

ESG at NTPC

Catalysing Transition towards
Integrated and Sustainable Business



NTPC Overview

1

Performance Highlights



Group installed capacity of 91,080 MW in August, FY' 26-27; generation of 432+ BUs in FY' 25-26 & 160 BUs* IN FY' 26-27.



Generating ~23% of India's power with ~17% Installed Capacity*



Total income crossed ₹ 1,89,798.56 Cr in FY' 25-26 & Q1 51,141.51 Cr revenue for FY' 26-27, 6.94% YOY increase



Added 5,488 MW of RE commercial capacity in FY' 25-26 & 1,152 MW capacity addition of RE in FY' 26-27*



~19% of generation fleet is carbon free*, target to achieve 60 GW of RE by 2032



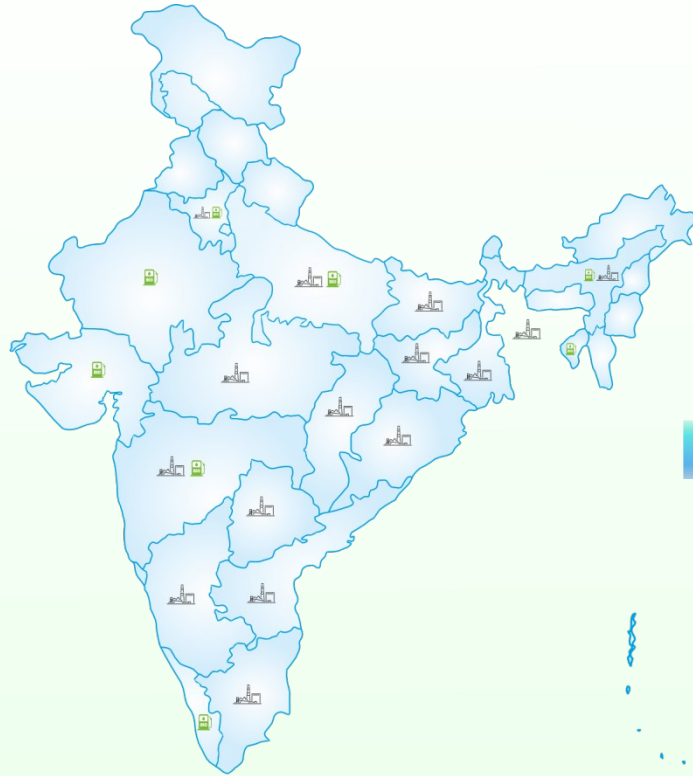
Implementing "The Brighter Plan 2032" to improve ESG performance



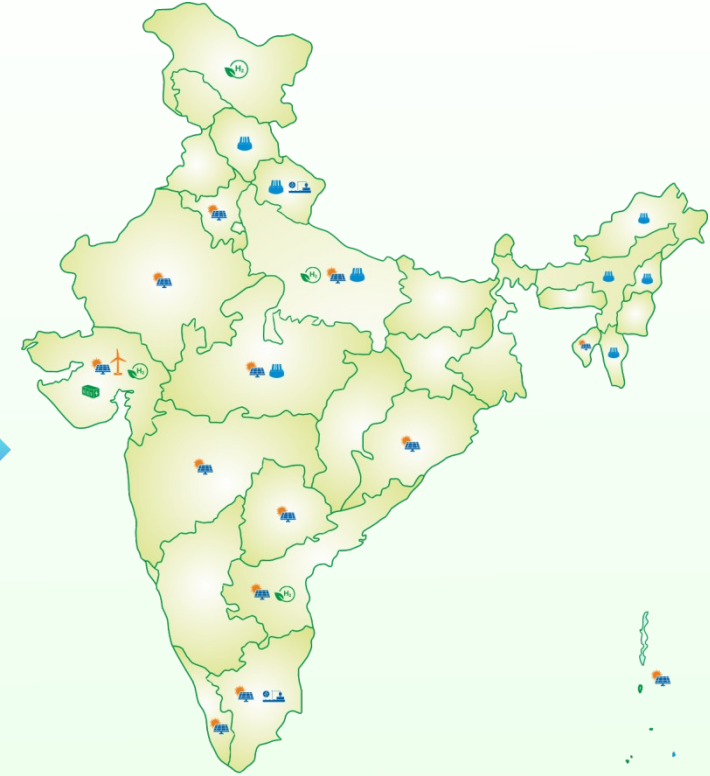
1st Energy company across globe to declare Energy Compacts at UN



Co-founded "Global Alliance for Sustainable Energy" with 16 global energy players



Leading the Just Energy Transition



Coal



Gas



Hydro (Incl Small)



Solar

Commissioned

67.36 GW

6.5 GW

3.8 GW

11.5 GW

Under Construction

17.3 GW

-

3.58 GW

9.89 GW

Under Tendering

3 GW

-

-

7.35 GW



Wind



Green H₂



BESS



PSP

0.95 GW

131 kg/day

-

1 GW

6.32 GW

420 kg/day

6.62 GWh

1.86 GW

-

32.28 GWh

17.01 GW



Publishing Sustainability Reports Since FY 2012, now aligned with GRI Standards 2021



7th Integrated Annual Report published in FY 2025-26 as per International Integrated Framework & GRI. We will release a Sustainability Report for FY 2025-26 soon.



BRSR Comprehensive and Core Reporting aligned with SEBI requirements following NGRBC principles since FY 2022-23



Expanded the boundary of reporting with inclusion of all JVs & Subsidiaries since FY'20



Proactively Instituting measurement and monitoring systems for evolving KPIs around ESG



Timely responding to S&P CSA, CDP, Framework and MSCI, Sustainalytics queries to improve NTPC ESG score

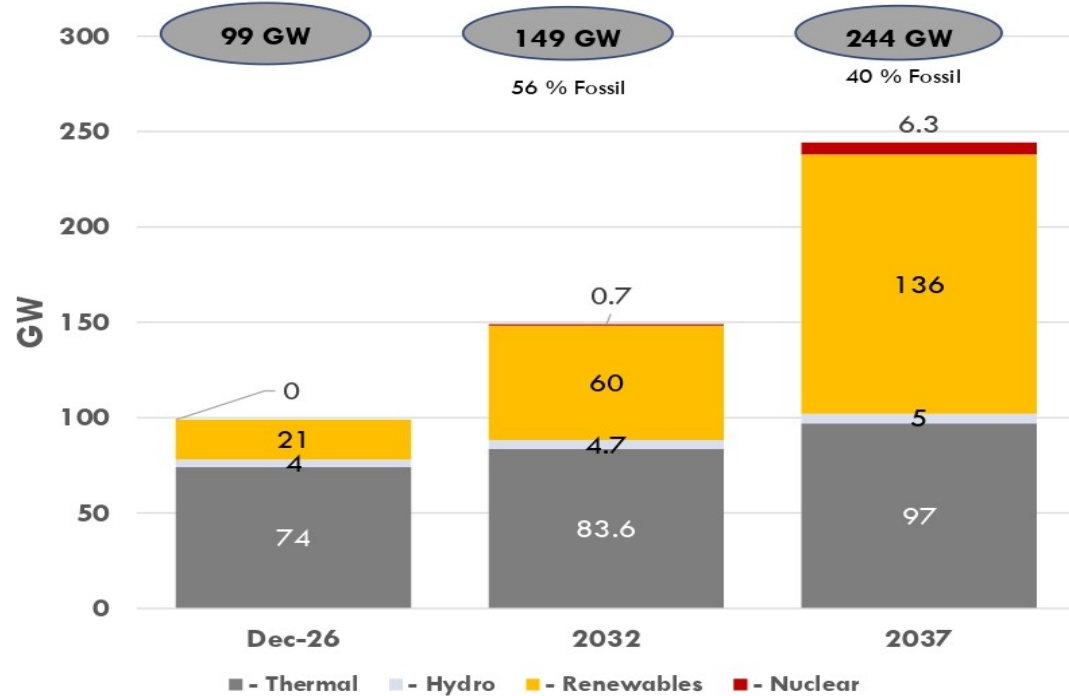


Regular follow-ups and discussions with leading ESG Analysts and rating agencies



ESG Profile for specific ESG disclosure as per prominent platforms such as CDP, S&P CSA etc.

Portfolio Projections (GW): Corporate Plan 2037



Particulars (GW)	Dec 2026	2032	2037
Thermal	74	83.6	97
Hydro	4	4.7	5
Renewables	21	60	136
Nuclear	0.0	0.7	6.3
Total	99	149	244
PSP	1	1	6.2
BESS (GWh)	2	22	52

Assumptions:

- RE Capacity Increases by 8 GW/year till 2032 and 14.5-16 GW/year from 2032-2037

NP: Thermal Plants include 6.5 GW of Gas based

Target Setting – Brighter Plan





Environment

- ESG Policy 2024
- Waste Management Policy 2022
- Water Policy 2022
- Rainwater Harvesting Policy 2018
- Environment Policy
- Integrated Plastic Management Policy 2019
- E-Waste Policy 2014
- Biodiversity Policy 2018
- Ash Policy 2015



Social

- Human Rights Policy 2019
- Sustainable Supply Chain Policy
- Service Rules 2019
- Safety Policy 2022
- Recruitment Policy 2020
- R&R Policy 2017
- Promotion policy workmen 2014
- Promotion Policy Supervisors 2014
- Promotion policy executives 2021
- Policy on HIV-AIDS at Workplace 2019
- Placement and transfer policy 2021
- Job Rotation Policy 2019
- ICD policy 2009
- Equal Opportunity Policy 2019
- Career Development and succession planning policy 2019
- CSR policy



Governance

- Business Continuity Policy
- Cyber Security Policy
- Whistle Blower Policy
- Training Policy for Directors
- Related Party Transaction Policy 2024
- ABAC Policy 2023
- Fraud Prevention Policy 2007
- Document Preservation Policy
- Complaint Handling Policy
- Code of Conduct for Board Members and Senior Management Personnel
- CDA rules 2023
- Policy for Debarment from Business Dealings



NTPC Energy Compacts

- NTPC has become 1st energy company and among few organisations across globe to declare its Energy Compact goals as part of UN High-level Dialogue on Energy (HLDE).
- NTPC energy commitments have been made public on UN's website.
- Major targets are:
 1. To achieve 60 GW of cumulative capacity of renewables by 2032.
 2. To reduce group net energy intensity by 10 % vs. 2012 levels by 2032.



