GMR KAMALANAGA ENERGY LTD

23rd National Award For Excellence in Energy Management

FY-2021-22

A journey towards improved energy performance with approach of sustenance and innovation

Presenting by :

1. Saurabh Kumar (AM OS&E)
2. Puspahash Mohanty (Manager OS&E)
3. Raghunath P (VP Operation & OE)

Confederation of Indian Industry

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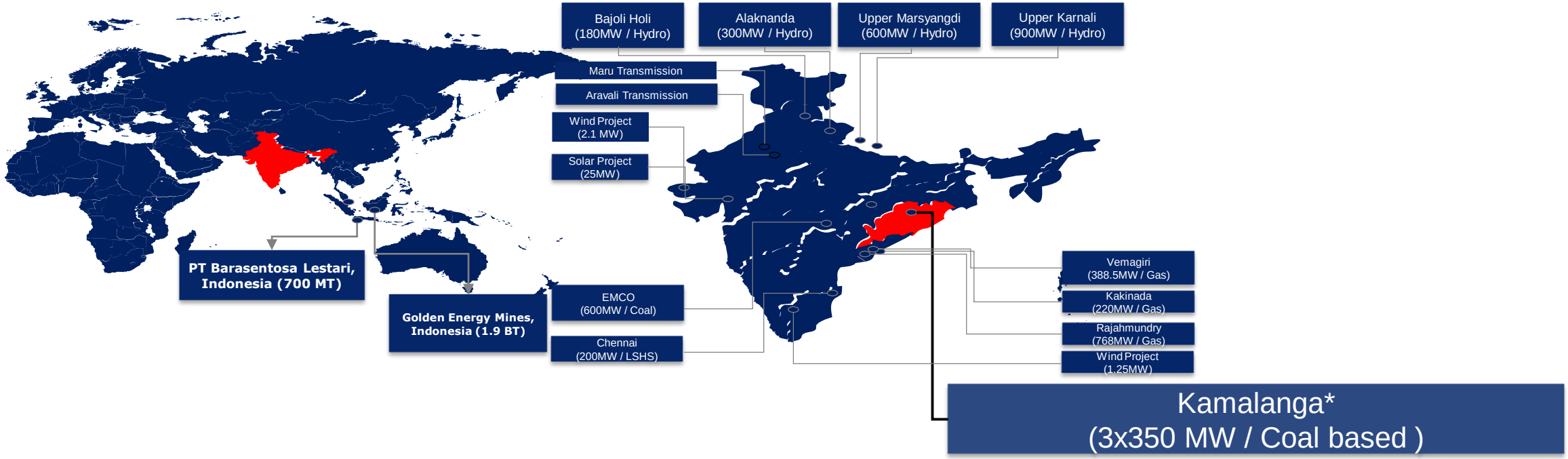
1. GMR AT A GLANCE



GMR Kamalanga Energy Limited is a wholly owned subsidiary of GMR Energy LTD and is a step down subsidiary of GMR Infrastructures LTD.

Products/Businesses of organization : Electricity Generation

Capacity : *1050 MW - (3x350 MW)*

Operational since: April 2013.

FSA

GKEL is having FSA with MCL

- FSA LINKAGE - 2.14 Million MT
- SAKTI LINKAGE - 1.50 Million MT

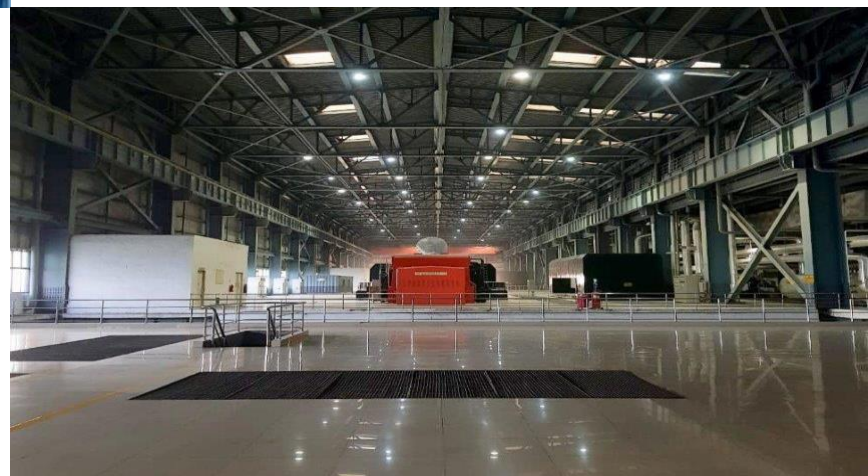
WATER SOURCE – 24 Cusec - BRAMHANI RIVER

Plant Facility

- BOILER – HARBIN
- TURBINE – Donfang Turbine company
- GENERATOR - Donfang Electric company
- BFP - Turbine – Donfang Turbine company

PPA

- DISCOM BIHAR PPA - 260 MW – 25 Years
- DISCOM HARYANA PPA - 323 MW -25 years
- DISCOM GRIDCO PPA – 247 MW – 25 years
- BALANCE POWER -150 MW



2. ENERGY MANAGEMENT POLICY AND CERTIFICATES


GMR KAMALANGA ENERGY LIMITED

VILLAGE KAMALANGA, DISTRICT DHENKANAL, STATE: ODISHA – 759 121, INDIA.

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organization 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 ELECTRICITY IN COAL BASED THERMAL POWER STATION OF 3 X 350 MW

Original cycle start date: 14 May 2020
Expiry date of previous cycle: Not Applicable
Certification Audit date: 15 February 2020
Certification cycle start date: 14 May 2020
Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: 13 May 2023
Certificate No. IND.20.3007/EMU Version : 1 Revision date: 14 May 2020

Bureau Veritas Certification


National Accreditation Board for Testing and Calibration Laboratories

CERTIFICATE OF ACCREDITATION

GMR KAMALANGA ENERGY LIMITED CHEMICAL LABORATORY

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

P.O. KAMALANGA, P.S. BIRUSHAN, DHENKANAL, ODISHA, INDIA

In the field of

TESTING

Certificate Number: TC-5266
Issue Date: 29/05/2019 Valid Until: 28/05/2021

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.

Signed for and on behalf of NABL

N. Venkateswaran
Chief Executive Officer


GMR KAMALANGA ENERGY LIMITED

VILLAGE KAMALANGA, DISTRICT DHENKANAL, STATE: ODISHA – 759 121, INDIA.

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

Standard

ISO 55001:2014

Scope of certification

GENERATION OF ELECTRICITY IN COAL BASED THERMAL POWER STATION OF 3 X 350 MW

Original cycle start date: 08 August 2022
Expiry date of previous cycle: Not Applicable
Certification Audit date: 31 May 2022
Certification cycle start date: 08 August 2022
Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: 07 August 2025
Certificate No. IND.22.19/AU Version: 1 Revision date: 08 August 2022

Bureau Veritas Certification


National Productivity Council

Certificate

This is to certify that GMR Kamalanga Energy Ltd., Dhenkanal is awarded उत्कृष्ट (Utkrisht) Category under 5S Certification Scheme of National Productivity Council.

NATIONAL PRODUCTIVITY COUNCIL

Group Head (IMS & Training)

Certificate No.:
Issue date:
Certificate Expiry date:


GMR KAMALANGA ENERGY LIMITED

VILLAGE KAMALANGA, CITY- DHENKANAL – 759 121, ODISHA, INDIA.

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

Standard

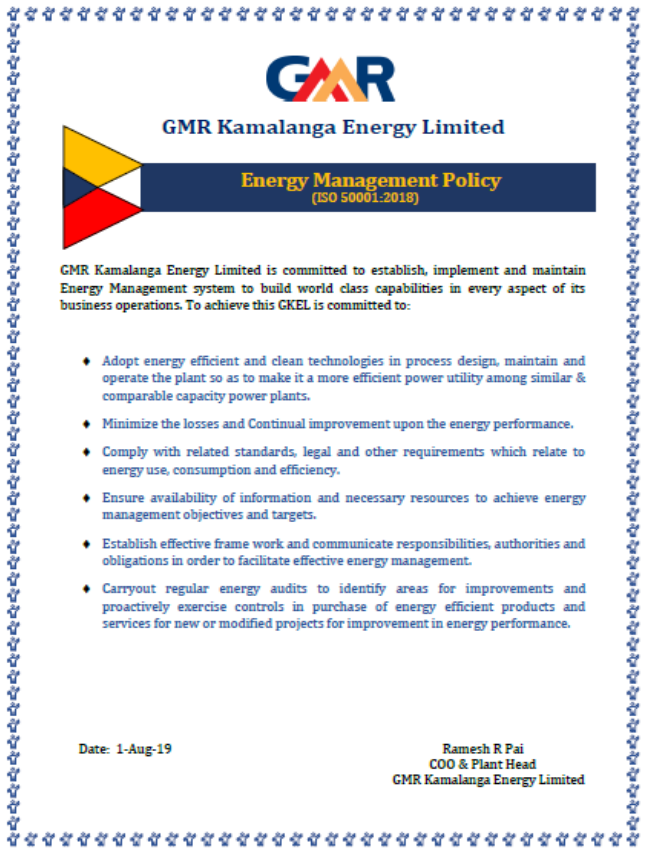
ISO 50001:2018

Scope of certification

GENERATION OF ELECTRICITY IN COAL BASED THERMAL POWER PLANT OF 3X350 MW

Original cycle start date: 20 May 2020
Expiry date of previous cycle: Not Applicable
Recertification Audit date: 28 February 2020
Recertification cycle start date: 20 May 2020
Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: 19 May 2023
Certificate No. IND20.2496/EN/U Version : 1 Revision date: 20 May 2020

Bureau Veritas Certification


GMR Kamalanga Energy Limited

Energy Management Policy
(ISO 50001:2018)

GMR Kamalanga Energy Limited is committed to establish, implement and maintain Energy Management system to build world class capabilities in every aspect of its business operations. To achieve this GKEL is committed to:

- Adopt energy efficient and clean technologies in process design, maintain and operate the plant so as to make it a more efficient power utility among similar & comparable capacity power plants.
- Minimize the losses and Continual improvement upon the energy performance.
- Comply with related standards, legal and other requirements which relate to energy use, consumption and efficiency.
- Ensure availability of information and necessary resources to achieve energy management objectives and targets.
- Establish effective frame work and communicate responsibilities, authorities and obligations in order to facilitate effective energy management.
- Carryout regular energy audits to identify areas for improvements and proactively exercise controls in purchase of energy efficient products and services for new or modified projects for improvement in energy performance.

