JAYPEE NIGRIE
SUPER THERMAL POWER PLANT- 2X660 MW
(A Unit Of Jaiprakash Power Ventures Limited)

25th National Award for Excellence in Energy Management

Team Members :-

1) Vinod Sharma – Unit Head
2) Sukhdev Singh Kalsi – Addl. Chief Engineer (BTG operation)
3) Manohar Jaiswal – Plant Engineer (Operation & EEMG)

Our Source of Inspiration

Hon'ble Shri. Jaiprakash Gaur
(Founder Chairman of Jaypee Group)

Shri. Manoj Gaur
(Executive Chairman of Jaypee Group)

Shri. Suren Jain
(Managing Director of JPVL)

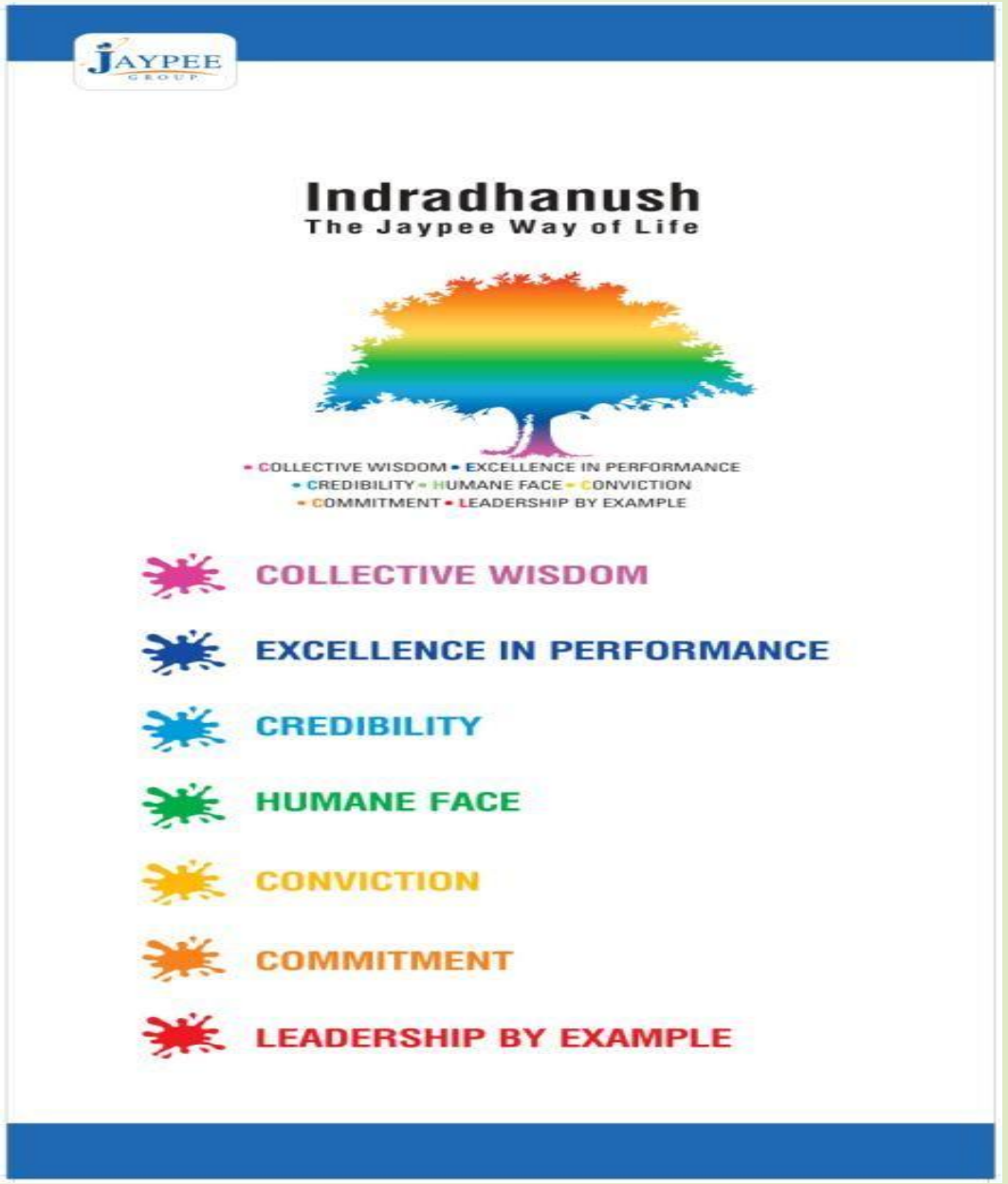
JPVL Organization Vision & Mission

Vision

- To be the most efficient Power company of the country with optimum utilization of resources, to provide power to all, while bringing reward to all its stakeholders continuously.

Mission

- To develop & operate technically sound projects in cost effective manner.
- To ensure best monitoring & maintenance techniques which would offer us a competitive advantage in the industry.
- To become a world class, diversified & transnational power company with diversified sources of revenue & low business risk.
- To play a significant role in the growth of the Indian power sector.
- Expand our installed capacity to develop a superior portfolio of assets.
- Maintain a high level of social responsibility in the communities in which we operate.
- To uphold the principles of trust, corporate governance and transparency in all aspects of business.



JPVL at A Glance - Generation Capacity– 2220MW

Vishnu Prayag
Hydro Power Plant
4X100 MW

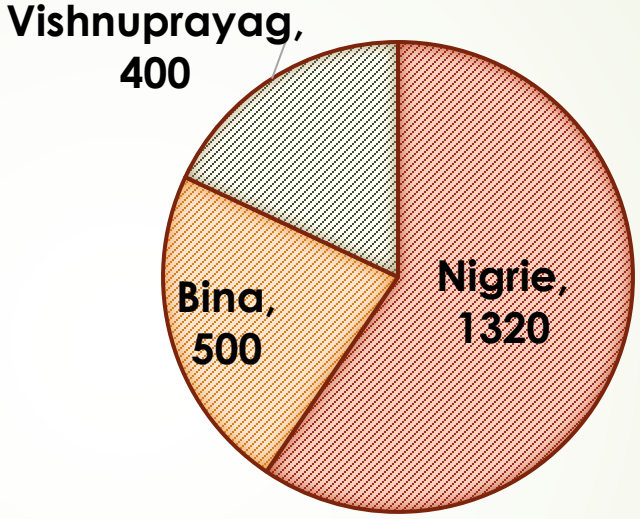
Jaypee Bina
Thermal Power Plant
2X250 MW

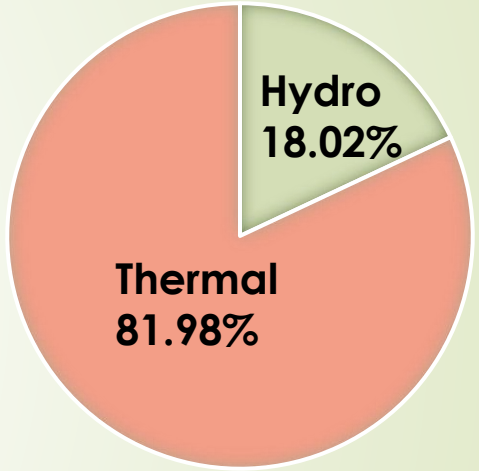
Jaypee Nigrie
Super Thermal Power Plant
2X660 MW

Amelia (North) Coal Mines
3.36 MMTPA Mining Capacity

New Benchmark for Supercritical Units:-

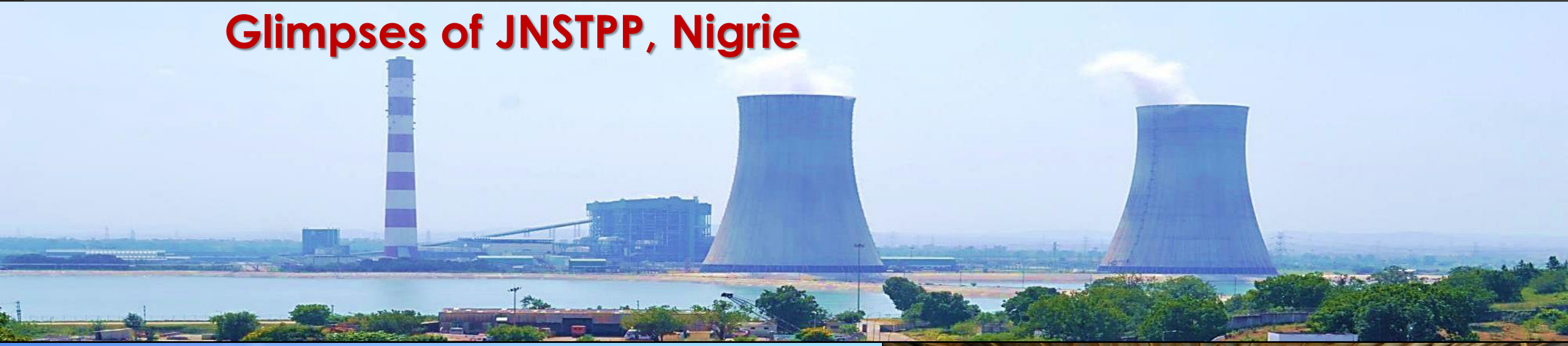
JNSTPP Unit # 2 Continuous running- 471 days(Running Continue).
(till 11th September 24).





- Boiler Details: L&T MHI Make, 2322 TPH, Supercritical Twin Vortex, Coal Fired Boiler.
- Turbine Details: L&T MHI / MHI Reheat and Condensing, 3 casing, 4 exhaust flow type (TC4F-30).
- COD Unit # 1 - 03/09/2014
- COD Unit # 2 - 21/02/2015
- Dedicated Transmission Line (400 kV DC) 161 km Nigrie-Satna Line.