Global Alliance for Sustainable Energy

- 17 Global energy players including Enel, Iberdrola
- To foster and promote sustainability along the entire renewable energy value chain
- Create metrics / KPIs / standards for design, business models, and end of life solutions
- Disseminate and activate funding/collaboration frameworks
- Policy advocacy
- Launch tailored initiatives and studies around Water usage, Human rights, Net Zero



NTPC Net Zero Plan

- Development of Net Zero GHG emissions Roadmap for NTPC in alignment to Gol's 'Panchamrit' goals
- Emissions and energy (portfolio mix) modelling including development of scenarios for 2030, 2037, 2047 and 2070
- Assistance in establishment of Carbon Management Unit (CMU) in NTPC with the aim of integrating all GHG reduction initiatives under one umbrella

Awards and Recognition



CSR India Award 2025

Bongaigaon was honoured with the 11th CSR India Award 2025 in the category of Healthcare Promotion.



International Safety Award 2025

Lara, Kayamkulam and Vindhyachal stations were honoured with the International Safety Award 2025 by British Safety Council.



World Water Awards 2025–2026

Mouda won the Best Water Management Project – Power Supply Sector award at the World Water Awards 2025–26, presented by the Hon'ble Minister of State for Jal Shakti on 23 March 2026.



Greentech CSR Award

Vindhyachal received the 11th Greentech CSR India Award 2025 in the category of “Promotion in Education.”



NIPM HR Excellence Award 2025

Sipat was conferred with "Gold Award" for "Best IR Strategy" at NIPM HR Excellence Award 2025 in the 41st NIPM National Conference, NATCON 2025, held on 30th October 2025 at New Delhi.



Environment Excellence Award-2025

Auraiya emerged as Winner under ‘IPP500-1000MW’ category at a ceremony held in New Delhi on 12th June.

Awards and Recognition



Most Preferred Workplace 2025-26

NTPC was recognized as a “Most Preferred Workplace 2025-26” in the 5th edition of the “Most Preferred Workplace” by Team Marksmen in Mumbai on 27th June.



ET Government PSU Award 2025

NTPC was conferred with the ET Government PSU Leadership & Excellence Awards 2025 under the category “Innovation in Big Data and Analytics” by The Economic Times on 19th June in New Delhi.



BW People L&D Excellence Awards 2026

NTPC received the Business World People L&D Excellence Award 2026 under the Innovative Learning technique-Organisational’ category.



DV Kapur Foundation Energy Innovation Awards

NTPC NETRA was honoured with the inaugural D.V. Kapur Foundation Energy Innovation Award on 12 December 2025 for its innovations in Green Use of Coal Technologies.



Governance Now 10th PSU IT Awards 2025

At the Governance Now 10th PSU IT Awards 2025, NTPC received the Data Centers Excellence Award for its Face Recognition-based Access Control System at the Noida Data Centre and the Best IT Implementation Project Award for the Centralisation of its Active Directory System.



Most Innovative Audit Practice Award 2025

The Internal Audit Department of NTPC was honored with the ‘Most Innovative Audit Practice Award 2025’ by UBS Forums, Mumbai for their outstanding contributions to audit innovation, automation, and regulatory compliance.

368th

Largest company in Forbes Global 2000 ranking - 2025-26

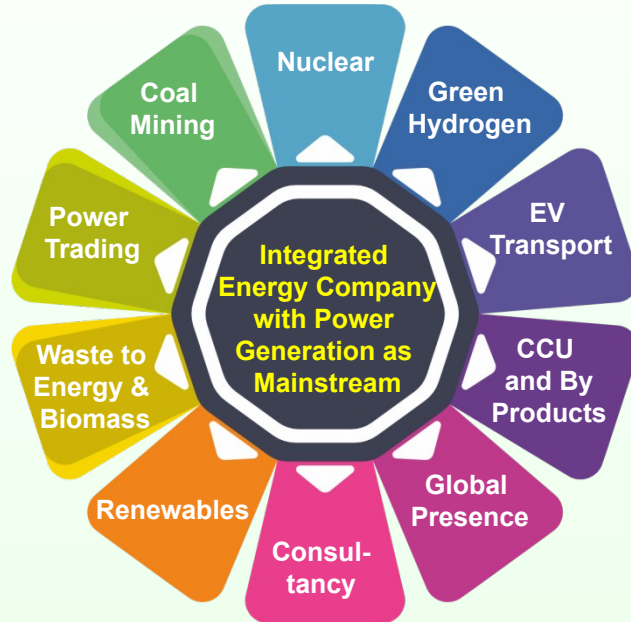


Key Business Drivers

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Future Scenario of Capacity Mix

NTPC Energy Spectrum



Thrust on RE



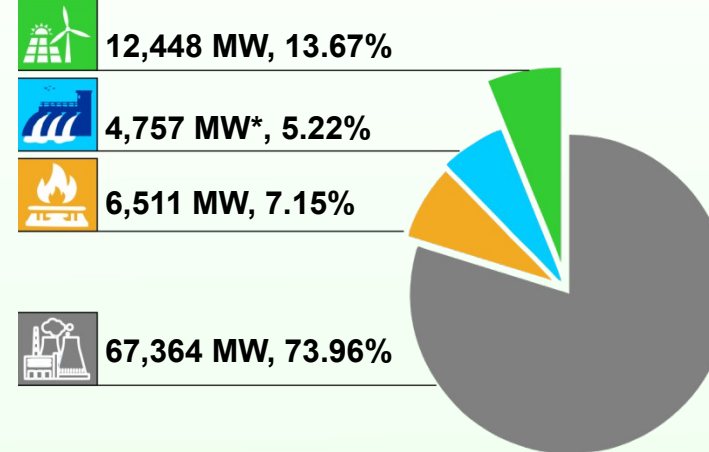
Present Capacity
17.2 GW**

Target Capacity by 2032
60 GW

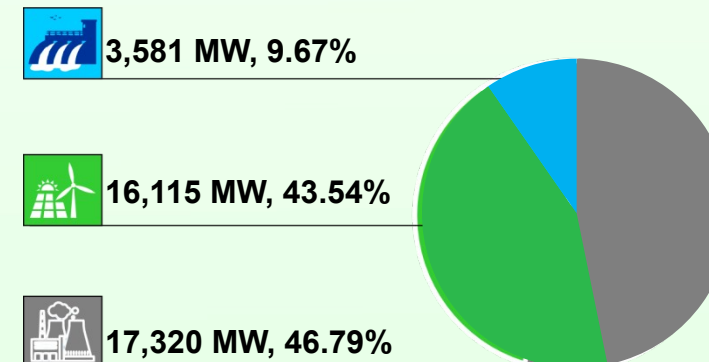
* Hydro including PSP.

** Total RE including Hydro and PSP

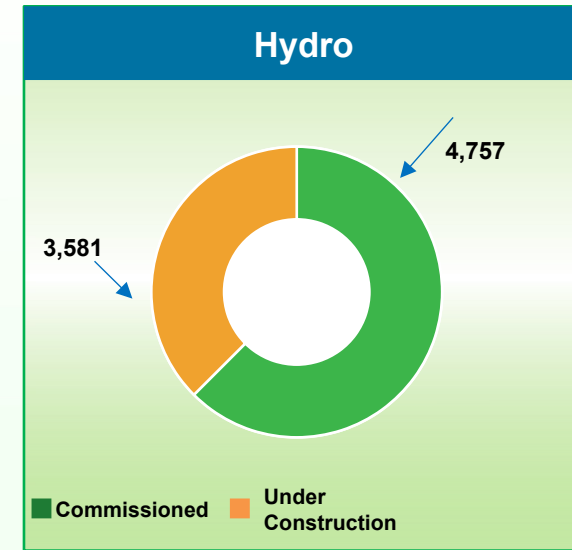
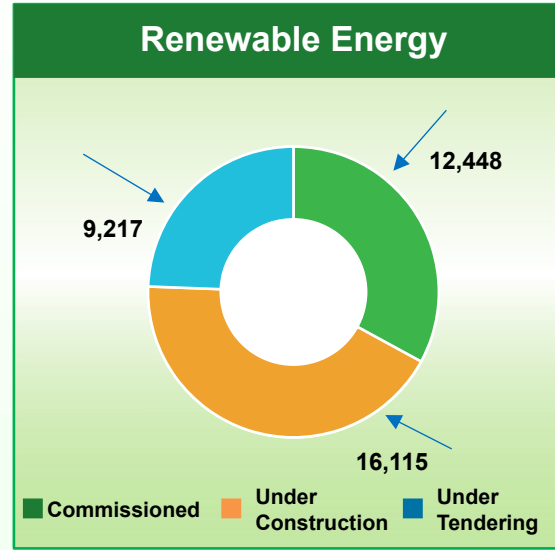
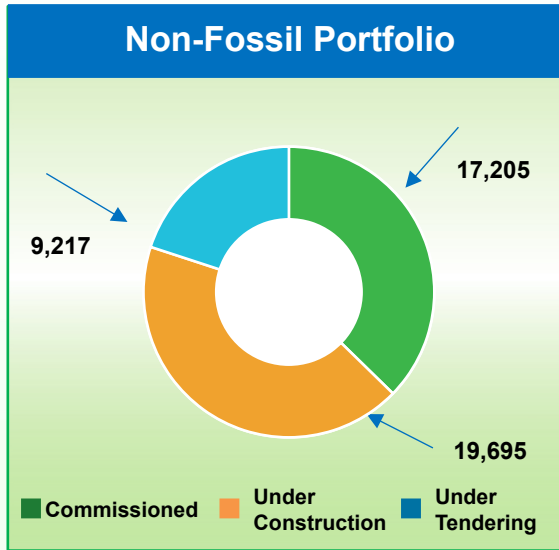
Total Present Capacity: 91.08 GW