Date: 1-Aug-19

Ramesh R Pai
COO & Plant Head
GMR Kamalanga Energy Limited

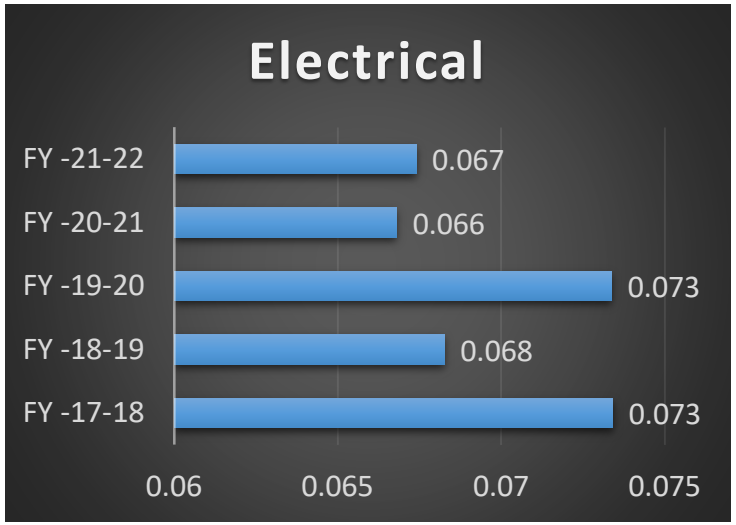
To Adopt Energy efficient and clean technology	To Minimize the losses	To Comply legal and other requirements	To allocate resource	To frame Roles and responsibility	To purchase energy efficient product and Regular Energy audit

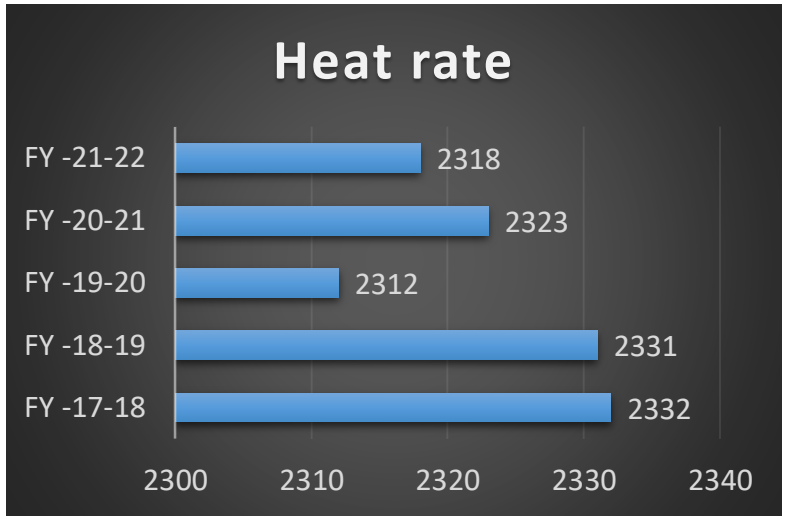
3. ENERGY CONSUMPTION OVERVIEW FY 2021-22

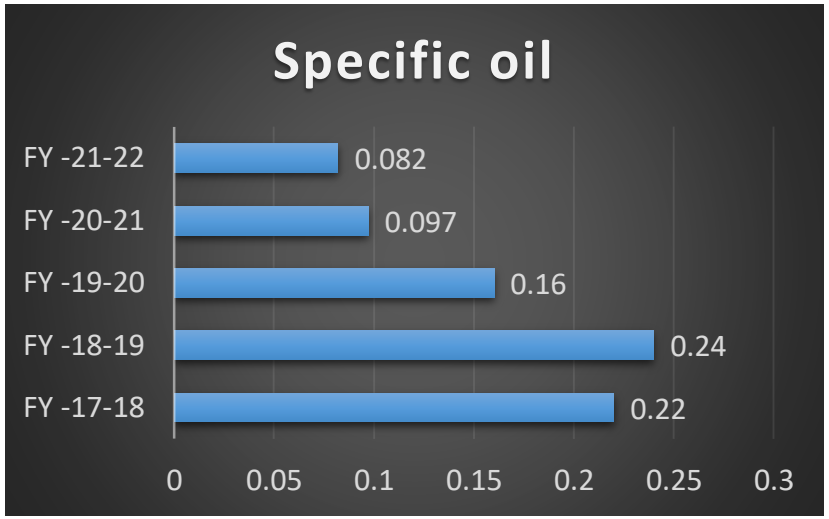
Annual Generation	: 7530.21 MU
PLF	: 81.87 %
Availability	: 90.89 %
Gross Heat Rate	: 2318 kcal/kwh
Auxiliary Power	: 6.74 %
UHR (UNIT 1/2/3)	: 2323/2317/2316 Kcal/kwh
BOILER EFFICIENCY	: 87.13/87.15/87.08 %
DM Water consumption	: 0.16 %
Raw Water Consumption	: 2.15 M3/ MWh generation
Specific Oil Consumption	: 0.08 ml/ KWh generation

4. SPECIFIC ENERGY CONSUMPTION LAST 3 YEARS.

Financial year	Specific energy consumption			Improvement in specific consumption w.r.t base line		
	Electrical	Thermal		Electrical	Thermal	Oil
	Kwh/kwh gen	Heat rate (kcal/kwh)	Specific oil (ml/Kwh)	(%)	(%)	(%)
FY -17-18	0.07341	2332	0.220			
FY -18-19	0.06826	2331	0.240	7.015	0.043	-9.091
FY -19-20	0.07338	2312	0.160	0.041	0.858	27.273
FY -20-21	0.0668	2323	0.097	9.004	0.386	55.909
FY -21-22	0.0674	2318	0.0820	8.19	0.60	62.73