Glimpses of JNSTPP, Nigrie

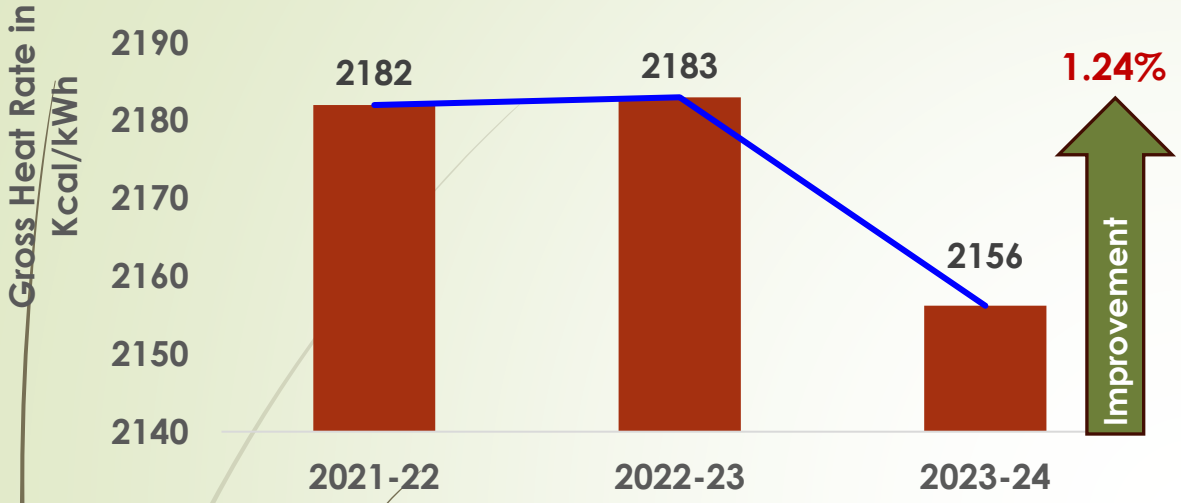


JNSTPP, Nigrie -Station Performance FY 2023-24

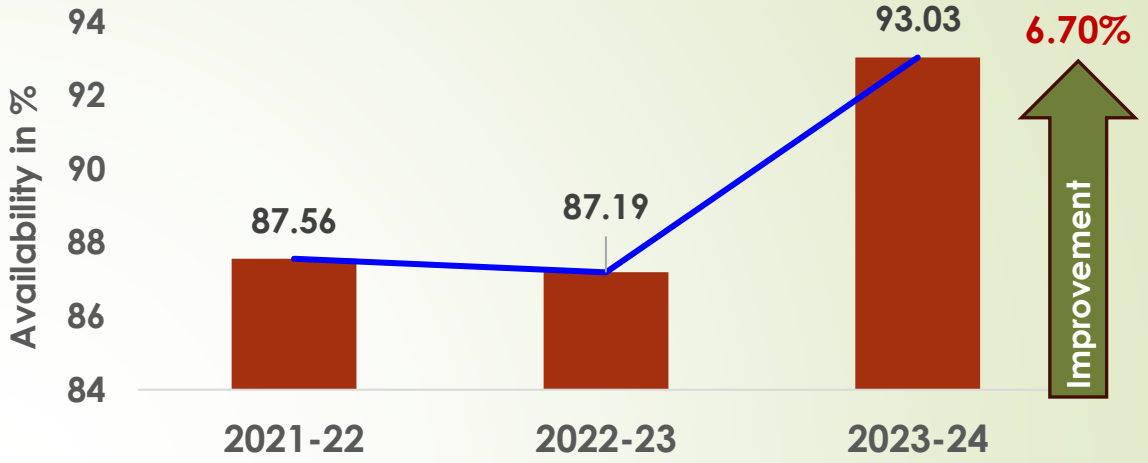
Sr. No.	Parameters	Unit	FY 23-24
1	Annual Generation	MU's	9841.56
2	PLF	%	84.87
3	Availability	%	93.03
4	Gross Heat Rate	Kcal/kWh	2156
5	APC	%	4.66
6	Boiler Efficiency	%	86.2
7	Turbine Heat Rate	Kcal/kWh	1858.47
8	DM Water Make Up	%	0.34
9	Sp. Raw Water Consumption	M^3/MWh	2.03
10	Sp. Oil Consumption	ml/kWh	0.163

Station Performance - Consecutive 3 Years

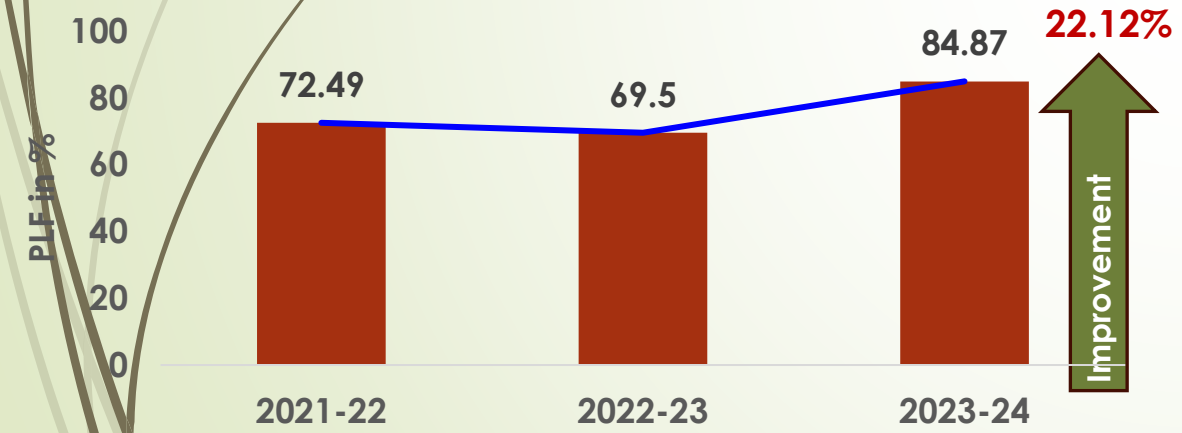
Gross Heat Rate



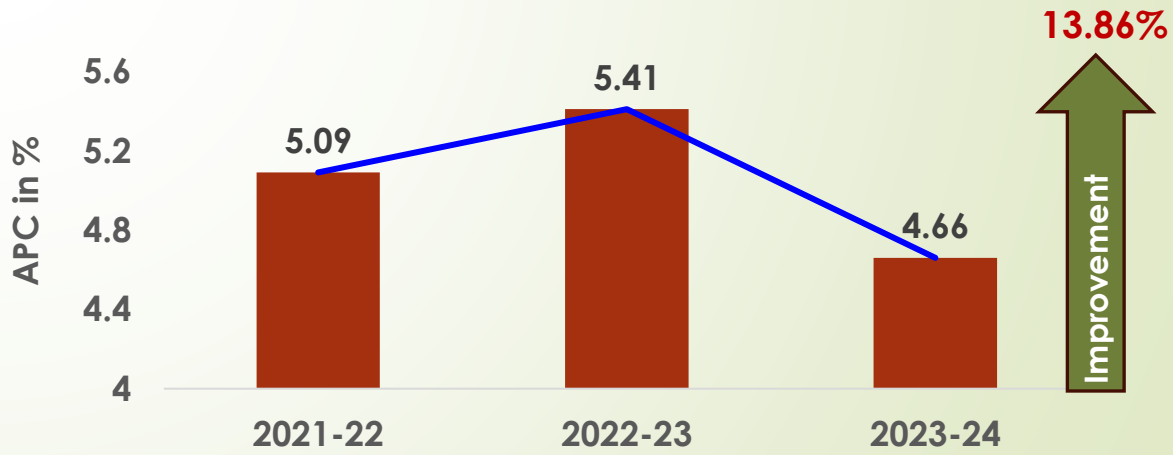
Availability



PLF



APC



Reason For Improvement:-

- Unit # 1 Boiler, HIP Turbine AOH done in FY 23-24 (August-23).
- Unit # 2 BTG COH done in FY 22-23(Feb-March-23).
- Adoption of best operational practices & implementation of various Encon Projects.

Energy Benchmarking Internal / External/ Global

FY 22-23	Target	Achieved	Competitor-1	Competitor-2	Competitor-3
Plant Name	JNSTPP	JNSTPP	NPL, Rajpura	PPGCL, Prayagraj	NTPC, Khargone
Gross Heat Rate (Kcal/kWh)	2160	2156	2248	2218	2180
Aux Power Consumption (%)	4.85 %	4.66%	4.56%	5.71%	6.60%
PLF (%)	85%	84.87 %	84.12 %	73%	66.29 %

Performance Under PAT Cycle

PAT CYCLE	PERIOD	ASSESMENT YEAR	NHR TARGET	NHR ACHIEVED	ESCERTS
PAT CYCLE - V	2019-22	2021-22	2303.34	2294.74	5469*

- *PAT CYCLE-V M&V AUDIT : AEA RECOMMENDED FOR 5469 ESCERTS –Yet to be Notified By BEE.

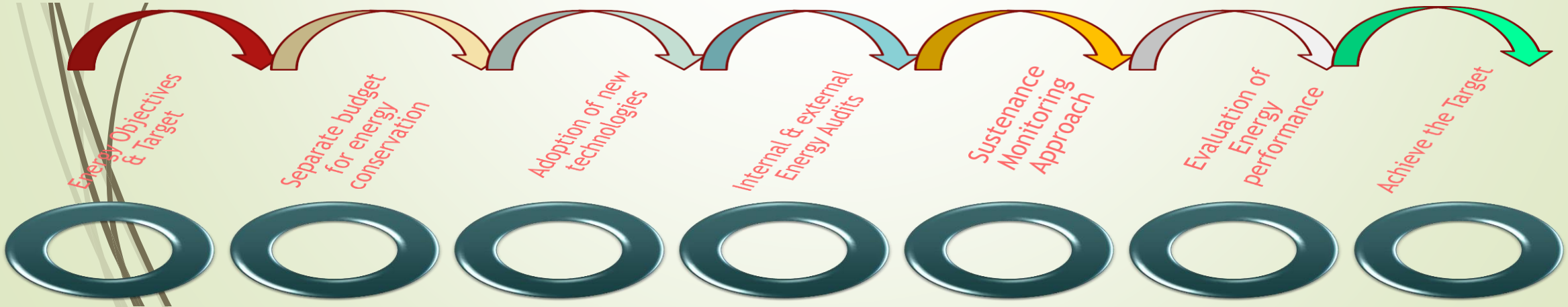
Road Map to Achieve National Energy Benchmarking

Internal

- **Daily Monitoring** of Key Parameters related to Heat Rate, APC, DM Cycle Make up & other parameters.
- **Monthly Performance Test** Boiler Efficiency, Turbine Heat Rate, NDCT & Condenser Effectiveness, Fan & Mill Performance etc.
- **Monthly ORT -** Detailed review of station parameters and comparison with NTPC & other similar plant performance.
- **Monthly Monitoring of Deviations in HMBD –** Corrective actions based on parameter deviations.
- **Interdepartmental Benchmarking** –Quarterly Monitoring of KPI targets & progress at department level.
- **Performance Test- Pre & Post Overhauling**
  Pre Overhauling Test to find the gap with respect to design/PG test for corrections during overhauling & evaluating the performance of unit by Post Overhauling Test.

External

- **Site Visits to Similar Capacity Plants** like NPL Rajpura, Koradi Power Station & others.
- **Sharing of Best Practices** & incorporating the learnings through Participation in Paper presentations, Seminars, Workshops etc.
- **Periodic Audit/Performance Test by Sector Expert** External Agencies like NTPC, CPRI, EPRI, STEAG & TUV etc.
- **Implementation of New Technologies** from similar power plants.