Capacity Under Construction: 37.02 GW



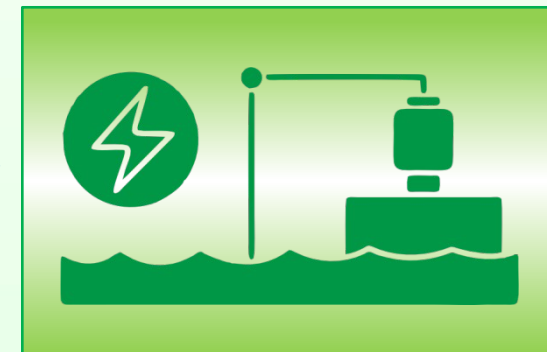
Current Non-Fossil Portfolio of ~ 36 GW*



**1 GW
(Under Tendering)**



**Battery Storage:
6.62 GWh (execution)**

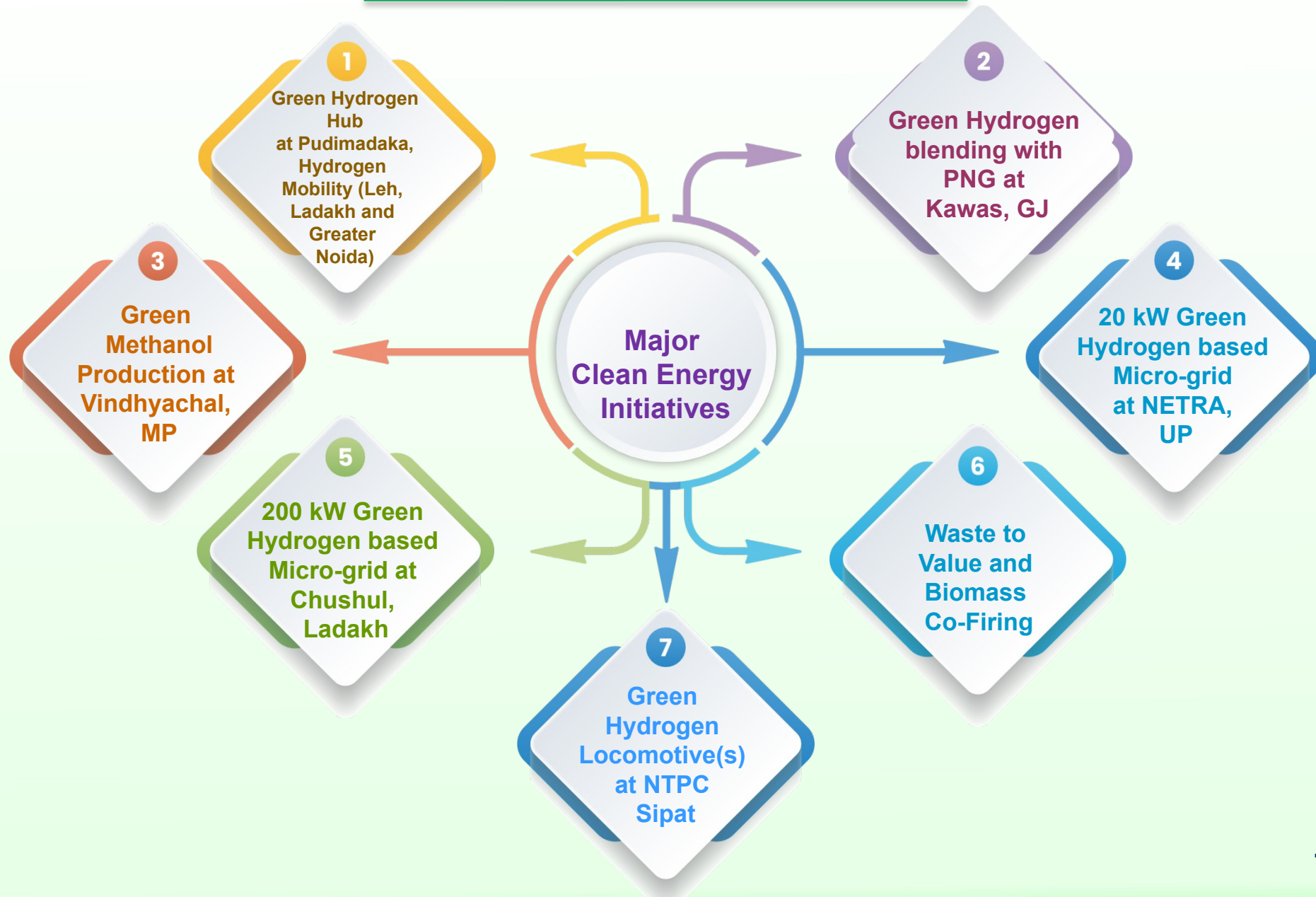


**Pump Storage:
1 GW Operational, Total: 18.0 GW portfolio**

**Capacity including PSP.

*RE/hydro as on 16.10.2024; storage per FY2025-26. Hydro tendering: nil.

Major Clean Energy Initiatives

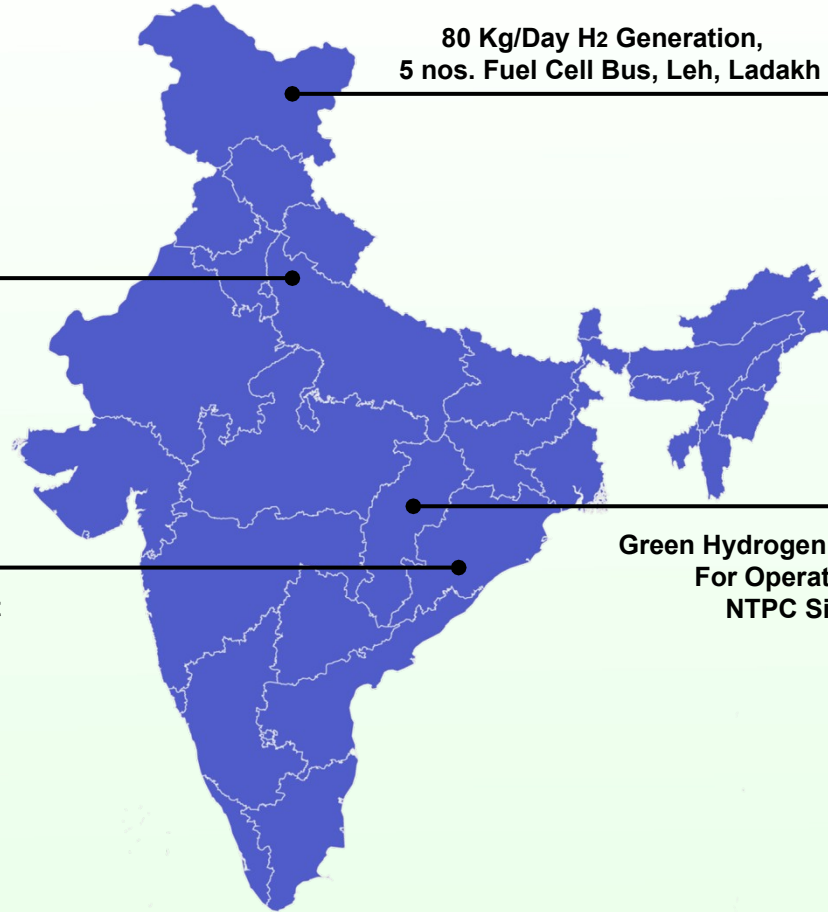


Green Hydrogen Mobility



260 Kg/Day H₂ Generation for 5 nos. Fuel Cell Bus, Greater Noida

80 Kg/Day H₂ Generation,
5 nos. Fuel Cell Bus, Leh, Ladakh



260 Kg/Day H₂ Generation at
Bhubaneswar, Odisha



Green Hydrogen Fuel Cell Locomotive (s)
For Operation at The MGR of
NTPC Sipat Chhattisgarh



Green Energy
1.70 MW
7.68 Acres



H₂ Generation
80 kg/day
9 hrs opr.



Storage
500 bar



H₂ Dispensing
350 bar



FCEV Fleet
9m Buses

NGEL Green Hydrogen Hub, Pudimadaka

Project Location

Pudimadaka,
Visakhapatnam, AP
(2 km from sea)



Collaborative Approach

Chemical Developers & NGEL

Expected Capex

Hub: USD 10 Bn
RE: USD 12 Bn

Land Size

1200 Acre In possession



Master planning

Completed



CO2 Pipeline

23 km, route survey and Draft
Feasibility report



Water source

APIIC – 11 MLD
50 MLD Desalination (2km)



Seaport

Captive Jetty
(Feasibility Completed)