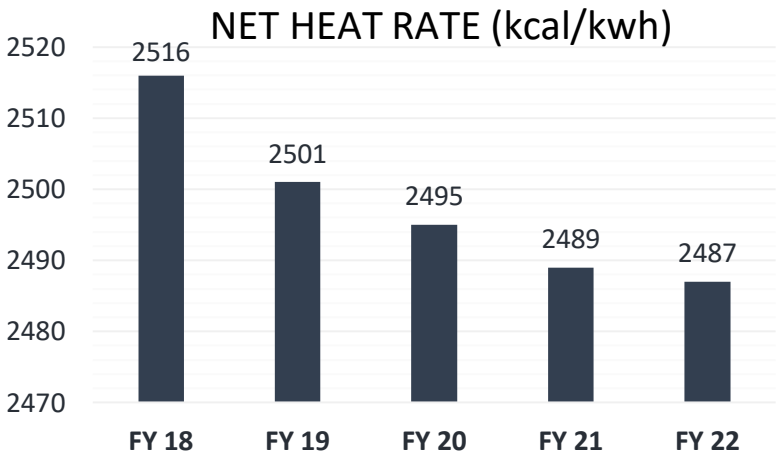


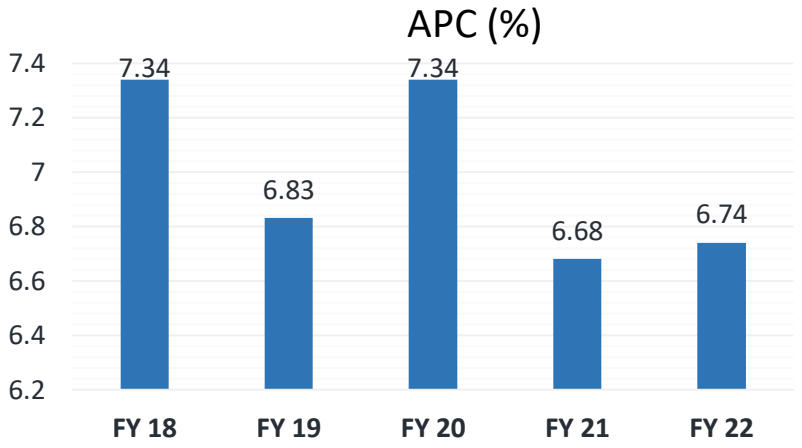


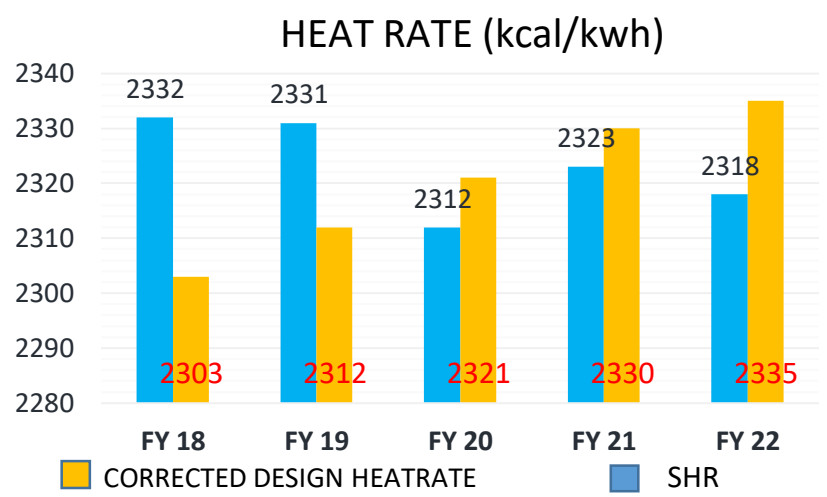


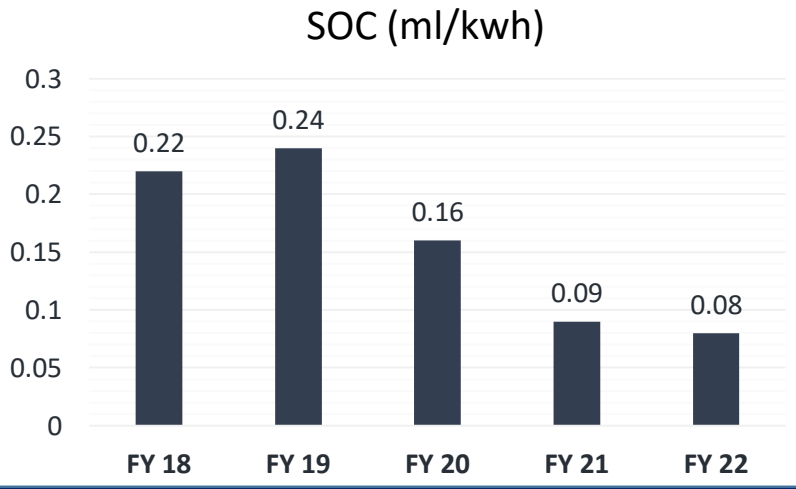
5. BENCHMARKING OF KPI

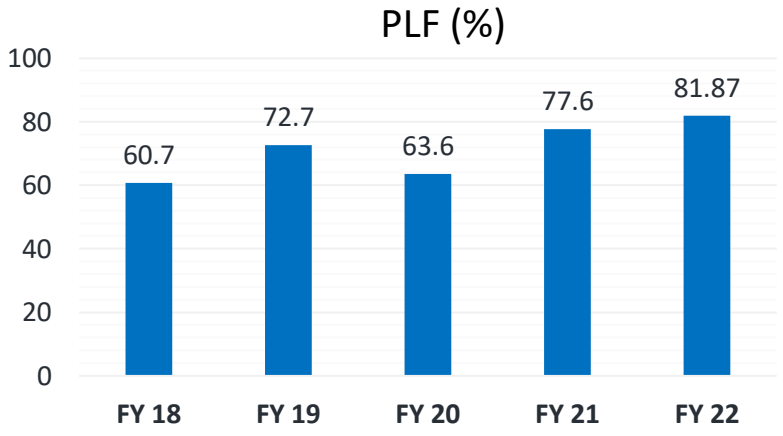
5.1 Internal Benchmarking

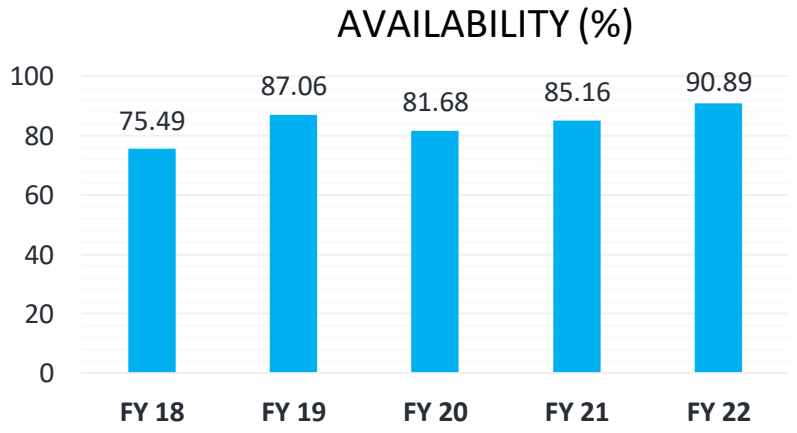








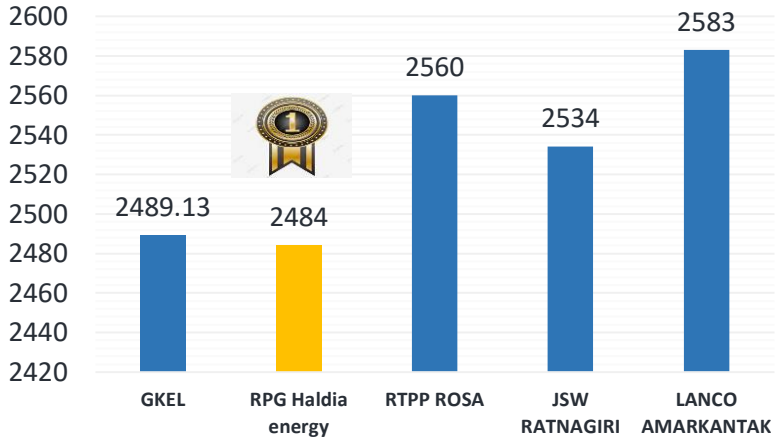




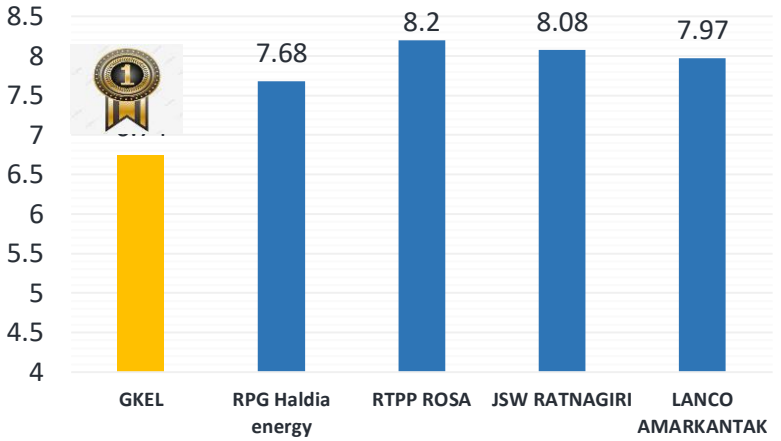
NOTE: Heat rate in compared with corrected design heat rate with aging (as per OEM curve). Increase in heat rate is due to drop in HP and IP turbine efficiency and increase in APH O/L temp. which to be addressed in next overhauling cycle

5. BENCHMARKING OF KPI
5.2 External Benchmarking

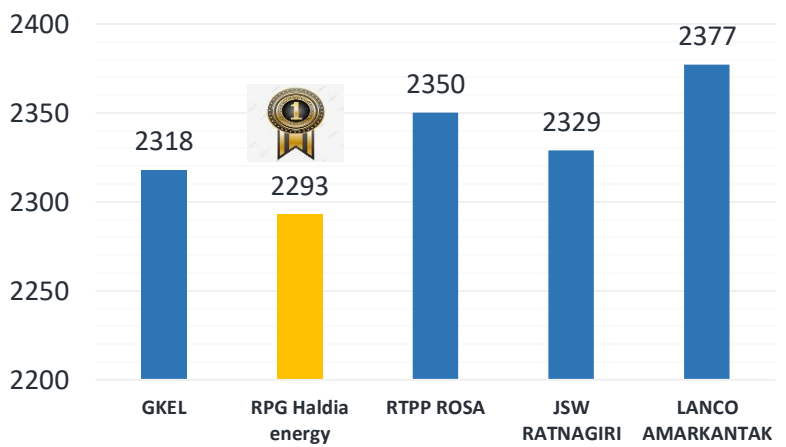
NET HEAT RATE (kcal/kwh)



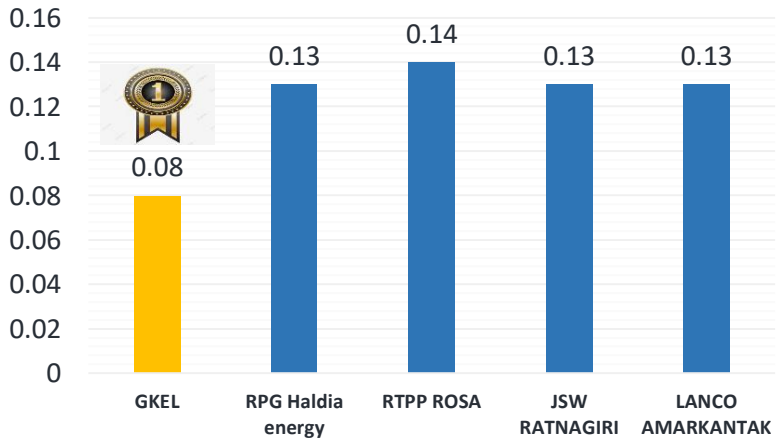
APC (%)



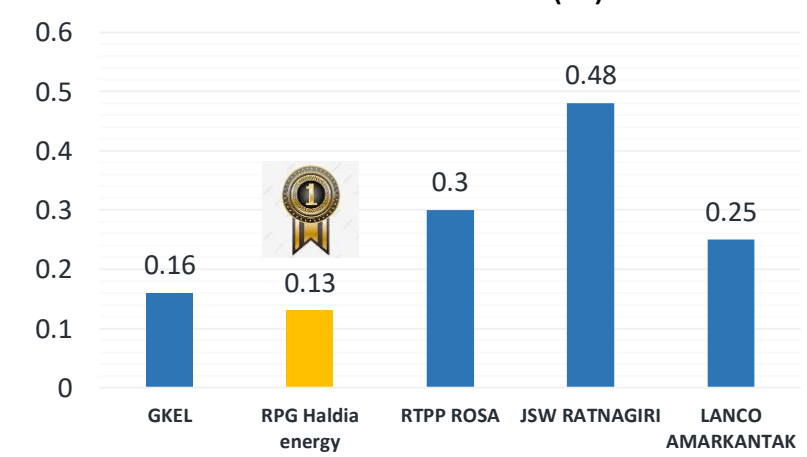
HEAT RATE (kcal/kwh)



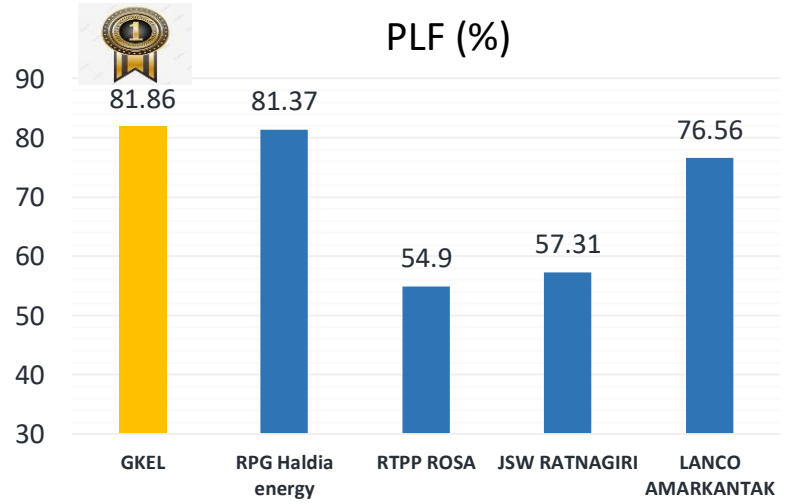
SOC (ml/kwh)



DM water (%)



PLF (%)



GKEL is equipped with TDBFP so benchmarking done with Net heat rate.

5. BENCHMARKING OF KPI

5.3 Road Map to create benchmarking

FUTURE TARGET FOR APC:

- GKEL presently achieved 5.83 % APC at full load against 7.55% design & normative APC 6.25% .
- GKEL aims to achieve 5.75 % by 2023.

FUTURE TARGET FOR HEAT RATE:

- GKEL presently achieved 2305 kcal/kwh Heat rate at full load against 2227 design.
- GKEL aims to achieve 2300 Kcal/kwh by 2023 considering aging of machine.

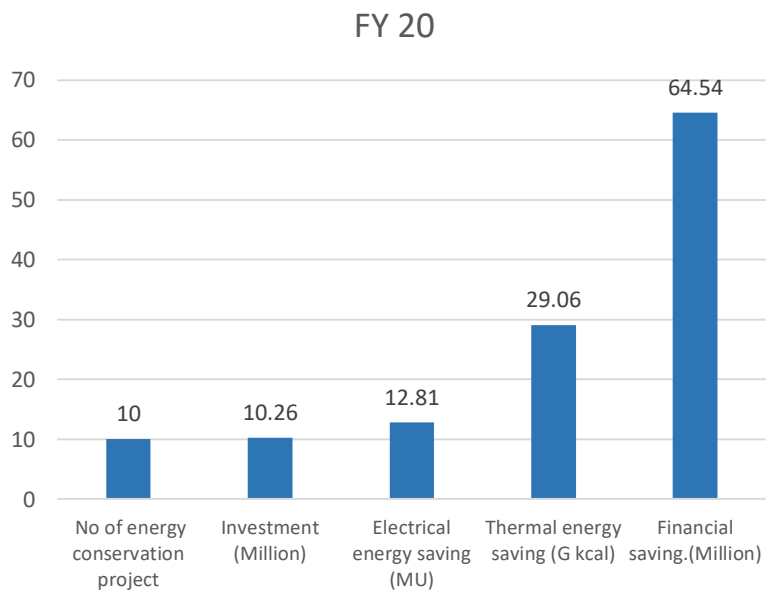
5.4 WAY FORWARD PLAN FOR ENERGY CONSERVATION .