List of Major Encon Projects Planned In FY 2024-25

Sr. No.	Name of Energy Saving Projects	Investments (INR Million)	Elect. Savings (Million kWh)	Thermal Savings (Million Kcal)
1	Replacement of Conventional lights with LED	2.324	0.324	0
2	Energy Saving in ESP by keeping heaters in off condition (April- June)	0	0.432	0
3	Unit # 1 Energy saving by RAPH sector plate seals replacement, fan maintenance, duct repair and SCAPH cleaning, ESP washing & Maintenance.	4.00	7.052	0
4	Unit # 1 Energy savings by Economizer coil modification.	143.7	0	0.0288
5	Replacement of modified high energy drain valves in Unit #1 Installed Qty - 11 Nos.	4.03	0	21373.52
6	Unit # 1 CRH QC-NRV 28” to 32” modification	80	0	0.0016
7	CW Pump # 2 Chemical Coating & Capital Maintenance.	2.1	4.72	0
8	ACW Pump # 1 Chemical Coating & Capital Maintenance.	1.1	0.856	0
9	Unit # 1 Condenser High Pressure Jet Cleaning.	1.5	0	23629
10	Unit #1 LPT # 1 & 2 and Generator overhauling.	70	0	8078
11	Unit # 1 TDBFP Recirculation Valve Replacement.	5	15.25	0
	Total	313.754	28.634	53080.55

Energy Saving Projects Implemented in Last 3 years

FY 2021-22

No of Projects-16
Investment (INR Million)-17.38
Elect. Saving (Million kWh)-6.596
Thermal Saving (Million Kcal)-32348.8
Total Saving (INR Million)-56.34

FY 2022-23

No of Projects-8
Investment (INR Million)- 544.66
Elect. Saving (Million kWh)- 4.847
Thermal Saving (Million Kcal)- 22799.11
Total Saving (INR Million)- 240.103

FY 2023-24

No of Projects-8
Investment (INR Million)- 9.212
Elect. Saving (Million kWh)- 26.876
Thermal Saving (Million Kcal)- 24936.59
Total Saving (INR Million)- 205.49

Major Encon Project FY 2021-22

Sr. No.	Name of Energy Saving Projects	Investments (INR Million)	Electrical Savings (Million kWh)	Thermal Savings (Million Kcal)	Total Savings (INR Million)
1	Replacement of Conventional lights with LED	0.61	0.1767	0	0.4647
2	Energy Saving by arresting of Air Ingress in ID Fan Line at Boiler-1 by duct repairing	1.652	0.7186	0	1.8899
3	Energy Saving by arresting of Air Ingress in ID Fan Line at Boiler-2 by duct repairing	7.446	2.167	0	5.6992
4	Reduction of RAPH Flue Gas Exit Temperature At Boiler-1	0.687	0	15685	18.90
5	Reduction of RAPH Flue Gas Exit Temperature At Boiler-2	5.906	0	16369	19.73
6	Energy Saving by Optimizing Air Pressure of Main Plant Instrument Air Compressor	0	0.2031	0	0.5342
7	Energy Saving by Optimizing Air Pressure of Stage-1 Ash Conveying Air Compressor	0	0.7887	0	2.0743
8	Energy Saving by Optimizing Air Pressure of Stage-2 Ash Conveying Air Compressor	0	2.2475	0	5.911
9	Energy Saving by Optimizing Air Pressure of AHP Instrument Air Compressor	0	0.1040	0	0.2735
	Total	16.301	6.4056	32054	55.4768

Major Encon Project FY 2022-23

Sr. No.	Name of Energy Saving Projects	Investments (INR Million)	Electrical Savings (Million kWh)	Thermal Savings (Million Kcal)	Total Savings (INR Million)
1	ACW Pump-C energy saving by chemical coating and overhauling.	0.909	0.0398	0	0.1492
2	Unit # 2 Energy saving by RAPH sector plate seals replacement, fan maintenance, duct repair and SCAPH cleaning.	3.5	4.3450	0	16.29
3	Unit # 2 Burner Replacement & repairing and Mill Roller Tyre replacement	51.14	0		54.31
4	Unit # 2 Heat rate improvement due to HIP seal replacement & sand blasting at OEM Works.	174.5	0	0.096	46.37
5	Replacement of modified high energy drain valves in Unit #2 Installed Qty - 12 Nos.	3.98	0	22798.99	76.88
6	Energy Saving in Stage -2 Air Drier - Due to high ambient temperature (April to June).	0	0.1899	0	0.712
7	Unit # 2 Energy savings by Economizer coil modification.	310	0	0.029	44.37
8	Energy savings by replacing HPSV lights by LED lights.	0.6331	0.2719	0	1.02
	Total	544.6621	4.8466	22799.12	240.1012

Major Encon Project FY 2023-24

Sr. No.	Name of Energy Saving Projects	Investments (INR Million)	Electrical Savings (Million kWh)	Thermal Savings (Million Kcal)	Total Savings (INR Million)
1	Energy saving of 03 Nos Instrument Air Compressors by optimization of Loading and Unloading pressure.	0	0.163	0	0.47
2	Energy Saving in instrument air compressors by increasing the unloading hours by attending the air leakages of the Ash Handling System.	0.1	0.394	0	1.14
3	CW Pump -5 energy saving by chemical coating and overhauling	1.925	0.417	0	1.21
4	Energy savings by replacing HPSV lights by LED lights.	1.024	0.286	0	0.83
5	Unit # 1 Energy saving by RAPH sector plate seals replacement, fan maintenance, duct welding and SCAPH cleaning.	3.1	7.762	0	22.51
6	Energy Saving in Stage -2 Air Drier - Due to high ambient temperature (April to June).	0	0.190	0	0.71
7	Unit # 1 Heat rate improvement due to HIP Turbine maintenance.	52	0	0.194	94.52
8	Replacement of modified high energy drain valves in Unit #1 Installed Qty - 7 Nos.	2.49	0	24936.39	84.09
	Total	60.639	9.212	24936.58	205.48

Innovative Project Implemented

Material Upgradation (P91 to CC-2321) of 2ry Superheater connecting tubes (header to coils) in both Units.

Replicability: YES

Problem Description:-

- Tube leakage in 2ry Superheater connecting tube.

Project Trigger:-

Frequent BTL leading to:-

- Loss of generation & Availability.
- Increased SOC.
- Financial losses UI.
- Reduction in reliability.

Findings of the Study:-

- Based on failed tube analysis from CPRI & NTPC Netra, problem of overheating in middle zone of 2ry Superheater was found.

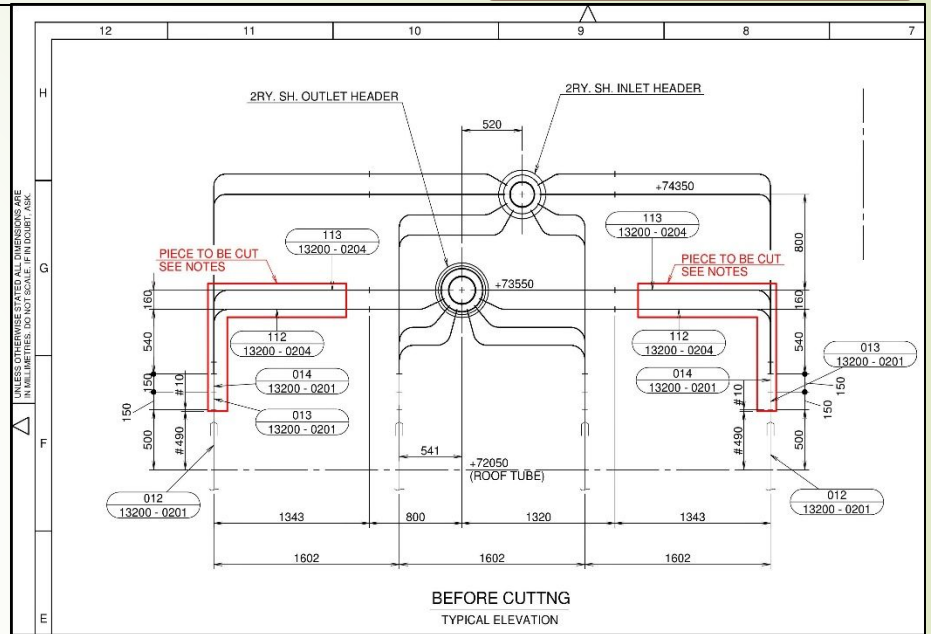
Implementation:-

- Additional tube metal temperature measuring elements installed, high temperature in middle zone observed.
- Reduced tube metal temperature alarm to 630 °C from 650 °C given by OEM.
- RAPH outlet O_2 optimized (excess air controlled).
- Replacement of connecting tubes by higher class material.
- Originally Mill # A was put on standby & Mill # F for continuous operation as per the requirement. After study, it was recommended by OEM to keep Mill # F on standby and put Mill # A for continuous operation.
- Top elevation Burner tilt locked at horizontal position and lower ones are in operation.
- GD dampers opening set at 80% & 20% on Superheater & Reheater side respectively.

Investment :- 20 Lacs

Annual savings:-

Considering 2 tube leakages per year: LDO savings 360 KL (3.06 Cr.)
Increased generation: 40.39 MUs (@ 85% PLF)



Unit # 2
Row No. 8, Panel B, Tube No. - 01

Unit # 1
Row No. 9 , Panel B, Tube No. - 01

Unit # 2
Row No. 9 , Panel B, Tube No. - 01

Unit # 2
Row No. 8 , Panel C, Tube No. - 19

Innovative Project Implemented

Modification of Economiser Coils in Unit # 2 Boiler

Replicability: YES

Problem Description:-

- Economizer tube leakages due to Ash erosion.
- No access beyond 4th tube from top. Hence tube plugging was the only option.

Project Trigger:-

- Reduction in availability.
- Reduction in reliability.
- Reduction in generation.
- Frequent outages due to tube leakages.
- High oil consumption

Findings of the Study:-

- High Flue gas velocity & turbulence between economizer & 1ry superheater.
- Lack of maintenance space between top & lower coils.
- % Plugging were increasing.

