

CII



National Energy Award for Excellence
in
Energy Management

2022

JSW Energy Ltd., Ratnagiri

Presenters:

Mr Dipak Patil- DGM- Head-OSTS and C&E

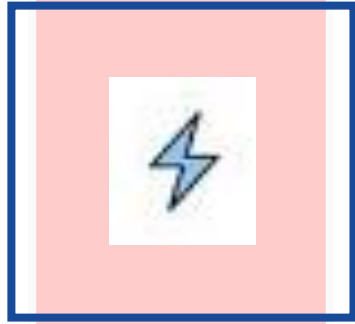
Mr Chinmay Thakur- Manager-OSTS

Ms. Pooja Singh-OSTS



1. Brief Introduction: JSW Energy Ltd.

JSWEL: Our Presence across value chain



Power Generation

Present operational capacity 4559 MW



Power Transmission

*JV with MSETCL
2 x 400 kV transmission lines*



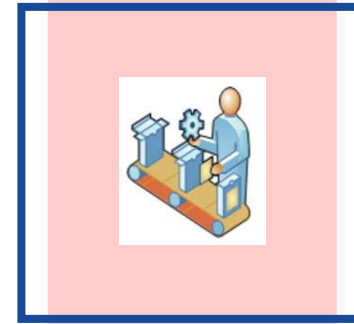
Power Trading

Engaged in power trading since 2006 through JSW PTC



Mining

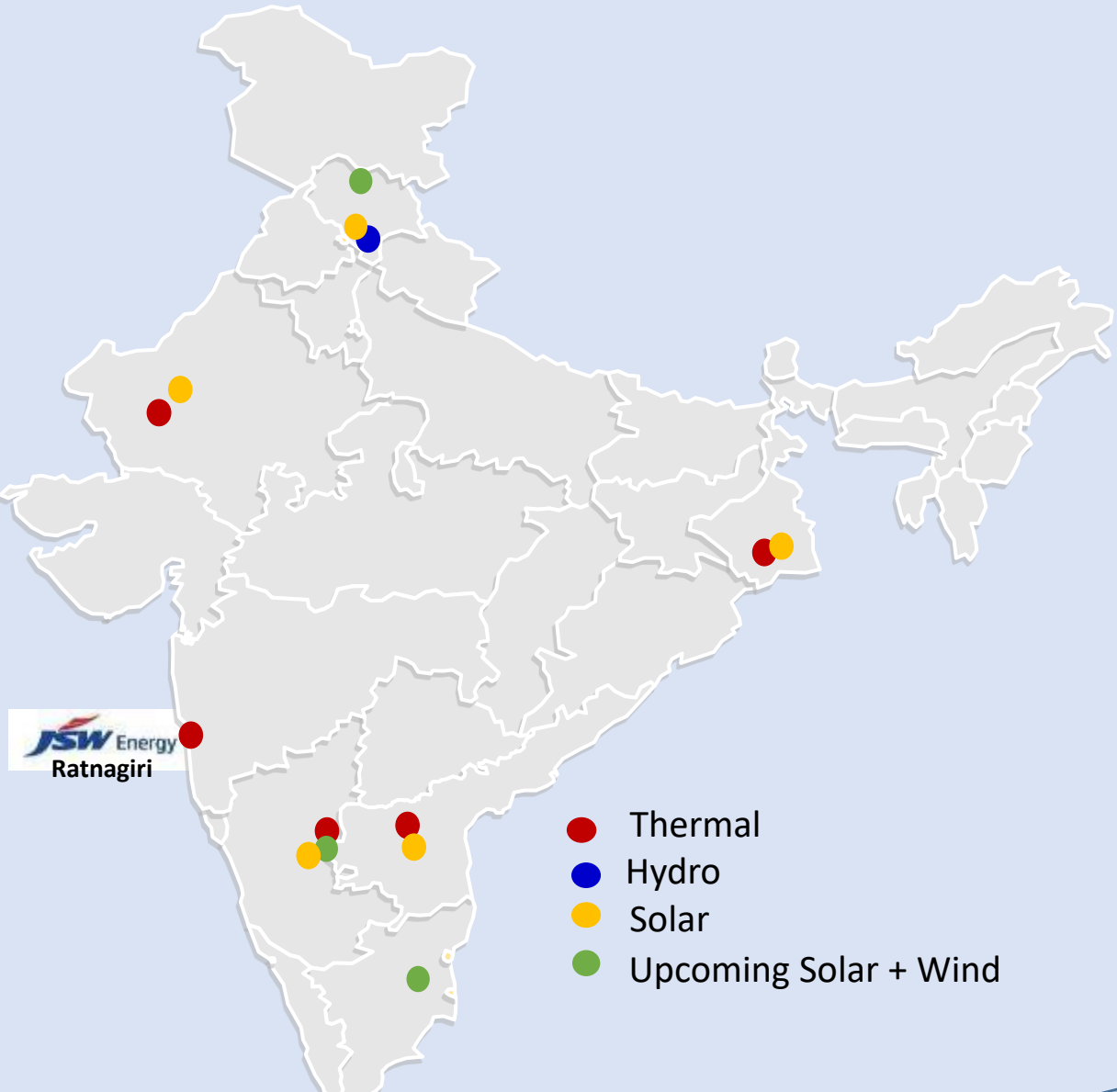
*Kapurdi & Jalipa Lignite mines, Rajasthan
(Total operational capacity 13 MTPA)*



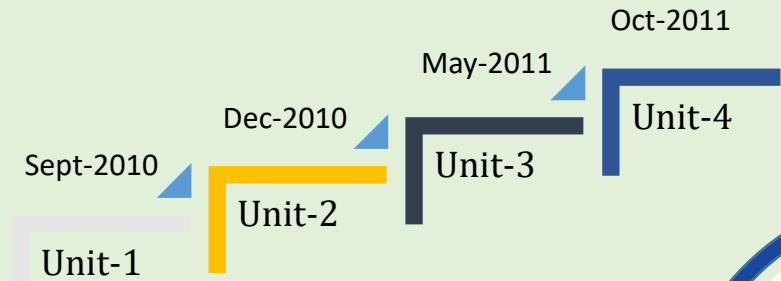
Equipment Manufacturing

JV with Toshiba, Japan for manufacturing of Super-Critical steam turbines & generators

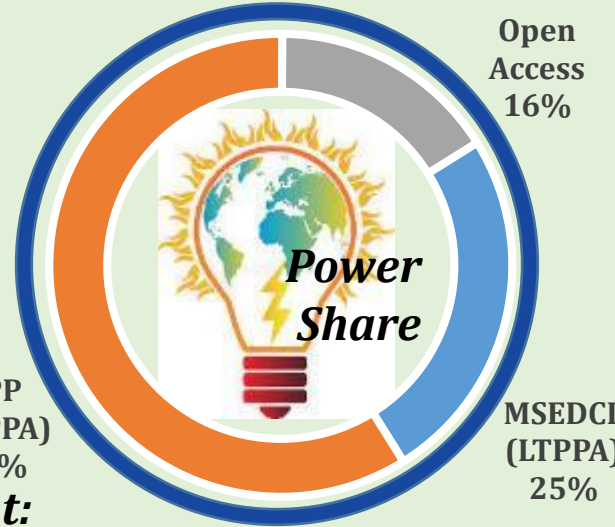
1. Brief Introduction: JSW Energy Ltd.



Total Present Operational Capacity : 4559 MW
Upcoming Capacity Addition : 1275 MW (Renewables)



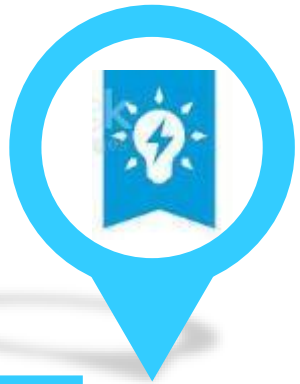
**JSWEL, Ratnagiri COD milestones
4 x 300 MW**



Salient Features of Our Plant:

- 1st TPP installed at *Konkan* belt of Maharashtra {MOU}
- India's largest covered coal shed with 3 lakh MT capacity
- Gas Insulated Switchyard (GIS)
- Sea Water Based FGD system installed since inception with 1st commissioning in 2011 followed by last in 2012
- Closed loop sea water cooled condenser & FRP cooling tower
- Power evacuation through 4 x 400 kV transmission line

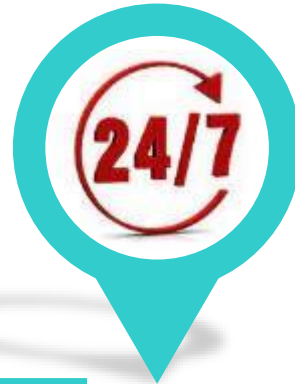
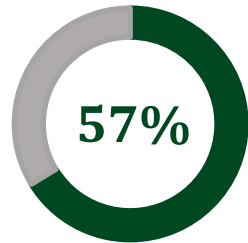
2. Energy Consumption Overview: FY 2021-22



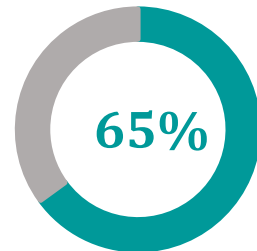
Annual Generation
In FY 22, 6024 MUs were generated by JSWELR



Plant Load Factor



Availability



Auxiliary Power Consumption

8.08%



Specific Oil Consumption

0.13 ml/kWh

2. Energy Consumption Overview: FY 2021-22

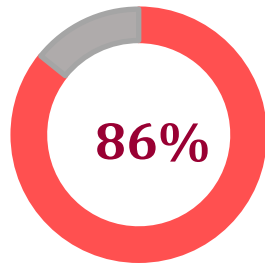


Gross Heat Rate

2329
kCal/kWh



Boiler Efficiency



Turbine Heat Rate

1994
kCal/kWh



DM Water Consumption

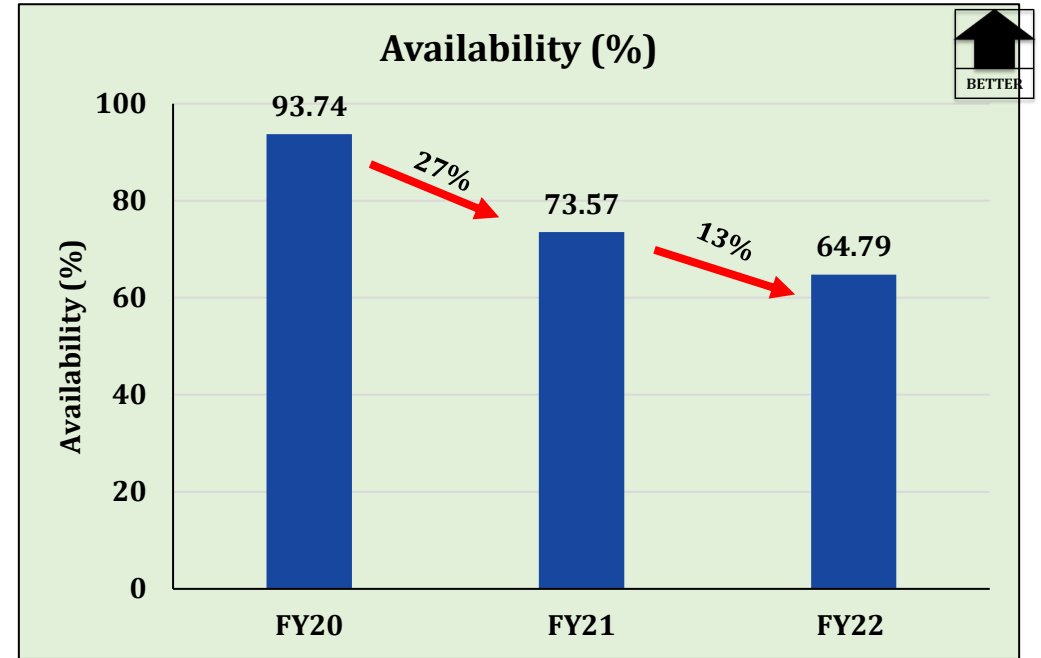
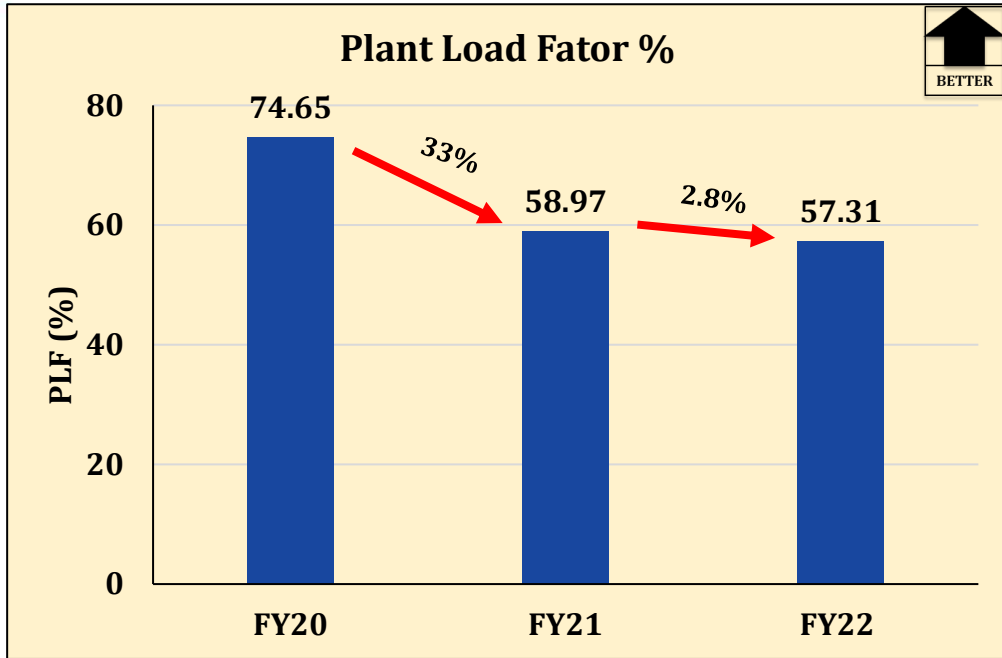
18.17 m³/MU