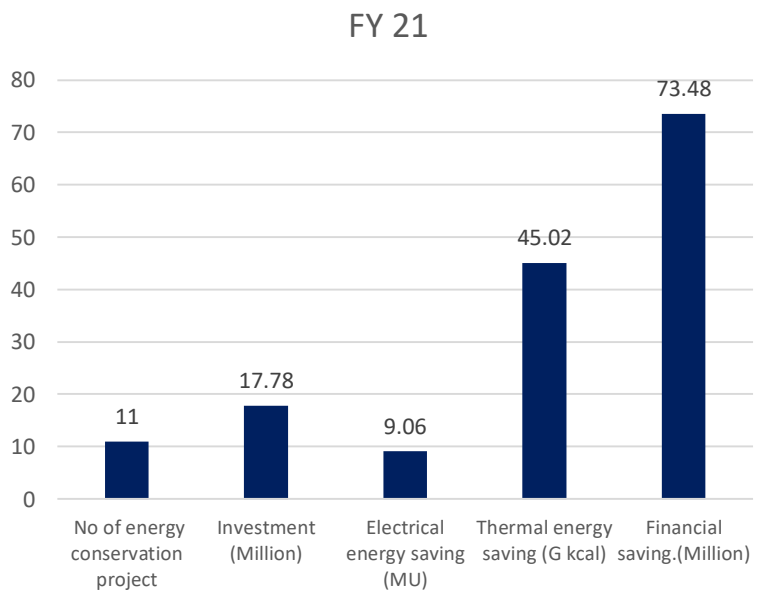
SL No.	Description of energy conservation measures	Investment (Rs in Million))	Annual Electrical Saving (Million kWh)	Benefit due to heat rate improvement (Kcal)
1	HIP overhauling	6		13.36
2	APH Basket removal	4.5		10.47
3	APH additional basket addition in unit	1.728		8.8
4	Replacement of burner, Boiler tube buffing , Soot blower effectiveness			2
5	IFC installation in compressor	5	1.022	
6	Replacement of RC valve to eliminate passing.	0.5		10
7	Seal air fan VFD installation	2.5	1.028	
8	Sonic soot blower installation in unit 1 & 2	2.2		0.77
9	ESP hopper power consumption optimization	0.5	0.96	
10	Coro coating of pump CW Pumps	0.25	2.63	
Total		23.178	5.64	45.4

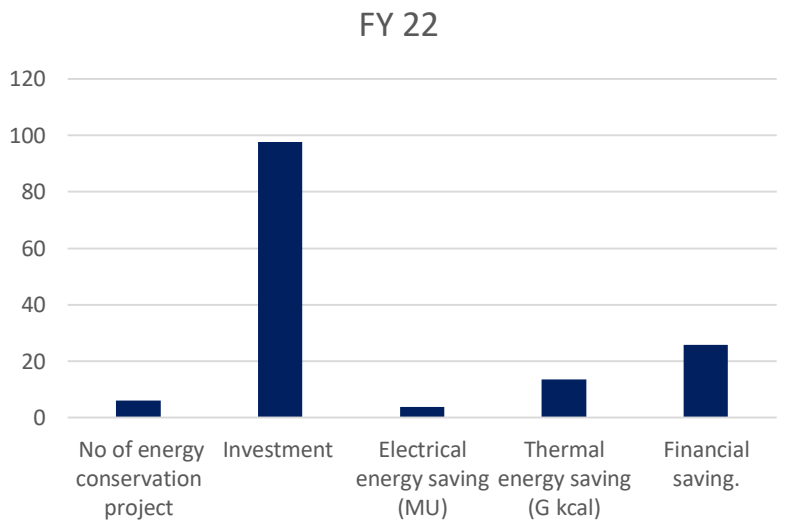
- GKEL tested unit operation at 40% Loading Factor for assessment of Heat rate & APC degradation and working for optimization of Heat rate , APC , stable operation and smooth ramp up.

6.ENERGY CONSERVATION PROJECT LAST 3 YEARS

Financial Year	No of energy conservation project	Investment (Million)	Electrical energy saving (MU)	Thermal energy saving (G kcal)	Financial saving. (Million)
FY 20	10	10.26	12.81	29.060	64.54
FY 21	11	17.78	9.06	45.02	73.48
FY 22	6	97.7	3.79	13.52	25.71



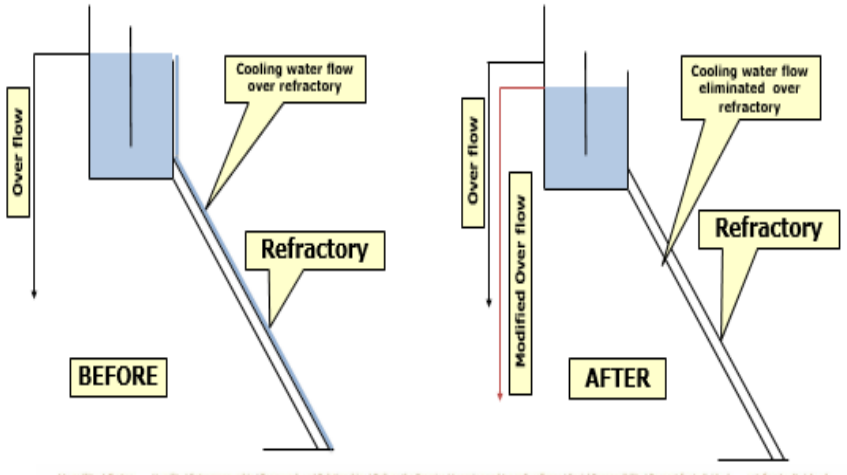




7.INNOVATIVE PROJECT IN FY 22

Reduction of Specific Raw water consumption

- **Why innovative**: LC cement is adopted for Boiler. In initial design, Water is continuously overflowed from seal through to refractory.
- **Savings achieved:** Reduction of monthly allocation quantity from 24 Cusec to 20 Cusec
- **Financial saving achieved:** 2.91 Crore
- **Investment** : 9.2 Lacs
- **Replicability : Yes**



Water flow 210 Tons/hr.	Water flow 40 T/hr.

IDENTIFICATION OF OPPORTUNITY

- Specific raw water consumption reduction is a strategic objective of GKEL for sustenance concern. Raw water cost also has significant impact on O&M cost . Reduction of SRWC will aid Zero discharge , Raw water cost and auxiliary power consumption. With analysis it is observed that CT blow down is the most controllable contributor for Raw water consumption and Root cause for the Raw water consumption is Boiler hopper refractory cooling and it also disturbs the Water balance of AHP. This resulted in difficulty in maintaining zero discharge.

POSSIBLE SOLUTION

- Refractory metallurgy was changed to improved quality refractory
- refractory application Seal trough overflow line modified to eliminate cooling water
- SOP finalized and training provided to field operator

IMPLEMENTATION

- Complete replacement of refractory

8. RENEWBLE ENERGY PROJECT .

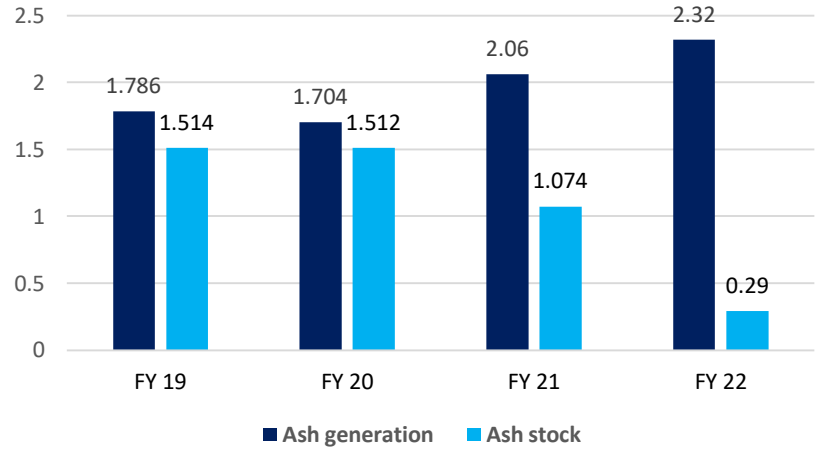
SL no.	Projects implemented	Capacity	Type of energy	(Generation Million KWh)
01	Wind operated Turbo ventilator installed (188 nos.) on TG Building and hydrogen builing.	250 Kwh	Wind	1.44
02	Security hub power supply from solar panel.	129 watt	Solar	0.001

Turbo ventilators

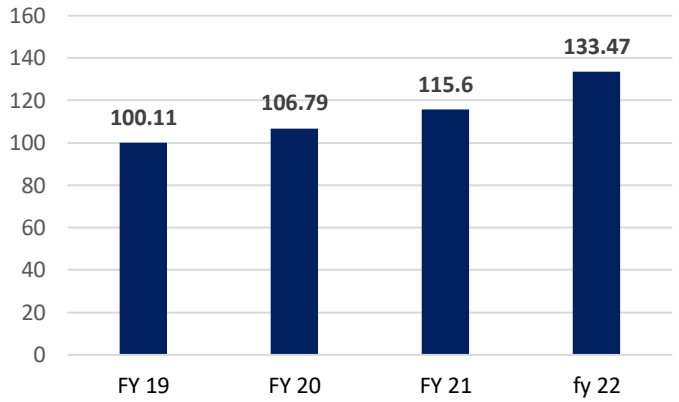
Solar panel at security post

9.1 ENVIRNOMENT MANGEMENT - ASH UTILIZATION

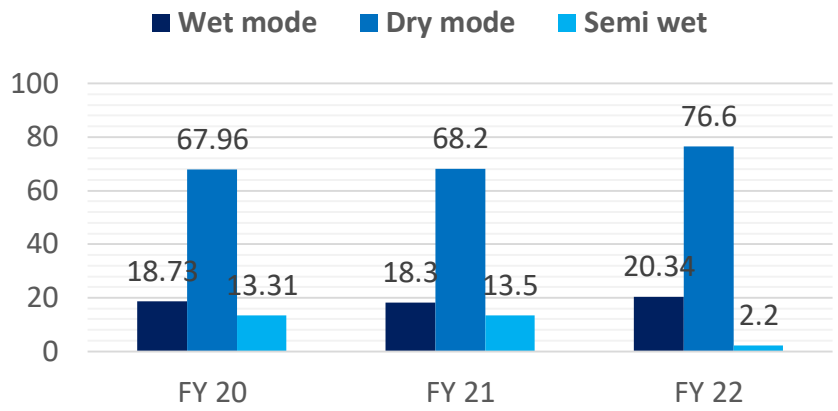
Ash generation/ Stock (Million Ton)