Power Supply

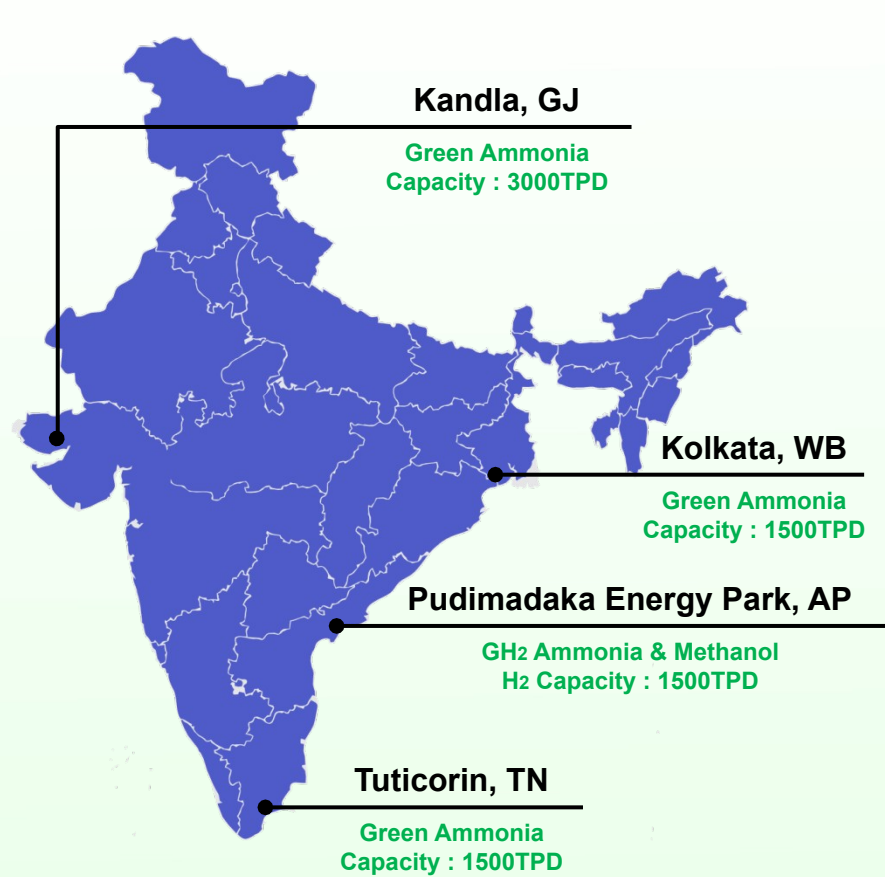
7 GW RE RTC
2.5 GW in Phase-1



- One of the largest Hubs in the World
- Green Hydrogen Hub declared under NGHM
- Green Hydrogen production: 0.5 MMTPA
- Green Chemicals: 2.5 MMTPA (Green Ammonia-1.5, Green Methanol – 0.5, SAF/Urea-0.5)

Pudimadaka

Green Chemical Initiatives (Ammonia & Methanol)



Electrolyser :

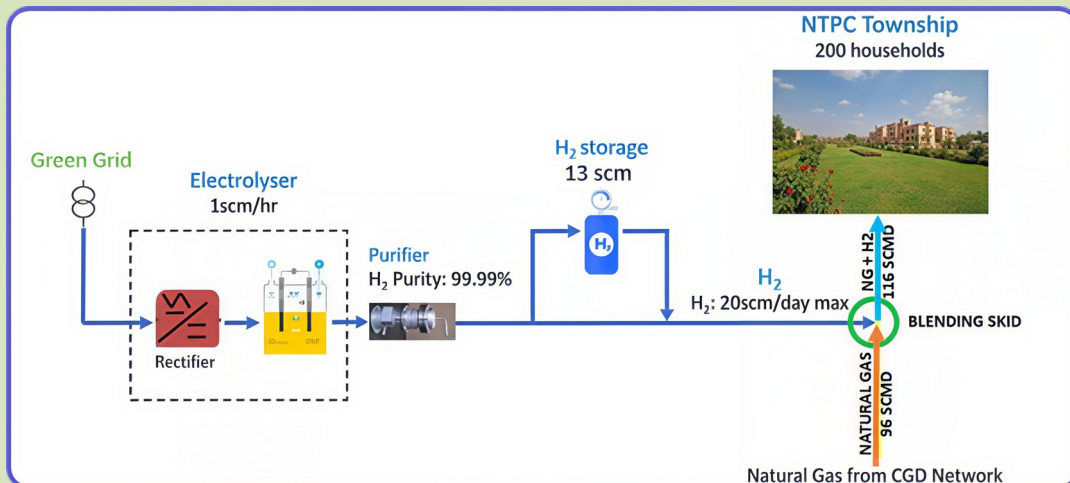
NTPC tie up with Electrolyser manufacturer for supply of

- 600 MW Alkaline
- 400 MW PEM

Green Chemical : Ammonia and Methanol

- NTPC Signed a MoU for Development of Green Hydrogen Hub in Ports
- DPR and feasibility Studies are in progress

GH2 Blending with Natural Gas



First Phase commissioned on Jan 2023 for 200 Households with blending of 5% v/v.

Received Approval for 8% v/v and planning for further expansion by 20%.

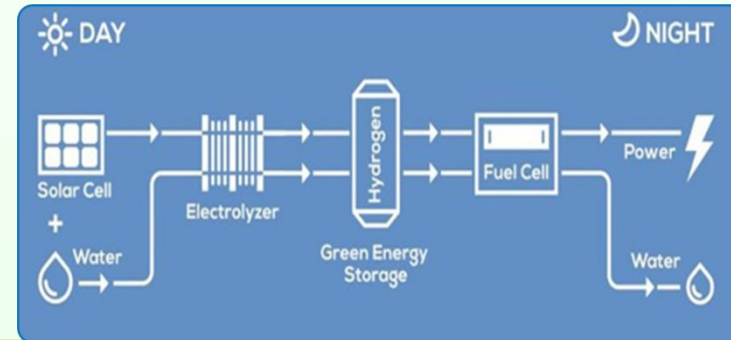
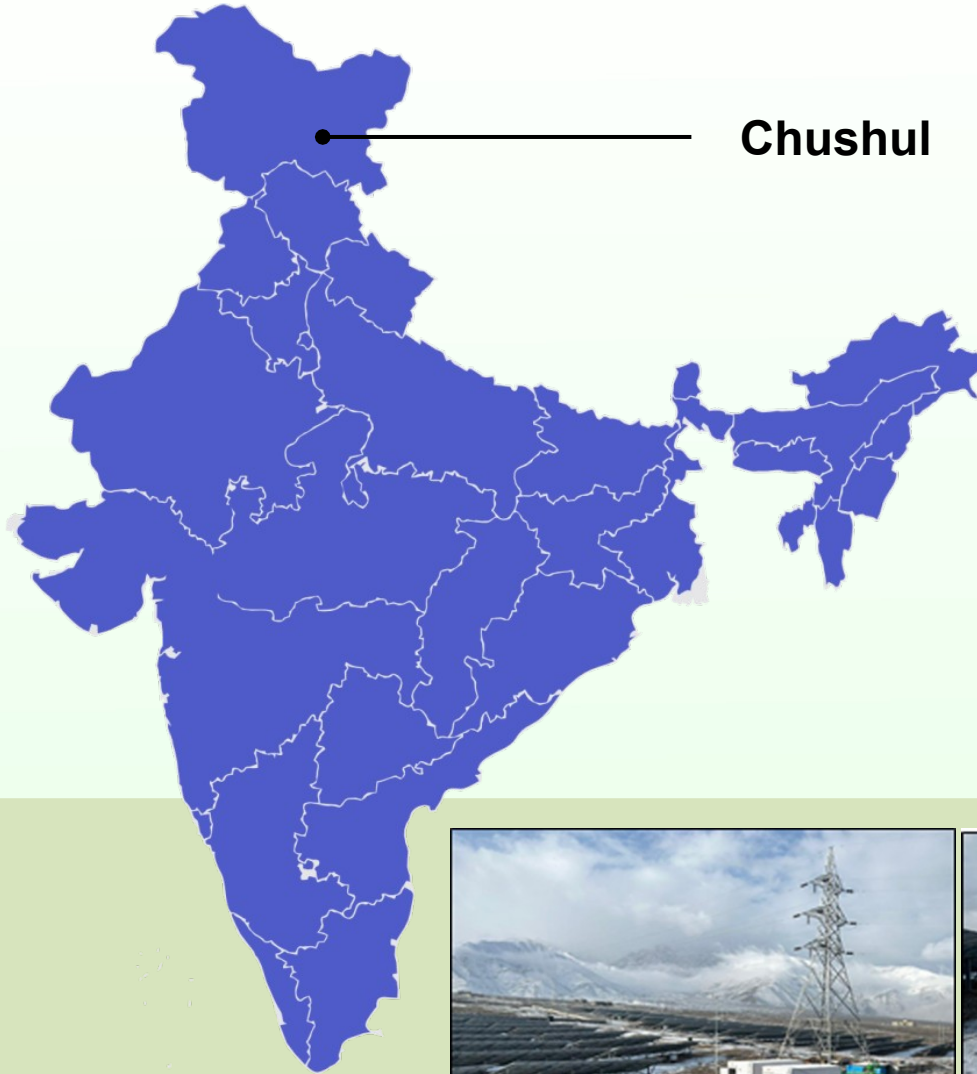
Green power is supplied for making Green H₂.