Raw Water Consumption

119 m³/MU

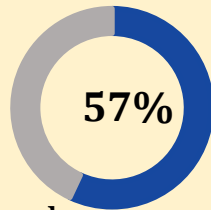
3. Specific Energy Consumption



Plant Load Factor



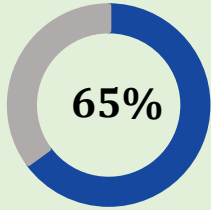
Lower demand from captive consumers as a result of prevailing market conditions & restricted merchant sale resulted in lower plant load factor



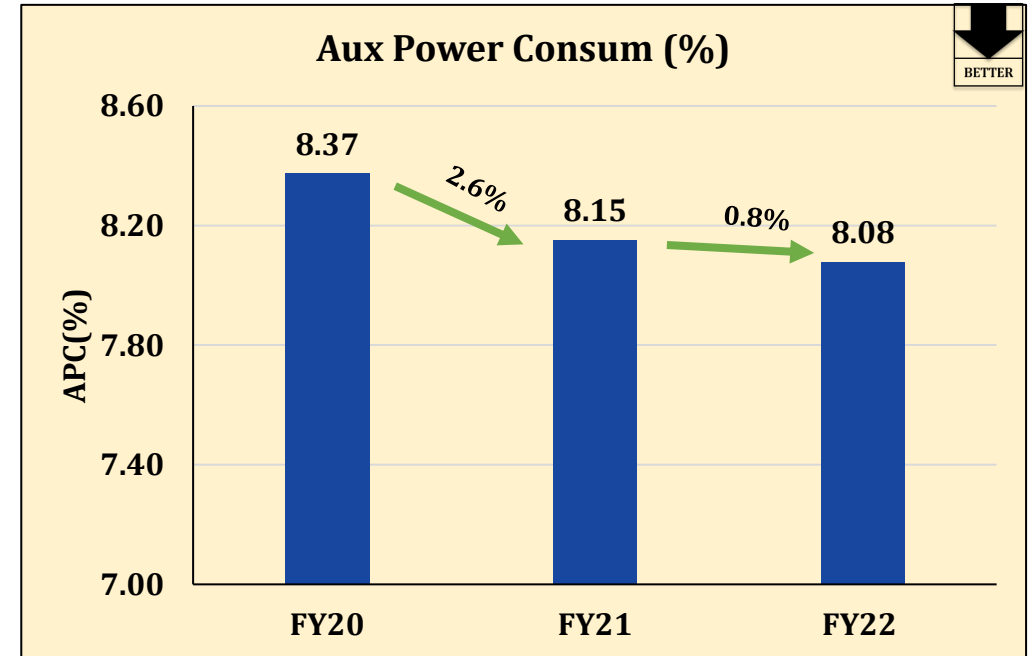
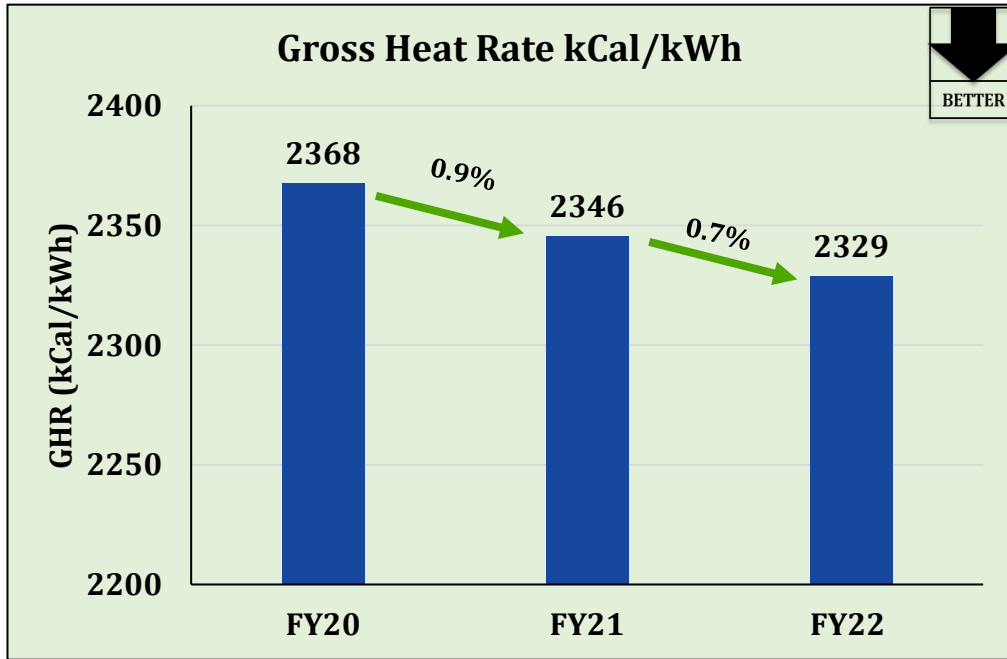
Availability Factor



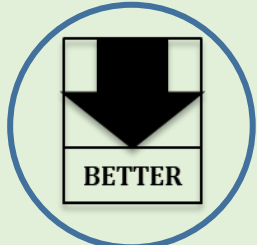
Availability factor for FY22 was low because of planned COH of a unit.



3. Specific Energy Consumption

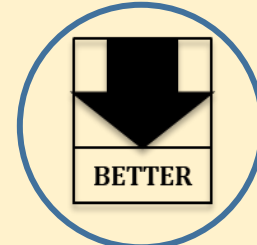


Gross Heat Rate



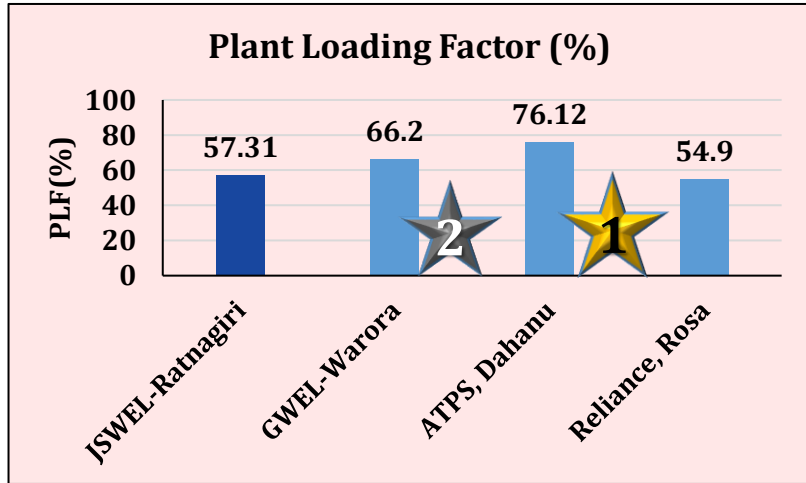
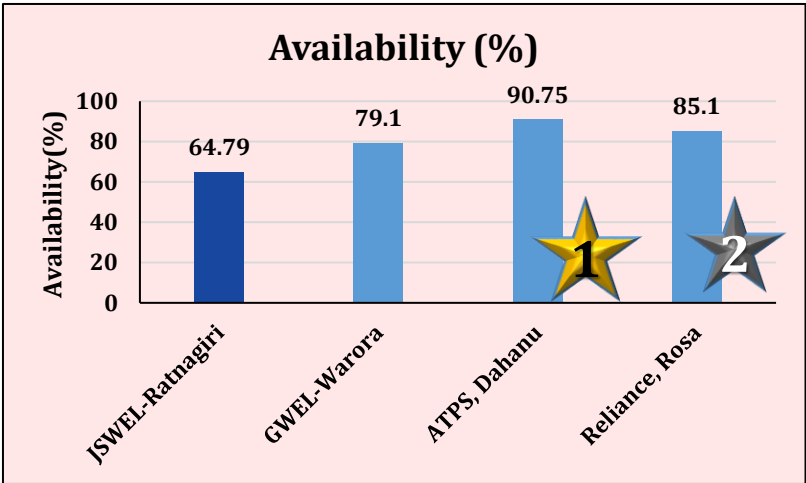
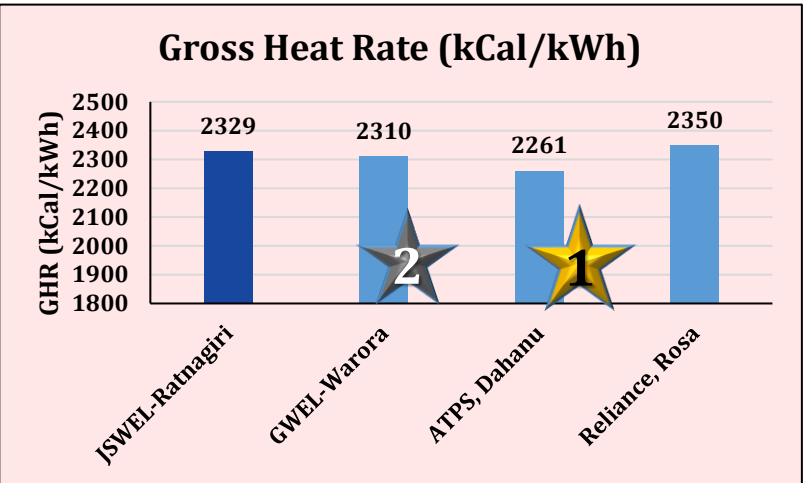
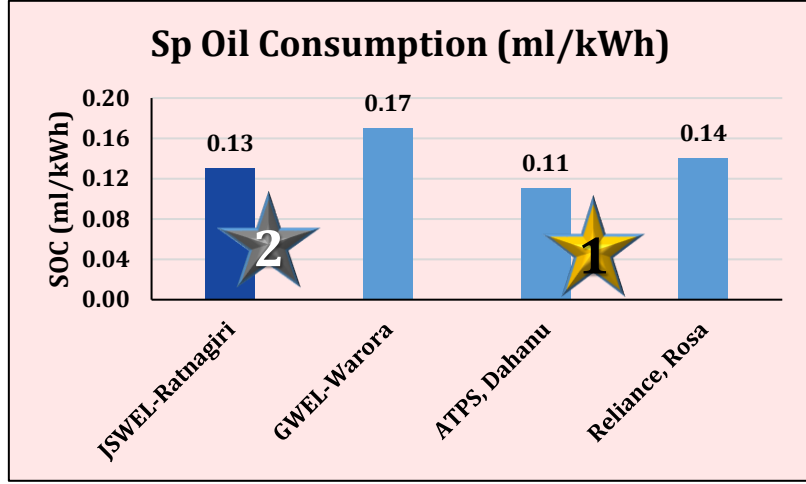
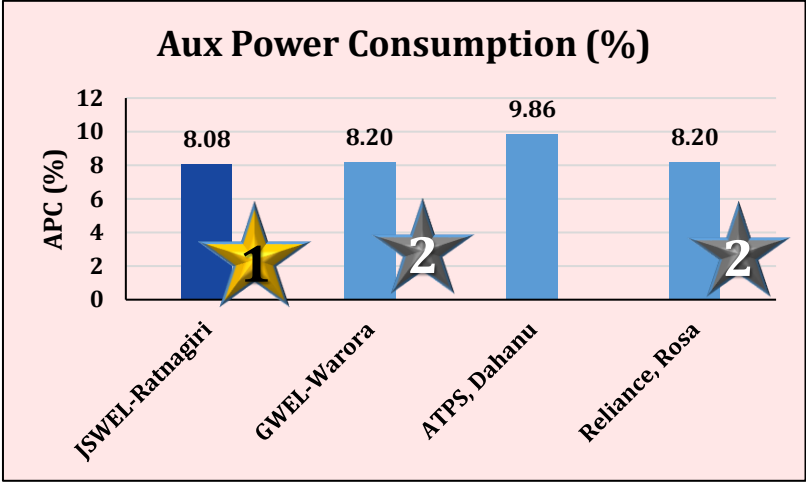
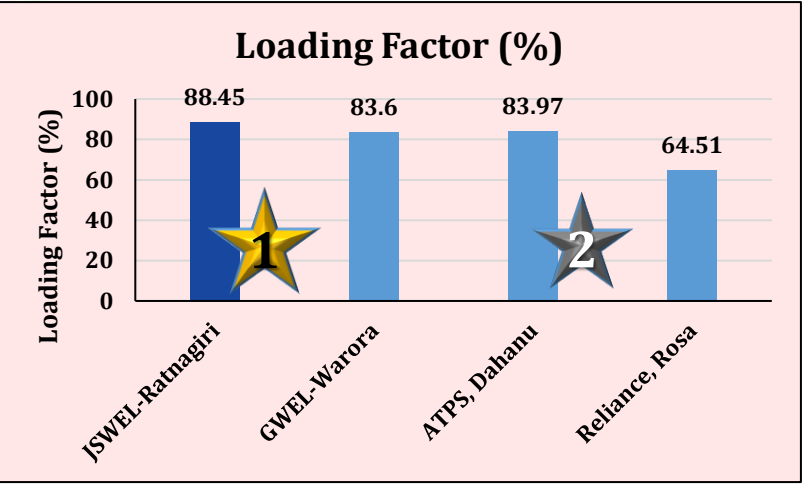
In spite of lower GCV coal in FY22 (570 kCal/kg lower than FY21) & lower PLF, with number of improvements, the heat rate was successfully reduced by 0.7 %.