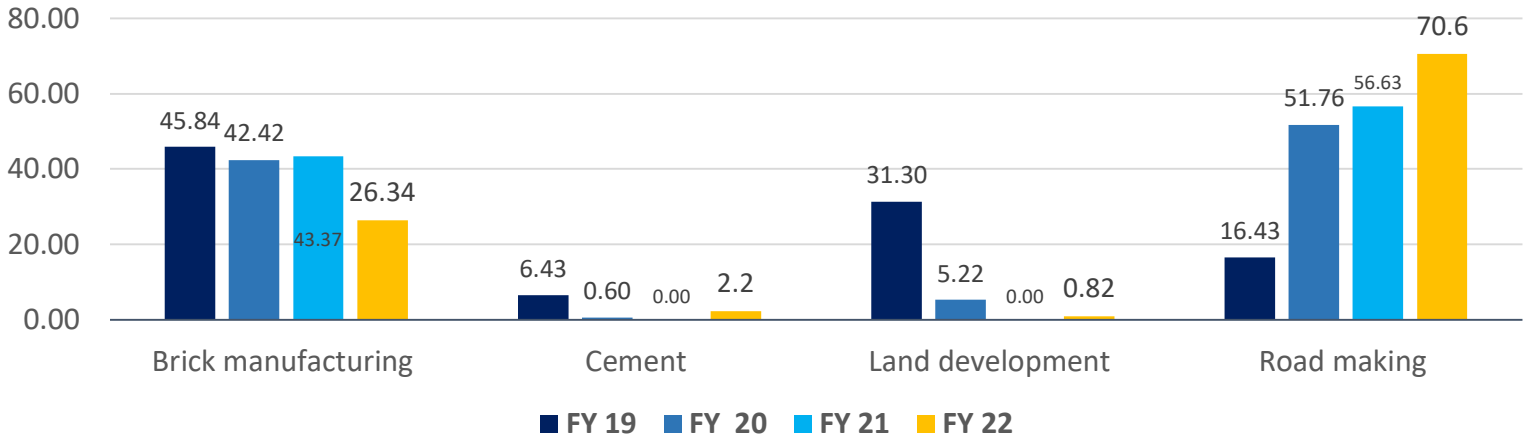
Ash utilization in %



Ash handling modes (%)



Areas of ash utilization in MT



Modes of Ash Conveying

- Dry Ash conveying System with storage Silos
- Bottom Ash slurry conveying system with hydrobin water decanted system make it semi dry condition
- HCSD systems and ash pond with Ash water recovery System

9.2 ENVIRNOMENT MANGEMENT - ASH UTILIZATION

01

In house Bricks/blocks making unit – products is being sold to other and also used in-house for repairing & construction work of Township.

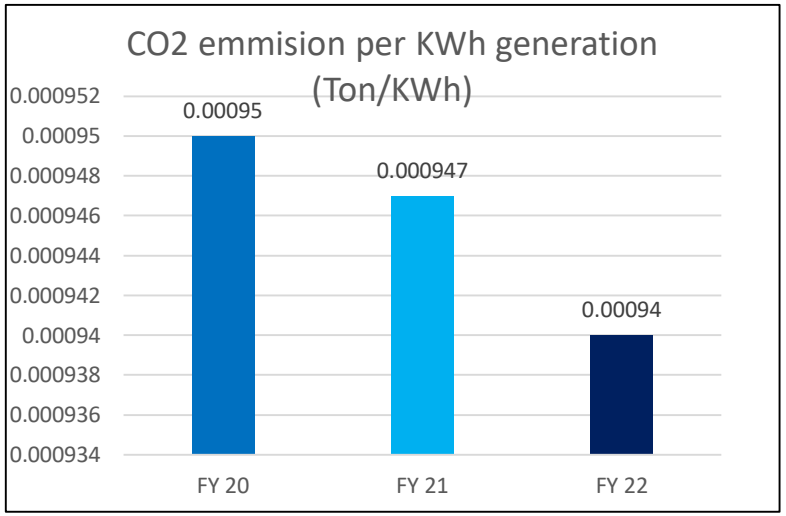
02

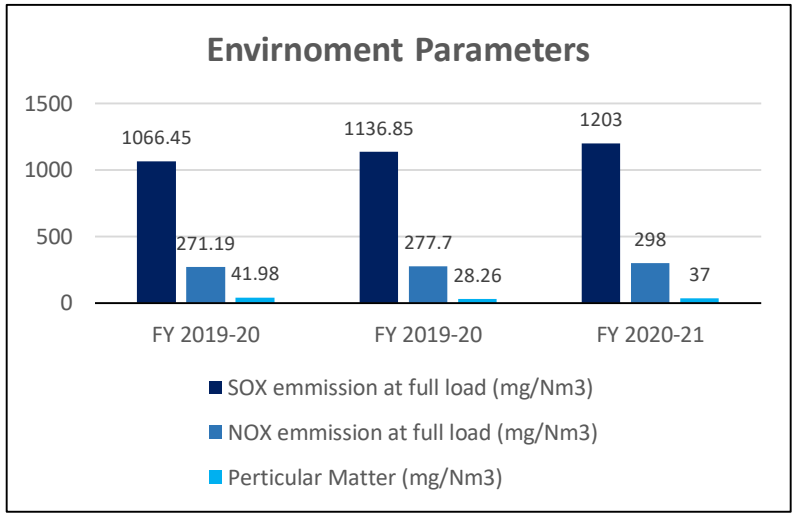
Supply to NH Authority for road construction project through trucks and bulk discharge through rakes

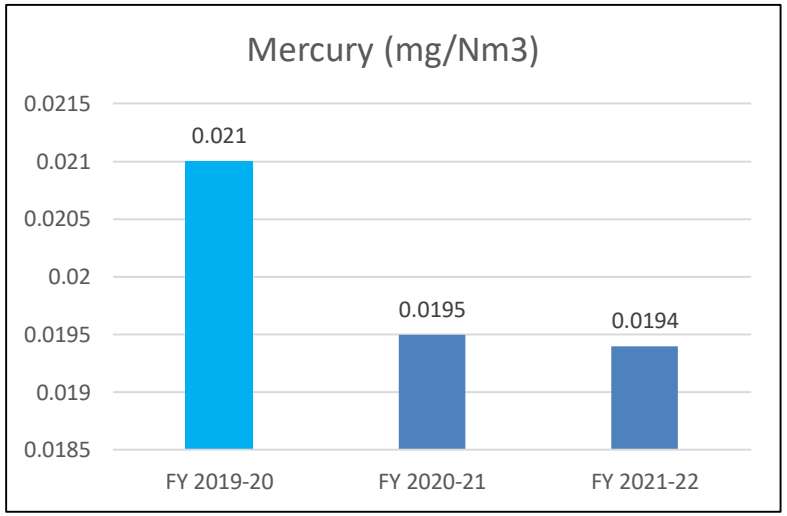
03

Supply to bricks/block and cement manufacturing unit by bulkers

9.3 ENVIRNOMENT MANGEMENT – EMMISSION





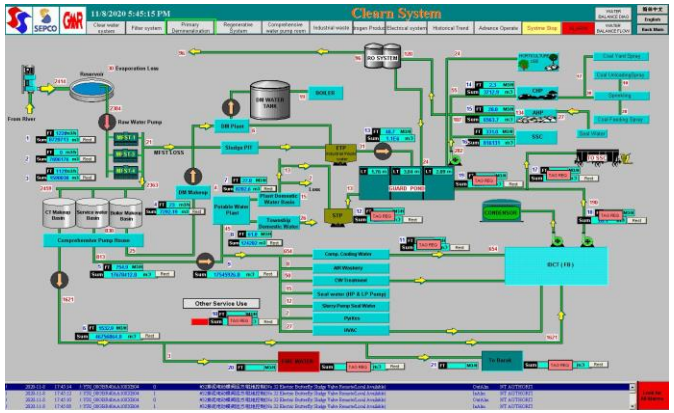


Best Practices for Emission control

- Low NOx Burner and Over fire damper operation.
- Periodic checking of SADC for combustion control.
- Improvement in Fineness of coal particle
- Periodic replacement of Bag filters to control PM.
- Oxygen optimization for NOx control.
- Periodic monitoring of stack parameters.
- Daily ESP field healthiness monitoring.
- Online CEMS/ CEQMS is installed and data transmission to SPCB and CPCB
- Daily review of emission by EHS team

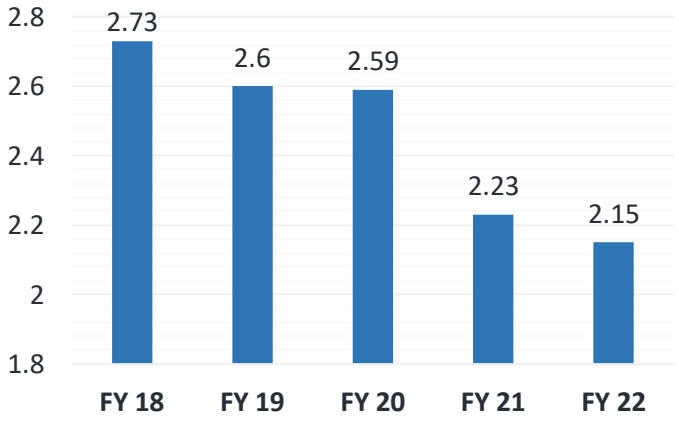
FGD installation is process and it will be commissioned by Dec -2023 as per MOEF direction.

9.4 ENVIRNOMENT MANGEMENT -WATER

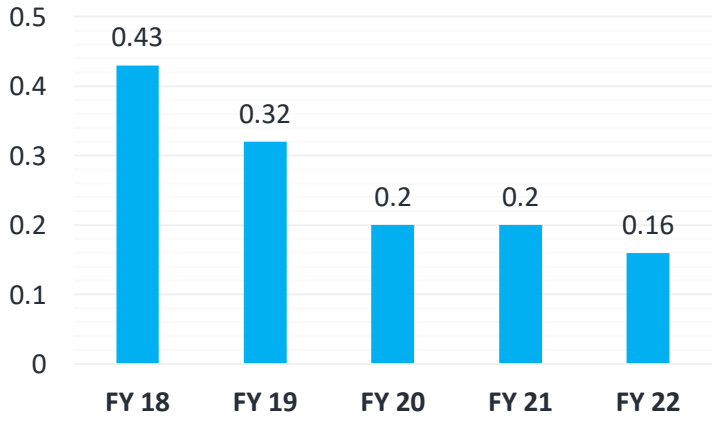


Water SCADA for Online Monitoring

Modification of drift eliminator



RAW water(m3/MWh



DM WATER

Best Practices for reducing water load

- Replacement of drift eliminator .
- Water SCADA implementation .
- Rain water Harvesting by Rain water pump.
- Recuse of MFST blowdown
- Reduction of DM water.

Best Practices for waste water utilization

ETP and STP for treating the water and used in

- Makeup to bottom ash handling system.
- Make up to Fire fighting storage tank.
- Truck wheel washing spray system.
- Ash Conditioning during loading .
- Boiler seal trough charging.
- Floor and road cleaning.
- Coal yard sprinkling
- DS system in CHP.
- Horticulture.

9.4 ENVIRNOMENT MANGEMENT –WATER CONSERVATION OTHERS PROJECTS

Recovery of rain water, floor cleaning water by connecting to storm water drain and automatic start stop facility provision rain water harvesting pump based on sump level.

Relocation of underground utility pipes to over ground to reduce underground water leakages.

Reuse of Mixed flow sedimentation tank blow down water back in to the system

Installation of automatic level transmitters in all utility water tanks inside the plant and associates living area.

Utilization of Guard pond Waste water in Boiler , ESP area floor cleaning, DFDS System, Coal pre wetting system, and fog cannon instead of service water

Utilization of township STP waste water for gardening purpose after treatment.