India's First Green Hydrogen Blending with Natural Gas

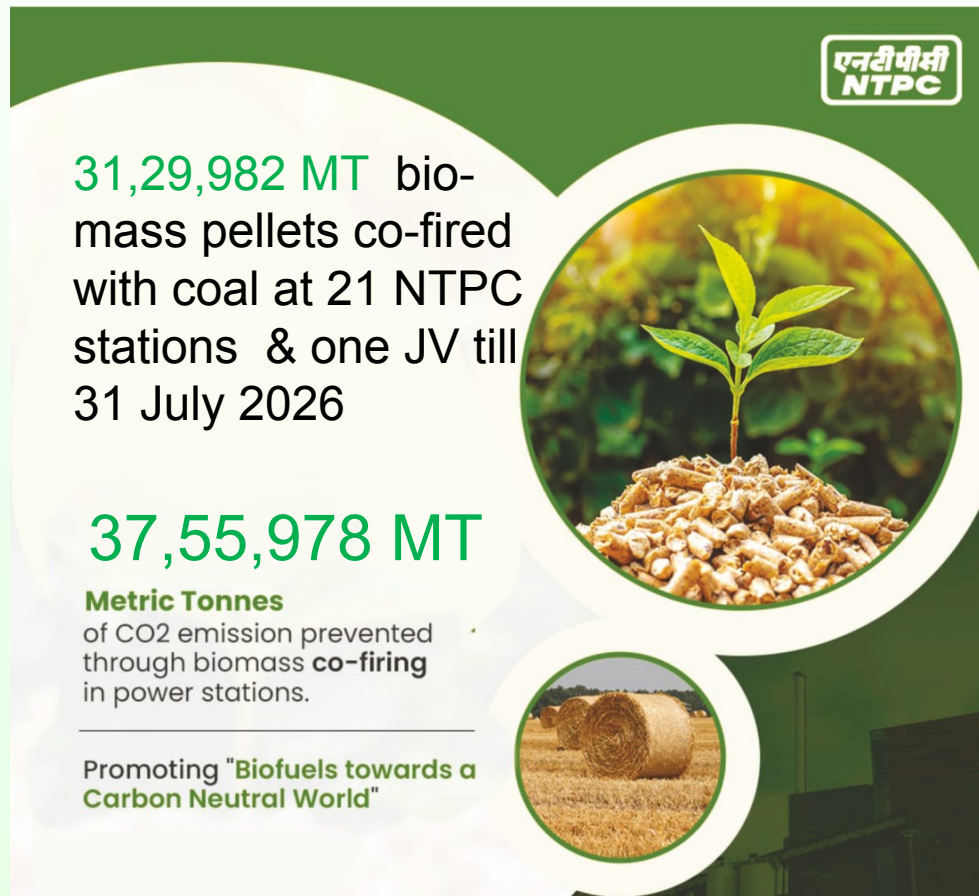
Location - NTPC Township, Kawas, Gujarat, India



200 kW GH₂ based RTC Microgrid at Chushul, Ladakh



A sustainable environment-friendly initiative for generating electricity.



NTPC Biomass Pellet Plants



22 TPD non-torrefied plant at Bhatinda, Punjab is under installation.



APCPL Jhajjar's Torrefied pellet plant is in the process of stabilisation (100 TPD torrefied biomass pellet plant).

Green Methanol Pilot



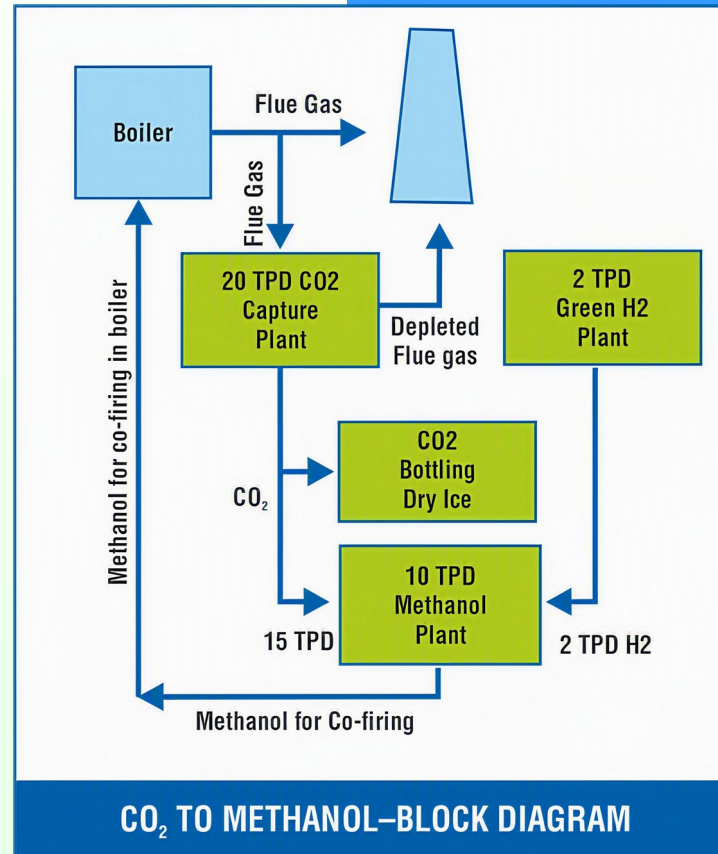
The Carbon Capture Unit of 20 TPD Capacity has been commissioned at NTPC Vindhyachal.



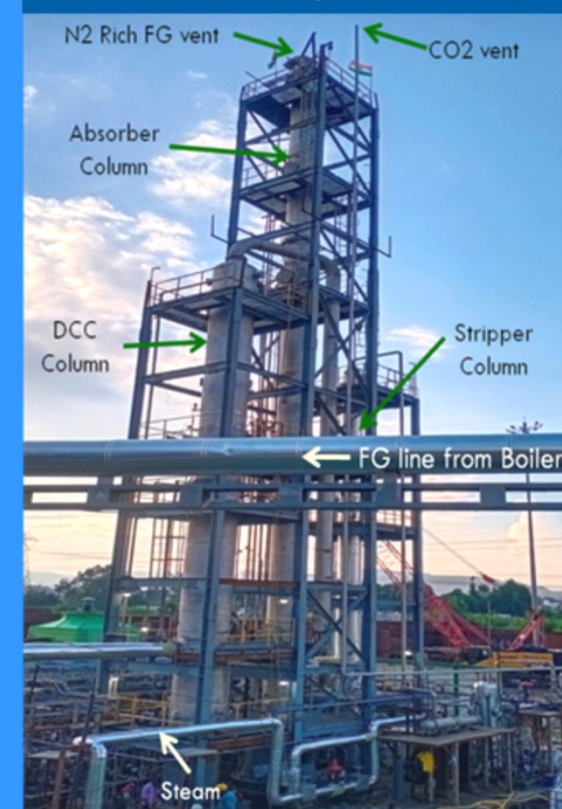
Captured CO₂ will be converted into Methanol using Green Hydrogen.



CO₂ Capture Technology for “Greening the Coal Power Generation” commitment towards Net Zero by 2070.



A view of 20 TPD CO₂ Capture Plant at VSTPS



Ethanol: 10 TPD Flue Gas - CO₂ to Ethanol Plant

CARBON CAPTURE UNIT

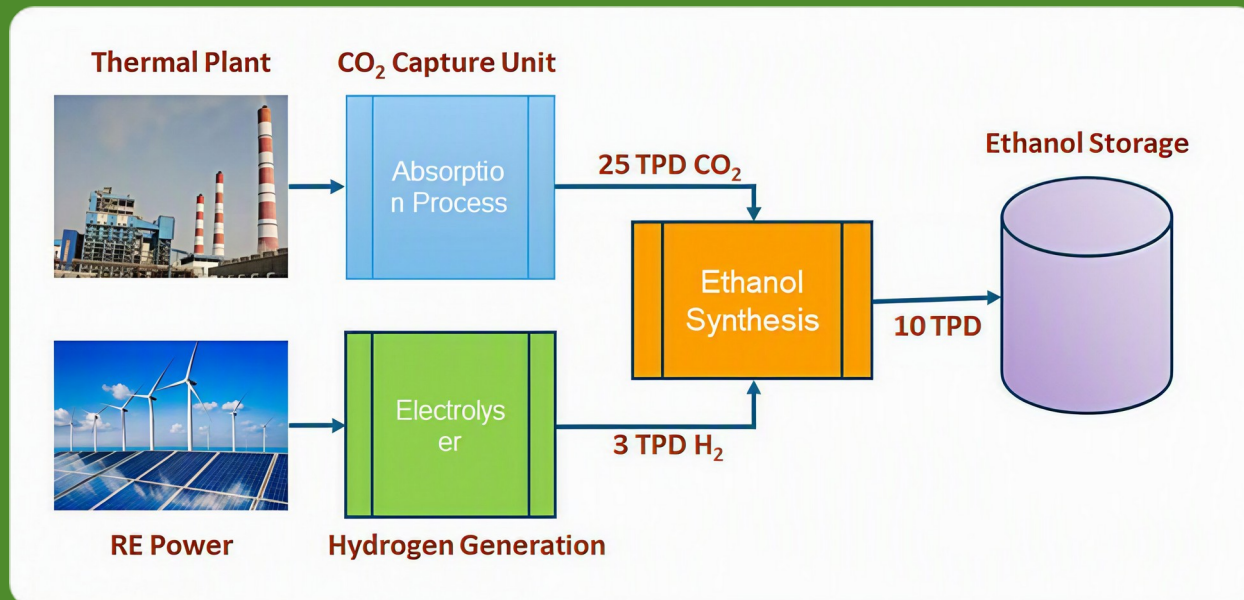
- 25 TPD CO₂ from thermal plant flue gas
- Energy efficient amine absorption process

HYDROGEN GENERATION UNIT

- Generating 3 TPD Hydrogen

ETHANOL SYNTHESIS BLOCK

- Conversion of CO₂ to Ethanol
- Catalytic hydrogenation process



Location : NTPC Lara



Waste to Energy Projects

- 24 TPD / 200 kW thermal gasification-based Waste to Energy (WtE) plant to Varanasi
- MoU signed with IOCL for pilot WtE project (50 TPD) through Plasma Enhanced Gasification technology. Front end engineering and design (FEED) is in progress.



Waste to Compost

- NTPC is managing O&M of Waste to Compost plant at Varanasi having 600 TPD Capacity. It generates 60-80 TPD of compost.



Waste to Charcoal Projects

- Dadri project for MSW to charcoal plant already commissioned.
- Varanasi (600 TPD) MSW-to-Charcoal plant has been commissioned.
- Noida-Greater Noida (900 TPD) demonstration test completed.
- Projects at Bhopal (400 TPD), Hubballi (200 TPD) and Gorakhpur (500 TPD) are under construction.
- Meerut (900 TPD), Haldwani-Kathgodam (500 TPD), Gurugram (1,500 TPD) and Faridabad (1,200 TPD) are under various stages of agreements/MoUs.