Auxiliary Power Consumption



In spite of lower PLF in FY 22 compared to that in previous year, the aux power consumption was successfully reduced with number of improvement steps.

4. Information on Competitors & Benchmark



Higher due to firing of coal much lower than designed value

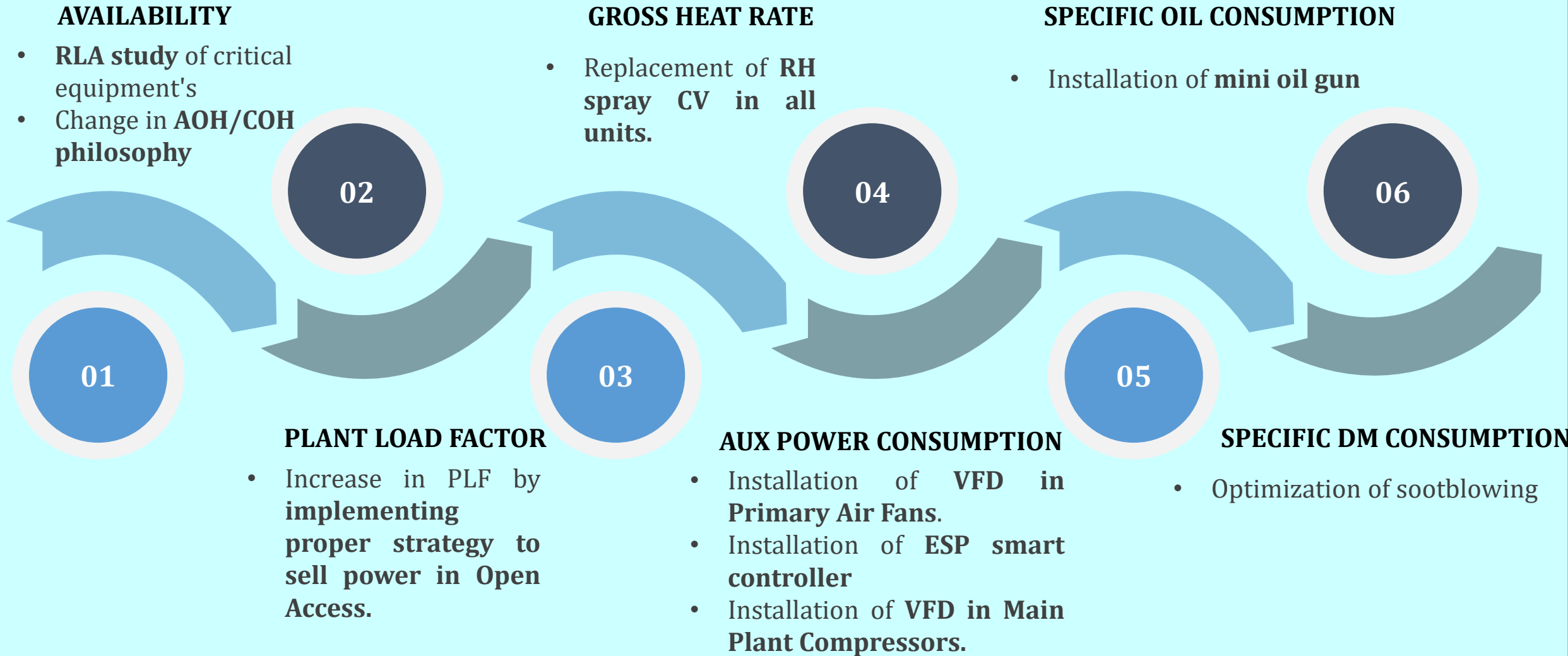
Because of planned shutdown & COH activities

Because of decreased demand in captive & merchant power

4. Information on Competitors & Benchmark




Roadmap to achieve benchmarks



4. Information on Competitors & Benchmark




Major Encon Projects Planned for FY 22-23



Unit-3 COH

Benefit: Improving Turbine Cylinder Efficiency


₹ 61.16 Million/yr



Installation of coal spillage system to re-use rejected coal

Benefit: Saving of coal

₹ 14.6 Million/yr




Replacing RH spray CV with modified design

Benefit:

1. Savings in coal
2. Reducing RH Spray & temp. losses

₹ 9.1 Million/yr




De-staging of Boiler Feed Pump in Unit-4

Benefit: Savings in APC

₹ 5.01 Million/yr

4. Information on Competitors & Benchmark


Major Encon Projects Planned for FY 22-23



De-staging of Boiler Feed Pump in Unit-2

Benefit: Savings in APC


₹ 5.01 Million/yr



De-staging of Boiler Feed Pump in Unit-1

Benefit: Savings in APC


₹ 5.01 Million/yr



Installation of sky lights

Benefit: Savings in APC

₹ 0.12 Million/yr



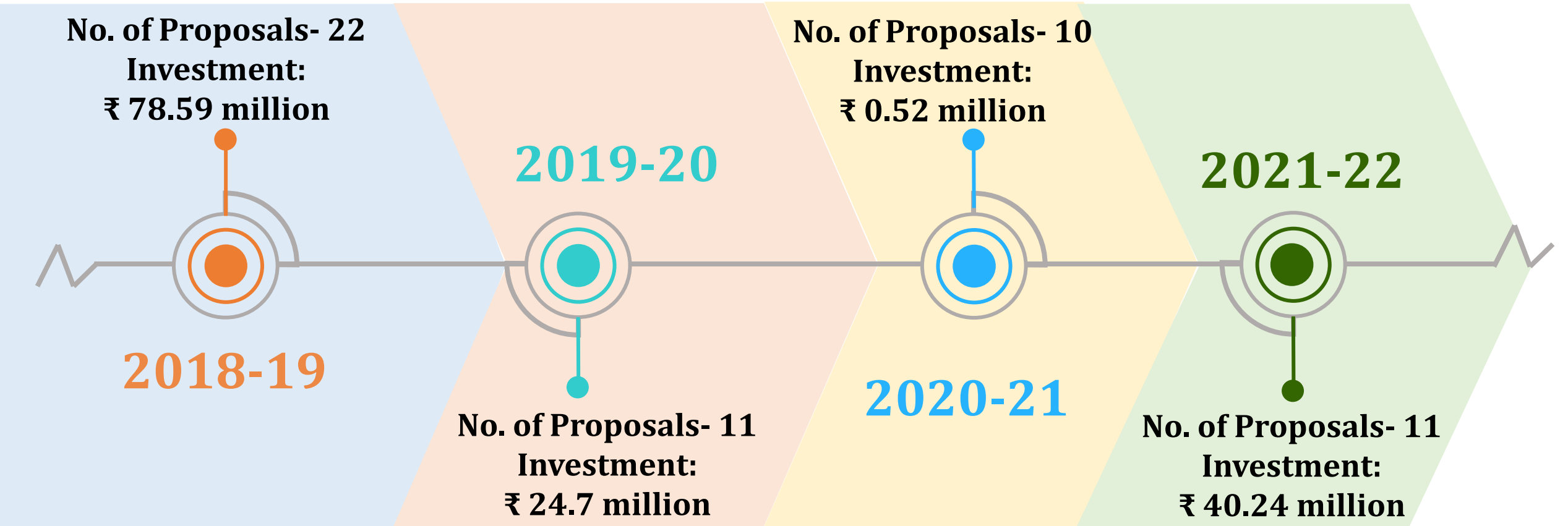
Augmentation of check dams

Benefit:

1. Savings in APC
2. Increasing rainwater harvesting capacity

₹ 0.10 Million/yr

5. Energy Saving Projects implemented in last years



5. Energy Saving Projects implemented for FY 21-22



Project Title	Thermal Savings (MT of coal)	Electrical Savings (kWh)	Total Annual Savings (INR Million)	Investment (INR Million)	Payback (months)
Improvement in air pre heater performance by changing profile of baskets in Unit-3	3209	4849816	37.83	18	06
Improvement in air pre heater performance by changing profile of baskets in Unit-4	1589	3083520	21.12	18	10
Reduction in power consumption of boiler feed water pump by de-staging	0	869394	3.04	2.5	10
Attending RH spray control valve passing in Unit-3 by valve setting & calibration so as to avoid RH flow losses	233	0	1.51	1.6	13
Elimination of HFO guns by replacement with LDO guns in Unit-4	639	963600	7.53	0.02	0.02
Internal inspection of HPH-7 in Unit-1 and rectification of passing parting plane	914	0	5.94	0.03	0
Installation of VFD in Cooling tower of HVAC to save auxiliary power consumption	0	6690	0.02	37.83	13
Total	6583	9773020	77	40.24	52

5. Energy Saving Projects implemented for FY 21-22



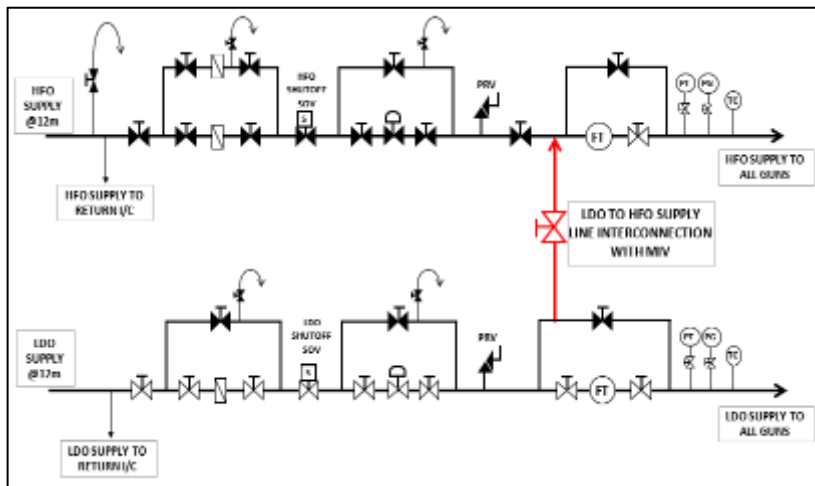
Defective APH baskets



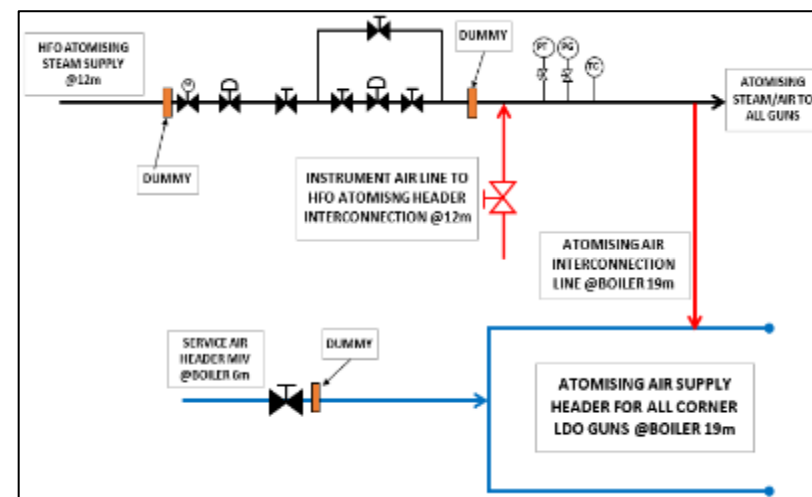
High pressure water jet cleaning of basket
APH Basket Replacement



Installation of new basket



LDO TO HFO SUPPLY LINE INTERCONNECTION



ATOMISING AIR TO STEAM LINE INTERCONNECTION

Conversion of secondary fuel from HFO to LDO

5. Energy Saving Projects implemented for FY 21-22



Project Title	Electrical Savings (kWh)	Savings (INR Million)	Investment (INR Million)
Change in deaerator level control logic to optimize CEP power consumption by controlling its discharge pressure	380456	1.33	0.00
Scaling down of APC by supplying cooling water to the shutdown unit from running unit CCW pump instead of using pump of s/d unit	2494800	8.73	0.00
Saving in APC by stoppage of service water pump for HCSD system	262800	0.92	0.00
Saving of APC in the commissioning of AHP air dryer	84	0.00	0.00
Total	3138140	10.98	0.00

