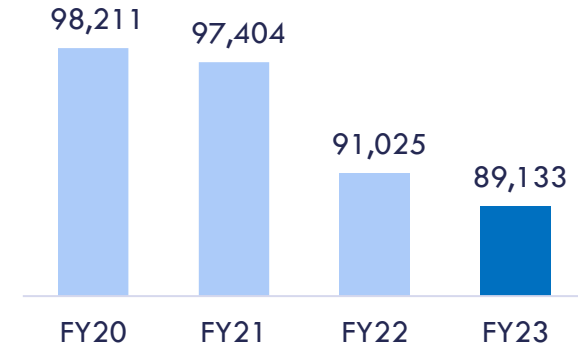


## Growing Gross Fixed Assets

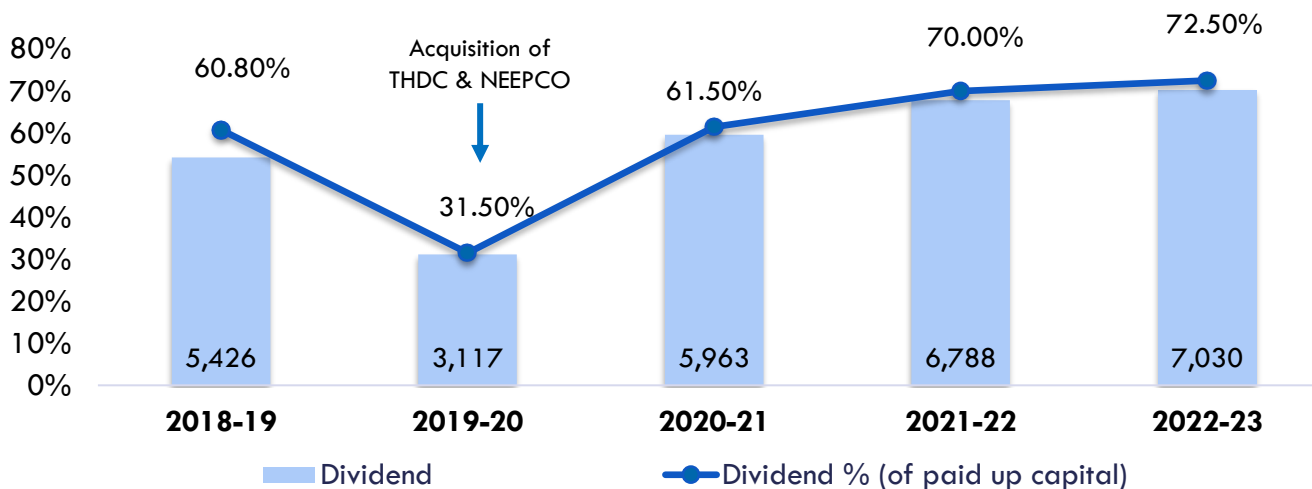
Amount in ₹ Crore  
(on Consolidated basis)



## Capitalising CWIP



## Balancing payouts with Growth



- Committed to deliver sustainable value to shareholders
- Balancing payout with deployment for growth plans
- Highest ever dividend on cash basis paid in FY23



# NTPC - Leading the Power Sector



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