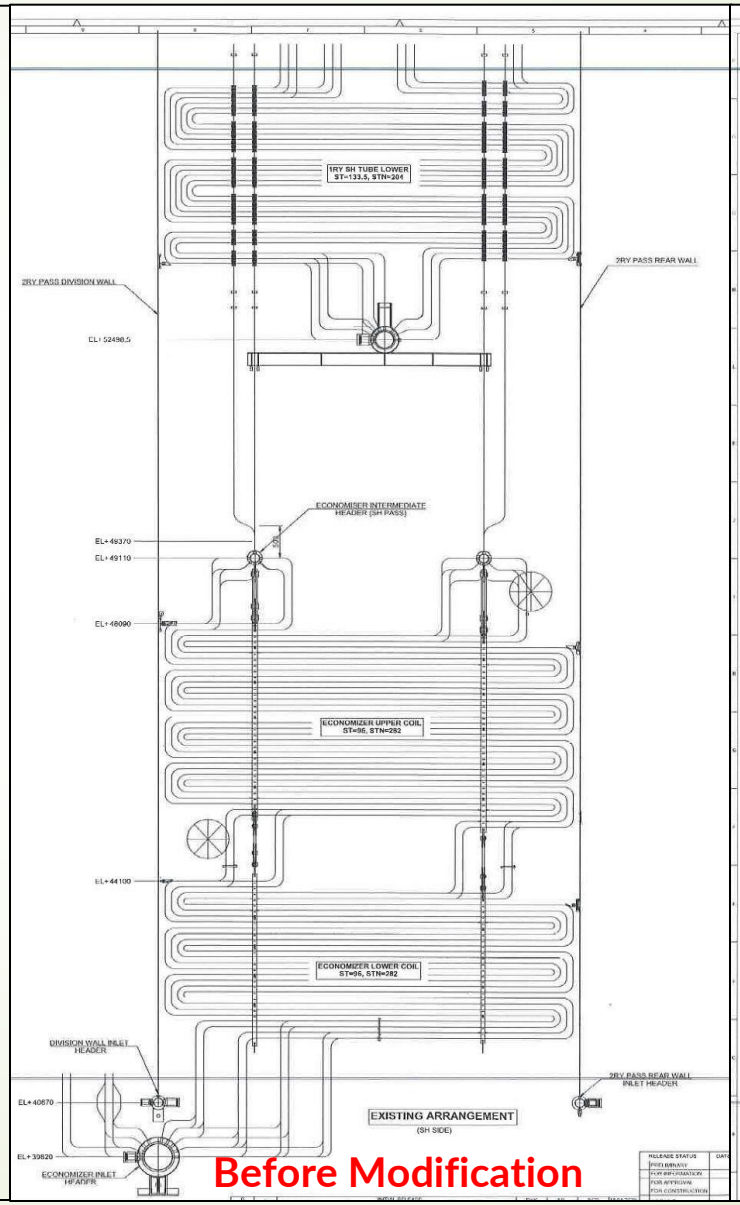
Implementation:-

- Superheater side top banks split into 2 banks.
- Header lifted by 2.21 m.
- Better access for future maintenance.

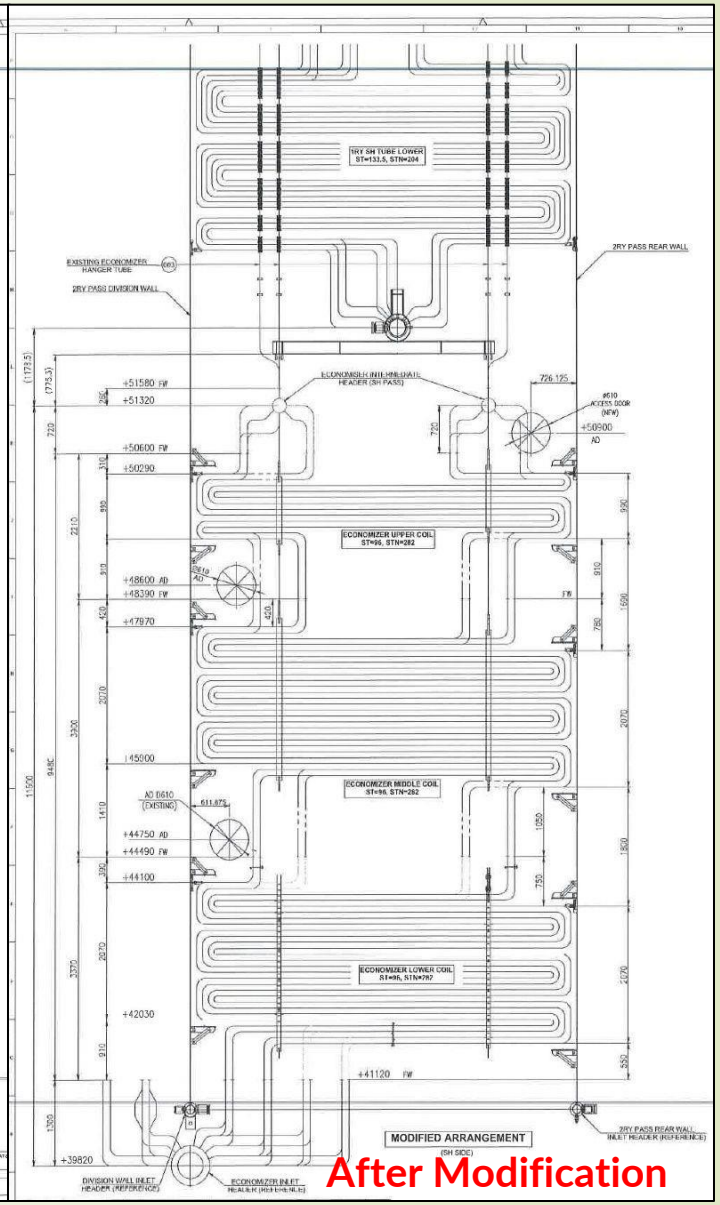
Investment:- 3100 Lacs.

Annual savings :-

- Considering 3 tube leakages per year: LDO savings 510 KL (4.33 Cr.)
- Savings in generation: 40.39 MUs (@ 85% PLF)



Before Modification



After Modification

Innovative Project Implemented

Material upgradation of RAPH Sector Plate from MS to Creusabro 8000 material in both Units.

Replicability: YES

Problem Description:-

- Frequent leakage from RAPH in primary air segment due to ash erosion.
- Erosion in sector plate.
- Higher O_2 at APH outlet.
- No margin in PA fan.
- Higher draft power.

Project Trigger:-

- Higher O_2 at APH outlet.
- Higher PA header pressure.
- Reduction in reliability.

Implementation:-

- Sector plate material upgraded to Creusabro steel from MS (IS 2062).
- Fabric cloth in sector plate upgraded with high temperature resistant cloth.

Investment:- 31 Lacs.

Annual savings :-

- Savings in draft power: 7.762 MUs/Annum

Ash Utilisation – Last 3 Yrs

Particulars	UOM	FY 2021-22	FY 2022-23	FY 2023-24
Ash Stock in Plant (yard + pond)	Tons	2,18,457.44	3,83,521.93	3,82,281.80
Ash Generated	Tons	15,79,399	14,54,697	18,06,429.05
Ash Utilization	%	89.55	100.09	89.17
Ash Utilized in manufacturing of cement/concrete - other	%	72.16	74.43	73.99
Ash Utilized in Fly Ash Bricks	%	2.23	4.63	5.06
Ash Utilized in Mine filling	%	NA	8.48	5.40
Low Lying area filling	%	25.61	12.45	15.54
Expenditure on Ash Utilization (Annual)	INR (Lakh)	1161	1911	3046

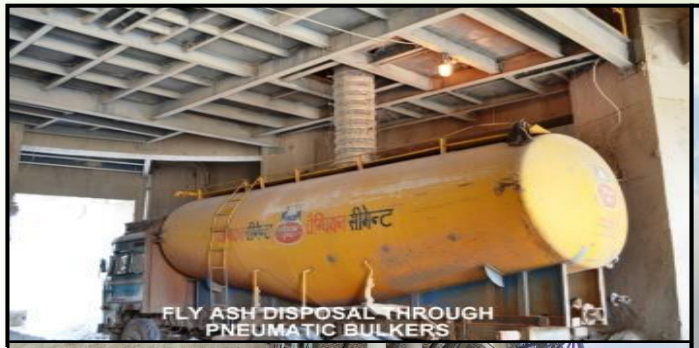
Ash Handling done through various methods in FY 23-24

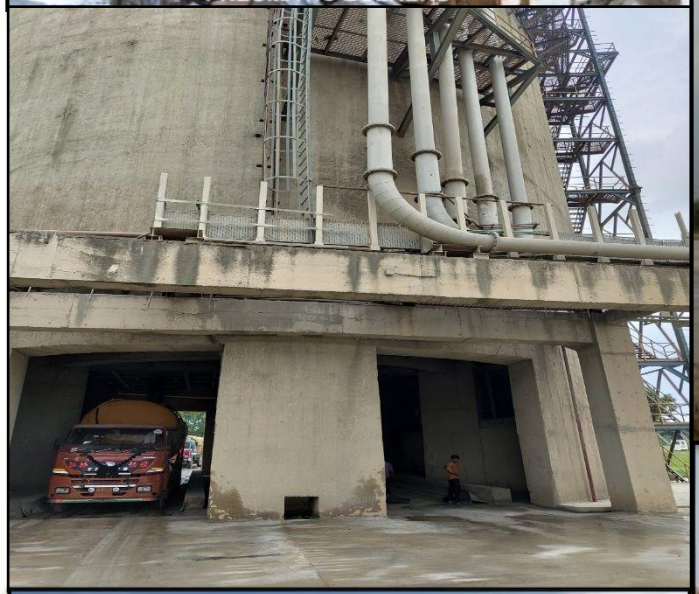
Ash Handled (Wet Mode) 33.79 %

Ash Handled (Dry Mode) 66.21 %

Ash Utilisation – Best Practices

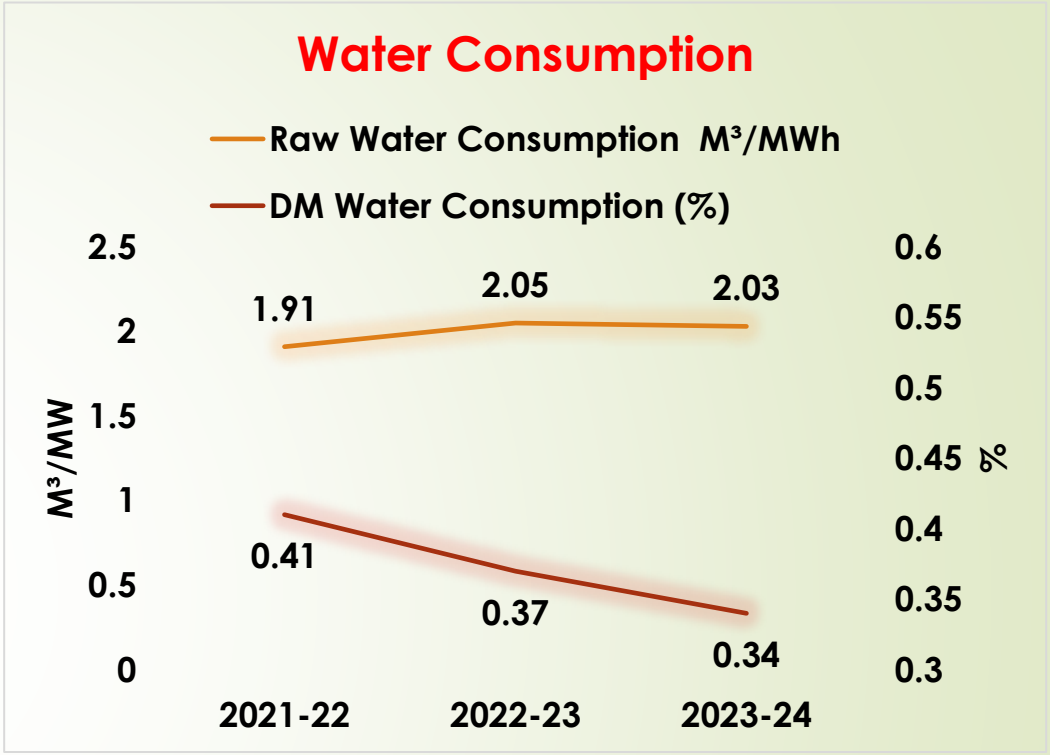
- Storage silo of 20,000 MT capacities (4-5 day storage capacity)
- 2 Nos. Automated Simultaneous Ash loading facility.
- Ash Pond Top layer always covered with water .
- 100% Fly Ash collected in Dry Form.
- Two fly ash line directly connected to receiving fly ash bin of 450 MT capacity in Cement Grinding Unit of 02 MTPA capacity.
- Closed Bulkers are only allowed for Dry ash transportation.
- Tarpaulin covered vehicles used for low lying area filling.
- Ash Dyke has been constructed with HDPE lining on inner side and over that PCC (75mm) layer.
- Regular Ash pond Structural Stability Study done by competent third party as per MoEF & CC guidelines.
- Regular Water Sprinkling arrangement in and around the Fly Ash dispatch Area, associated roads and on ash pond bunds whenever evacuation of ash from ash pond is carried out.