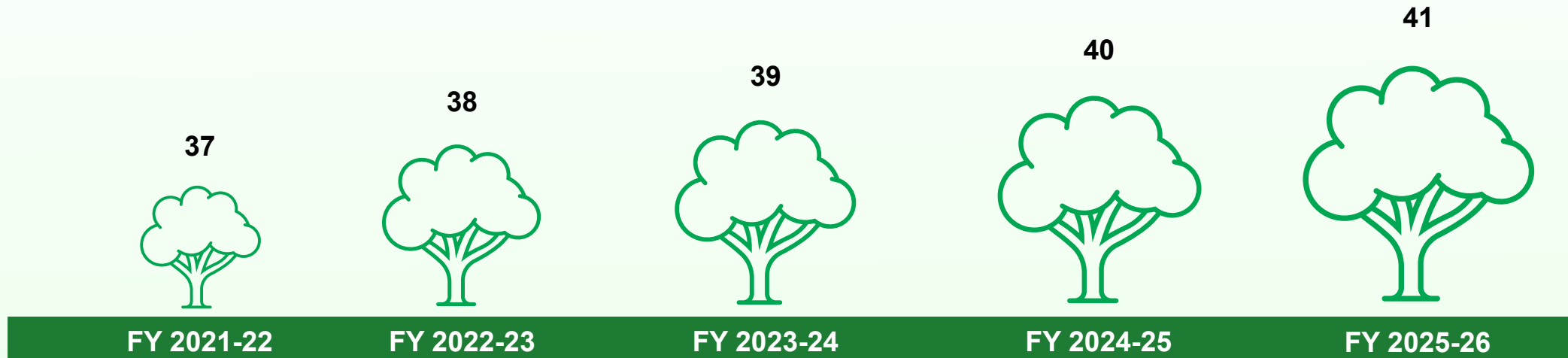


GHG Mitigation

3

Creating Carbon Sinks through massive Afforestation Programme

Tree Plantation (Millions)



Supporting country's NDC of creating an additional carbon sink of 3.5 to 4 billion tonnes of CO₂ equivalent through forest and tree cover by 2035.



Have planted 10 million trees across the country during 2016-17 and continuing to create additional sink by planting 10 millions in next ten years i.e. till FY 2026-27.



More than 41 Million saplings planted till 2025-26 since inception (NTPC/Govt. Lands)

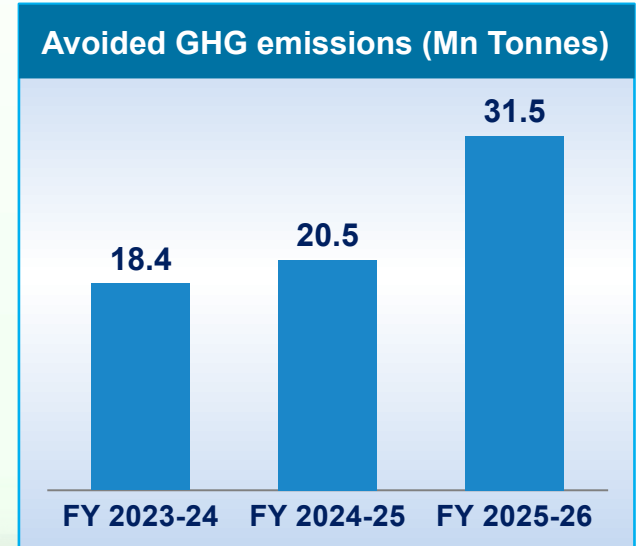
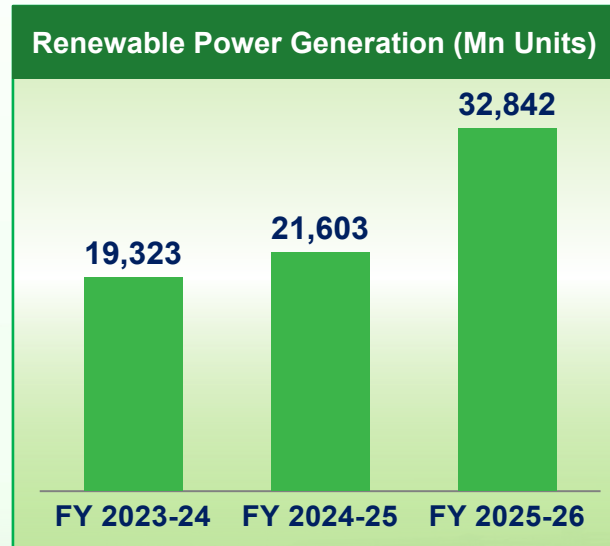
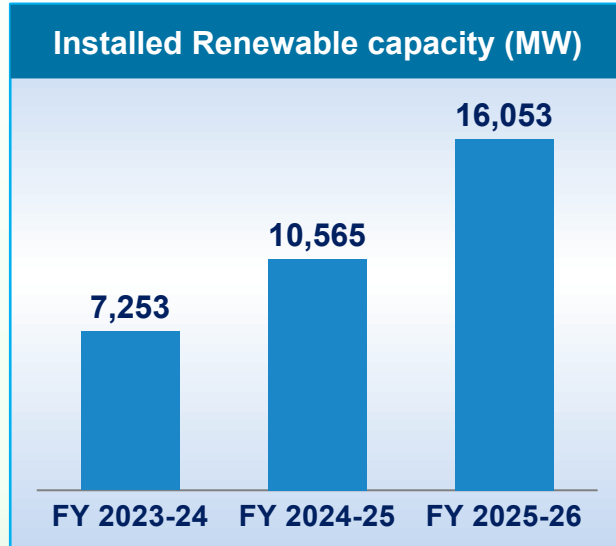
Tree Planted (Millions)

41

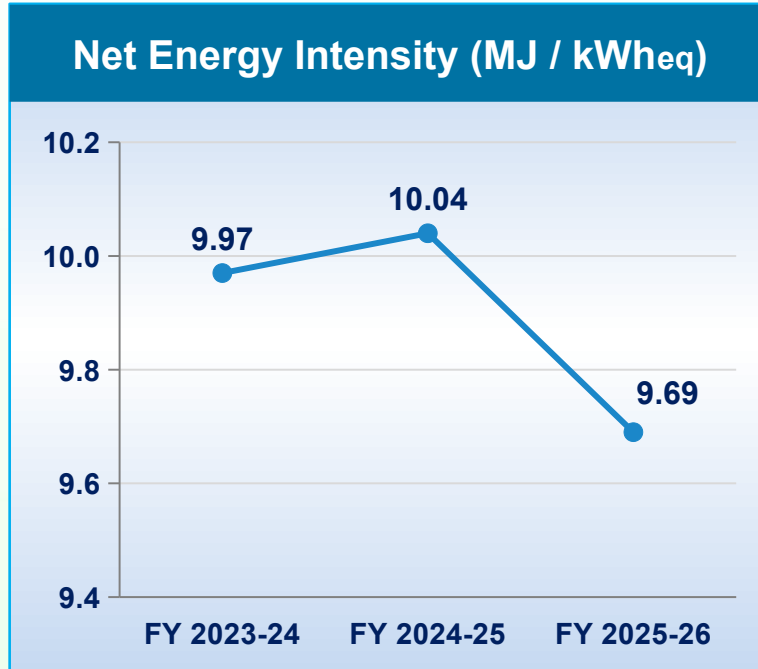
CO₂ Seq. (Mn Tonnes)

0.82

Avoiding GHG emissions through Non-Fossil Generation



Technology Upgradation & Efficiency Improvement



In FY 2025-26, the NTPC group reduced its Net Energy Intensity to 9.69 MJ/kWh from 10.04 MJ/kWh in FY 2024-25.

This signifies enhanced operational and energy efficiency and reduced dependence on fossil fuels.

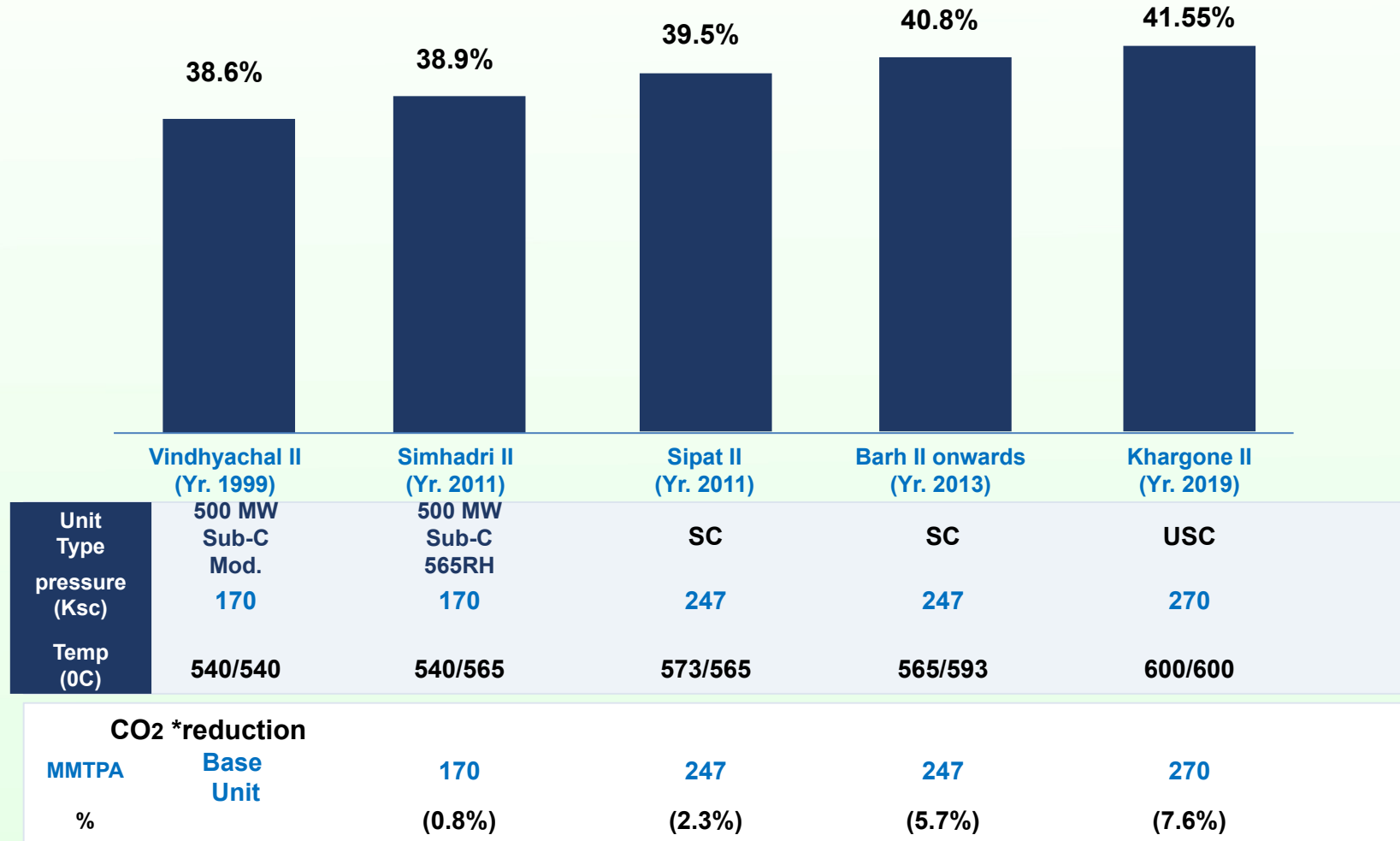
Adoption of HELE (High Efficiency Low Emissions) Technologies—Supercritical, Ultra Supercritical, and Advanced Ultra Supercritical.

