24th CII National Award for Excellence in Energy Management- 2023

DB Power Ltd

Presented By:

1. *Mrs. Pratibha Pathak (Chief . Manager –O&E)*
2. *Harshvardhan Gupta (Manager –Operation)*
3. *Mr. Deepak kumar Sharma (AVP– Operation & Maint.)*

LEADERSHIP | Visionary Promoters Dedicating Complete Energy and Resources Towards Achieving the Power Business Vision

Power Business

Girish Agarwal
Managing Director,
DB Power

Sector: *Power*

- Committed US$320m of equity in the power business
- Leading one of the youngest power stations.
- Outstanding Entrepreneur' at Asia Pacific Entrepreneur Awards.
- Over 27 years of experience in print media and new business development.
- E&Y Entrepreneur of 2006 in Media Category.
- Active member of Indian Newspaper Society (INS), he was the youngest chairman of INS MP.
- Under his leadership, Divya Bhaskar won the 'Best in Print' at IFRA Asia Pacific Awards

Print Media and Other Businesses

Sudhir Agarwal
Managing Director, DB Corp

Sector: *Print Media*

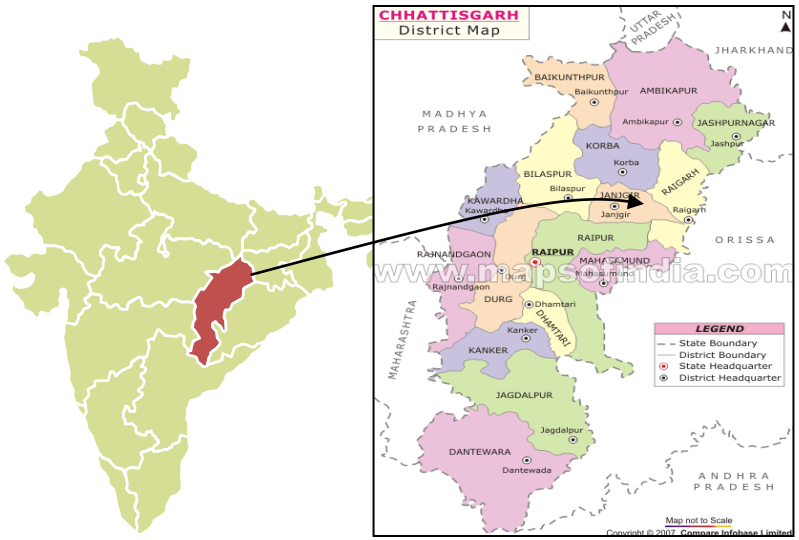
- Over 28 years of experience in print media
- Responsible for formulating DB Corp's long-term vision, monitoring performance and devising business strategy
- Under his leadership, DB Corp has progressed to become one of largest read newspaper of India

Pawan Agarwal
Managing Director, FM Radio

Sector: *Print Media / FM Radio*

- Been on the Board of DB Corp since December 2005
- Also actively leading the radio business and the DB Digital business within the group

Plant Location Overview



Location	Village- Badadarha, Tehsil – Dabhra, District – Sakti, State – Chhattisgarh.
Nearest Town	Raigarh – 24 km
Nearest Railhead	Robertson 12 km
Approach Road	All weather road
National Highway	NH 200 – 10km

Plant Capacity -1200 MW (2*600 MW)

COD U#1 :- 3rd Nov'2014

COD U#2 :- 26th Mar'2016

Land

- 255 Ha (630 Acre)

Coal

Requirement = 6.33 MMTPA

- Long-term FSA for 2.5428(ACQ) MMTPA from SECL
- Balance by E-Auction purchases

Water

- 23 MCM per annum - Kalma Barage at Mahanadi River, thru cross country pipe line of 28.4 Km

POWER EVACUATION

- Thru 18.5 Km Double Circuit 400 KV line to PGCIL Pooling Station Kotra, Raigarh

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Mission

To Generate Safe, Reliable, Eco Friendly and Cost Effective Power.

TURBINE –(BHEL)

- Design Turbine Heat rate : 1944 Kcal/KWh
- Main steam pressure 170 bar
- Steam temperature (MS/RH) 537 / 537 deg C.

:**Rated load**: 600 MW, Max load: 630.303 MW

BOILER (BHEL)

- Pulverised Coal 2000 TPH boiler.
- Controlled Circulation, Single Drum, Balanced Draft. Tilting/Tangential Burners.
- Design Efficiency 86.32%

OTHERS

- CHP & Wagon Tippler (L&T)-2 Nos.
- Natural draft Cooling Towers
- Balance of Plant (L&T)

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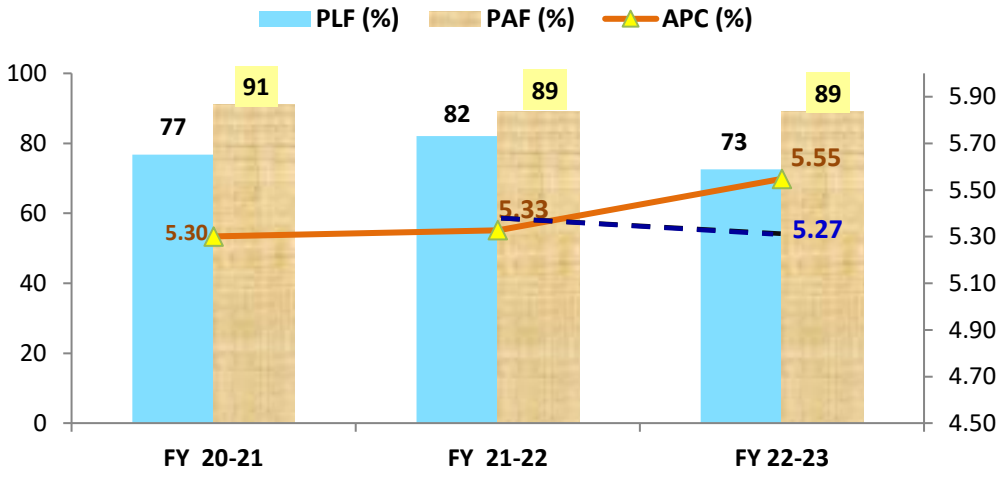
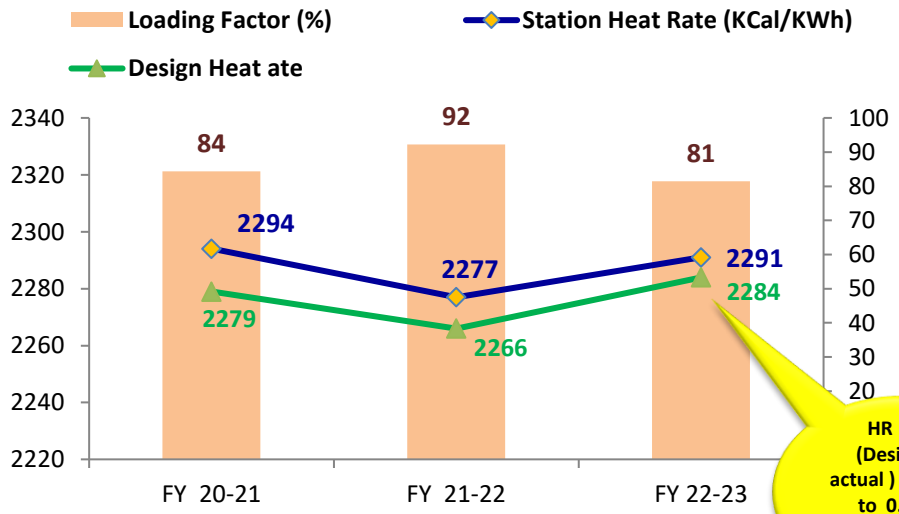
Current Year Performance –FY23-24 Till 31st July-23

Annual Generation	2862MU
PLF	81.45%
Availability	94.6%
Loading factor	86.5%
APC	5.55%
Boiler Efficiency	87.05%
Turbine Heat Rate	1990 kcal/kwh
Heat Rate	2286 kCal/Kwh
DM water	0.25%
Raw Water	2.30 m3/mwh
SOC	0.21ml/Kwh

KPI'S





HR gap (Design vs actual) reduced to 0.31 % compared to Last year 0.49%

APC:

- **APC improved after U#2 COH by 0.28% however due to low PLF by 09 % APC seems higher side.**
- VFD installation
- APC optimisation by intensive monitoring
- CHP Conveyor belt loading factor utilisation
- Implementation of improvement & Encon. projects

Availability =89%(22-23)

Reason For variations

- **Planned outage = 5.86%**
- **Forced Outage = 5.01 %**

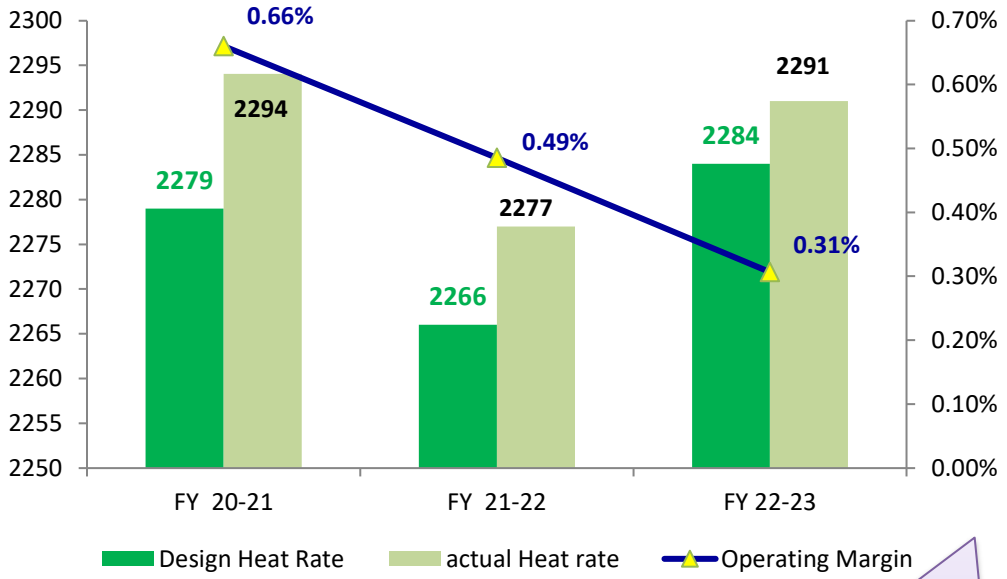
FY	20-21	21-22	22-23
Forced Outage (Nos.)	21	14	16

HEAT RATE:

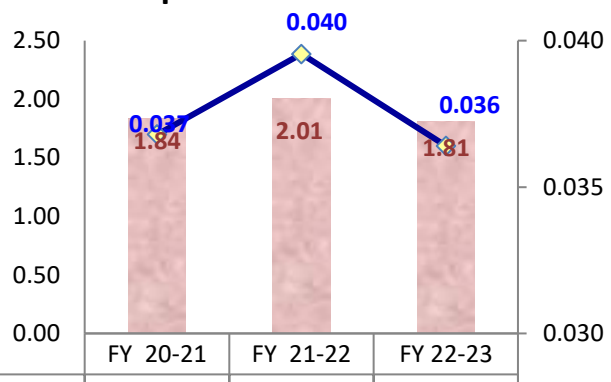
- **Reduction in Heat Rate operating margin from 0.49% to 0.31% in FY 2022-23**
- **U#2 Capital Overhauling done**
- **Combustion optimisation**
- **Best practices adopted**

Sp. Energy Consumption

Improvement in Heat Rate on yearly basis



Thermal & Electrical Specific Energy Consumption in MToe



	FY 20-21	FY 21-22	FY 22-23
Thermal Energy Consumption	1.84	2.01	1.81
Electrical Energy Consumption	0.037	0.040	0.036

Major Factors contributing for Heat Rate Improvement in FY 2022-23

1. U#2 COH (21 kCal/kWh gain obtained)
2. Combustion optimisation (SA/PA ratio, fuel air ratio,O2 Set Point, LOFA/OFA position optimisation as per unit loading
3. DM make-up optimisation- Selected Wall blower, LRSB operation & Online leakage rectification (AMC)

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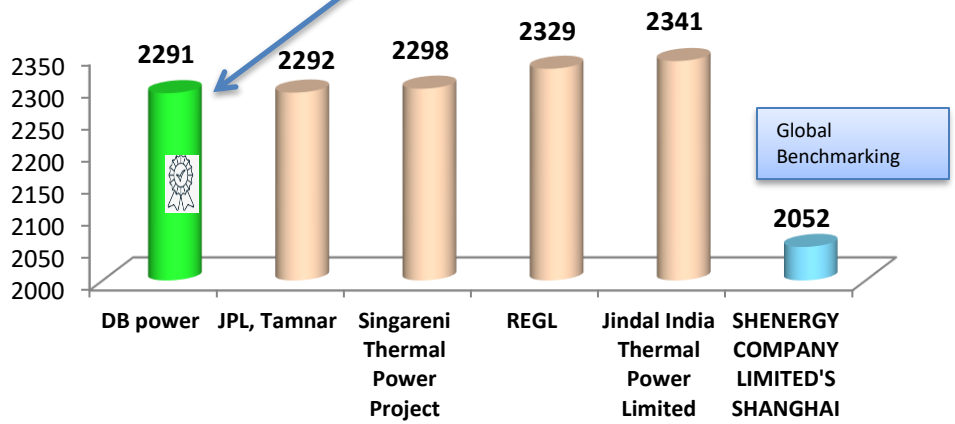
Energy Benchmarking

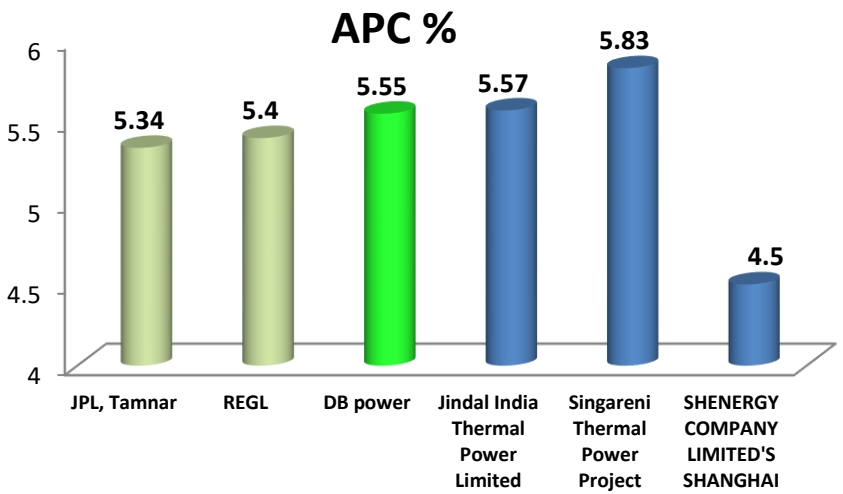
Data Source (PAT Notification & others)

DB power has achieved best heat rate at 72% PLF

HEAT RATE Kcal/Kwh



Aux Power Consumption (%)



*Here We are comparing plant performance with JPL ,Tamnar as National benchmarking .(DB Power plant is replica of JPL,Tamnar)

	GHR (kCal/kWh)	APC (%)
Targets for FY 2023-24	2298 @ 86.5% Loading Factor	5.44 (without FGD)

Road Map To Achieve Target/Benchmark

Improvement & Encon Project Implementation + Operate the unit at design paramete + Detail Energy Audit, Gap Analysis. + Insulation Mapping, High energy Drain passing & Air Audit Survey + APC Analysis, Schedule AOH & COH = Target GHR & APC