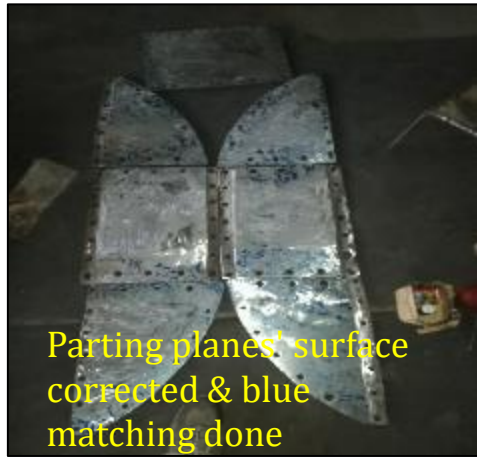
5. Energy Saving Projects implemented for FY 20-21



Project Title	Thermal Savings (MT of coal)	Total Annual Savings (INR Million)	Investment (INR Million)	Payback (months)
Internal inspection of HPH-6 & 7 in Unit-3 and rectification of passing parting plane	732	4.76	0.20	0.50
Internal inspection of HPH-6 in Unit-1 and rectification of passing parting plane	736	4.78	0.10	0.25
Improvement in performance of Vacuum Pump-1B by internal cleaning & servicing	2927	19.02	0.20	0.13
Elimination of HFO guns by replacement with LDO guns in Unit-1	1831	11.90	0.02	0.02
Total	6226	40.47	0.52	0.90



Damaged area of parting plane



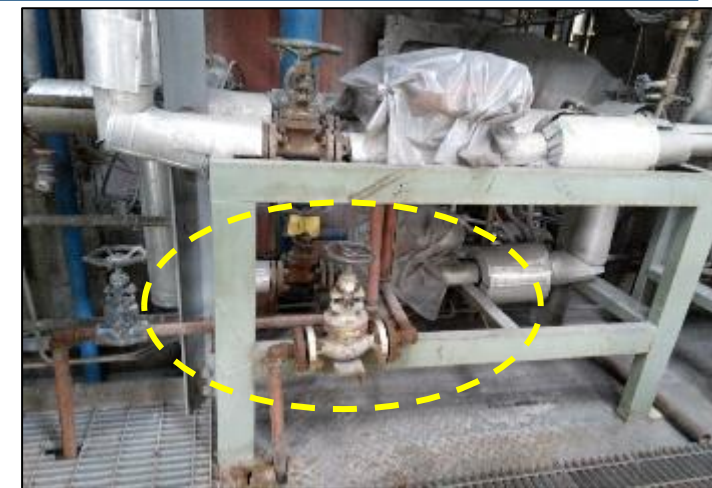
Parting planes' surface corrected & blue matching done

HPH parting plane rectification



Tapping for LDO connection with MIV

Elimination of HFO guns with LDO guns



5. Energy Saving Projects implemented for FY 20-21



Project Title	Electrical Savings (kWh)	Savings (INR Million)	Investment (INR Million)
Modification in deaerator station CV control logic to optimize the discharge pressure of condensate extraction pump	490560	1.72	0.00
Stoppage of one ash handling plant compressor by optimizing cycle gap & conveying time	162000	0.57	0.00
Stoppage of one out of two Sea Water Intake pump at partial load for 24 hours by monitoring forebay COC, CW Inlet temperature & condenser vacuum	12420000	43.47	0.00
Optimization of draught fans load, so as to reduce its power consumption at partial load	4017600	14.06	0.00
Optimization in main plant compressor power by reducing the IFC set point as well as isolating instrument & service air for shutdown unit, thereby stopping one compressor	177120	0.62	0.00
Reduction in primary air fan power consumption by optimizing its header pressure from 8 kPa to 7.5 kPa	212760	0.74	0.00
Total	17480040	61.18	NIL

5. Energy Saving Projects implemented for FY 19-20



Project Title	Thermal Savings (MT of coal)	Electrical Savings (kWh)	Total Annual Savings (INR Million)	Investment (INR Million)	Payback (months)
Replacement of Unit-2 cooling tower fans with redesigned fans	1509	-	9.81	11.5	14
Replacement of APH baskets for APH-B in Unit-1	1478	1116900	13.51	8.4	7
Installation of RC control valve with redesigned trim set in four BFPs to attend passing of RC control valve	-	5977824	20.92	2.4	1
Total	2987	6482924	44.25	22.3	22



Upgradation of BFP RC valve trim set from single stage to multistage

Replacement of CT Fan blades with redesigned blades

5. Energy Saving Projects implemented for FY 19-20

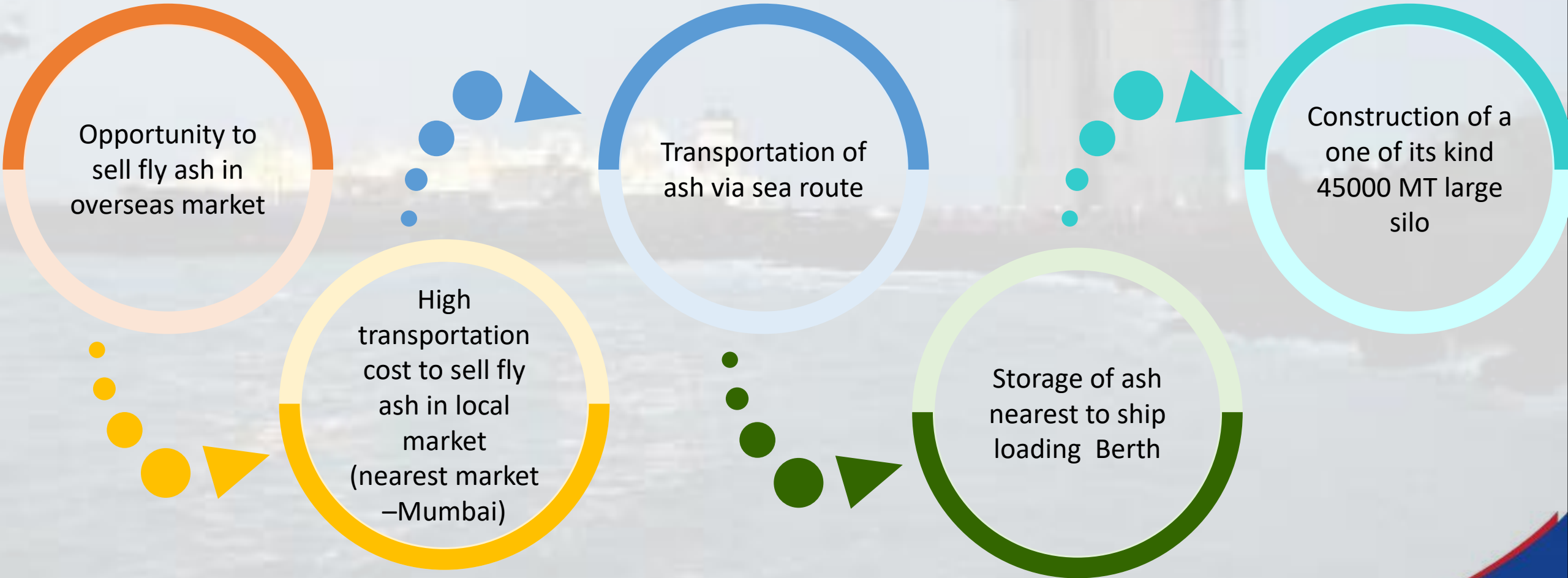


Project Title	Electrical Savings (kWh)	Total Annual Savings (INR Million)	Investment (INR Million)
Improvement in Vacuum Pump-2B performance by replacing its valve plates	52240	0.18	0.00
Optimization of CW Pump power consumption by running common pump for two units at partial load	237600	0.83	0.00
Optimization of Coal Mill power consumption by optimizing number of running mills	3379287	11.83	0.00
Optimization of SWIP power consumption by optimizing running hours	484763	1.70	0.00
Optimization of CT Fan power consumption by optimizing running hours as per condenser vacuum	557348	1.95	0.00
Optimization of CEP power consumption by reducing discharge pressure	1675419	5.86	0.00
Optimization of ESP power consumption by changing charge ratio & hopper heater settings	5861210	20.51	0.00
Optimization of PA Fan power consumption by reducing discharge header pressure	3064010	10.72	0.00
Total	15311877	53.58	NIL

6. Innovative Project Implemented



1. Bulk Export of Fly Ash



6. Innovative Project Implemented

1. Bulk Export of Fly Ash

Total Investment - INR 100 Cr

About the Project :

- Fly ash from plant is stored in a 45000 MT RCC silo by means of pneumatic conveying pipe lines
- The ash stored in the silo shall be pneumatically conveyed to *Marine Vessels* and will be exported to various locations in *Gulf & U.S.A.*

45000 MT RCC Silo

Salient Features of Project:

- 45000 MT capacity huge RCC Silo with 45 m ID & 60 m in height
- The ash from plant will travel a distance to 2.5 km to reach the silo
- The ash from silo to marine vessel will travel a distance of 1 km



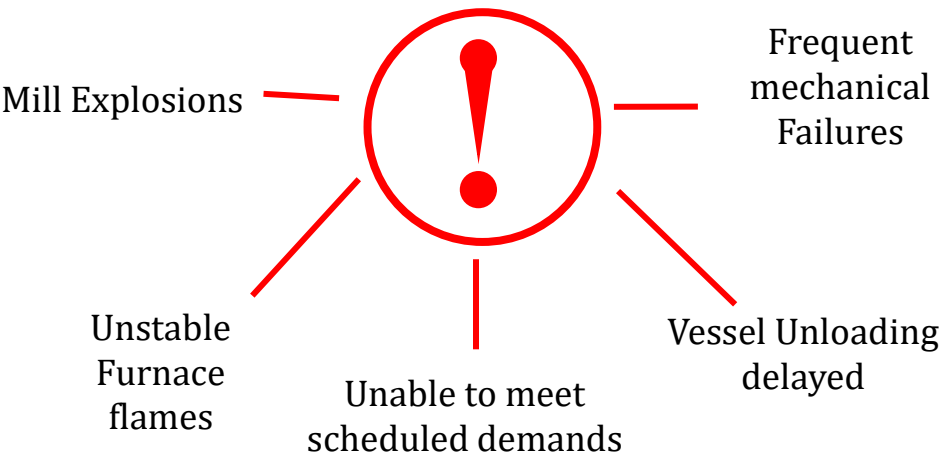
6. Innovative Project Implemented

2. Handling of Russian Coal

Problem Statement

Solutions Implemented

Imported Russian coal found out to be highly sticky with moisture 19% and IM 14%. This resulted in various problems like formation of coal lumps leading to difficult handling, chocking at multiple entry points and coal inlet feeder (Rat Holing).



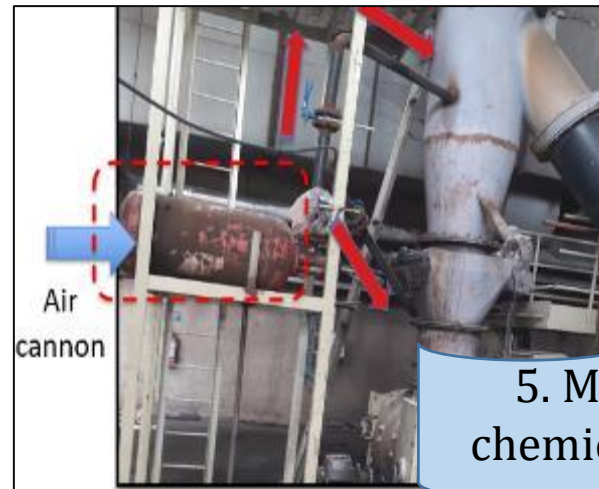
1. Manual hammering at feeder inlet & bunker outlet



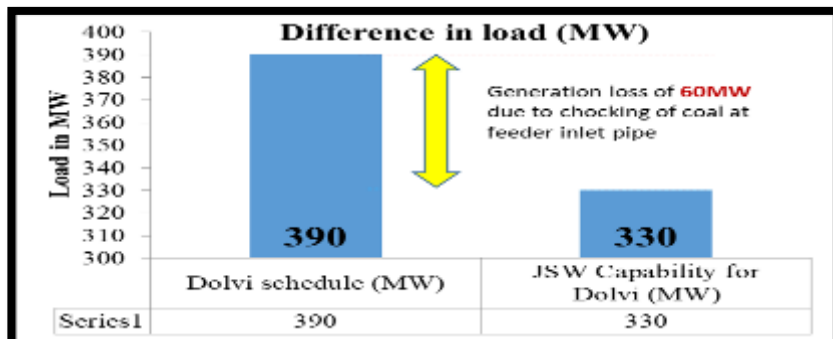
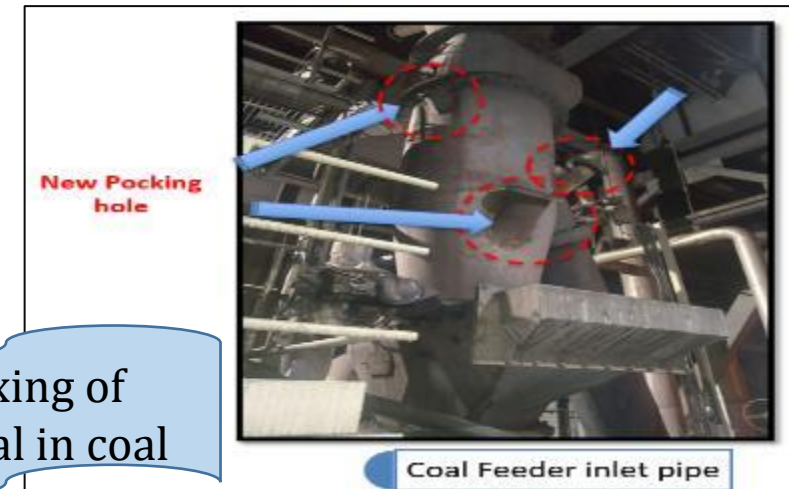
2. Blending of coal