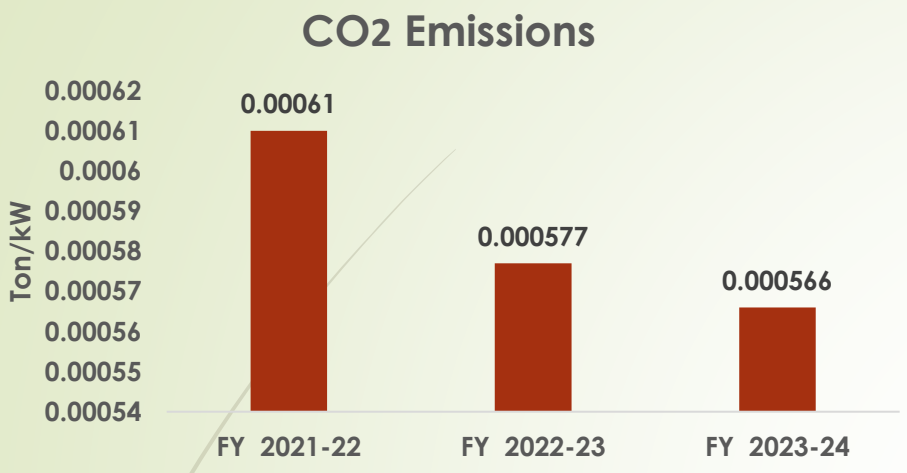
Water Management & Best Practices

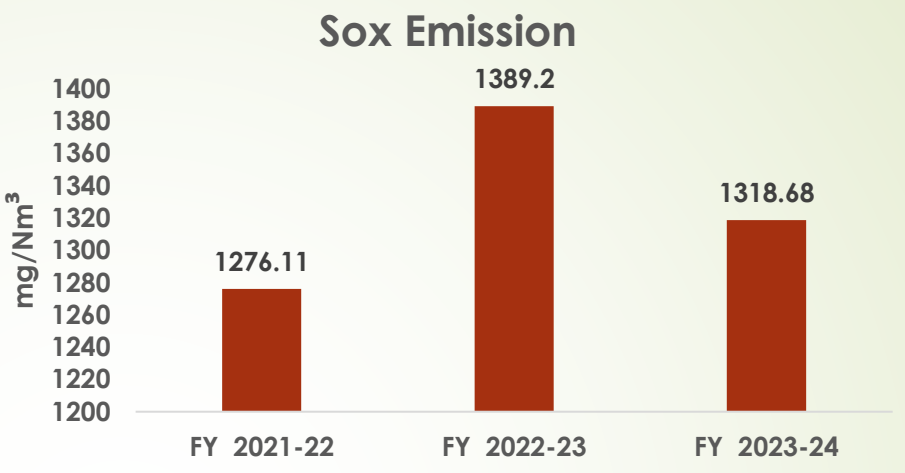
- 100% ZLD implemented and specific water consumption below prescribed limit of 3.5 m^3/MWh
- Daily monitoring of reservoir level.
- Avoiding filling of the reservoir when river water turbidity high in rainy season.
- Water is stored in the reservoir long enough for reducing turbidity to optimize chemical consumption.
- The frequency of sludge discharge from the clarification system is controlled due to the low turbidity of reservoir water.
- Utilization of WWTP RO reject water for dust suppression in CHP area & internal plant roads by regular water sprinkling.
- Mixed Sludge Water from PTP & WWTP disposed in the ash sludge tank and the decanted water reused for deashing purpose.
- DMF & ACF Backwash water of DM Plant treated at PT Plant & reused.

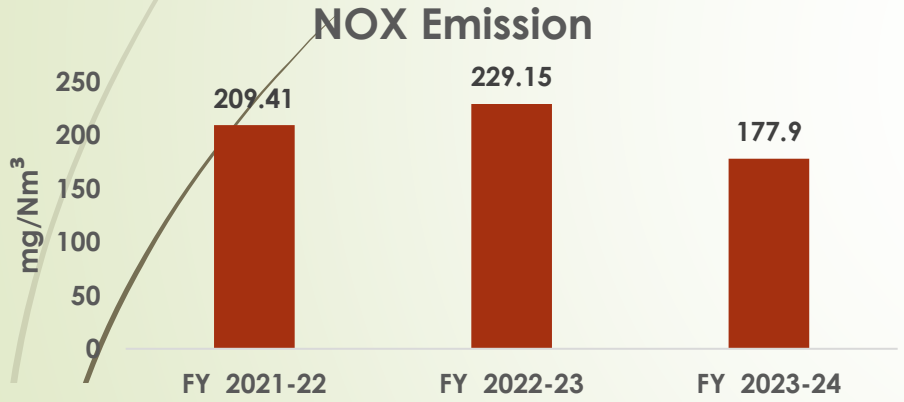


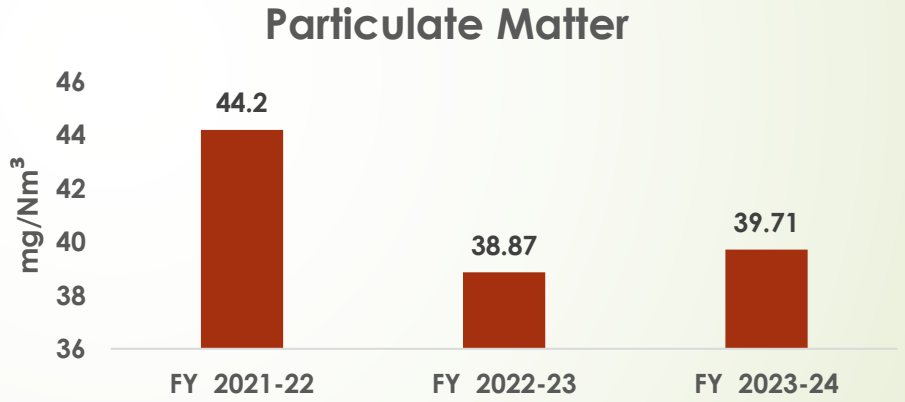
- Daily Close monitoring of Raw Water, CT Makeup & DM Water consumption and Pump Running Hrs and reservoir water levels.
- 100 % Ash Water Recirculation System. Ash Water ratio being maintained approx 1: 2.8.
- Strict monitoring of raw water consumption in bottom ash handling.
- The Sewage water is being used in horticulture after treatment.
- The Sludge of STP is used as manure for soil conditioning.
- Collection of all effluents in CMB & treated to meet the prescribed norms & reused in Cooling Tower Makeup and HVAC system.

Environment Management - Emission









*** Mercury- ND**

For SOx Emission Reduction:

Flue Gas Desulphurization (FGD) unit shall be installed for both Boiler within the prescribed timelines of MoEF&CC.

- **Order placed on M/s GE India Private Limited. Wind tunnel study in progress at Guna University.**
- **Geo-Tech study & Bore hole data collection completed. Layout finalized.**

For NOx Emission Reduction:

Low NOx Burner have been installed (48 Nos. each boiler) & at top elevation Additional Air Nozzles have been provided.

Environment Management- Best Practices

For Particulate Matter Reduction:

- Highly efficient (Efficiency 99.95%) BHEL make Electrostatic Precipitators (ESPs).
- Adequate Air Pollution Control measures such as Dust Extraction System (Cyclone followed by Bag Filters).
- All TPs, Ash Silo, Crusher house equipped with bag filters.

Infrastructure for Emission Monitoring & Control

- Continuous Emission Monitoring System
- Ambient Air Quality Monitoring System
- Coal Pre Wetting system installed in Wagon Tippler.
- All Conveyor Belts are covered & equipped with Dry Fog Dust Suppression system (DFDS).
- Water jet sprinkling system installed in Coal Yard.
- Water sprinkling arrangement around Fly Ash silo & Ash pond area.

Environmental Management Practices:

- 33% of total area has been developed as Green belt area (5.785 Lac saplings covering 144.21 hectares).
- Top surface of Ash pond is covered with water.
- JNSTPP, Nigrie have taken membership from authorized TSDF site for Hazardous Waste Management.

Environmental Management Practices

- 100% coal transportation through railways.
- All Plant roads made Pucca (Concrete) and maintained.
- Regular Water Sprinkling on Plant roads.
- Road Sweeping Machine Operational for cleaning.
- Ash Dyke has been constructed with HDPE lining on inner side and over that PCC (75mm) layer.
- Closed Bulkers are only allowed for Dry ash transportation.
- In-House Truck Tyre Wheel Washing Facility.
- Good housekeeping practices are adopted to avoid leakages, seepages, spillages etc.
- Municipal Solid Waste is collected door to door in Township and also from Waste bins in Power plant area on regular basis, after collection & handling segregation of waste carried out.
- 1000 KLD and 100 KLD capacity STP operational.