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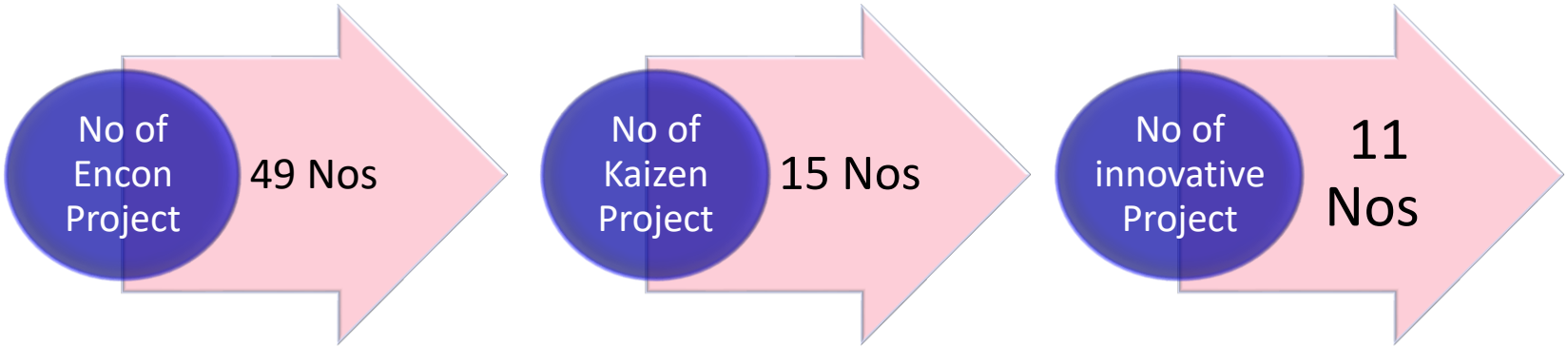
LIST OF MAJOR ENCON PROJECTS PLANNED IN FY 2023-24

Sr. No.	Title of Project	Status/Remark	Annual Electrical Saving (million kWh)	Annual Thermal Saving million Kcal	Investment Made (Rs million)
1	Installation of VFD in CEP Pump	Feasibility study u/p	2.15		12
2	Implementation of VFD in seal air fan (132 KW) IN UNIT NO-2	Completed in U#1	0.28		0.8
3	Implementation of VFD in instrument air system AHP (160 KW)		0.35		0.9
4	Installation of 132 KW VFD on BA Overflow pump		0.19		0.7
5	Replacement of multiple Split AC with single Package AC		0.15		0.7
6	Lift checking arrangement in Turbine at BRG Pedestal # 1 & 2 for checking lift in HOT turbine.		0.27	33	0.15
7	Replacement of conventional lights by energy efficient LED lights in plant.(10 high mass light)	10*12 lights in each high mass lights	0.26		1.08
8	Expected improvement of 11 kcal/kWh heat rate after unit-1 AOH by improving the performance of cooling tower, condenser, air pre heater, boiler insulation, HP and LP feed waterr,Turbine cylinder efficiency etc.		7.49		80
9	Occupancy/Motion installation in lights		0.01		0.03
	Total		**11.16**	**33.00**	**96.36**

LIST OF MAJOR ENCON PROJECT COMPLETED IN FY 2022-23

Sr.No.	Title of Project	Annual Electrical Saving	Annual Thermal Saving	Investment Made
		(Million kWh)	Million kCal	(Rs million)
1	Installation of VFD in Seal Air Fan - 132 KW	0.244	0	0.8
2	Installation of VFD in LDO Forwarding Pump - 90 KW	0.20	1.33	0.6
3	Installation of VFD in LP Water Pump - 110 KW	0.25	0	0.8
4	Installation of vacuum transmitter in boiler 8.5 meter	0.06	102.30	0.75
5	Ten numbers of High mast conventional illumination changes to LED high efficient light, long life .	1.05	0	4.4
6	22 kcal/kWh heat rate improved after unit-2 COH by improvement in performance of cooling tower, condenser, air pre heater, insulation, heaters and Turbine cylinder efficiency etc.	14.02	0	140
7	Reduction in Auxiliary power consumption (by 5 %) of CHP by increasing the utilization factor of conveying System	1.01	0	0
8	Ash Water Recovery Pump - line rerouting for power saving	0.18	0	0.65
9	DCS DPU reliability improved after OEM study & implementation of recommendations.	0.05	0.63	0.5
10	Inspection of Missing fins joint of S-Panel tube by water spray on it and inspection through Zero chamber/ Cat house (AOH Activity)	0.09	1.26	0
11	Quarterly internal Air Leakage Audit by using Fluke Acoustic Camera	0.14	0	0.4
12	ID fan power consumption reduced by attending the duct leakage after O2 mapping.	5.7	0	0
13	PA fan power consumption reduced by reducing the PA Header pressure set point from 800 to 780 mmwc	2.80	0	0
14	Horizontal Extension of APH Hopper Discharge Evacuation Line by 8 Meters from Segregation Valve	0.63	0	0.15
	Total	26.46	106	149

Energy Saving projects implemented in last three years

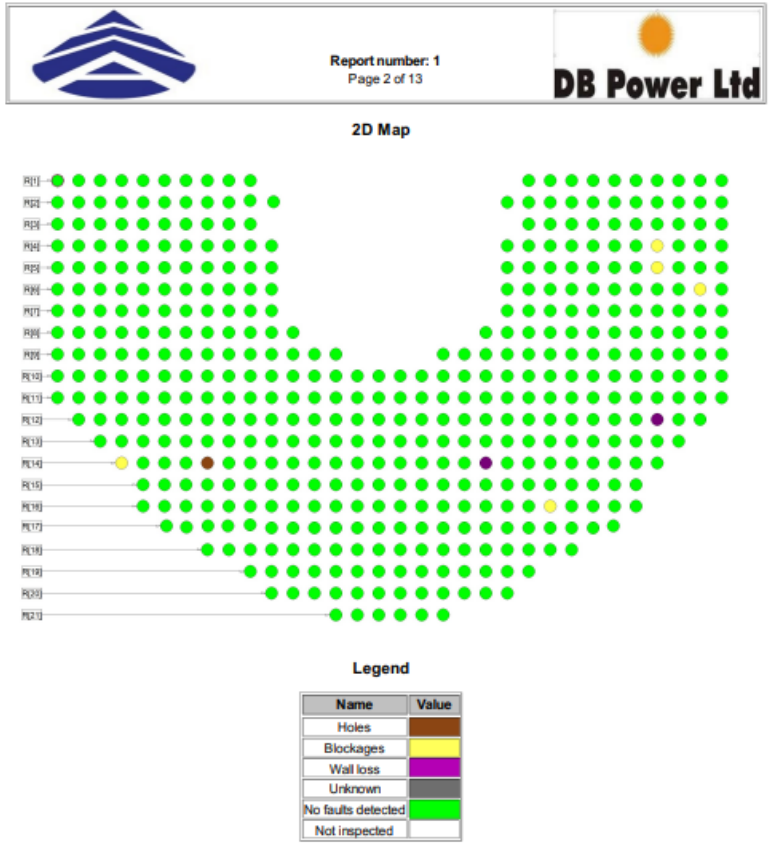


Year	No of Energy saving Projects	Investment (INR Millions)	Electrical Saving (Milllions Kwh)	Thermal Saving (Millions Kcal)	Saving (Rs. Million)
2020-21	14	1.98	6.1	15.2	32
2021-22	21	163 (including U#1 COH)	18.7	128	164
2022-23	14	145 (including U#2 COH)	26.46	106	175
Total	**49**	**310**	**51.26**	**249**	**371**

ACOUSTIC PULSE REFLECTOMETRY INSPECTION FOR DETECTION OF MOT COOLER TUBE LEAKAGE

Replica- Yes

Problem with Existing cooler : Minor Tube leakage causing reduction in MOT level in TG lube oil system. Same could not be identified by pressurizing of cooler from oil side due to very minute leakage. 2.5 KL lub oil waste on account of minor leakage in a month. New technology APRI technology adopted to detect tube leakage. Earlier Eddy current testing was utilizing , success rate is low in finned tubes.



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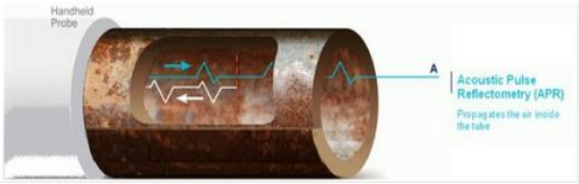
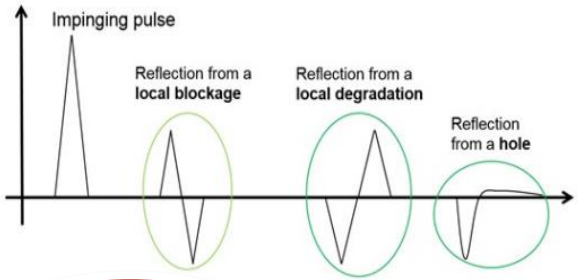
Conti….