3. Installation of Air cannon



4. Addition of Pocking Gap)



5. Mixing of chemical in coal

Coal Feeder inlet pipe

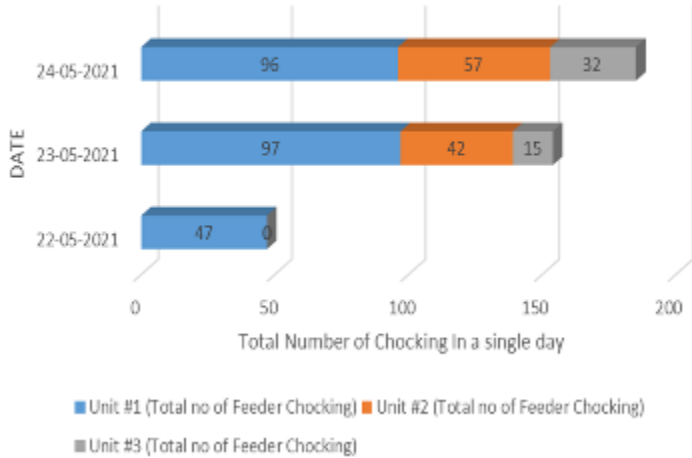
6. Innovative Project Implemented



2. Handling of Russian Coal

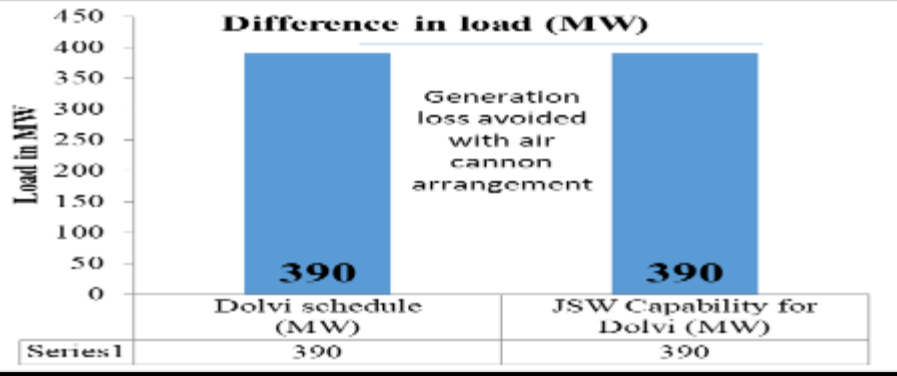
Outcomes

Feeder Inlet Chocking Data



Feeder chocking reduced

Difference in load (MW)

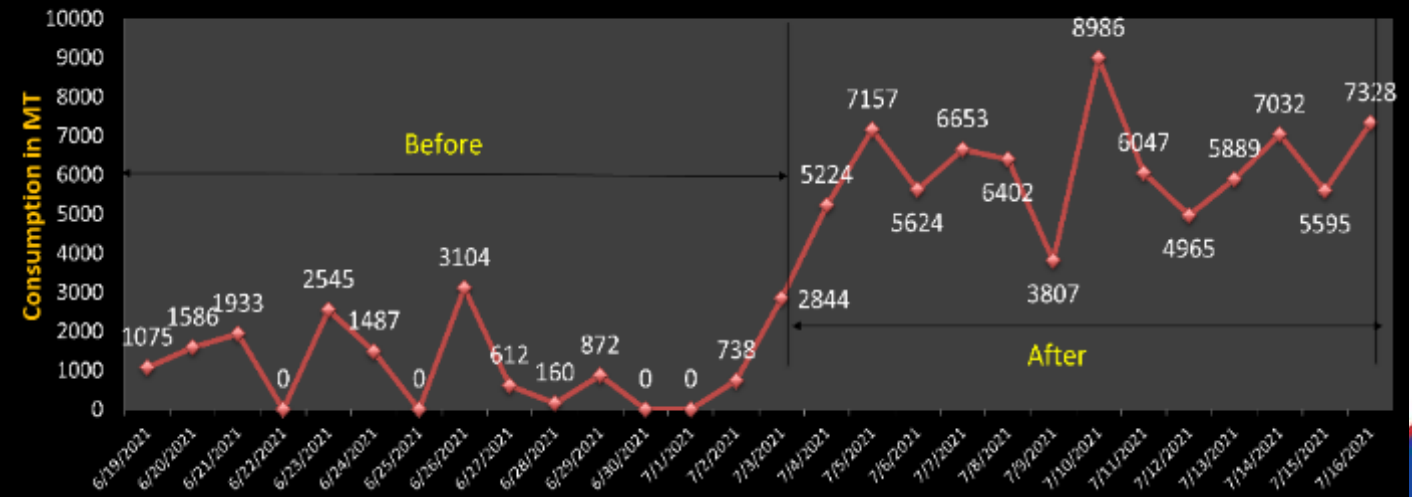


Generation loss avoided

Date	Coal from plot	Coal Bunker	Coal (MT)	Chemical (Kg)	Proportion	Mill status	Remark
02.06.21	B3	3F	112	160	1.43	OK	
03.06.21	B4	1A/3F	1043	440	0.42	OK	intermittent chocking observed in feeder
04.06.21	B3	3A/3F	465	220	0.47	mills not proved	
05.06.21	B4	3A/3F	100	100	1.00	mills not proved	intermittent chocking observed in feeder
05.06.21	B4	2F	212	140	0.66	OK	
06.06.21	B4	2F	357	200	0.56	OK	
08.06.21	B4	3A	190	200	1.05	OK	
11.06.21	B5	1A/2A/3A	678	440	0.65	OK	intermittent chocking observed in feeder

Effect of chemical mixing in coal

Russian Coal Consumption MT after regular implementation



Russian coal consumption increased

6. Innovative Project Implemented



3. Reducing fly ash loss on ignition (LOI) percentage & residue on sieve (ROS) percentage.

Problem Statement

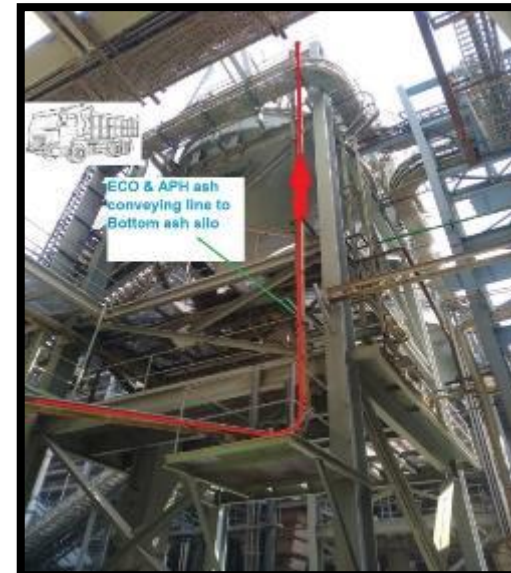
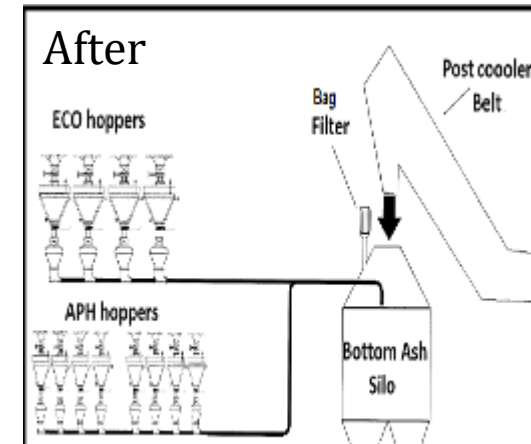
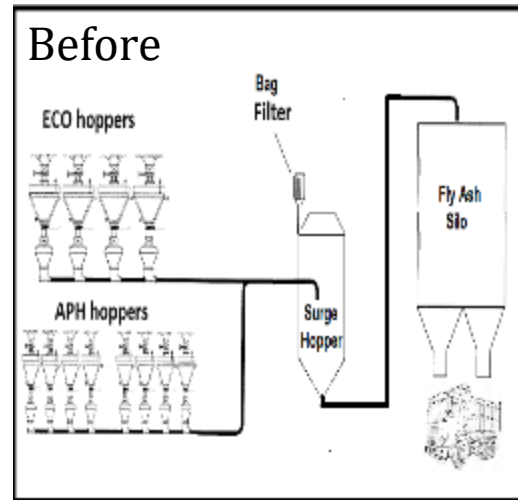
Rejection of ash bulkers from our cement & RMCs manufacturing companies as it was crossing acceptable limit (LOI<3% and ROS<20%).

- Fly ash from different locations sampled and their segregation done based on their LOI & ROS reports.

Outcome:

- **LOI was higher because ash collected from ECO & APH hoppers are being mixed with ESP fly ash.**
- Through brainstorming it was ideated to separate ash collected from ECO and APH from ESP fly ash.

Solutions Implemented



Benefits:

1. Fly ash ROS and LOI came within limit
2. Ash bulkers rejection reduced to zero.
3. ECO & APH ash conveying line length greatly reduced. Hence operation expenses on conveying reduced.

7. Utilization of renewable energy sources

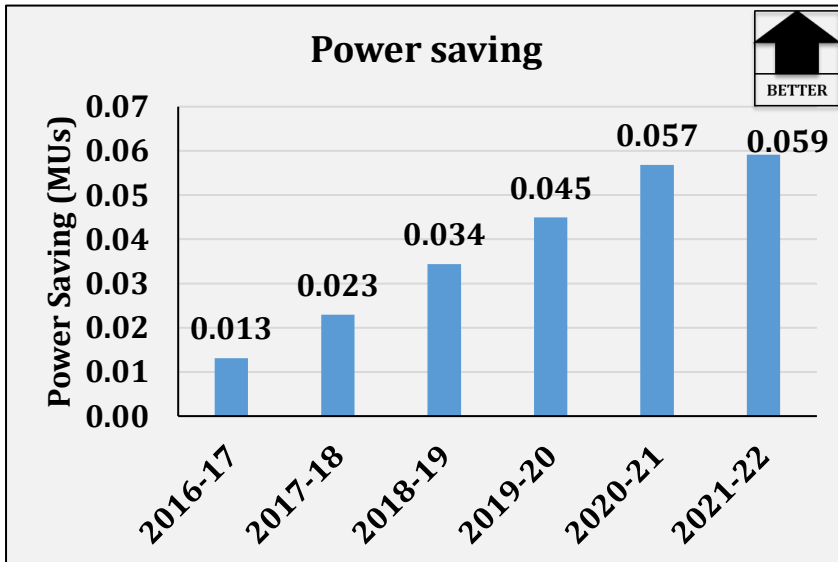


Use of rain water for process from water harvesting check dams

- **Augmentation of check dams** was done in FY22 to increase the capacity to collect harvested rainwater.
- This water is used for plant process there by avoiding usage of *Bav River* water which is pumped through 40 km long pipe line
- This enabled reduction in running of hours of river water supply pumps as well as reduction in MIDC supply bill

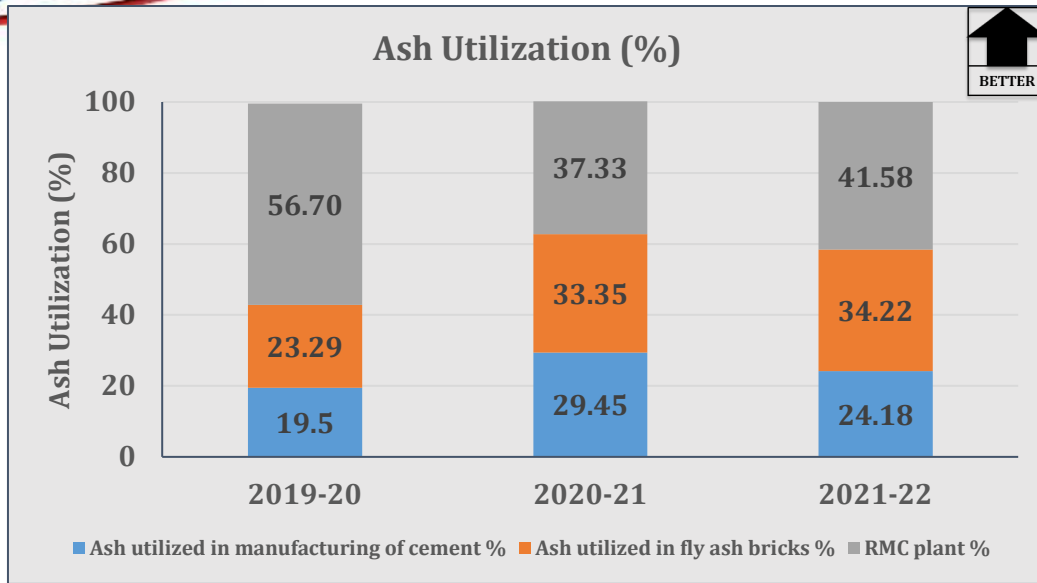


CHECK DAMS



Monetary Savings for FY22
INR 4.14 Lakh

8. Environment Management – Ash Utilization



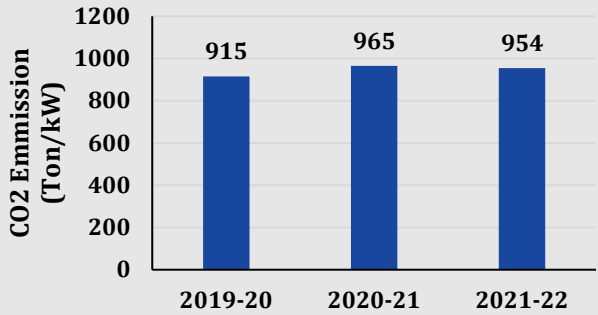
100% Ash Utilization by supplying ash on FOR basis.