41 units of supercritical and ultra-supercritical technologies, constituting total capacity of 28,880 MW



Reducing GHG Emissions with Efficiency Improvement

Gross Efficiency Higher Heating Value HHV%



Every 1% increase in efficiency yields 2.5% CO2 reduction

Constant endeavour to reduce CO2 emissions steps to increase cycle efficiency

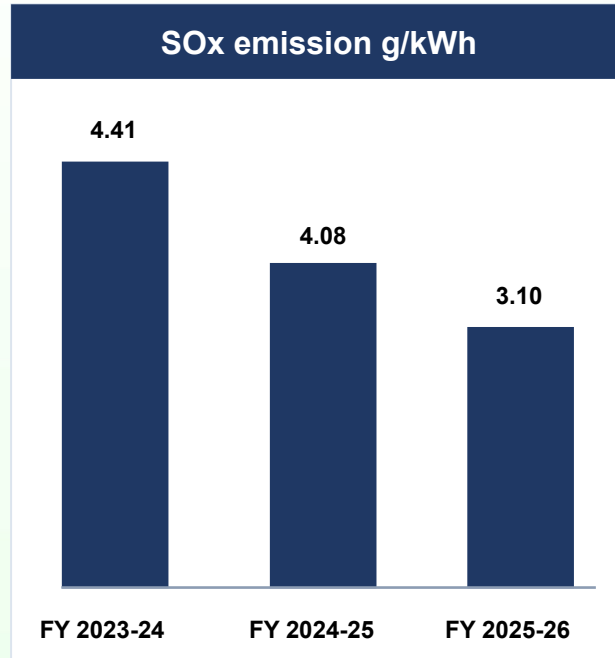


Environment Performance

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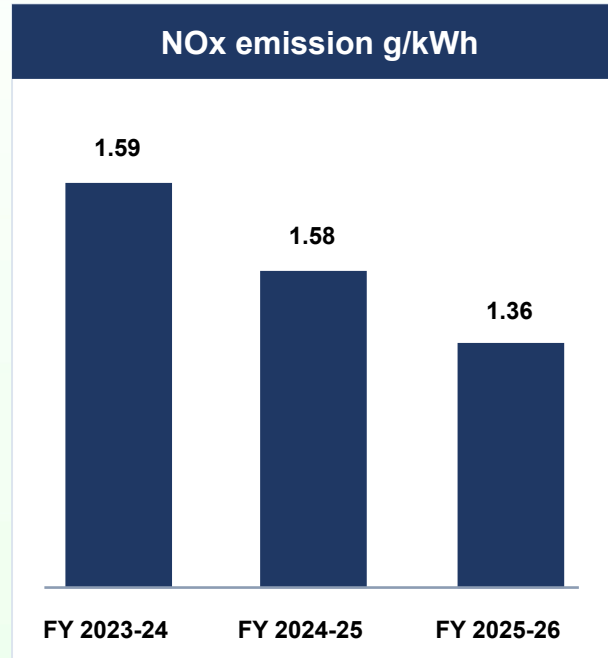
Reducing Non-GHG Emissions

Specific SOx, NOx, PM Emissions



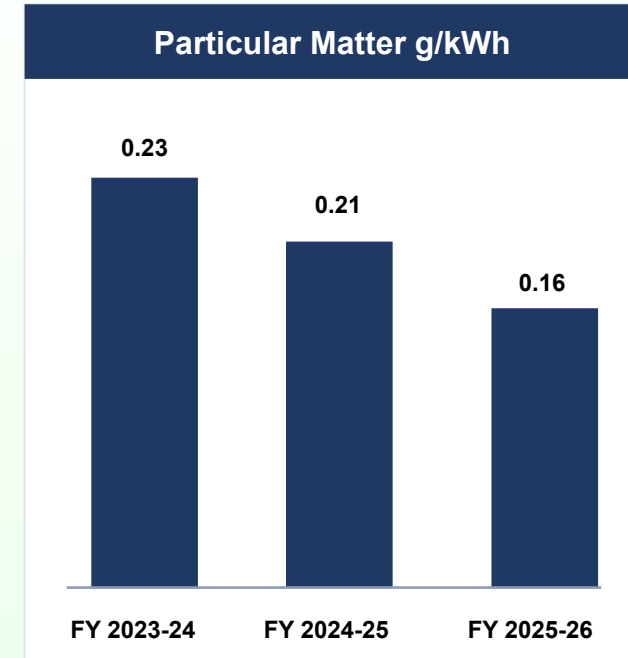
SOX Reduction :

- FGD including DSI Commissioned in 30,250 MW
- FGDs under various stage of erection and commissioning have 40+ GW capacity. Total awarded capacity– 70+ GW.



NOX Reduction :

- Modification completed in 50 units.



SPM Reduction :

- ESP R&M completed in 43 out of 50 units
- Additional reduction being achieved through FGD installations.

Efforts towards Alternate Water Use

OUR STRATEGY



R&D Efforts



Air Cooled Condenser (AAC)



Treatment & Reuse of Sewage Treated Water



Liquid Waste Treatment Plant (LWTP)



Ash Water Recirculation System (AWRS)



Rainwater Harvesting



Zero Liquid Discharge



Increasing Cycles of Concentration

% Use of Alternate Water



Wastewater
28.72%



Rainwater
0.64%



Sea Water
1.65%



Fresh Water
68.99%



Rainwater



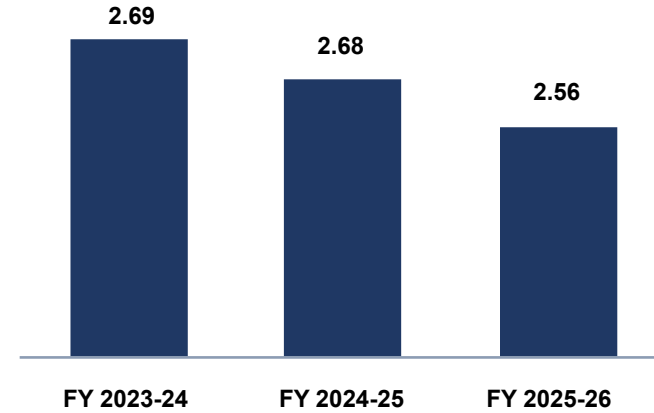
Wastewater



Reduction in Fresh Water Consumption

NTPC became signatory of CEO water mandate since 23.03.2021 and commit to continuous progress against six commitment areas of stewardship to manage their own water risks.

Specific Water Consumption (Ltr/kWh)



Air Cooled Condenser (ACC)



Thermal power plants use large quantities of water for condensation of steam and cooling of auxiliary systems. As per current norms of MOEF&CC, the water requirement for a 2x800 MW plants based on closed cycle cooling system is 4800 m³/hour.



In water stressed regions, NTPC has been path finder in this regard by adopting Air Cooled Condenser system at North Karanpura (3x660 MW, two units commissioned) and at Patratu (3x800 MW) under commissioning.



Adoption of air-cooled condenser systems in place of water-cooled condenser system reduces the water requirement to about 40%, i.e. 2000 m³/hour in place of 4800 m³/hour.



On annual basis, this translates into a saving of about 21 million cubic meters of water, which can be used for domestic use, irrigation, pisciculture etc.



NTPC has taken a policy decision to adopt ACC system in all upcoming plants except where technically not feasible.



Air Cooled- Condenser at NTPC North-Karanpura



Air Cooled- Condenser at NTPC Patratu

A total of **4.65 lakh metric tonnes (LMT)** of ash is transported through **Railways** using **171 rakes** in the FY 26-27 Q1. This environmentally friendly mode of transportation significantly reduced the dependence on road transport, helping to lower carbon emissions, ease traffic congestion, and support sustainable and efficient bulk movement of ash.