Acoustic Pulse Reflectometry (APR)- is a Non Destructive Testing (NDT) technique that sends sound pulses through air medium and measures any ensuing reflections. ·



> APR (Acoustic Pulse Reflectometry) Signatures:



Benefits

Work completed in 2 days instead of expected One week unit s/d.

Saving in lub oil of 2.5 KL in month i.e Rs = 5 lacs

Insitu detection of leakage

Results after inspection

Defect table by tubes

Fault ID	Tube ID	Pos[m]	Type	Size	Comments	Graph
5	R[3]C[2]	3.02	Wall loss	35 %		Link
7	R[3]C[8]	0.43	Blockage	15 %		Link

Holes

Fault ID	Tube ID	Pos[m]	Diameter[mm]	Comments	Graph
140	R[14]C[5]	2.91	0.8		Link

Wall loss

Fault ID	Tube ID	Pos[m]	Wall Reduction[%]	Wall Reduction[mm]	Comments	Graph
2	R[12]C[28]	1.46	70	1.4		Link
12	R[14]C[18]	1.16	75	1.5		Link

Nitrogen blanketing of control fluid Tank

Replica- Yes

Background : TAN value of Control fluid was in increasing trend from 0.02 to 0.15 against limit value of 0.2 mgKOH/gm).

Proposal- Control fluid Tank (FRF) Dehumidifier : Saturated Nitrogen is used for blanketing because it is inert gas. Blanketing creates a slight positive pressure inside the tank free space area, which prevents air, moisture, or other contaminants from entering the tank. This action helps to inhibit the oxidation of control fluid, and also while this saturated Nitrogen go out of the tank this will take out the moisture from CF, resulting in an decrease in TAN value and degradation . Ultimately, this practice extends the life of the control fluid.

Results :

Before Blanketing -2022
TAN =0.15
Moisture= 948

After:

Blanketing - 2023
TAN= 0.04
Moisture= 650

Benefits

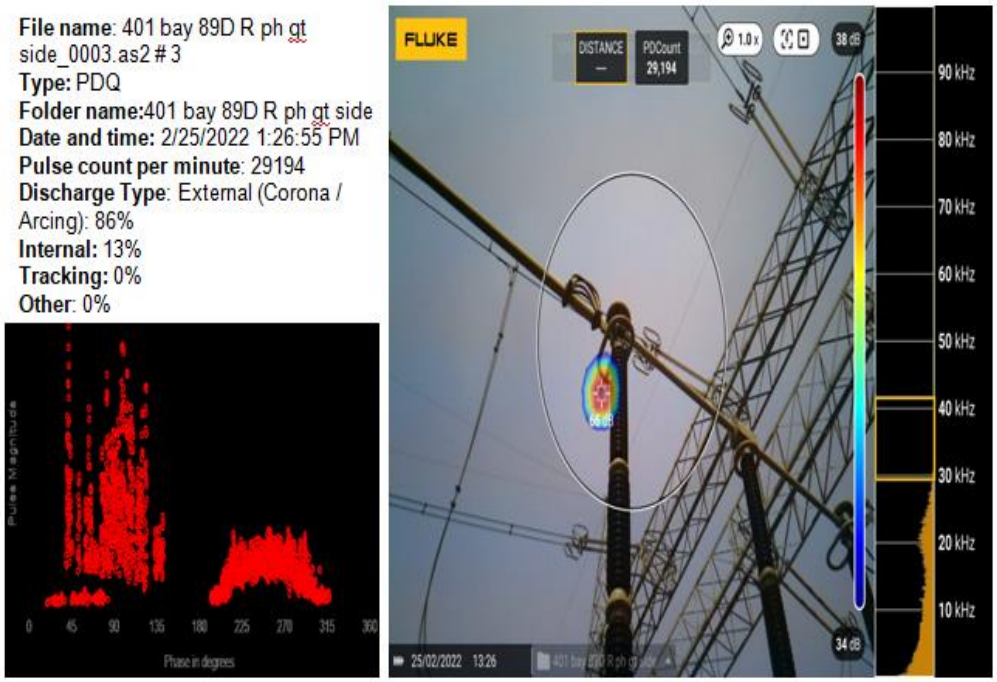
- CF Oil quality improved
- Oil replacement (approx. 20%) cost = 50 lacs saved
- Prevention of malfunctioning of turbine governing valves

PD / CORONA DISCHARGE MEASUREMENT OF TRANSFORMER & SWYD EQUIPMENTS

Replica- Yes

Exist system : Partial discharge that goes unchecked can cause blackouts, fires, explosions, or death from arc flashes. In addition to the danger this can pose to the environment and human lives.

Innovation: PD / Corona discharge measurement of transformers/ switchyard equipments by Acoustic imager: The PD & corona discharge due to sharp edges, looseness, accumulation of dust particles and other internal / external faults have been easily identified by Acoustic imager.



Benefits

- Reduced the chances of effects like arcing or flashover due to corona discharge
- Identification of PD/Corona discharge helps to maintain the healthiness of equipment which reduces the energy loss.
- Potential of unit s/d saving of approx 4 hrs for each incident

Major Projects –Towards Reliability Improvement in FY 2022-23

1) Coal Rake (BOBRN) Splitting in Wagon Tippler to Minimize Demurrage Charges:

Rake splitting is a strategic approach to optimize the unloading process of railway wagons. By dividing large rakes into smaller groups and unloading them separately with two wagon tippler .

Benefits:- Reduces unloading time, Demurrage charges.

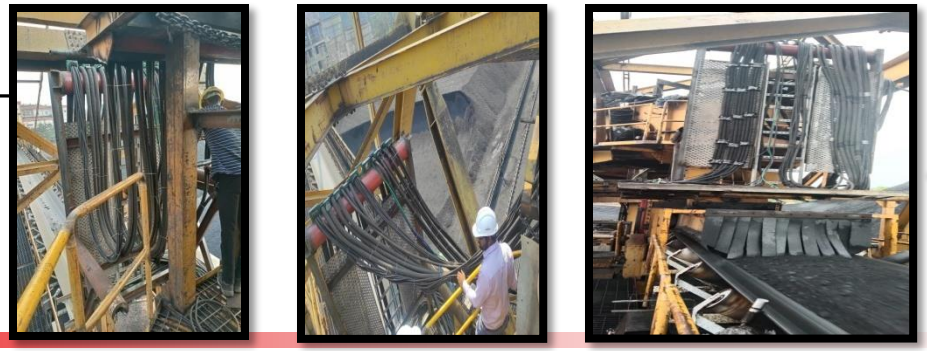
Saving : 25 lakh /month

2) Cable & Structure Design Modification at Stacker Recamier –

- All Cable were twisting and bending due to slew mechanism of SCR, where cables was very tight at bend position. Cables were laid over the support structure with out cable tray .
- Only one type of approaching method (Monkey ladder) was in use to reached at cable JB.

Before modification:-

After modification:-



Modification –Cable Rerouting done with support structure. (Cable loop type arrangement).