All Overhead tank level switch installation

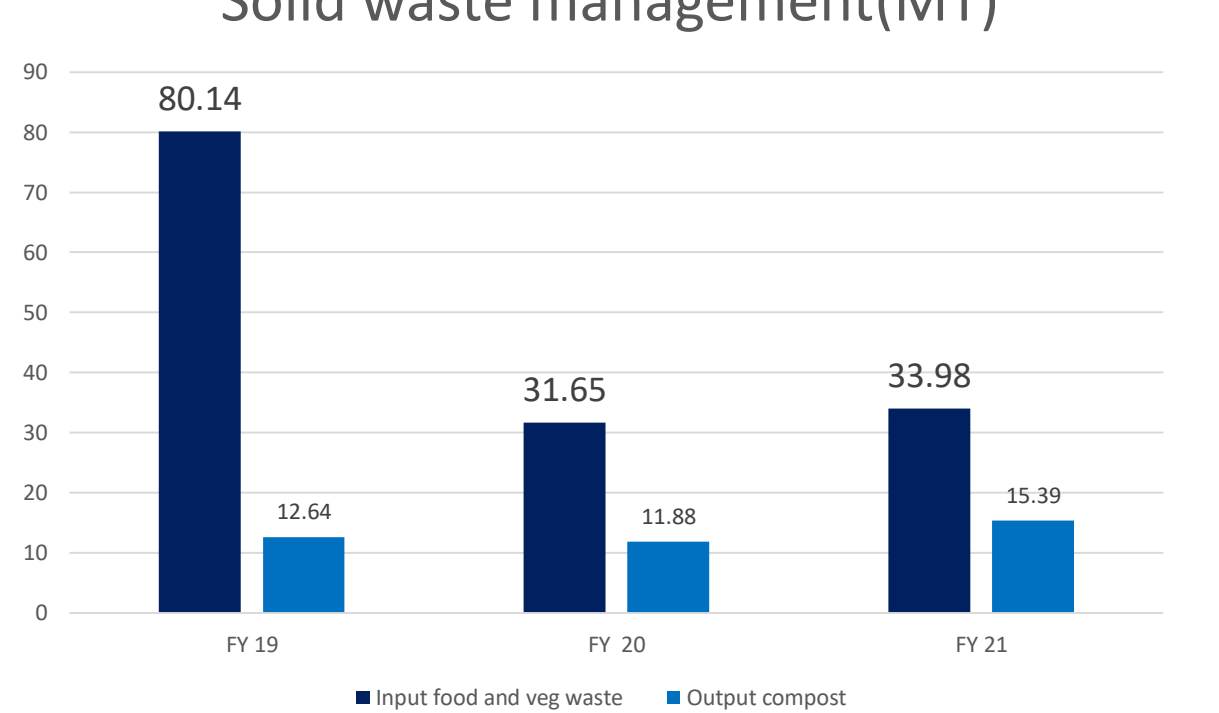
FOG Cannon

Automation of Rain water harvesting pumps

Waste water utilization

9.5 ENVIRNOMENT MANGEMENT – WASTE UTILIZATION

1. Organic waste is being converted to manure through Mech bio-digester and utilized in organic farming and horticulture



10. GREEN SUPPLY CHAIN MANAGEMENT .

Started Bulk ash disposal by rake as 2nd plant in ER thus reducing truck transport emission.

- **56574 tons** transported
- 1885 truck eliminated
- 3.65 lakh km
- 125 kl Diesel consumption
- 333 TCO2 by truck
- 106 TCO2 by rail
- 227 TCO2 Net reduction

SPDI

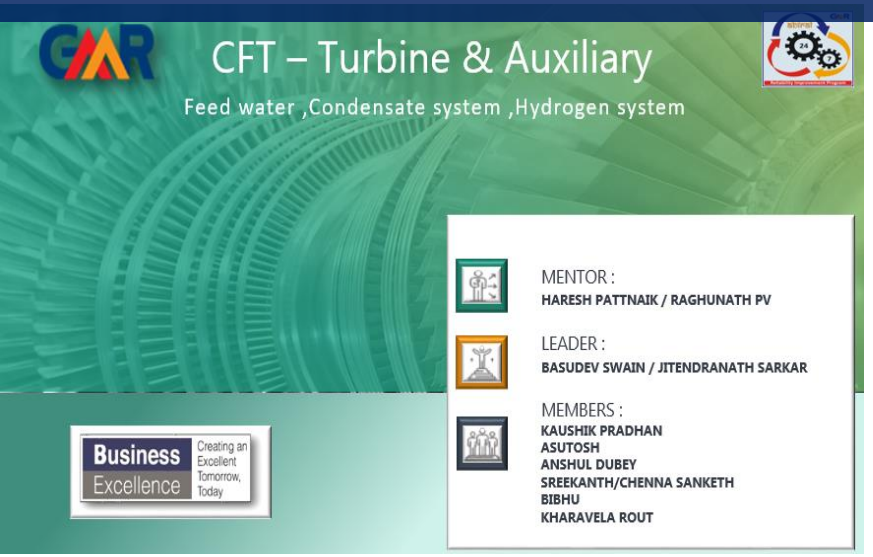
Spare part development and indigenization (SPDI) of 98 Nos of item.

Local vendor development reduces energy consumption in transportation and carbon foot print in its overall product life cycle

100% rake materialization reducing truck transport emission and energy consumption

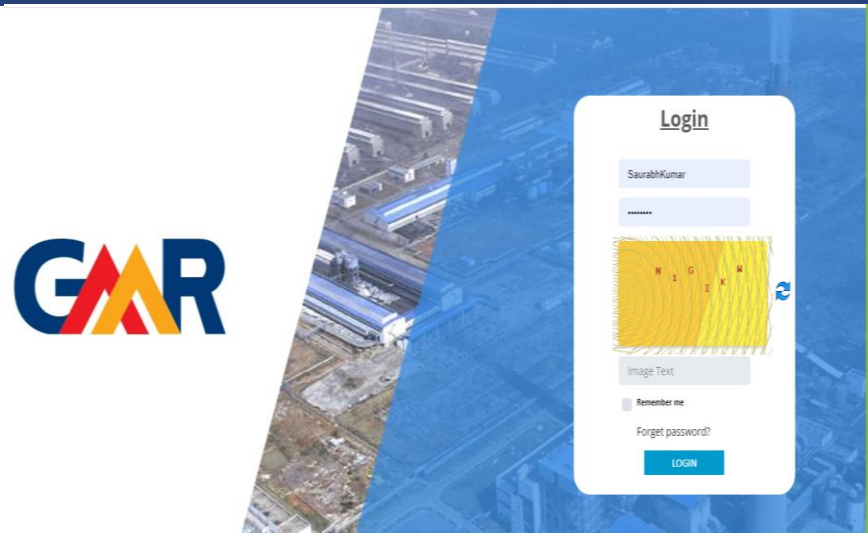
E cart for goods transport inside plant which reduced 1.82 kl diesel consumption .

11. BEST PRACTICE –NON ENERGY EFFICIENCY



SIX SIGMA PROJECT

- Generation loss minimization by repeated failure analysis
- Life enhancement of frequently failing components
- CHP belt loading factor improvement
- Bottom ash quantity reduction
- Heat rate improvement
- Non-moving spare inventory reduction



RELIBILITY ENGINEERING

ABIRAL–A reliability improvement program initiated where 200 Nos of reliability issues identified under banner of ABIRAL. 20 no's of CFT formed to asses all processes.

1. Repeated failure analysis
2. Critical spare management
3. Identification of process bottleneck.
4. RCA trough Six sigma approach.

USE OF DIGITAL PLATFORM

1.Compliance management, EHS management, Management Review & Sustainability reporting.

2. SARATI portal for internal audits .

3. Idea Factory for registration of individual idea

4. SIP digitalization for change management

5.ATR digitalization for tracking of CAPA.

11. BEST PRACTICE –NON ENERGY EFFICIENCY

AFFORESTATION

GKEL has fulfilled statutory requirement by effective plantation in 335 Acres

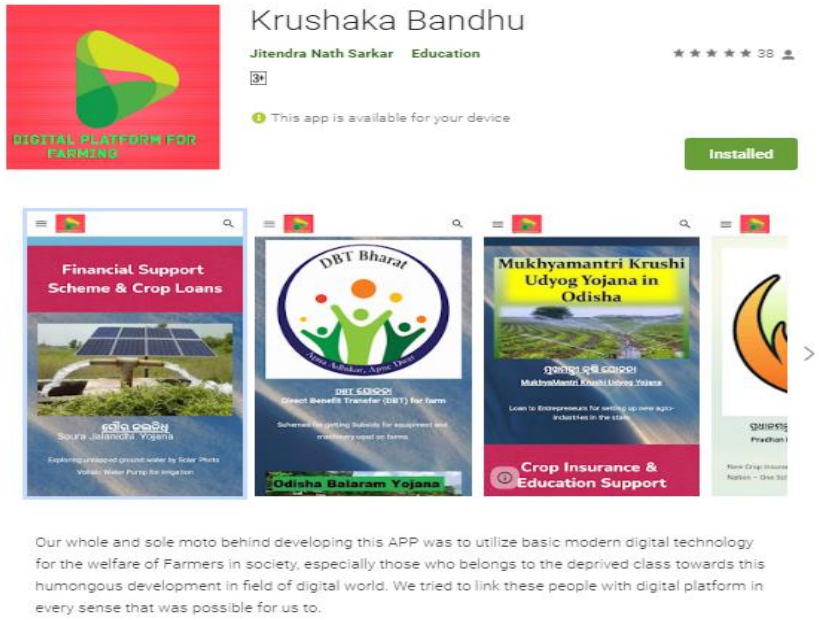
1. Plantation of 3.9 Lakh sampling
2. Mass plantation in plant premises
3. Seedlings distribution to community
4. Planation in community.
5. 35 Acres landscape development
6. 2Acres of organic farming

CSR

Web page and app developed named "krusaka bandhu" to facilitate farmers on.