Environment Management

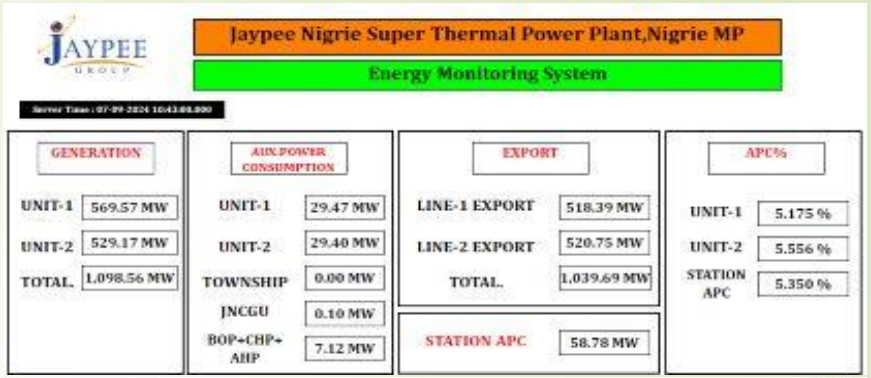
Best Practices in the Plant (Non-Energy Efficiency)

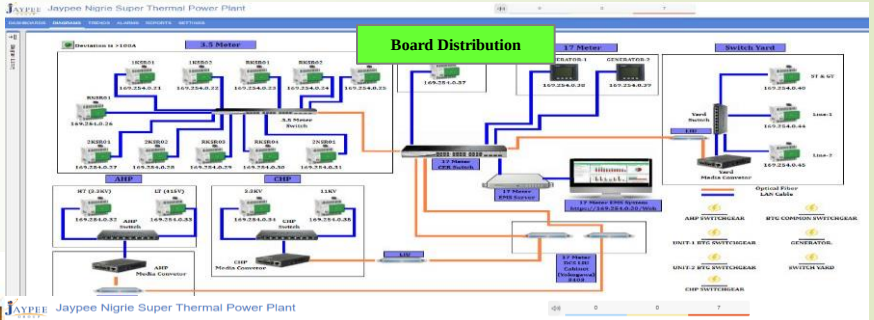
Flexibilization	• Unit # 2 Flexi Operation testing done by L&T MHI. Data Collection done & report awaited. • Unit # 1 Flexi Operation testing planned after COH by L&T MHI.
Technology Advancement	• 400 kV Transmission Line & Transformer LA's replaced with 360 KV to 336KV LA's to improve system reliability. • BTG, CHP & Aux. Boiler DCS HMI upgradation. • Control room DLP lamp based LVS replaced with LED LVS.
Maintenance & reliability	• Vibration Analysis, LOI, NAS, TAN, Infrared, Thermography, Dissolved Gas Analysis, Motor Signature Analysis. • Adopted methodology for boosting productivity, workplace management and safe & efficient
Digitization	• Material procurement system through SAP. • Computerized biometric attendance recording system. • App based township residents complaints reporting & rectification. • Company wide intranet facility. • Availability Based Tariff (ABT) system for generation & UI monitoring.
Asset Management	• SAP system implemented for S&P asset management. • Heavy vehicle fleet measurement device installed. • Monitoring & preservation of critical items.
Biodiversity & Afforestation	• Friendly Habitat for Floras & Faunas. • Various varieties of fruit bearing & forest species plants like Mango, Lichi, Jamun, Amla etc. • Cow, Duck & Fish domesticated in township. • 33% of total area has been developed as Green belt area within plant i.e. Total 5.785 Lac saplings have been planted over an area of 144.21 hectares of suitable native species
New Initiatives	• Implementation of FGMO as per Indian Electricity Grid Code (IEGC)-2023. • HMDC installed for conditioned fly ash despatch through rail. • Ash dispatch through rail. Total 46 rakes dispatched. • Switchyard & Transformer yard earthing audit. • Augur sampler installed for rake coal sampling. • Proposal to install X-Ray based online GCV analyser.

Energy Management System

Energy management system involves developing & implementing a system to achieve/better energy targets according to PG test/Design.

- 250+ drives are connected through EMS system.
- Automatic APC report generation on daily/hourly basis.
- Actual Targets set for every department for optimal energy consumption.
- Energy Management System access is provided to all departments.
- In daily planning meeting area wise energy consumption deviations are discussed.
- All HoDs are given responsibility to monitor energy consumption & ensure efficient operation of their respective areas.
- Availability of meter reading & energy consumption on real time basis.
- Real time visual summary of full day DSM report.
- ***JNSTPP, Nigrie FY 23-24 station APC 4.66%. Improvement from last year 13.86%.***





IMPORTANT BUS VOLTAGE

	R-ph	Y-ph	B-ph
UT-1	10.98 kV	10.95 kV	11.00 kV
	860.41 A	853.90 A	845.60 A
UT-2	11.01 kV	10.96 kV	10.96 kV
	750.36 A	741.77 A	734.95 A
UT-3	11.20 kV	11.16 kV	11.17 kV
	602.76 A	590.47 A	585.83 A
UT-4	11.11 kV	11.07 kV	11.06 kV
	764.10 A	749.31 A	747.71 A

	R-ph	Y-ph	B-ph
ST-1 (LV-1)	11.22 kV	11.16 kV	11.17 kV
	288.11 A	286.17 A	277.17 A
ST-1 (LV-2)	11.19 kV	11.14 kV	11.17 kV
	332.31 A	333.87 A	325.31 A
ST-2 (LV-1)	11.14 kV	11.09 kV	11.08 kV
	225.86 A	225.41 A	219.89 A
ST-2 (LV-2)	11.13 kV	11.09 kV	11.08 kV
	103.03 A	105.77 A	101.13 A

PLANT LOAD FACTOR

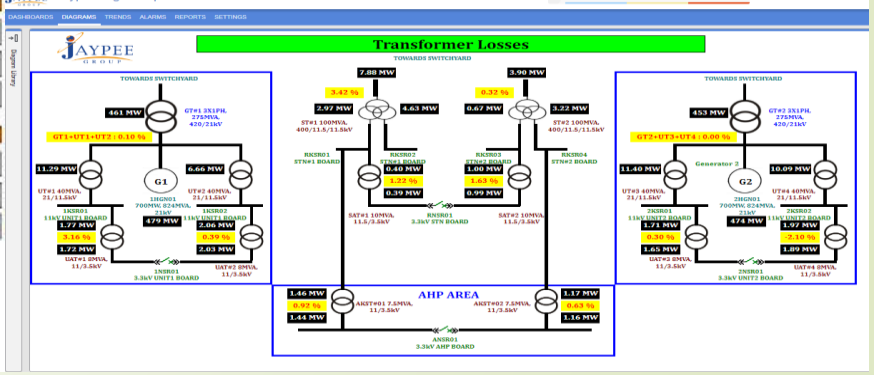
	UNIT#01	UNIT#02
TD		
UNIT#1 / UNIT#2	10.7802	15.6997
UNIT#1 DC / UNIT#2 DC	15.8400	15.8400
UNIT#1 PLF / UNIT#2 PLF	68.06 %	99.11 %
MTD		
UNIT#1 / UNIT#2	19.4889	90.4844
UNIT#1 DC / UNIT#2 DC	95.0400	95.0400
UNIT#1 PLF / UNIT#2 PLF	20.51 %	95.21 %
YTD		
UNIT#1 / UNIT#2	2,669.8246	3,706.5309
UNIT#1 DC / UNIT#2 DC	3,960.0000	3,960.0000
UNIT#1 PLF / UNIT#2 PLF	67.42 %	93.60 %

AVAILABILITY

	UNIT#01	UNIT#02
TD		
UNIT#1 RUNNING / UNIT#2 RUNNING	24	24
UNIT#1 / UNIT#2	24	24
UNIT#1 / UNIT#2	100 %	99 %
MTD		
UNIT#1 RUNNING / UNIT#2 RUNNING	54	142
UNIT#1 / UNIT#2	144	144
UNIT#1 / UNIT#2	37 %	99 %