Substitution of Conventional Energy With Renewable Energy

- **05 Nos. Projects Implemented. Installed Capacity – 0.00232 KW.**
- **Solar (PV) Onsite Annual Generation (Million kWh) – 0.0363**

Financial Year	Technology (electrical)	Type of Energy	Onsite/ Offsite	Installed Capacity(MW)	Generation (million kWh)	% of overall Electrical Energy
FY 2020-21	--			0.00132	0.00867	
FY 2021-22	5 Nos .street light	Solar	Onsite		0.0063	
FY 2022-23	10 Nos. street light	Solar	Onsite		0.0080	

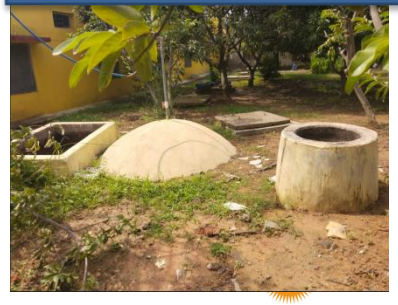
Financial Year	Technology (electrical)	Type of Energy	Onsite/ Offsite	Installed Capacity(MW)	Generation (million kWh)	% of overall Electrical Energy
FY 2020-21	Electrical (Battery) vehicle inside plant premises	Battery	Onsite		0.008295	
FY 2021-22	Electrical (Battery) vehicle inside plant premises	Battery	Onsite		0.008295	
FY 2021-22	Kitchen food waste biogas plant	Biogas	Onsite			
FY 2022-23	Electrical (Battery) vehicle inside plant premises	Battery	Onsite		0.008295	

***Installation of grid connect solar power plant 3KW for CSR medical center FY 23-24**

PV Solar Panel Installed at Intake Pump House

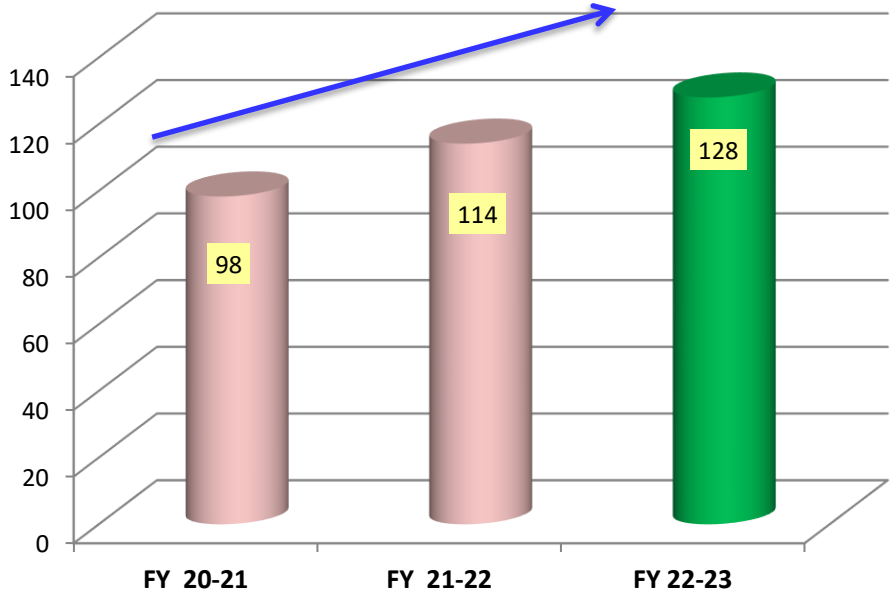
PV Solar Street Light Inside Plant

Kitchen food waste biogas plant

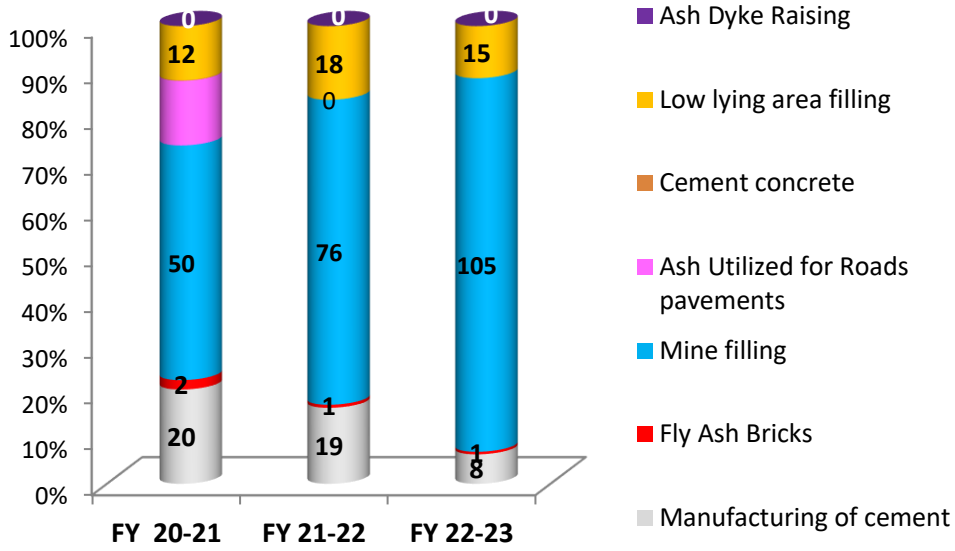


Environment Management – Ash Utilization

Ash Utilization (%)



Ash Utilization –Break up (%)



Best Practices:

- GPS is used to ensure proper disposal of ash at designated location only.
- Ash transportation to cement plant by Railway wagons **First time started in C.G, Ash dispatched through rakes is 91 Nos. till date since FY2020-21**
- I Magic software implemented for unmanned weighbridge for Coal & Fly Ash Truck weighing.

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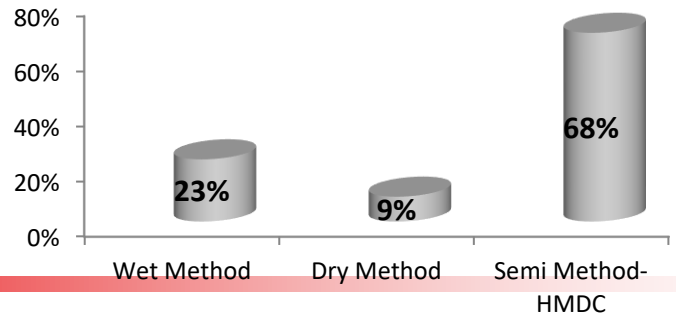
Environnent Management- Ash Utilisation

Particulars	UOM	FY 2020-21	FY 2021-22	FY 2022-23
Ash Stock in Plant (yard + pond)	Tons	2328855	1906353	1138995
Ash Generated	Tons	2645733	2985053	2369850
Ash Utilization	%	98.3	114	129
Ash Utilized in manufacturing of cement/concrete – other similar products	%	20.28	19	8
Ash Utilized in Fly Ash Bricks	%	2.03	1	1
Ash Utilized in Mine filling	%	50.42	76	105
Ash Utilized for Roads pavements	%	13.86	0	0
Ash Utilization in Other Areas – Please mention below	%			
Part replacement of cement in concrete	%	0.12	0	0
In reclamation of low lying area	%	11.6	18	15
In ash Dyke Raising	%	0	0	0
Expenditure on Ash Utilization (annual)	INR (Lakhs)	4470	9513	104250

Ash Handling Pattern



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Environment Management-Emission

Particulars	UOM	FY 2020-21	FY 2021-22	FY 2022-23
Absolute Emission CO2	Lac MT	68.35	74.51	67.10
Total CO2 Emissions Per kW of Generation	Ton/kW	0.847	0.860	0.879
Current SOx Emissions at Full Load	mg/Nm^3	1258	1240	1228
Current NOx Emissions at Full Load	mg/Nm^3	407	321	275
Particulate Matter	mg/Nm^3	41	39	41
Mercury	0.01	0.0055	0.004	0.004