Particulars	UOM	2019-20	2020-21	2021-22
Ash Stock in Plant (yard+pond)	Tons	55537	47853	47777
Ash generated	Tons	378352	264689	359940
Ash Utilization	%	99.49	101.44	100.0
Ash utilized in manufacturing of cement	%	19.5	29.45	24.18
Ash utilized in fly ash bricks	%	23.29	33.35	34.22
Ash Utilization in other areas: 1. RMC Plant	%	56.7	37.33	41.58

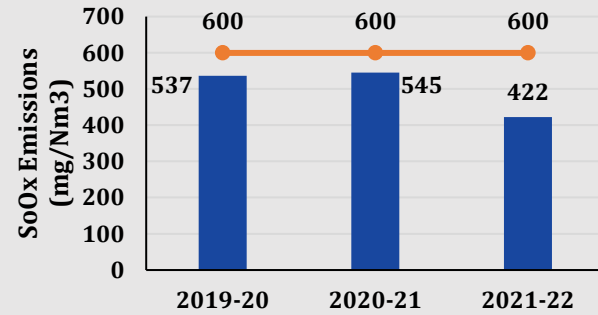
8. Environment Management - Emission



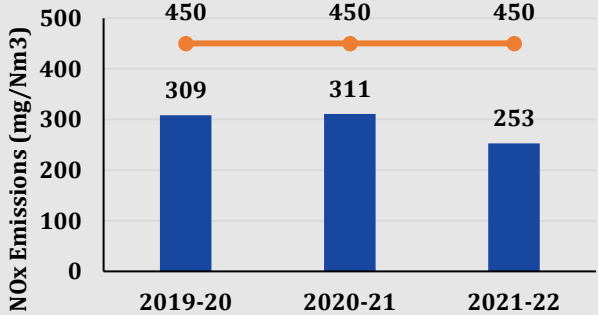
Total CO2 emissions Ton/kW



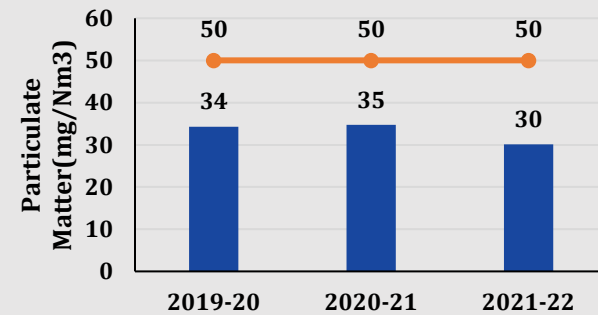
SOx Emissions (mg/Nm3)



NOx Emissions (mg/Nm3)

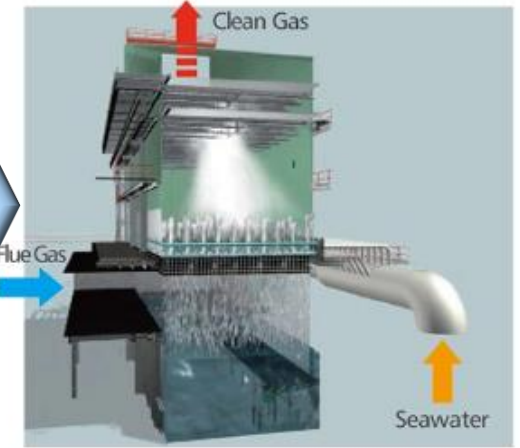


Particulate Matter (mg/Nm3)

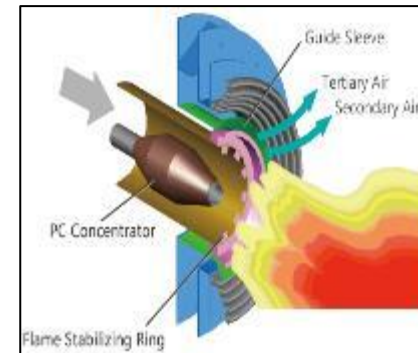


Practices adopted for emission control & monitoring

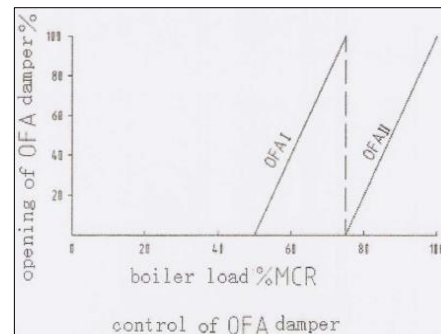
Installed Sea Water Based Flue Gas De-Sulfurization System



Installed Low NOx Fuel Burners



Control by SOFA Dampers



Public Disclosure :

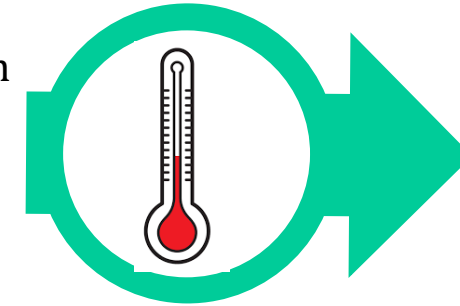
1. GHG data is submitted to Central Electrical Authority (CEA) **(Scope-1)**.
2. The data is also included in BRR (Business Responsibility Report) and available on company website for public interest.
3. Refer link : <https://www.jsw.in/investors/energy/jsw-energy-financial-information-business-responsibility-reports>

8. Environment Management – Water

Automation of make up water to all the tanks in plant viz. service water tank, CCW make up tank, Potable water tank, etc. so as to avoid overflowing of water



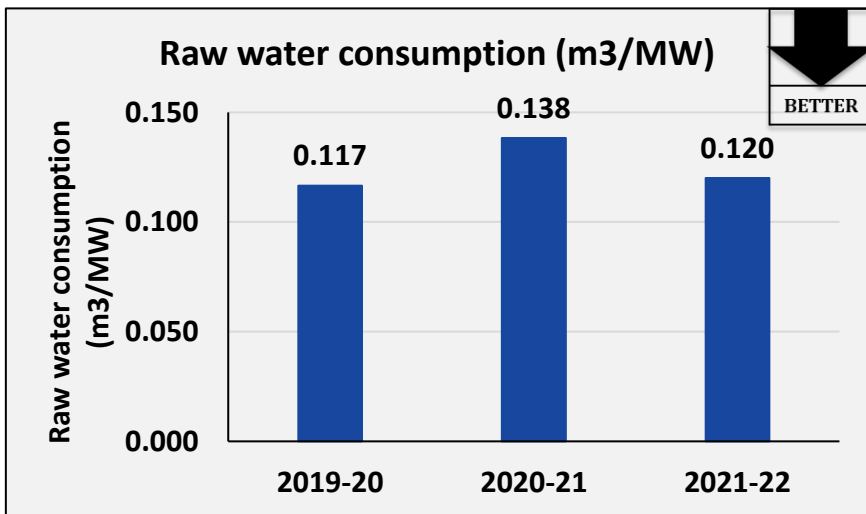
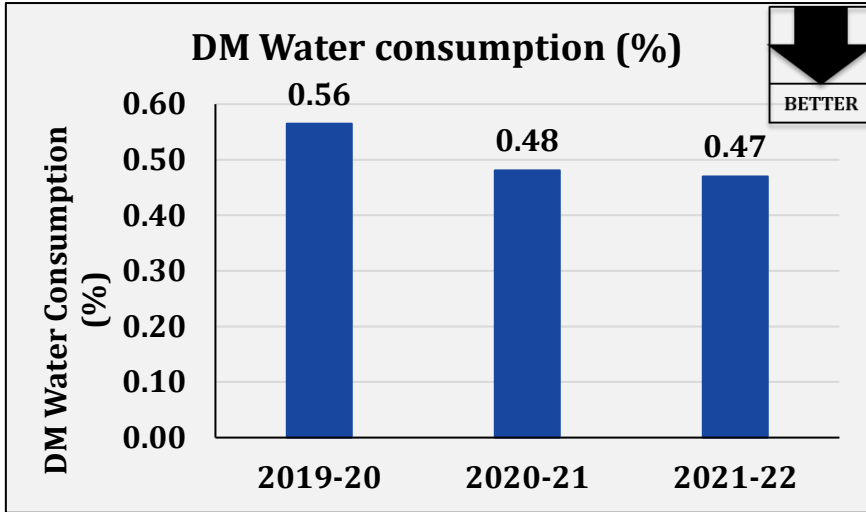
Installation of RTD in high pressure steam drain line so as to quickly identify passing of valve & attend the same



Drain temperature survey & thermography on regular intervals. Ensuring proper functioning of steam traps



Use of **ultrasound measuring instrument** to check passing of valves



8. Environment Management – Water



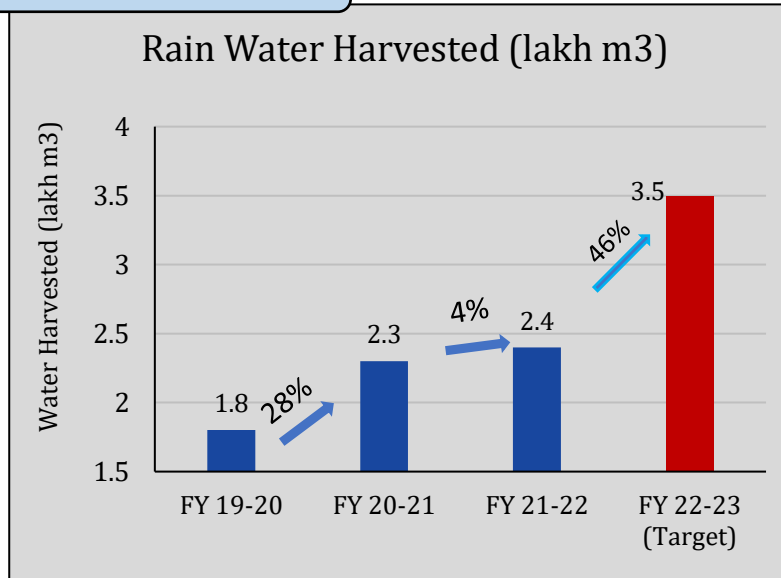
Water Contamination Control



Check dams to store rain water



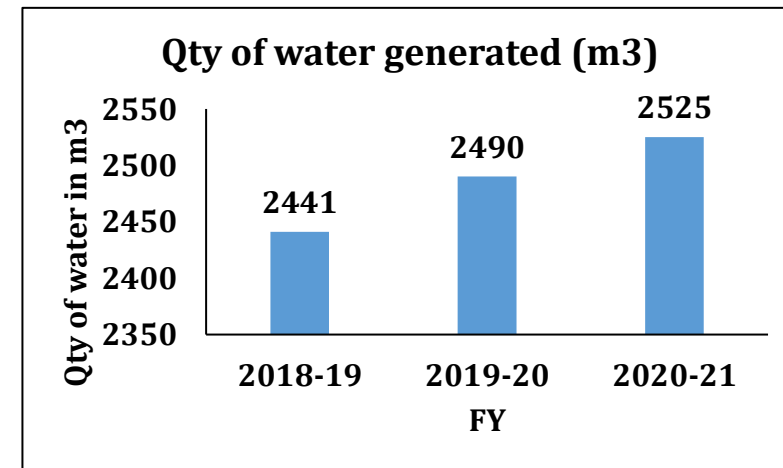
Budget of 1.7 Crs was allocated in FY21-22 for this special project to increase the capacity for utilization of rainwater



Sewage Treatment



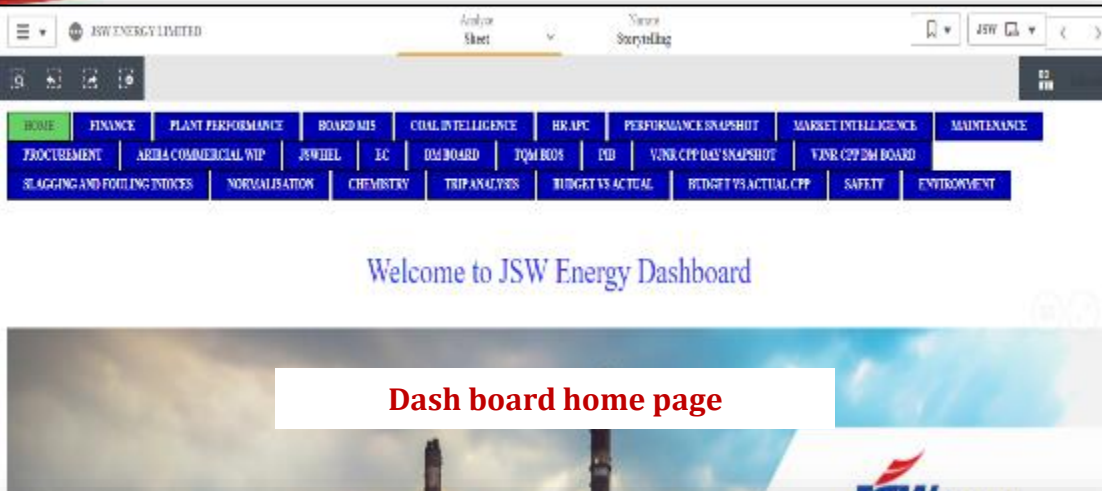
STP having NEERI patented **Phytorid** technology is installed in plant as well as in township for treatment of domestic effluent. **Treated water** is used for horticulture & gardening purpose.