Plant PLF : 57.86 %

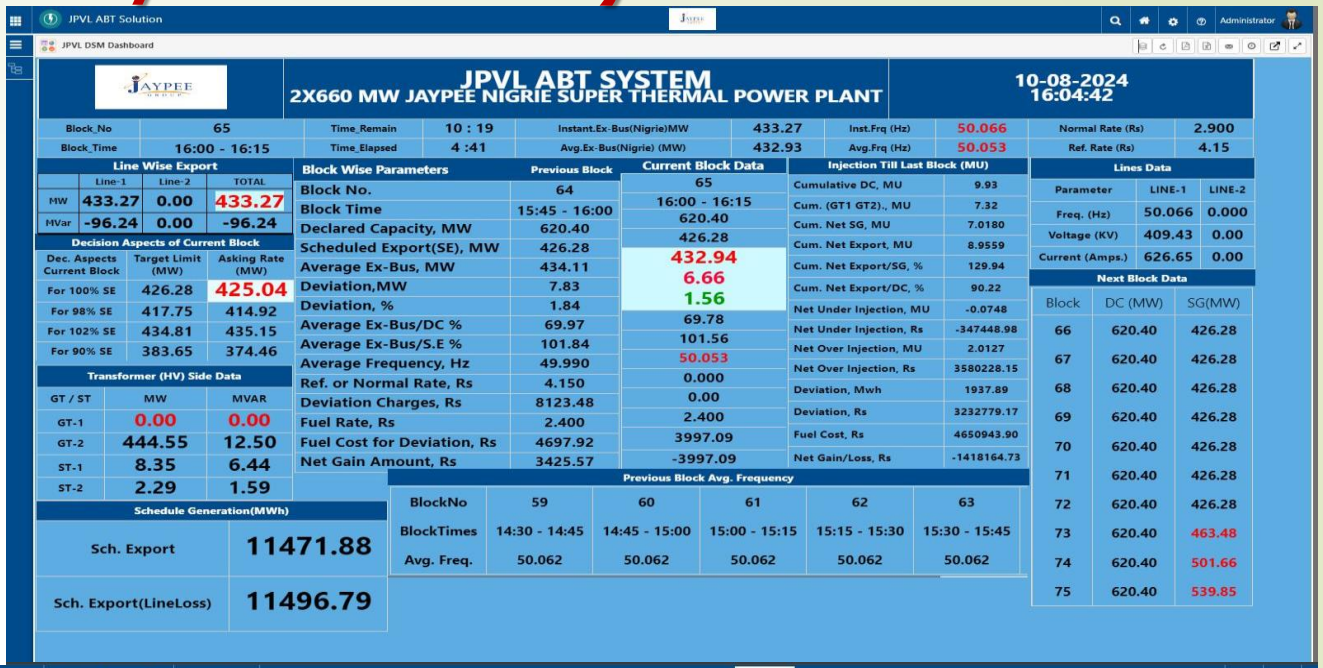
Plant AVL : 68 %

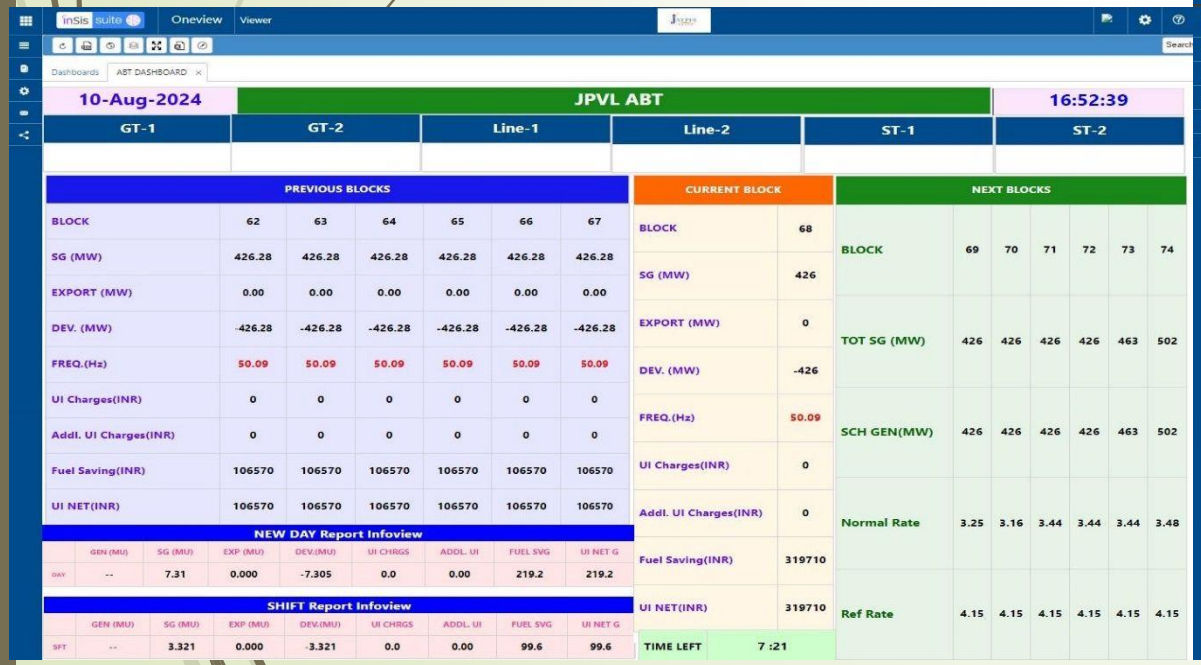


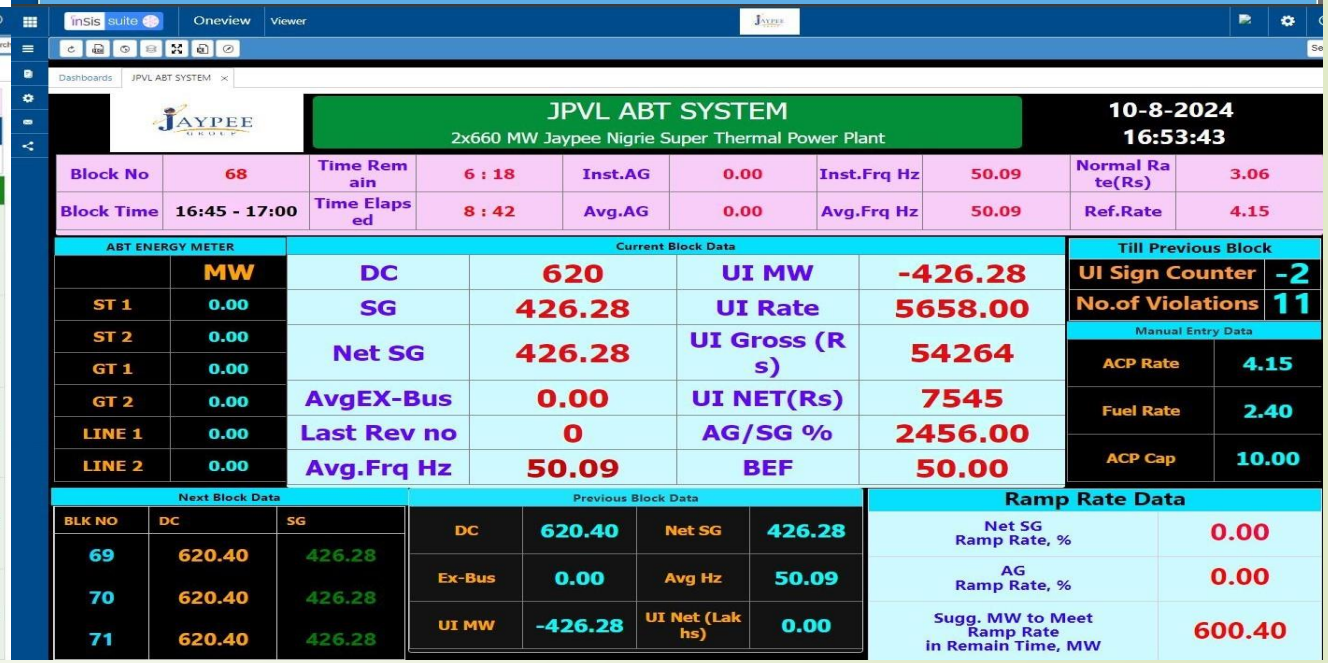
➨ ABT System (Availability Based Tariff)

The Objective of ABT System :-

- ❖ Maintaining generation as per grid frequency.
- ❖ Making optimal trade in energy.
- ❖ To utilize available capacity in favourable way.
- ❖ Availability of previous day frequency trend
- ❖ Better online view of schedule.
- ❖ Based on previous frequency trends equipment maintenance is scheduled.
- ❖ **Maximize UI (In FY 23-24 – 15.71 Cr.).**







➨ Learnings from CII/Other Award Program

- Learnings about the best practices adopted from best performing companies.
  - Provision of NDCT basin & Hotwell make up through gravity.
  - ERV controller (Velcon make) replaced with Yokogawa controller.
  - Burner tilt Rotex make positioner replaced with Jenesis electro pneumatic positioner with I/P converter.
  - High Energy Drains, BFP recirculation line temperature monitoring in DCS.
  - Installation of Rooftop solar panel for improvement in APC.
- CII event gives opportunity for Inter & Intra Sector Benchmarking for improvement.
- Facilitate adoption of similar projects at our unit, leading to improvements.
- An Opportunity to interact & network with individuals and companies of repute for further strengthening Energy Efficiency System.
- CII Best Practices Manual brings Potential Projects with high replicability of Energy Saving.
- Information about Latest market trends & innovative products for Energy Efficiency .
- Identification of strengths and opportunities to excel, based on a comprehensive and rigorous assessment by experts.

Alternative Fuel - Biomass

- JNSTPP Nigrie, started Biomass Co-firing in FY 2021-22.
- Agro Residue Non Torrefied Biomass Pellet.
- Total Biomass cofired till July-24 : 1318.13 MT.
- Green Power Generated : 2.29 MU's.
- CO_2 generation averted : 1426 MT
- Helping Beneficiaries to meet RPO Obligations.

Electric Vehicle's

- JNSTPP Nigrie, Purchased 03 Nos. of Tata Nexon EVs & 01 No. Golf Cart, promoting electric vehicle for reducing emission.
- Around the plant area 02 Nos. of Electric Vehicle Charging Station developed.
- Total Vehicle run till July-24 : 45159 KM
- Total Diesel Saved till July-24 : 4608 Liter.
- CO_2 generation averted : 12.17 MT
- Reduced Noise Emission.

Beyond the Fence Best Practices -CSR Activity

Healthcare:

- Well equipped hospital. Trained doctors and medical staff
- Pathological, radio graphical and minor surgical facilities.
- 03 nos. of modern ambulances.
- Free Cataract operation to 26 peoples.
- Free Health Check-Up & Health cards provided to the 229 students.

Education:

- Jay Jyoti School (CBSE Class X, English Medium).
- Sardar Patel Uchchatar Madhyamik Vidyalaya (State Board Class X, Hindi Medium).
- Free uniforms, books, scholarship and mid-day meals.
- Construction of Boundary wall in Govt. Middle School, Nigrie.
- Mid Day meals in Sardar Patel Uchchatar Madhyamik Vidhyalay.

Skills Development:

- The Kutir Udyog in our Township runs tailoring classes for women.
- Honey bee keeping.
- The scope of activities in Kutir Udyog is being enlarged in consultation with our stakeholders.
- Free electricity & water supply is provided to the Street Lights in R & R Colony.

Rural Development:

- Constructed a bridge in Niwas Village.
- A Kitchen Shed in Viklang Vidyalaya, Katai.
- PCC Road at Papal.
- A community hall, a temple and a clinic has been constructed in Aawaas Colony.
- Deepening, Restoration & Refurbishment of ponds in nearby villages Niwas and Papal.
- Construction of 6 Nos. Borewell for Drinking water supply.

Afforestation:

- Planted over 5 lakh trees in the plant & township.
- 50,000 trees are added every year.
- Created a Herbal & Medicinal Park over an area of 5 acres.
- 144 Hectares of land has been set aside for plantations
- Rain water harvesting pond in township.
- Distribution of Jute Bags and LED Bulb to nearby villagers.

Teamwork, Employee Involvement & Monitoring

Daily Monitoring System

- Daily Planning Meeting(DPM) is conducted every day to discuss the critical issues, previous day performance & target for next day. It is chaired by COP/Unit Head. Wet System –Daily Ash to Water Ratio Monitoring in Daily Planning meeting , Stringent Effort are being applied to reduce Ash to Water Ratio, Raw water Consumption.

Operation Review Meeting

- Chief Technical Officer/COO chairs this meeting once in a month to discuss plant performance & to address long pending issues of various departments.

Systems and Practices

- System-wise and equipment-wise efficiency and gap analysis done (Design vs Actual), Boiler tube Metal Temperature monitoring, Historical data extraction for detailed analysis and reporting, Various other initiatives to improve efficiency, Monitoring of high energy drain valve passing in every 15 Days. Timely inspection & maintenance of Transmission line ensure 100% plant availability. Department wise monthly safety meeting & GAMBA walk.

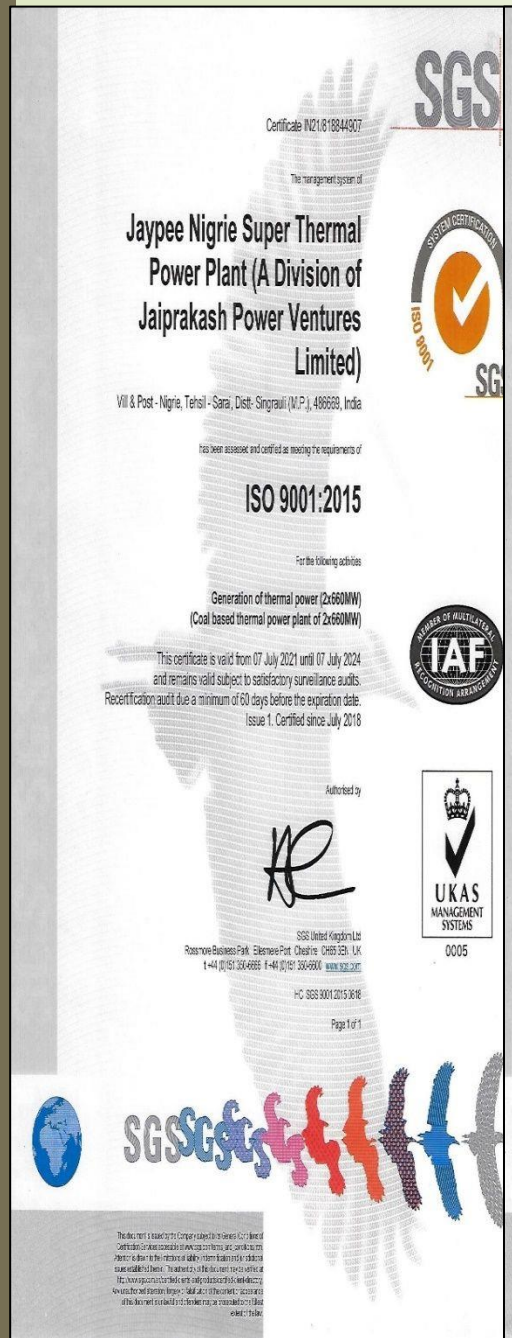
Training

- All Operation desk engineers have been provided training regarding Energy Efficiency performance of thermal power plant including boiler, turbine and other auxiliaries during 01 year induction training.
- Employees are encouraged to attend exams organized by Bureau of Energy Efficiency &Boiler Operation Engineer.