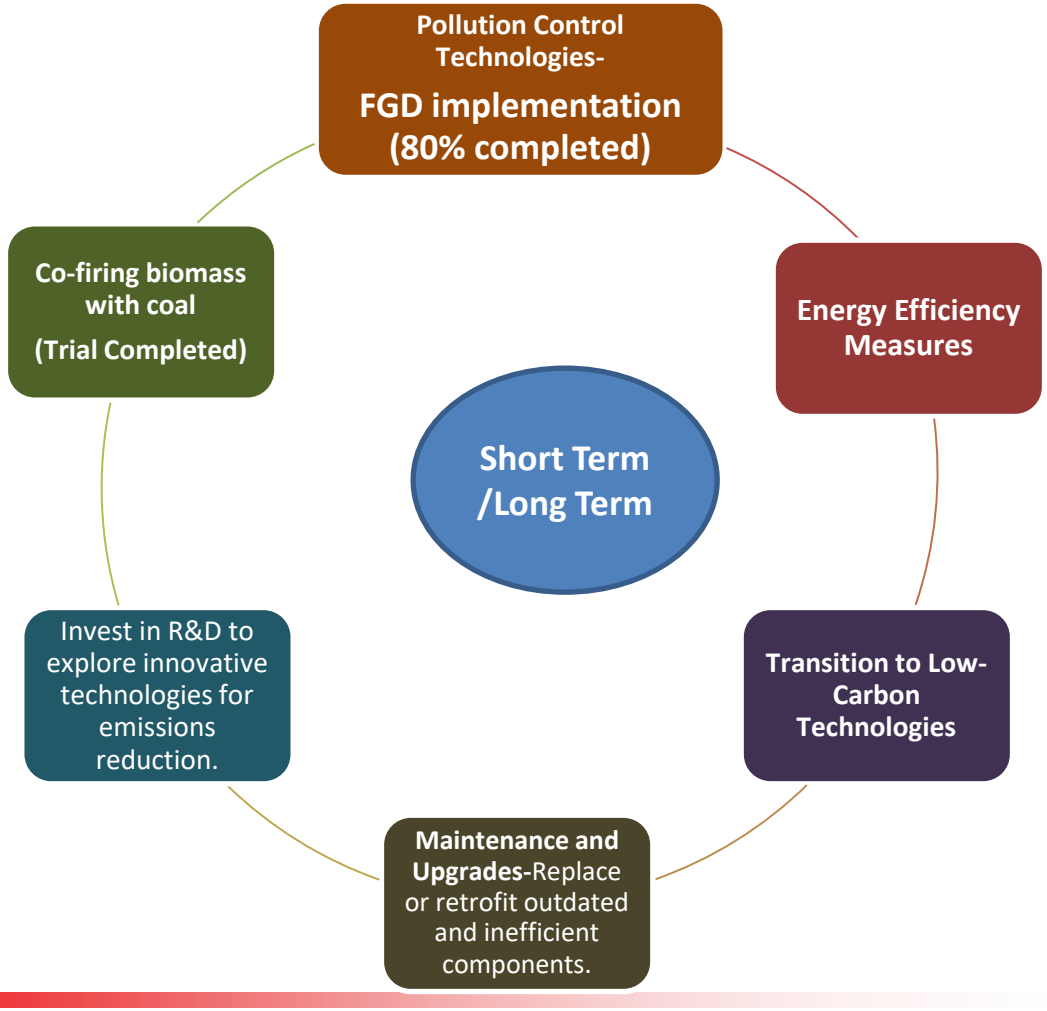
Best Practices Adopted for emission Control and Monitoring

- ❖Green belt development inside the plant.
- ❖Ash Utilization>100% for FY 22-23
- ❖Continuous monitoring of emission parameter
- ❖Continuous Ambient Air Quality Monitoring System in service.
- ❖ Dust extraction system (DE) and Dust suppression system (DS) at CHP
- ❖Specially designed acoustic insulated enclosures for Turbine.
- ❖Ash utilization started through rake where all wagons are completely covered with Tarpaulin sheet .
- ❖Plant boundary wall is being constructed by fly ash bricks
- ❖Transportation of ash through jumbo bags by train mode
- ❖GPS/Pazo is used vigilance for proper disposal of ash at designated location.
- ❖Hazardous waste, e- waste, battery waste, biomedical waste send to authorized recycler.

Approx 10000 nos. of sapling planted Inside plant CHP,H2 plant ,
Ash dyke hill ,railway building boundary area & near by plant Villages.

Environment Management – Emissions Monitoring

GHG emission reduction-Action Plan



Projects under Pipeline :

1)EMS implementation

2) 4.0 digital solution for performance monitoring

3)Soot blowing started as per (PLUSE-AI based) fleet monitoring software recommendation

4)Encon project implementation

5)Combustion Optimization

6)Innovative project competition to motivate the employees

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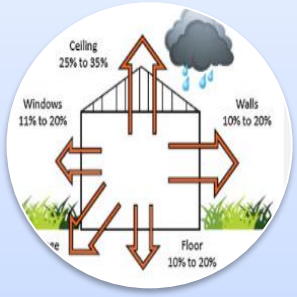
ROAD MAP FOR NET ZERO COMMITMENT

Transition to electric vehicles

Green Procurement-Opt for environmentally friendly materials and equipment

Transition to Renewable Energy Sources

Emission Reduction Incentive Programs- Launch employee incentive programs that reward energy-saving behaviors and innovative ideas for emissions reduction



Building Retrofits- Implement energy-efficient retrofits for all buildings in the plant premises, including efficient lighting, insulation, and smart HVAC systems, to minimize energy consumption.

ROAD MAP FOR NET ZERO

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Action Plan To Meet The Latest Emission Norms

Among the private sector DB Power is in advanced stage for FGD Implementation

➢SO_2 Norms – Status of FGD Implementation- (Overall 81 % completed)

❖**LOI for FGD issued on 13 June 2019 and Contract awarded on 26th September 2019.** EPC Vendor-*Zhejiang TUNA Environmental Science*

❖Drawing/Design Consultant-Black & Veatch

❖**Present status :- 100% Engineering Completed.**

❖**Construction progress -63%**

- **Project Execution timeline:** Unit-1 & U#2 :- Nov-23
- **As per Notification timeline-2026**

As per initial design, existing chimney is to be utilized with glass flake lining .For lining of the chimney (275 mtr.) unit shutdown required for **approx. 3 months.**

To avoid long s/d of the unit it has been decided to go with absorber top chimney after several round of discussion with EPC contractor & design consultant.

For integration of the FGD with existing unit, only 2 days shutdown required.

***Booster fan power cons will be reduced by 452 kWh(14.5%)**

Outlet Duct	Absorber	Complex Building	Elect Control Building

➢NOx- Norms (Based on 450 mg/Nm3)

❖ At present NOx in both Units are within the limit (below 400 mg/Nm3).

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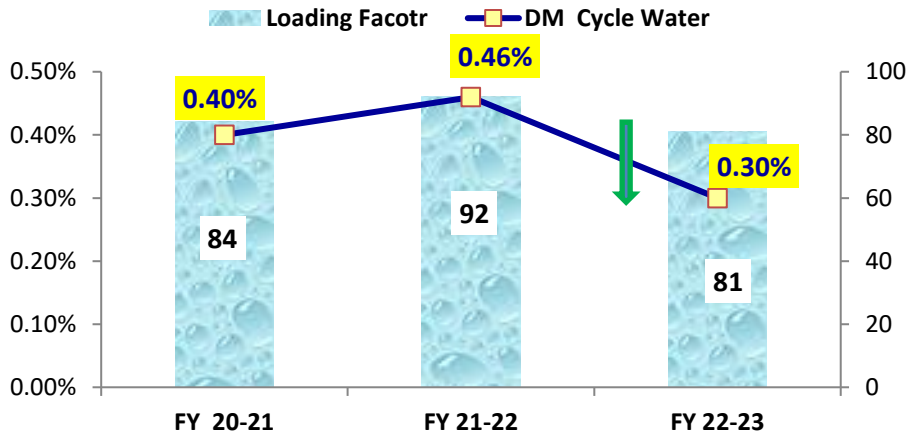
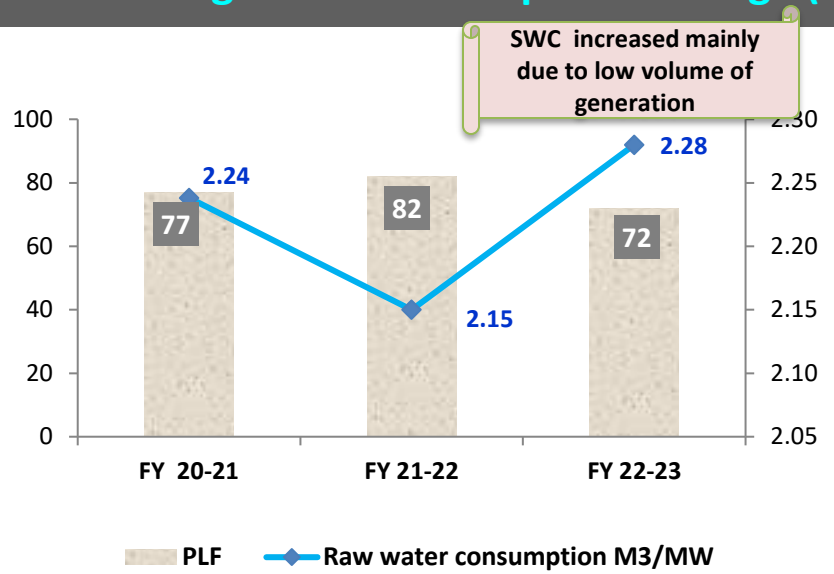
Best Practices in Water Management

The plant is designed for zero liquid discharge (ZLD).