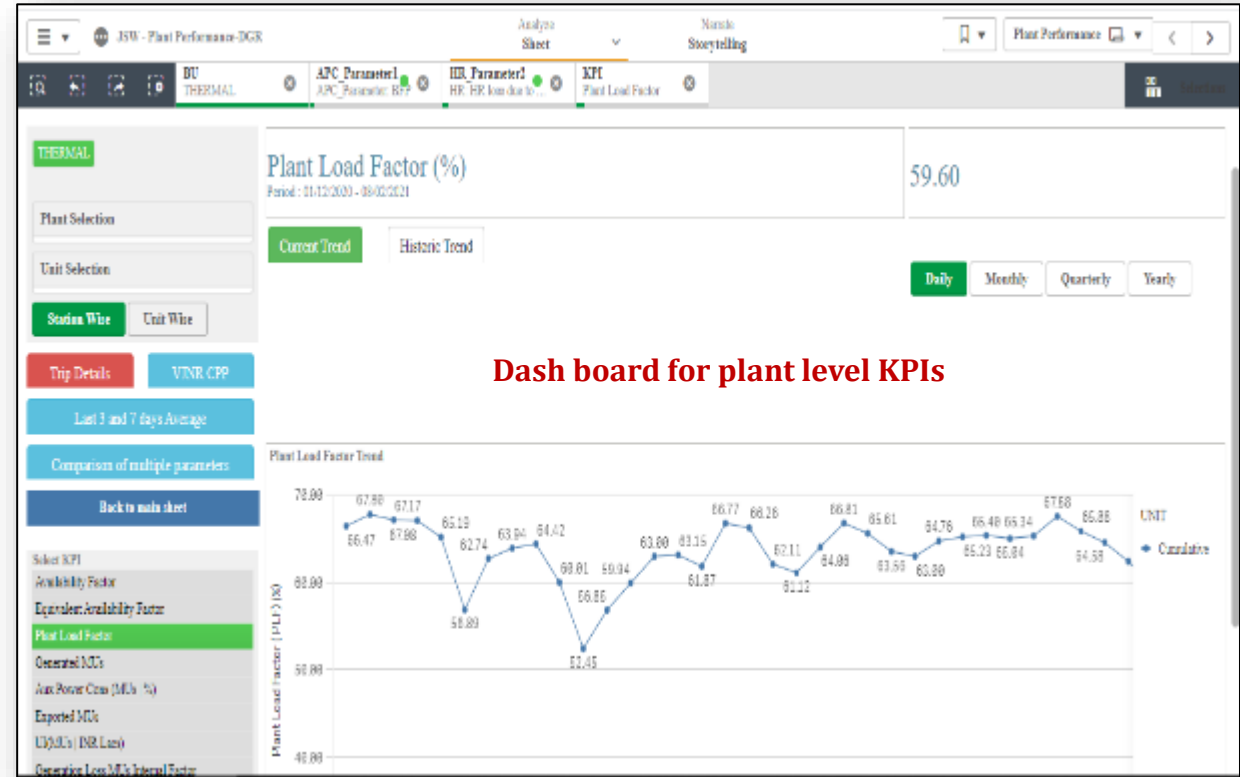
9. Best Practices in the Plant-Digitization



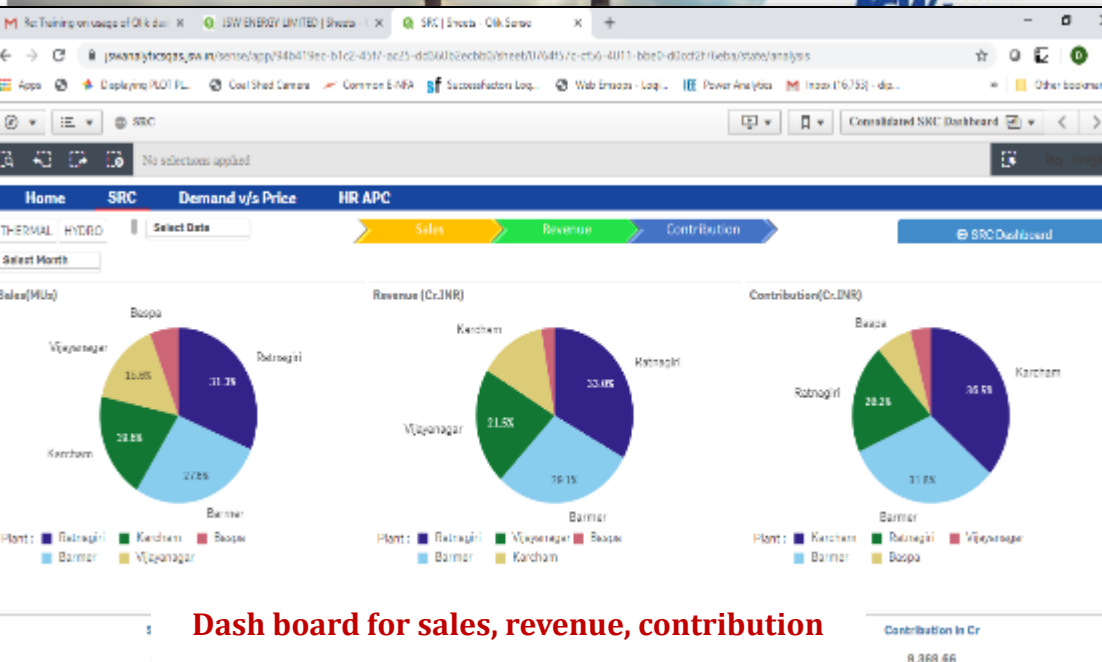
Analytics Dash board in Qlick Sense for KPI monitoring



Dash board home page



Dash board for plant level KPIs



Dash board for sales, revenue, contribution

Salient Features:

- All the management as well as plant level KPIs are tracked
- The data is SAP linked, hence no manual intervention required
- Analytics helps for projections and corrections of KPIs

9. Best Practices in Plant-Afforestation



Plantation data for last 10 years

Sr. No	Species	Planted Qty.	Survived Qty.	Survival %	Area (Acre)
1	Mango	9773	9753	99.80	52.9
2	Cashew	440	429	97.5	7.51
3	Forest	35200	35178	99.94	51.629
4	Coconut	465	459	98.70	1.936
5	Kokum	358	352	98.32	0.329
6	Betel Nut	433	432	99.77	0.138
7	Miscellaneous Plantation	59100	59085	99.97	10.056
	Total Qty.	105769	105688	99.92	124.49

Developed & Maintained green belt in & around the plant.

Converted more than 30 acres of barren rocky land into lush greeneries.

Recently launched Mango Plantation project to plant 16000 saplings of world famous Alphonso variety of mangoes in 100 acres of area.



9. Best Practices in Plant-Afforestation

Alphonso Mango Plantation in and around power plant area



- In FY 22 JSWELR planted more than 2000 new Alphonso Mango plants .
- Planned to plant around 16000 trees in 100 Acres.
- In addition to existing 14000 Trees.



9. Best Practices in Plant-Maintenance & Reliability



Prevention of Corrosion in Structures & Machineries

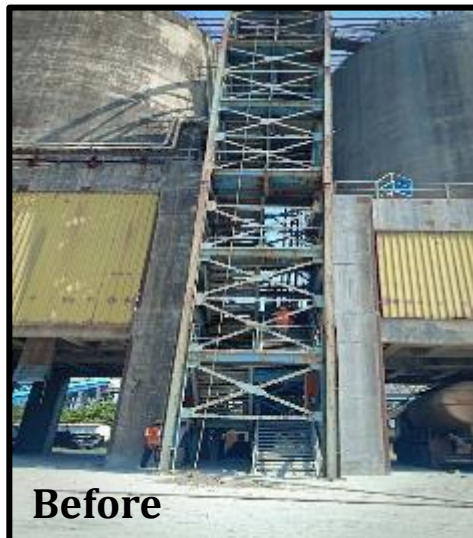
Dedicated team to take care of the painting of structures and machineries on a regular basis



Before



After



Before



After

9. Best Practices in Plant-New Initiative ~5S Drive



Before



After



Lone Worker Device



Visual Management



Before



After

Spares Management



Before



After

Proper Documents arrangement

10. Monitoring

Daily Monitoring Systems

Real Time monitoring Systems

Daily Aux Consumption Analysis in % of Load

Description	UOM	Unit 1	Unit 2	Unit 3	Unit 4
LOAD	MW	296.67	0.0	0.0	0.0
TRIP	MW	0.0	0.0	0.0	0.0
Aux % Gsa	%	0.76	0.00	0.00	0.00

Daily Generation Report

DESCRIPTION	UNIT	UNIT 1	UNIT 2	UNIT 3	UNIT 4
Generation MV	MW	217.00	248.00	219.00	219.00
M.S. Temp	Deg C	538.00	537.00	540.00	536.00
HPH temp	Deg C	538.00	536.00	540.00	537.00

JSWEL HEAT RATE - TIMATIC

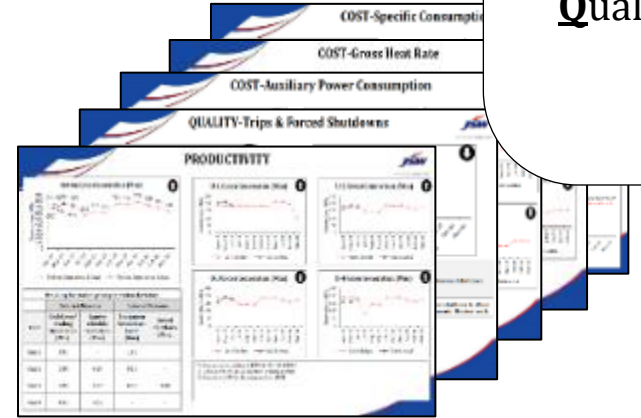
Parameter	UOM	Design	Unit-1	Unit-2	Unit-3	Unit-4
Generation MV	MW	217.00	248.00	219.00	219.00	219.00
M.S. Temp	Deg C	538.00	537.00	540.00	536.00	536.00
HPH temp	Deg C	538.00	536.00	540.00	537.00	537.00

Daily APC report with equipment wise break up & comparison

Daily Generation Report reviewed by all HODs, meeting chaired by HOP

Daily heat rate report with break up of THR & Boiler Efficiency

Monthly review is conducted by 10th of every month where plant performance is reviewed under various areas viz. **S**afety, **P**roductivity, **Q**uality, **C**ost, **M**orale & **E**nviron.



ABT
To maintain load schedule

UNIT OVERVIEW

UNIT	UNIT 1	UNIT 2	UNIT 3	UNIT 4
GROSS GEN	225.55	246.13	220.01	205.46
NET GEN	200.86	220.12	203.54	189.15
COAL FLOW	86.93	95.10	81.54	77.18
UNIT HEAT RATE	2304.55	2280.58	2291.20	2260.57
TG HEAT RATE	2066.10	1993.59	2010.47	2085.59
BOILER EFFICIENCY	88.83	87.13	88.27	89.82
Power Export	201.24		613.15	

EMS
Real time online monitoring of auxiliary power consumption of individual equipment

OSI PI
Real time plant performance monitoring system

10. Employee Best Practices in Plant Area for Environment



Energy Efficiency Training & Awareness Programs



	No. of Participants	Duration (mandays)
Internal	4533	123
External	643	38

Projects Implemented through KAIZENS



	Raised	Implemented
Supervisors	75	75
Workmen	147	147

Major areas of concern

Sr. No	Description	Action Plan
1	Variation in quality of coal in different lots of same shipment (marine vessel)	Lot wise coal analysis report demanded
2	Variety of imported coal based on the price & availability as the plant is designed for 100% imported coal	Developed a coal blend model (in-house) so as to have optimum coal blend to avoid efficiency losses while controlling generation cost at optimum
3	Controlling cost of generation to be competitive in market as the plant is 100% imported coal based	
4	Lower utilization of plant	Working on flexible operation of units at minimum possible load without oil support
5	Spontaneous combustion of coal due to higher volatile matter	Strict adherence of <i>FIFO</i> as well as spraying of Sodium Silicate is carried out