Peer learning

- Knowledge sharing through case studies conducted on O&M and safety issues.

ISO Certification



Certificate IN21.81844907

The management system of

Jaypee Nigrie Super Thermal Power Plant (A Division of Jaiprakash Power Ventures Limited)

Vill & Post - Nigrie, Tehsil - Sarai, Distt- Singrauli (M.P.), 486669, India

has been assessed and certified as meeting the requirements of

ISO 9001:2015

For the following activities

Generation of thermal power (2x660MW)
(Coal based thermal power plant of 2x660MW)

This certificate is valid from 07 July 2021 until 07 July 2024 and remains valid subject to satisfactory surveillance audits. Recertification audit due a minimum of 60 days before the expiration date.
Issue 1. Certified since July 2018

Authorised by

SGS United Kingdom Ltd
Rossmore Business Park Ellesmere Port Cheshire CH65 3EN UK
t +44 (0)151 350 6666 f +44 (0)151 350 6600 www.sgs.com

HC SGS 9001 2015 0018

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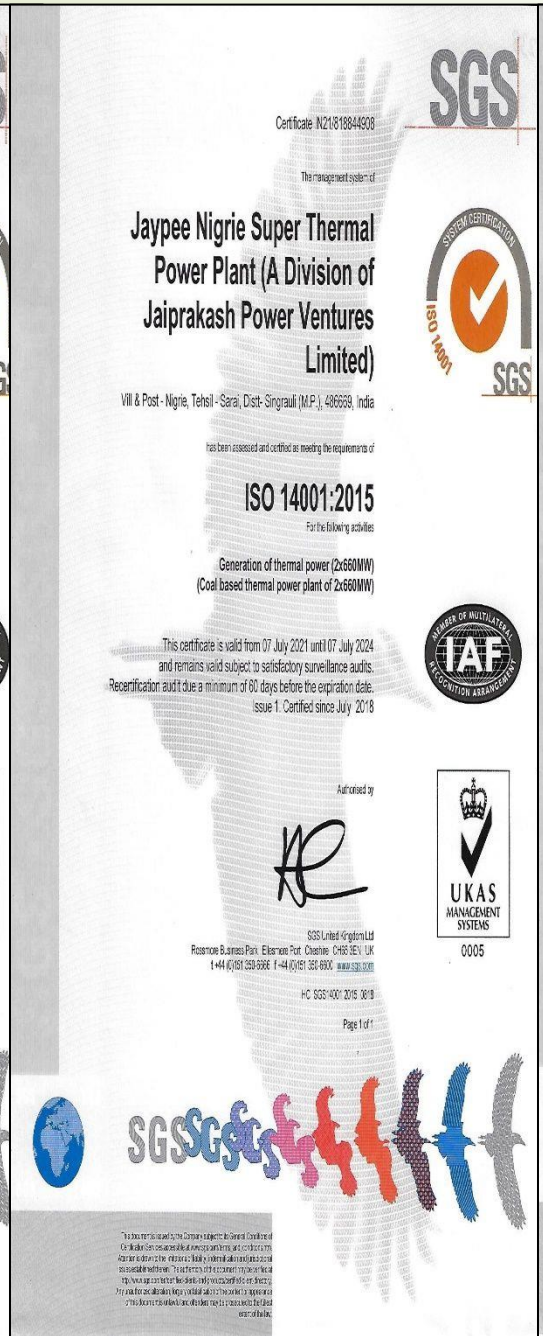

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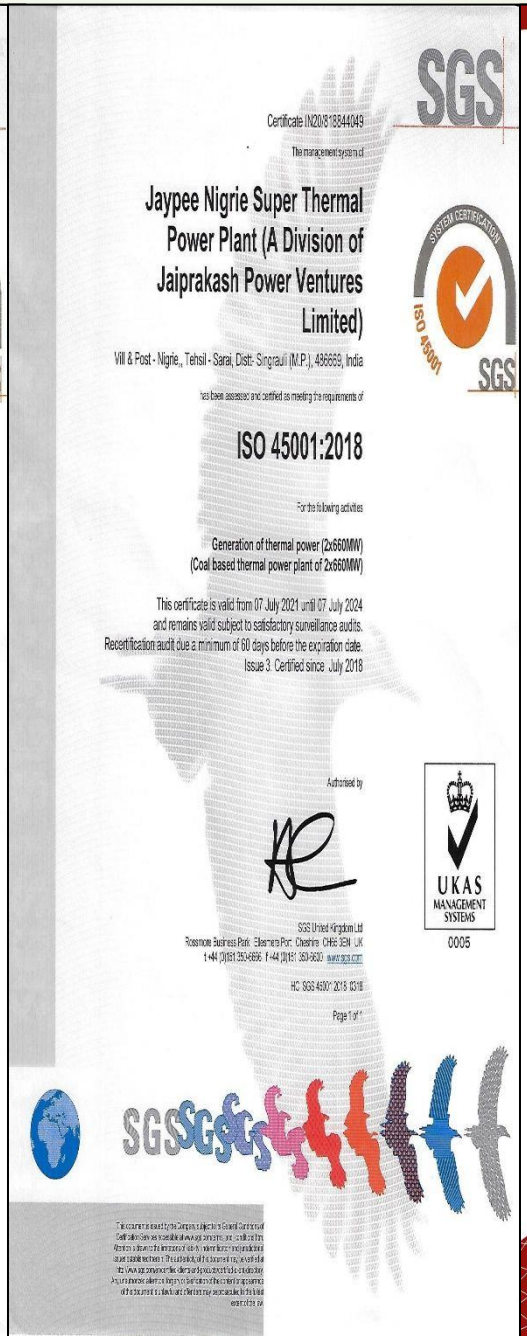

Certificate IN2081844049

The management system of

Jaypee Nigrie Super Thermal Power Plant (A Division of Jaiprakash Power Ventures Limited)

Vill & Post - Nigrie,, Tehsil - Sarai, Distt- Singrauli (M.P.), 486669, India

has been assessed and certified as meeting the requirements of

ISO 45001:2018

For the following activities

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UKAS MANAGEMENT SYSTEMS 0005

Certificate of Registration

(Quality Management System)

QFS MANAGEMENT SYSTEMS LLP

This is to Certify that the Quality Management System of

JAYPEE NIGRIE SUPER THERMAL POWER PLANT

(A DIVISION OF JAIPRAKASH POWER VENTURES LIMITED)

VILLAGE & POST: NIGRIE, NIGRIE NIWAS, TEHSIL: SARAI,
DISTRICT: SINGRAULI- 486669, M.P. (INDIA)

Has been found to be of the Quality Management System Standard

ISO/IEC 27001:2013

This certificate is valid for the following product or service range

PROVISION OF INFORMATION SECURITY IN FACILITY MANAGEMENT OF THERMAL POWER PLANT

SOA – JNSTPP/SOA, VERSION -2.0, DATE: 03.02.2022

Certificate Number: **IS/2204JJ/4382**

Initial Date of Certification: **29.04.2022**

2nd Surv. Due on: **28.03.2024**

Date of Certificate: **16.05.2023**

Date of Expiry: **28.04.2025**

Director:

Date: **16.05.2023**

IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT

IAS ACCREDITED MSCB 118

The validity of certificate is subject to regular surveillance audit on or before above mentioned dates and its only valid after successful surveillance with continuation letter issued by QFS. It is issued subject to the continued availability of access at any time and without notice to the above named organization's premises for the purpose of assessment and surveillance regarding the standard named above and QFS terms and conditions.

QFS MANAGEMENT SYSTEMS LLP
www.cfscerts.com
email: admin@cfscerts.com
This Certificate remains the property of QFS

CERTIFICATE

TÜVRheinland CERTIFIED — Energy Data Management System — Regular Surveillance — www.tuv.com ID 0000043886

Certificate-ID:	C-11-2022-21257356
Certificate for:	**Audited energy data management system**
Certificate holder:	Schneider Electric SE 35 rue Joseph Monier 92500 Rueil Malmaison France
Test report:	B-11-2022-21257356
Products:	Software and hardware components as specified in appendix I to the certificate
Basis of certification:	Audited energy data management system in accordance with the catalogue of requirements Version 3.0 (as of 06/2018)
Scope of certification:	Document and system review of functionalities for use with energy management systems in accordance with ISO 50001, ISO 50006 and energy audits in accordance with ISO 50002

Schneider Electric

It is herewith confirmed that the functionalities and characteristics of the software and hardware components of Schneider Electric SE described in the test report named above as well as in the appendix I to the certificate, have been verified within the framework of a document and system review. The components verifiably support compliance with the requirements of the chapters of the standards ISO 50001, ISO 50002 and ISO 50006 as listed in the appendix to the certificate. This certificate is valid until 31st December 2024.

Cologne, 13 January 2023

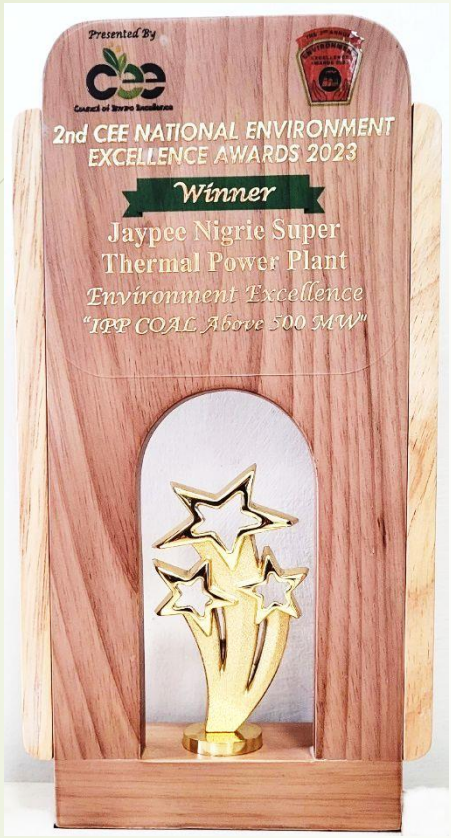
Dipl.-Ing. Norbert Heidelmann
TÜV Rheinland Energy GmbH
Sustainability and Carbon Services

Florian Grießl, M.Sc.
TÜV Rheinland Energy GmbH
Sustainability and Carbon Services

TÜVRheinland®
Precisely Right.

Awards & Recognitions

Winner in **CII National Award For Excellence in Energy Management** 2023 for Energy Efficient Unit



Winner for **National Environment Excellence Award** 2023 for The IPP Coal Above 500 MW from Council of Enviro Excellence

Winner for **Best National Water Efficient Plant of the Year** 500 MW & Above FY 2023-24

Winner for **Best Zero Liquid Discharge Plant** Council of Enviro Excellence FY 2023-24

Winner for **National Efficiency Award** 2023 for The Best Energy Efficient Plant-Coal from Mission Energy Foundation

Email Id: jnstpp.eemg@jalindia.co.in
Contact: 7389943874