1. Aggregation on information on various government schemes and links.

2. E-resources for farming like Govt. newsletters, notifications, E-books.



ASSET MANAGEMENT

1.SAP based maintenance

2.Preservation methodology

3.Min max process

4.Condition monitoring

5.Regulatory compliance

6. Waste management

7. Certification of ISO 55001

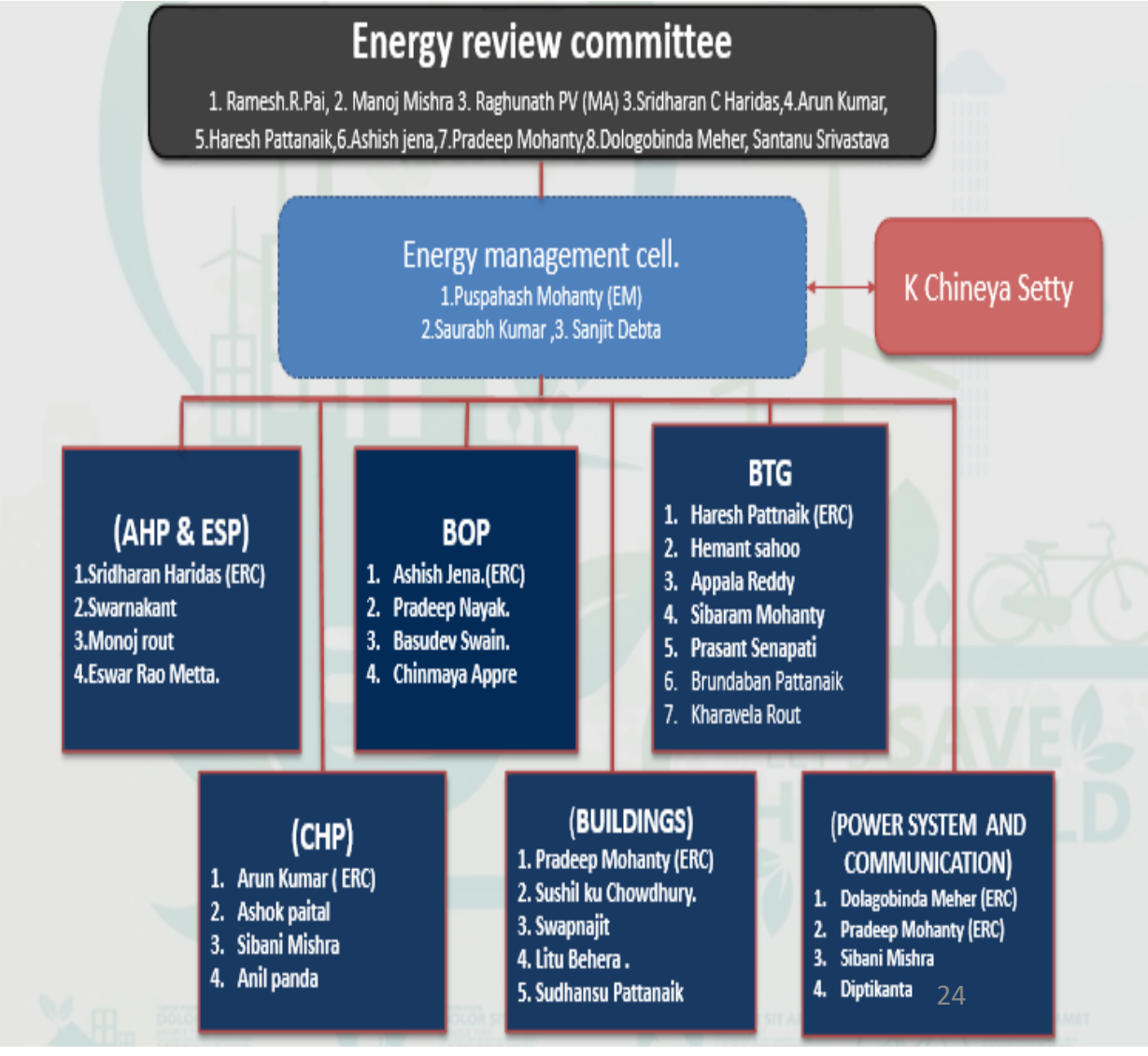
12. ENERGY MANGEMENT SYSTEM .

12.1 ENERGY MANGEMENT CELL

- **Energy review committee** : For overall review & support
- **Energy management Cell** : For Monitoring and developing
- **Zonal members** : For field level execution .
- **No of zones** : 6 zones better targeting and monitoring
- **Involvement** - : 31 Nos of employees associated.
- **Competency**- : 7 BEE Certified energy auditors
- **Review** : Energy review chaired by plant head

Objective of EMC to

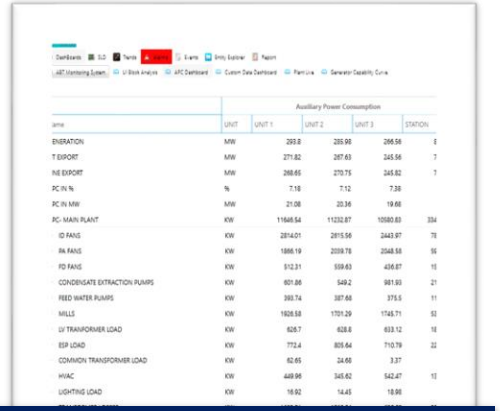
- Monitoring of specific energy consumption area wise
- Deviation analysis of SEU and objective
- Preparation of action plan.
- Identification and cost benefit analysis of ENCON projects
- Awareness. And Training
- Ensure sustenance action plan.
- ISO 50001 standard requirement.



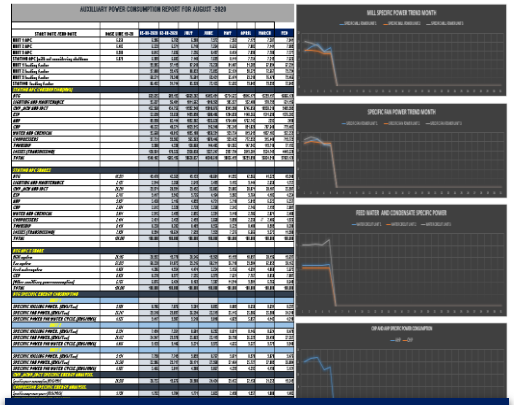
12. ENERGY MANGEMENT SYSTEM .