10. Team Work



First MoM of Performance Optimization Group		Location:	VC with JNGR / RTNG / HBPL / RWPL	
Date:	2-Aug-18	Time:	10:30 hrs to 11:30 hrs	
Members Present: Mr. Gyanendra Kumar, Mr. Aditya Agarwal, Mr. Shantaram Patil, Mr. Rajan Vasudevan, Mr. Sudharshan Maji, Team JNGR leading by Mr. Karthikeya Mann, Team RTNG leading by Mr. Vijay Johnson, Team HBPL leading by Mr. Ajay Nath, Team RWPL leading by Mr. C.V. Reddy				
Sr. No.	Details of Discussion	Action by Location	Responsibility	Status
1	Monthly gas need to be verified for all the performance indicators which are completed.	All Stations	Station In-charge HoD's	
2	Cooling Tower and Condenser performance need to be Ramagiri/ RTNG & factors for reducing losses need to be shared with Vijaynagar/ Corporate along with supporting documents.	Banner/ Vijaynagar/ Banner	PoC Head: Hara Teams	
3	Issues related to measuring of Efficiency of CW Pumps / SWP need to be discussed with profession from IT Mumbai.	Banner/ Vijaynagar/ Banner	Team Corporate	
4	Trending of Hydro Turbine performance with parameters like water inlet flow, generation, turbine opening etc. need to be reported on regular frequency.		PoC Team	
5	SRU-2, Unit 2 defects needs to be addressed before taking into service.	Vijaynagar	Head O&M JNGR	
6	Protocol for troubleshooting need to be shared among the Banner/ Vijaynagar/ locations.	Banner/ Vijaynagar/ Banner	PoC Head: Hara Teams	
7	R2 Conveyor (Vessel discharge conveyor) load of instrument has to be checked and to be taken up with the permit through any deviation.	RTNG PoC Coal Teams		
8	Issues related to performance deterioration after COH need to be taken up with Seemee / Banner/ Vijaynagar/ Banner.	Banner/ Vijaynagar/ Banner	PoC Head: Hara Teams	
9	Plant wise categorization of performance issues need to be listed out based on their monetary impact.	All Stations	PoC Team	

POG teams

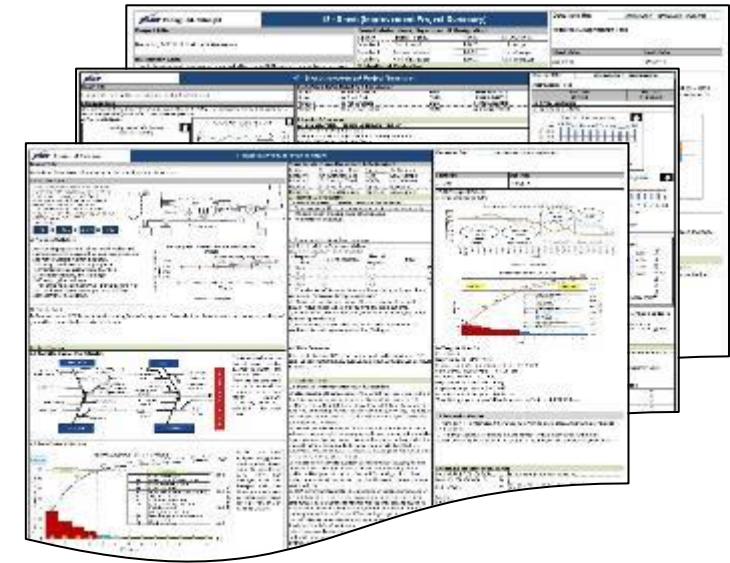
- Cross functional teams formed at plant level to work for improvement in performance parameters viz. GHR, APC, Coal Loss & UI.
- Review meetings chaired by HoP & HoT

Quality Circle detail - Ramagiri						
Sl. No.	Registration No.	Month of Registration	Department	Name of QC	Role	Points
1	ANALYSIS/PERFORMANCE	Jul-18	OPERATIONS	Rajan Vasudevan	Head of QC	10000

ENERGY MANAGEMENT CELL			
CORE TEAM			
Sr No	Name	Dept	E-mail
1	VEDDANA RAMAYANAM	Head O&M	veddanasr@jsw.com
2	VISHAL PANDIT (PLANT MGR)	NMD	vishal.pandit@jsw.com
3	DIPAK PATIL	OS&TS	dipak.patil@jsw.com
4	SHIVAKUMAR NARAINI	NMD	shivakumar.naraini@jsw.com
5	SAJJAY BHARDHAR	EMD	sajjay.bhardhar@jsw.com
6	VIJAY LINGHOKAR	OPN	vijay.linghokar@jsw.com
7	NAVJEN GUPTA	EMD	navjen.gupta@jsw.com
8	RAJAN SINGH	OPN	rajan.singh@jsw.com
9	CHINMAY THEAKUR	CO-ORDINATION	chinmay.theakur@jsw.com
10	AJISH DEVASTHALI	CO-ORDINATION	ajish.devasthali@jsw.com
SUPPORT TEAM			
1	SANDESH GHATKAR	BMD	sandeshghatkar@jsw.com
2	SHAKIR AHMED SS	TMD	shakir.ahmed@jsw.com
3	AJAY PATIL	EMD	ajay.patil@jsw.com
4	AVADHUT BIKAS	OPN	avadhut.bikas@jsw.com
5	SATISH BISURE	ICK	satish.bisure@jsw.com
6	RAMESH NAKHAWANI	EMD	ramesh.nakhawani@jsw.com
7	SOURABH SHIBDHANKAR	OPN	sourabhshibdhankar@jsw.com
8	VIKAS BILSURE	OPN	vikas.bilsure@jsw.com
9	MAHESH KOTAMANE	OPN	mahesh.kotamane@jsw.com

EMC & QC Teams

- Energy Management Cell – Core team along with Support team formed with objective of improvement projects for energy conservation.
- 22 QC teams for continuous improvement projects under KAIZEN (One KAIZEN/month)



4i-J2 & J3 Projects

- Identified & trained 27-J2 candidates & 8-J3 candidates to work for a cross functional project involving high end statistical tools & analysis
- The projects adopts our unique 4i improvement methodology (Identify, Ideate, Implement, Institutionalize)

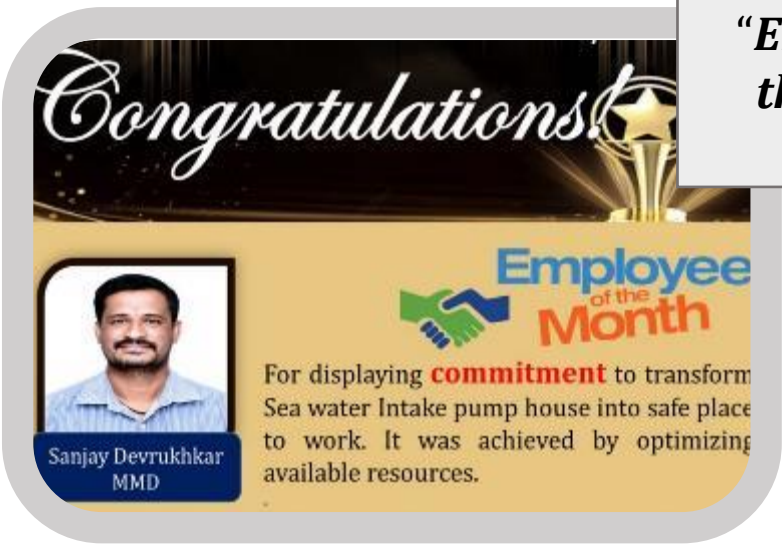
10. Team Work & Employee Involvement



Best **KAIZEN** awards for various categories to teams & individual



Individual Awards



"Employee of the Month"

Celebration of Rewards & Recognitions
July 2022 at JSWEL, Ratnagiri

ISO Certifications



ISO 50001
(EnMS)

ISO 9001
(Quality)

ISO 14001
(Environment)

ISO 45001
(OH & S)



JSWELR: A BSC-5 Star Graded Organisation



Five Star Occupational Health and Safety Audit – Five Stars –

Valid until 24 March 2023



This is to certify that

JSW Energy Limited, Ratnagiri

after an extensive evaluation by a British Safety Council auditor, has been awarded a rating of Five Stars.

Peter McGettrick
Chair of The Board of Trustees

Mike Robinson
Chief Executive

Certificate number:
10015520210

British Safety Council Company Limited, Registered and Incorporated in England
VAT No. 100 62751 Registered Charity No. 997271 and CSC No. 50019966

Issue date:
25/03/2022



Because
Experience
Counts

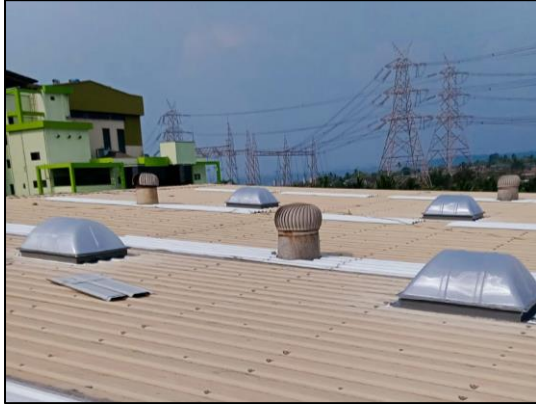
We have accomplished a “BSC 5-star rating” in Occupational health & safety Audit in 2021 to mark our continuous journey towards *Better Everyday*

12. Learning from CII Energy/Other Award Program



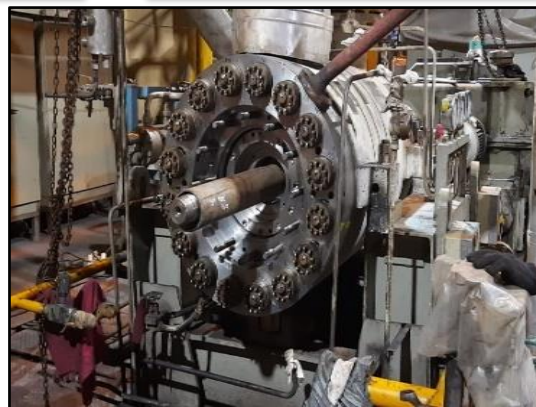
Installation of sky lights (Solar Lighting)

Status – Implemented



De-staging of Boiler Feed Pump for reduction in power consumption

Status – Under Implementation



Application of 'HeatX' coating to heat exchanger tubes

Status – Under Implementation

Solarization of Raw Water Pump House by installing Roof Top Solar

Status – Study Under Progress

Awards & Accolades



Awards & Accolades



CCQC'2021 QCFI NAGPUR CHAPTER RESULTS

Congratulations! - RATNAGIRI Teams

You once again made us feel proud with the rain of awards...!!!

Sr.No	NAME OF QUALITY CIRCLE	AWARDS IN CCQC'21
<i>Under Quality Circle Category</i>		
1	SAKSHAM	SUPER GOLD
2	BETTER EVERYDAY	SUPER GOLD
3	SINGLE VOICE	SUPER GOLD
4	INFINITY STAR	SUPER GOLD
5	THE BUNCH	SUPER GOLD
6	BRAINIACS	SUPER GOLD
7	WIZARDS	GOLD
8	POWER RANGERS	GOLD
9	DAZZI FRIS	GOLD
10	RATNAGIRI KINGS	SILVER
<i>Under Other OC Category</i>		
11	ROCKERS	SUPER GOLD
12	CIRLATORS	SUPER GOLD
13	UNIQUE	SUPER GOLD

Knowledge Test Winners		
Sr. No	Team Name	PRIZE
1	WIZARDS	1 st
2	BETTER EVERYDAY	1 st
3	POWER RANGERS	1 st

OTHER	WINNER NAME	PRIZE



35th NCQC
NATIONAL CONVENTION ON QUALITY CONCEPTS (NCQC-2021)
 Date: 27th-30th December 2021



Congratulations! RATNAGIRI Teams for outstanding performance at NCQC-2021

S.No	NAME OF QUALITY CIRCLE	AWARDS IN NCQC'21
<i>Under Quality circle category</i>		
1	BETTER EVERYDAY	PAR EXCELLENCE
2	BRAINIACS	PAR EXCELLENCE
3	SAKSHAM	PAR EXCELLENCE
4	SINGLE VOICE	PAR EXCELLENCE
<i>SMED - Under Allied concepts</i>		
		PAR EXCELLENCE
<i>CONCEPT - Under Allied concepts</i>		
		EXCELLENT



46th INTERNATIONAL CONVENTION ON QUALITY CONTROL CIRCLES - 2021
 ICQCC-2021 HYDERABAD, INDIA
 24th to 27th November, 2021

Congratulations! RATNAGIRI Teams for outstanding performance at ICQCC-2021

Sr. No	NAME OF QUALITY CIRCLE	AWARD CATEGORY
<i>LEAN SAFETY CIRCLE - Under Allied Concepts</i>		
1	PHOENIX	PAR EXCELLENCE
<i>LEAN SIX SIGMA - Under Allied Concepts</i>		
2	CREATORS	PAR EXCELLENCE
<i>SMED - Under Allied Concepts</i>		
3	BETTER EVERYDAY	PAR EXCELLENCE
<i>Under Quality Circle Category</i>		
4	SINGLE VOICE	PAR EXCELLENCE
5	ZERO DEFECTS	EXCELLENCE
6	BRAINIACS	EXCELLENCE



Energy Conservation Week Celebration



- **Energy Conservation Week** is celebrated every year in the form of various competitions and activities with involvement of company employees, associate employees. Active participation & involvement of Students from near by **schools and employee families at townships**





Thank you

Contact Details:

Mr. Dipak Patil- DGM- Head-OSTS and C&E

Email- dipak.patil@jsw.in

Mob. no. 9552577031