Highlights of Ash Utilization in different avenues in the FY 26-27 Q1

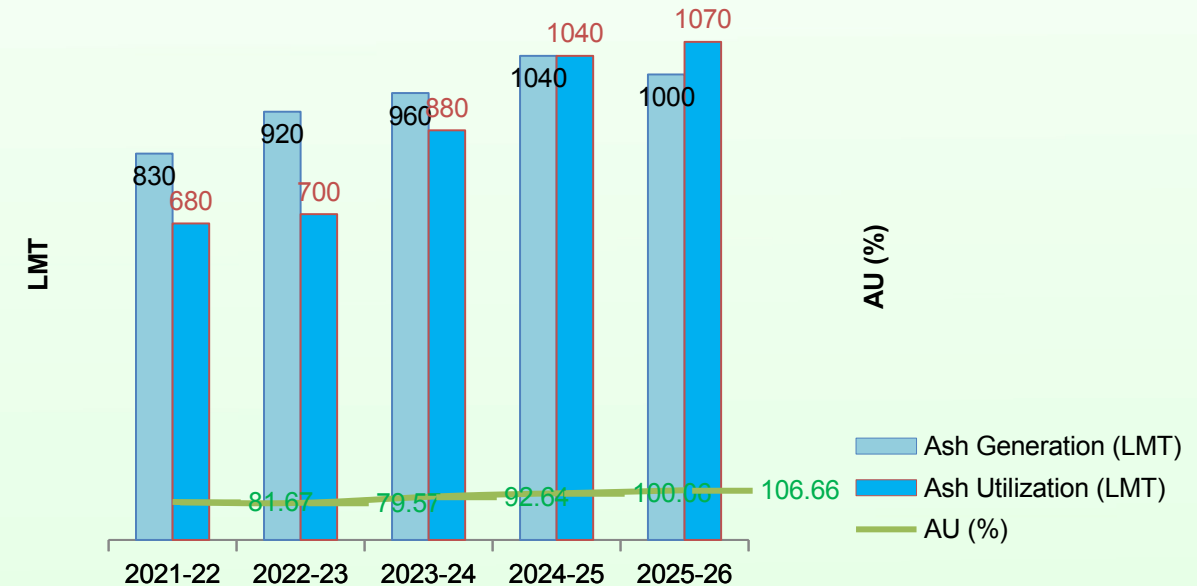
 **50.61 LMT** ash supplied in cement industries.

 **24 LMT** ash supplied in Brick Industries.

 **16.17 LMT** ash filling done in Mines.

 **125.83 LMT** ash supplied for Road Construction Projects.

 **7.03 LMT** ash Supplied in development of Low-lying area.



Waste Management in NTPC Premises

Vermi-Compost

- **Vermi-composting** (Vermi-compost) is the product of the decomposition process using various species of worms, usually red wigglers, white worms, and other earthworms, to create a mixture of decomposing vegetable or food waste, grass etc.
- Vermi-compost contains **1.25 %**, **1.14 %**, **1.19 % NPK** respectively.



Integrated Waste Storage Facility



Bio-Gas Plant at NTPC

Wastewater Management Facilities



Effluent Treatment Plant (ETP)



Neutralization Pit at DM Plant



Sewage Treatment Plant



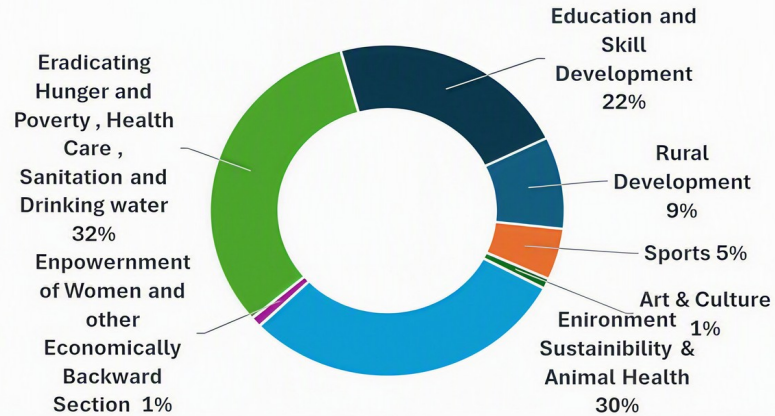
Coal Slurry Settling Pit



Social Performance

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CSR Expenditure Break-up



Skill Development and Income Generation



Healthcare Services and Infrastructure



Sports



Health, Water and Sanitation



Empower the differently abled & economically weaker sections



Girl Empowerment Mission

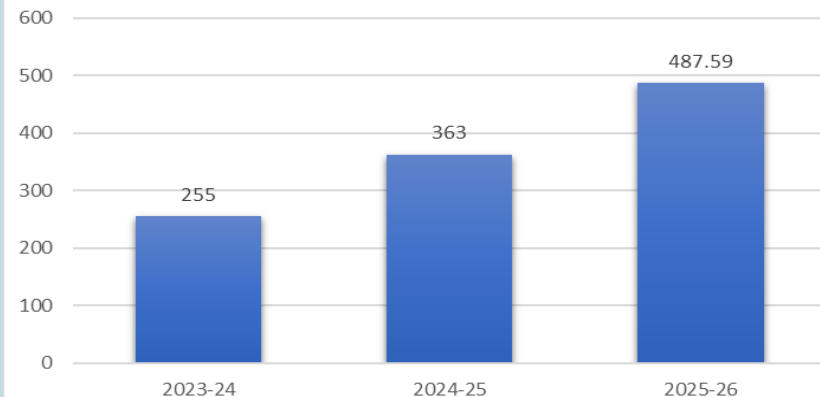


Relief during Natural Calamity



Women Empowerment

CSR Expenditure (in INR Crores)



Key Focus Areas : Safety

NTPC SAFETY FRAMEWORK

Tools: Implementation

FOCUS ON LEAD INDICATORS

- Pep Talks / TBT Capturing Deviations
- Reporting Near Misses
- Daily Random PTW Checking Cross-Functional Teams (CFT)

REINFORCING OWNERSHIP

- KOM: SURAKSHA MITRA
- HOD & HOP enhanced involvement
- Routine & Surprise site visit by HODs/ROs
- Swearing-In Ceremony/ Incident Recall
- Zone Leader - Role clarity

STRENGTHENING OF PROCESSES & SYSTEMS

- SURAKSHA App
- SAP Integrated Safety Framework
- OD/OGNs/LMIs
- Safety Dashboards
- HOP Review as per standard Format
- PMS- Safety KPAs
- Accident Examination & Recommendation Compliance System (AERCS)

CAPABILITY DEVELOPMENT

- Employee Training
- Auditor development programme
- Job specific training module (Contractor's Workers)
- SURAKSHAVALI ISO 45001 Certification

AUDITS, VISITS & PROMOTIONS

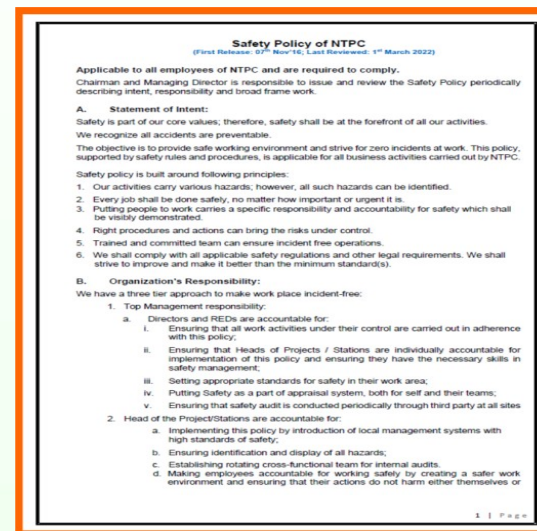
- External Safety Audit through reputed agencies
- Internal Audits surprise Site Visits
- Theme based Safety Observance
- Short films /audio clips Safety Pledge & Policy Acceptance

NTPC SAFETY FRAMEWORK

Tools: Implementation

Safety Policy

- All accidents are preventable. Provide safe working environment and strive for zero incidents at work.
- Our activities carry various hazards; however, all such hazards can be identified
- Every job shall be done safely, no matter how important or urgent it is
- Putting people to work carries a specific responsibility & accountability
- Right procedure and actions can bring the risks under control
- Trained and committed team can ensure incident free operations.
- Compliance to applicable safety regulations & legal requirement.



Business Unit Head (BUH):

- Implementing this policy through LMIs
- Ensuring identification and display of all hazards
- Establishing cross-functional team for internal audits.
- Making employees accountable for working safely

Head of Departments (HODs):

- Identification, reporting & dealing hazards by EICs
- Cordoning of unsafe areas & reporting unsafe conditions by EICs
- Training of workers and awareness about the hazards
- Deployment of relevant safety equipment by the contractor
- Co-operation by all with management and observe rules and procedures.

NTPC Sustainable Supply Chain Policy



In pursuit of providing reliable power and related solutions in economical, efficient, environmentally friendly and innovative manner, we at NTPC are committed towards augmenting the supply chain sustainability and reducing negative externalities of business operations. We seek to institute triple bottom line approach in our upstream supply chain and encourage our supply chain partners to follow best environment, social and governance (ESG) practices in their business operations. As a responsible corporate citizen, we incessantly endeavour towards creating synergistic and symbiotic value across our value chain to enhance our social, environmental and economic performance.

We at NTPC are committed towards:

- 1) Ensuring highest level of compliance to all applicable statutory and legal requirements across the supply chain and procurement practices;
- 2) Strengthening and maintaining robust health and safety management system in own and supplier managed operations;
- 3) Embedding transparent, ethical and fair procurement practices and providing equitable opportunity to our vendors;
- 4) Engaging positively with our suppliers to promote cost effective, resource efficient and environmentally and socially responsible business operations;
- 5) Fostering partnerships and collaborations with value chain partners to enhance quality and efficiency;
- 6) Nurturing and reinforcing a conducive work environment; adopting highest standards of human rights and labour practices;
- 7) Promoting diversity, inclusiveness and equality in workplace across supply chain;

NTPC is committed towards providing necessary governance support and allocating required resources for organization wide implementation of Supply Chain Sustainability Policy.

A periodic review and necessary upgradation of the policy shall be done to enhance the suitability and applicability.



NTPC Ramagundam



Migratory Birds at NTPC Dadri

Thank You