12.2 ENERGY MONITORING AND MEASUREMENT

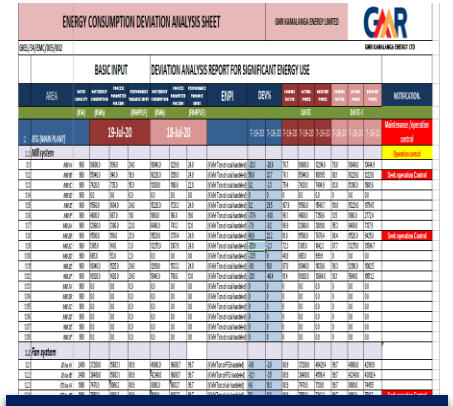
ELECTRICAL ENERGY MONITORING



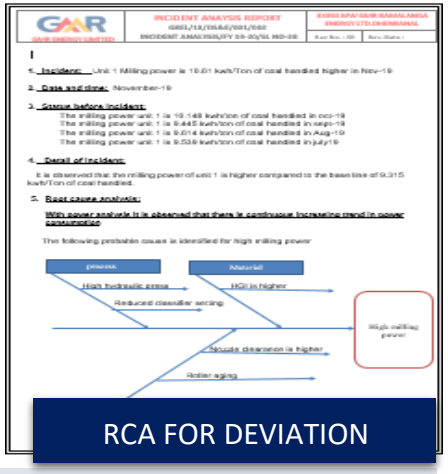
ONLINE POWER CONSUMPTION



AREA WISE SP ENERGY ANALYSIS

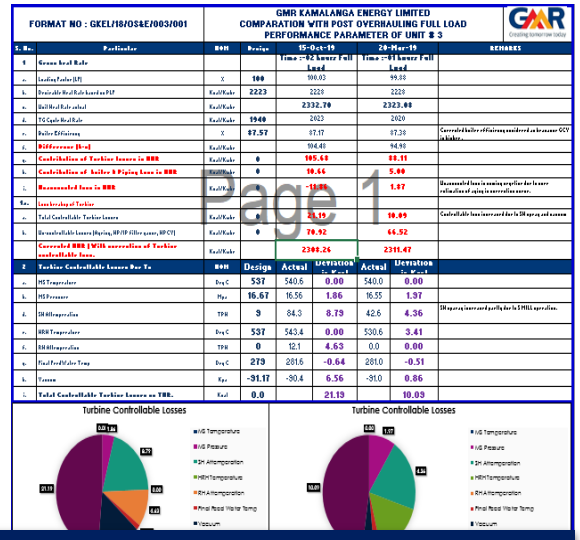


SEU DEVIATION ANALYSIS

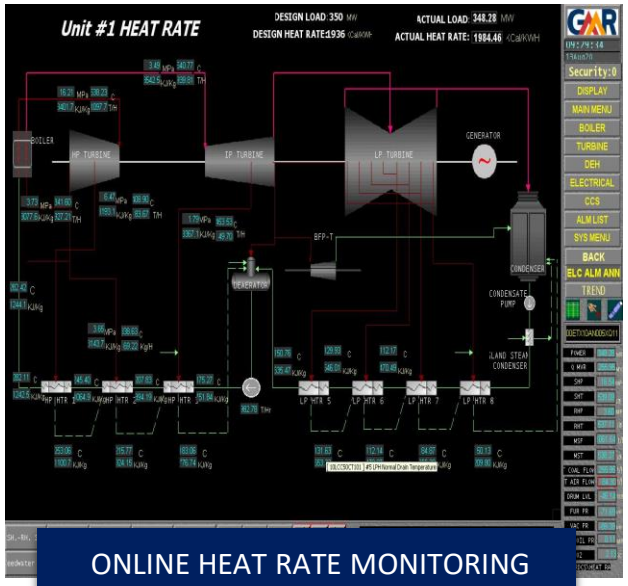


RCA FOR DEVIATION

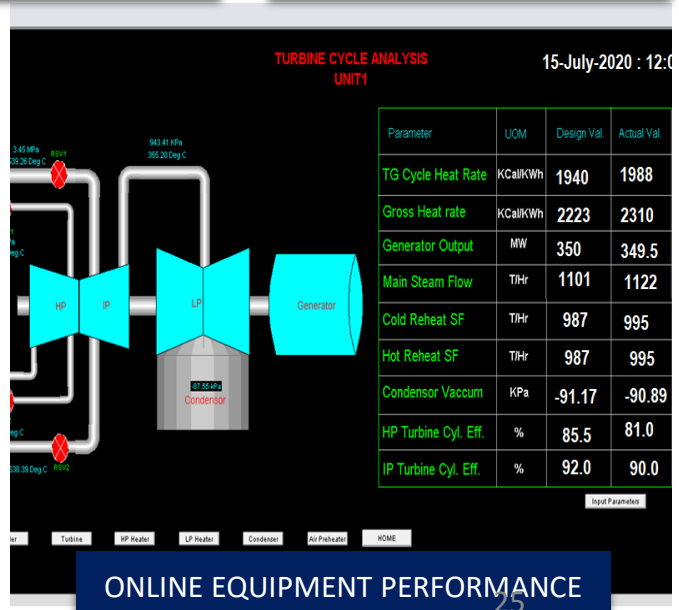
THERMAL ENERGY MONITORING



DAILY HEAT RATE DEVIATION ANALYSIS



ONLINE HEAT RATE MONITORING

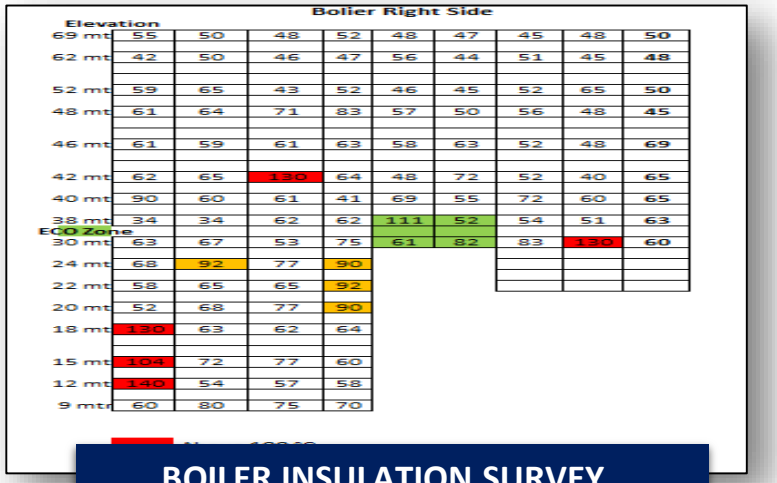


ONLINE EQUIPMENT PERFORMANCE

12. ENERGY MANGEMENT SYSTEM .

12.3 WORKMEN INVOLVEMENT THROUGH SGA .

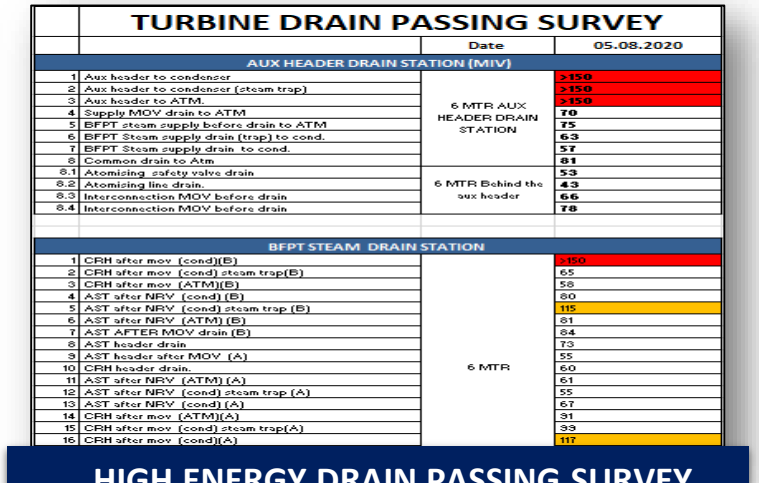
1. Half yearly Boiler and turbine insulation temperature survey.
2. Furnace pressurization test for air in-leakage identification.
3. PA duct pressurization test for air in- leakage identification.
4. Monthly high energy Drain passing survey.
5. Instrument and service air leakage survey
6. Furnace velocity mapping.
7. Compressor FAD testing.
8. Illumination study.
9. Ventilation system audit



Bolier Right Side

Elevation									
69 mt	55	50	48	52	48	47	45	48	50
62 mt	42	50	46	47	56	44	51	45	48
52 mt	59	65	43	52	46	45	52	65	50
48 mt	61	64	71	83	57	50	56	48	45
46 mt	61	59	61	63	58	63	52	48	69
42 mt	62	65	130	64	48	72	52	40	65
40 mt	90	60	61	41	69	55	72	60	65
38 mt	34	34	62	62	111	52	54	51	63
ECO Zone									
30 mt	63	67	53	75	61	82	83	130	60
24 mt	68	92	77	90					
22 mt	58	65	65	92					
20 mt	52	68	77	90					
18 mt	130	63	62	64					
15 mt	104	72	77	60					
12 mt	140	54	57	58					
9 mt	60	80	75	70					

BOILER INSULATION SURVEY .

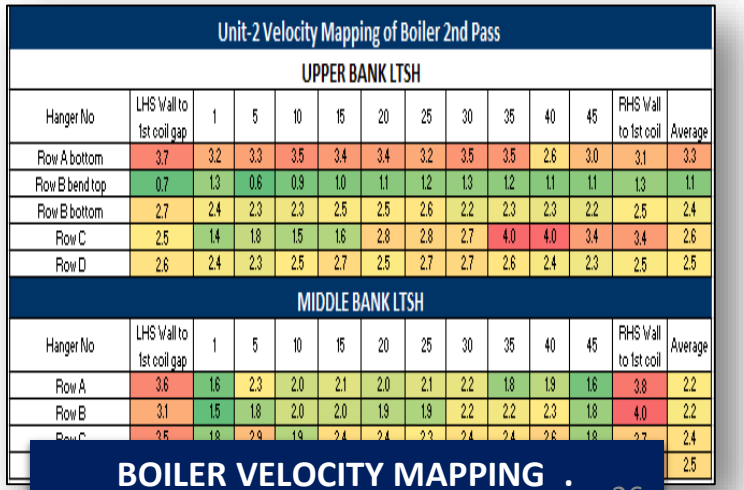


TURBINE DRAIN PASSING SURVEY

Date 05.08.2020

	AUX HEADER DRAIN STATION (MIV)		
1	Aux header to condenser	6 MTR AUX HEADER DRAIN STATION	>150
2	Aux header to condenser (steam trap)		>150
3	Aux header to ATM.		>150
4	Supply MOV drain to ATM		70
5	BFPT steam supply before drain to ATM		75
6	BFPT Steam supply drain (trap) to cond.		63
7	BFPT Steam supply drain to cond.		57
8	Common drain to Atm		81
8.1	Atomizing safety valve drain	6 MTR Behind the aux header	53
8.2	Atomizing line drain.		43
8.3	Interconnection MOV before drain		66
8.4	Interconnection MOV before drain		78
	BFPT STEAM DRAIN STATION		
1	CRH after mov (cond)(B)	6 MTR	>150
2	CRH after mov (cond) steam trap(B)		65
3	CRH after mov (ATM)(B)		58
4	AST after NRV (cond) (B)		80
5	AST after NRV (cond) steam trap (B)		115
6	AST after NRV (ATM) (B)		81
7	AST AFTER MOV drain (B)		84
8	AST header drain		73
9	AST header after MOV (A)		55
10	CRH header drain.		60
11	AST after NRV (ATM) (A)		61
12	AST after NRV (cond) steam trap (A)		55
13	AST after NRV (cond) (A)		67
14	CRH after mov (ATM)(A)		91
15	CRH after mov (cond) steam trap(A)		93
16	CRH after mov (cond)(A)		117

HIGH ENERGY DRAIN PASSING SURVEY .



Unit-2 Velocity Mapping of Boiler 2nd Pass

UPPER BANK LTSH

Hanger No	LHS Wall to 1st coil gap	1	5	10	15	20	25	30	35	40	45	RHS Wall to 1st coil	Average
Row A bottom	3.7	3.2	3.3	3.5	3.4	3.4	3.2	3.5	3.5	2.6	3.0	3.1	3.3
Row B bend top	0.7	1.3	0.6	0.9	1.0	1.1	1.2	1.3	1.2	1.1	1.1	1.3	1.1
Row B bottom	2.7	2.4	2.3	2.3	2.5	2.5	2.6	2.2	2.3	2.3	2.2	2.5	2.4
Row C	2.5	1.4	1.8	1.5	1.6	2.8	2.8	2.7	4.0	4.0	3.4	3.4	2.6
Row D	2.6	2.4	2.3	2.5	2.7	2.5	2.7	2.7	2.6	2.4	2.3	2.5	2.5

MIDDLE BANK LTSH

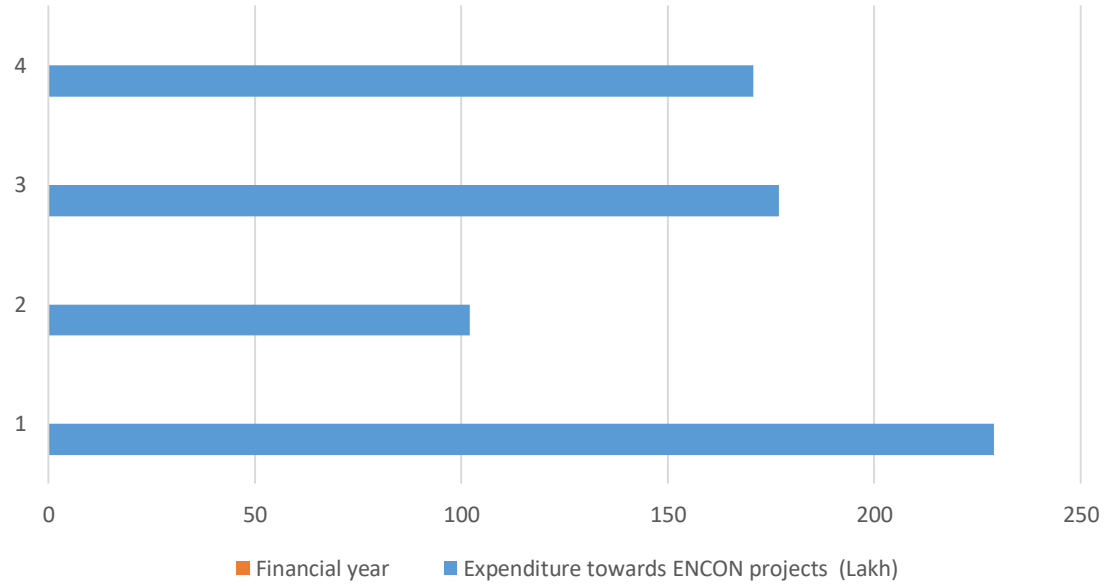
Hanger No	LHS Wall to 1st coil gap	1	5	10	15	20	25	30	35	40	45	RHS Wall to 1st coil	Average
Row A	3.6	1.6	2.3	2.0	2.1	2.0	2.1	2.2	1.8	1.9	1.6	3.8	2.2
Row B	3.1	1.5	1.8	2.0	2.0	1.9	1.9	2.2	2.2	2.3	1.8	4.0	2.2
Row C	2.5	1.9	2.9	1.9	2.4	2.4	2.3	2.4	2.4	2.6	1.9	2.7	2.4
													2.5

BOILER VELOCITY MAPPING .

13. BUDGET ALLOCATION .

SL No.	Expenditure towards ENCON projects (Lakh)	Financial year
1	229	FY-19
2	102	FY-20
3	177	FY -21
4	170.7	FY -22

Budget allocation w.r.t turn over = 0.05%



14.AWARD AND ACCOLADES

2017-18

State Energy conservation award

State safety innovation award

Safety innovation award

People initiative award

2018-19

State Energy conservation award

ICC Environment award -19

Kalinga safety award

Community initiative award

2019-20

CII national Energy award

CII –ER ENCON Award

ICC Env excellence Award

Pollution control Award

15. LEARNING FROM CII & OTHERS

GKEL participated in CII National level award for energy management in FY-21 and awarded as excellent energy management unit Which turns to be great motivational factor for work force towards energy conservation. It helped the organization in following aspects

- Adoption of best practices in energy conservation
- Adoption of best practice in environment aspects
- KPI benchmarking
- Motivations towards energy efficiency
- National level recognition.
- Employee engagement towards energy conservation

GKEL reviewed 50 Nos best practices from CII portal of various business and 02 Nos selected for implementation in which 1 project are completed and 1 project for further implementation

THANK YOU

We have rights to use national recourses but have no rights to waste it. Save energy save environment

Confederation of Indian Industry