BEST PRACTICES :

Approach taken to reduced DM MAKE UP :

1)Selected LRSB & wall blower operation
2)Intensive monitoring of DM make up
3) Tracking of LRSB & soot blowing steam consumption & control measures immediately if higher

Other Best practices for SWC reduction :

AMC for online leakage rectification to arrest at the earliest.

- Adopting suitable treatment (AVT –R to AVT –O)
- COC of circulating cooling water increased from 5.0 to 7.0
- Ash Water Recovery System :Ash Dyke overflow is treated and re-circulated to ash water sump for reuse.
- CPU output between regeneration increased from 135000 M^3 to 190000 M^3
- No ground water extraction for any industrial & domestic purpose.
- Treated water of ETP is reused for green belt irrigation and in ash handling plant.
- Constructed guard pond for reuse and to avoid discharge outside the plant

BEST Practices in the Plant :

Flexible Operation

➢For achieving the technical minimum load from current level of 55% to 40% - **Offer received from BHEL,GE & Siemens for further study of flexible operation.**

➢Presently Load Ramp up & Down 1% is being done (90 MW /Block /unit)

➢Bio massing firing trial completed (5%) in one mill as per guideline.

➢Visited REGL Adani Power & Jindal Power for discussion workshop on Flexible operation

Maintenance and Reliability

➢**Adoption of Best practices** shared by NTPC,CII & other power plants.

➢**Occurrence Analysis** (RCA) in for categories -
1)Unit Tripping
2)Equipment Outage
3)BTL
4)Near miss.

➢**Predictive Maintenance** – Condition monitoring of equipments i.e.
- Vibration,
- MCSA,
- DGA,
- Lube Oil analysis,
- Thermograph,
- Ultrasonic leak detection,
- Noise level

➢**Pooling of spares** - Sharing of High value spares with nearby station

➢**Technical Audit** by domain expert.

Digitisation

- **Udyoge software** is used for complete coal analysis of fired coal & received coal **(No manual intervention in results.)**
- **I magic system** is used for Coal & Fly ash truck weighing, unman-weighbridge developed.
- **PAZO software** is used vigilance for proper disposal of ash at designated location. (Tracking by GPS)
- **Bar coding & Decoding system** for Coal sampling & analysis
- **HONO HR app** for HR process
- **Fully Automation of coal logistics and coal Lab** (Udyog ERP system)

Asset Management

➢Monitoring and Tracking the health of plant Assets

➢ Prevent asset downtime by continuous monitoring
- Raw material acquisition Planning
- Spare Management
- Internal and Third party audit for Asset healthiness
- External Audit done by domain experts - C&I, Operation & Efficiency, Chemistry CHP,BOP and AHP departments.

Conti..

BEST Practices in the Plant :

Biodiversity

➢Kurupath hill situated near plant is having flora & fauna. Additional tree planted in coordination with local forest team at Kurupath hill and restricted tree falling to conserve biodiversity of this area.

➢ Inside plant project area, plantation of local species, fruit species for improvement of eco system.

Kurupath hill is situated near plant –
having flora & fauna

Afforestation

➢Survived tree plantation upto March 2023 is 2,10,000 (covering 1/3rd of total area of 630 acres with survival rate of 86%.) .

➢Low lying areas in the project area is being developed for further greenbelt development.

Research

▪Auto detection system for bulge wagon for early identification resulted in significant reduction in unloading delays time of rakes (approx.14 lakh saved in year)

▪Real time temperature monitoring provided for eco hopper discharge line for early detection of chocking

▪Real time online performance monitoring in DCS like - Air ingress in APH by inlet & outlet O2 measurement, APH X-ratio, passing of BFP recirculation valve with the help of individual BFP flow & total feed flow. Heater approach etc.

New Initiatives:

▪**Inspection of NDCT by Drone** - inspection, Safe and quick access of healthiness of NDCT

▪**Survey of Boiler Burner using Drone-** Time of inspection is very less since no sky climber is required.

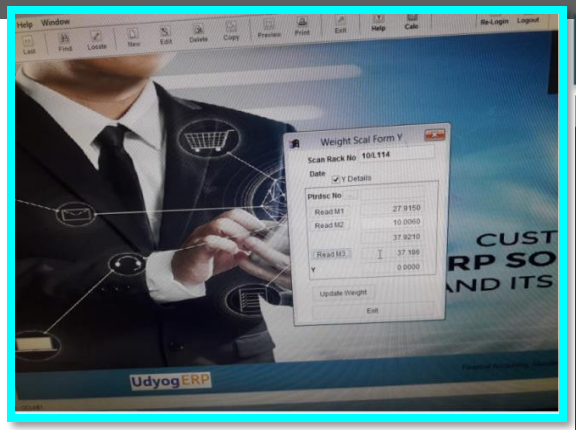
▪**APH HE Basket Reversal-** Reversed the HE Baskets after 4 years and by doing this the Basket life is extended beyond 6 years.

▪**Use of Plastic Refractory instead of Castable in Boiler 1st & 2nd pass & Burner tube-** Plastic refractory offers extended life compared to Castable Refractory.

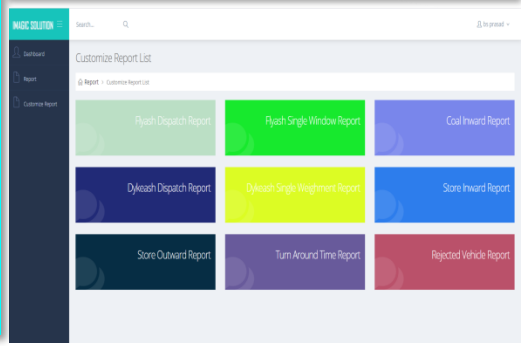
▪**CHP- BC-1A/B Scoop coupling** installed in place of normal traction type fluid couplings

Best Practices In Other Areas of Plant – Digitization

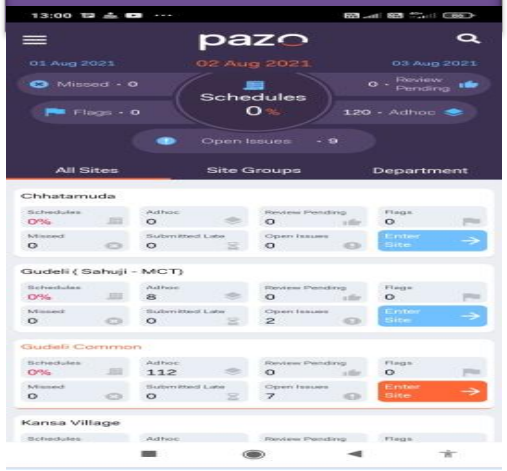
- ➢All Reports & MIS on cloud – Can be seen and update anywhere
- ➢ABT System
- ➢SAP –PP,PM and DMS Implemented.
- ➢Coal sampling & analysis through bar coding
- ➢Implementation of Unmanned Weigh bridge- completed



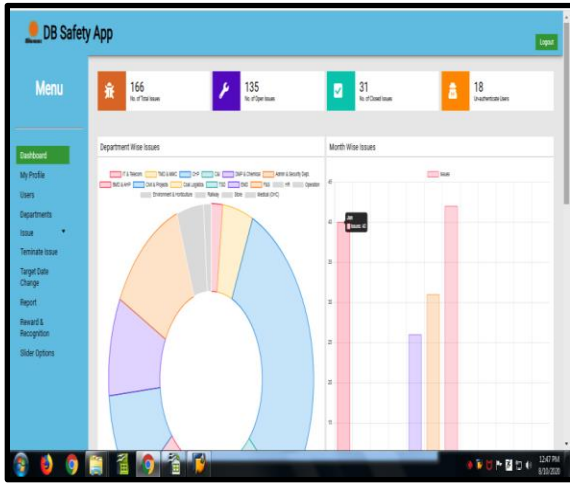
I Magic Software for



Pazo- Ash utilization



Safety APP –Reporting & Monitoring



Employee Attendance- HONO HR APP

HONO HR
HAPPY PEOPLE

E-Learning APP

FREE ONLINE EDUCATION
swayam

DB Power Ltd

Learning from CII Energy Award & IMS CERTIFICATION

Sr. No.	Learning from CII award/ Summit/Other	Plant Name	Status of Implementation	Remarks
1	**VFD installation in LDO supply pump**	Nabha Power/ GMR Energy	Implemented (FY 22-23)	
2	**VFD installation in seal air fan for both units**	GMR Energy	Completed in U#1	Will be implemented in Unit#2 during next AOH
3	**Optimization of CEP Flow by closing LPBP spray**	Nabha Power	Implemented (FY 20-21)	
6	**Online GPS tracking of fly ash disposal trucks though PAZO software.**	Process Industry	Implemented (FY 20-21)	
7	**Intelligent flow controller (IFC) installation in Compressed Air System.**	GMR,Warora	FY 23-24(U/P)	Offer Received
8	**RCA analysis through SAP**	Raipur,Adani	FY 23-24 (U/P)	Under development in SAP
9	**Water SCADA implementation**	GMR Energy	FY 23-24	Flow meter procurement U/P
10	**Embracing the Best Approaches for Environmental Considerations**		FY 22-23 & FY 23-24	

IMPLEMENTATION OF IMS :-

Bureau Veritas Certification

DB POWER LIMITED

BADADARHA THERMAL POWER PLANT, VILLAGE - BADADARHA, POST KANWALI , TEHSIL – DABHRA – 495 695, DISTRICT SAKTI, INDIA.

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above Organisation has been audited and found to be in accordance with the requirements of the Management System Standards detailed below.

Standards

ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018

Scope of certification

GENERATION OF COAL BASED THERMAL POWER (2X600 MW)

Original cycle start date: **28 August 2023**
Expiry date of previous cycle: **Not Applicable**
Certification Audit date: **30 June 2023**
Certification cycle start date: **28 August 2023**

Subject to the continued satisfactory operation of the Organisation's Management System, this certificate is valid until: **27 August 2026**

Certificate No. **IND.23.7250/IM/U** Version: **1** Issue date: **28 August 2023**

For certificate authenticity, click here https://certcheck.ukas.com/

ISO 9001	IN044216
ISO 14001	IN044216
ISO 45001	IN044217

Signed on behalf of BVCH SAS UK Branch
Jagdheesh N. MANIAN
Director – CERTIFICATION, South Asia Commodities, Industry & Facilities Division

Certification body address: 5th Floor, 66 Prescot Street, London, E1 8HG, United Kingdom.

Local office: Bureau Veritas (India) Private Limited (Certification Business) 72 Business Park, Mierzi Industrial Area, MIDC Cross Road "C", Andheri (East), Mumbai – 400 093, India.

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation. To check this certificate validity please call + 91 22 6274 2000.

DB Power Ltd

Certification /Award

Ministry of Power -2nd Position- Meritorious for Early Construction of 600 MW Unit #1 Award

CII award

Mission Energy Award for :Power Plant performer" in western region

"ENVIRONMENT EXCELLENCE AWARDS-2022" By "Mission Energy Foundation"

"Fly ash utilization award (runner Up) By Mission Energy award (FY 21-22)

" Green Feather (Energy Conservation Awards-2023)" By Green Maple Foundation

"Excellence in water management award in eastern Region By Council of Enviro Excellence (FY 21-22)

DB Power Ltd

वक्त है नॉलेज के
रंग में रंगने का

Thank You

Email Id: abhinavprakash.trivedi@dbpower.in
Mob no-7898905060

DB Power Ltd

EnCON Project of FY 20-21

Rs in Million

SN	Project Details	Investments	Savings	Payback (Months)
1	Delta to Star connection modification in all exhaust fan up to rating 3.7KW for energy saving.	0.0	0.05	0.0
2	Optimization of running hours of Main Oil centrifuge, TDBFP Centrifuge, Control Fluid.	0.0	0.22	0.0
3	Reduction in Auxiliary power consumption AHP by optimising conveying cycle, monitoring slurry pump operation and silo blower optimization.	0.0	5.56	0.0
4	Ultra Air filtration unit (Air washer) During high humidity and low outdoor temperature (ambient) water spray pumps can be stopped.(Saving of 4*5.5=528 kW per day)	0.0	0.29	0.0
5	Reduction in O2% from 3.49 % to 2.75 % ,and there by reduction in Nox by 40-50 mg/nm3	0.0	8.83	0.0
6	3 Kcal/kWh Heat Rate reduction by optimizing Main Steam Temperature set point and Spray (Set point 543 C) (for Apr'2020 to 15th June'2020 gain considered for calculation).	0.0	5.30	0.0
7	Replacement of Old inefficient Lamp by Energy Efficient LED Lamp (FY 2020-21) 1) Replacement of 2x400 watt HPSV to 350 watt LED Lamp first phase 12 numbers. 2) Replacement of 70 watt HPSV to 30 watt LED Lamp first phase 400 numbers	0.0	0.09	5.3
8	Shifting of ILMS panel 1A & 1B to MCR building in switchgear room. (It will increase reliability & saving by permanent 2nos 2T split AC switch off)	0.0	0.12	0.0
9	Reducing Start up Aux. power consumption, during SD & BTL	0.0	0.06	0.0
10	Reduction in Auxiliary power consumption (by 5 %) of CHP by increasing the utilization factor of conveying System	0.0	3.03	0.0
11	Installation of VFD in Potable water pump-15KW	0.0	0.12	4.0
12	Installation of 110KW VFD on 110 KW LP water pump-1 motor to optimize the energy use which happened due to variable flow requirement.(min 600 m3/hrs to max 1000 m3/hrs)	0.5	0.90	6.7
13	One stage reduction in CEP (Unit-1)	1.4	6.18	2.7
14	Silo Blower Optimization through running of three blowers for four silos in AHP.	0.0	1.70	0.0

EnCON Project of FY 21-22

SN	Project Details	Investments	Savings	Payback (Months)
1	LORV to be taken into service		0.72	
2	LP turbine Diaphragm Modification for revival time reduction of ruptured diaphragm	0.125	0.14	0
3	Boiler Surface Heat Loss reduction by applying proper Insulation.	0.35	5.03	1
4	LPBP spray valve opening position optimization	0	7.68	0
5	20 kcal/kWh heat rate improved after unit-1 COH by improvement in performance of cooling tower, condenser, air pre heater, insulation, heaters and Turbine cylinder efficiency etc.	160	197.66	10
6	Installation of 90KW VFD (with bypass panel) in LDO Forward pump	0.45	0.45	12
7	Installation of 110KW VFD on 110 KW LP water pump-2 motor to optimize the energy to match with variable flow requirement.(min 600 m3/hrs to max 1000 m3/hrs)	0.5	0.9	7
8	Monitoring of BFP R/c valve downstream temp and do r/c valve maintenance	0.15	11.31	0.01
9	Replacement of 150W HPSV lamp by 50W LED lamp (350 Lmps in FY 2021-22)	0.21	0.54	
10	Replacement of 40 W tube light by 16W LED tube light (500 Lmps in FY 2021-22)	0.15	0.18	
11	Replacement of 250W HPSV high bay lamp by 120 W LED lamp (50 Lmps in FY 2021-22)	0.27	0.1	
12	Replacement of 800 W HPSV flood lamp by 400 W LED lamp-yellow in High Mast (5 High Mast in FY 2021-22)	0.1	0.03	3.26
13	Replacement of 250W HPSV LED lamp by 120 W LED street lamp(100 street lights in FY 2021-22)	0.6	0.2	
14	Replacement of 125 W HPSV lamp by 30 W LED lamp(100 lights in FY 2021-22)	0.05	0.16	
15	Replacement of 70 W HPSV lamp by 30 W LED lamp-Yellow color(200 lights in FY 2021-22)	0.08	0.12	
16	Installation of vacuum transmitter in boiler 8.5 meter	0.05	4.12	
17	Providing drain line in Service Air Line Header near Unit # 2 boiler lift		1.2	
18	Modification in operational philosophy of clamping system to avoid huge oil leakage during rupture of hose pipe in unloading time. Clamp pump should be off in maintenance mode operation during returning of tippler from 160 to 0 degree.		0.25	
19	Develop a page on DCS indicating impact of parameter deviation on Heart rate- Continuous basis		0.94	
20	Intensive Monitoring OF Aux power consumption of equipment tracking-Vaccum Pump C & ACW Pump 2A,& ID fan current reduced		0.635	
21	Stoppage of Potable feed pump by taking water from DM feed pump		0.036	