

VEDANTA LIMITED LANJIGARH



TEAM MEMBERS:

SANJAYA JENA (GM_ELEC & EM)
SOUMAVA DAS (DM, ENMS)
PAKRUTI RANJAN SAHOO (AM, ENMS)
ANVITA VERMA (AM, ENVIRONMENT& WASTE)

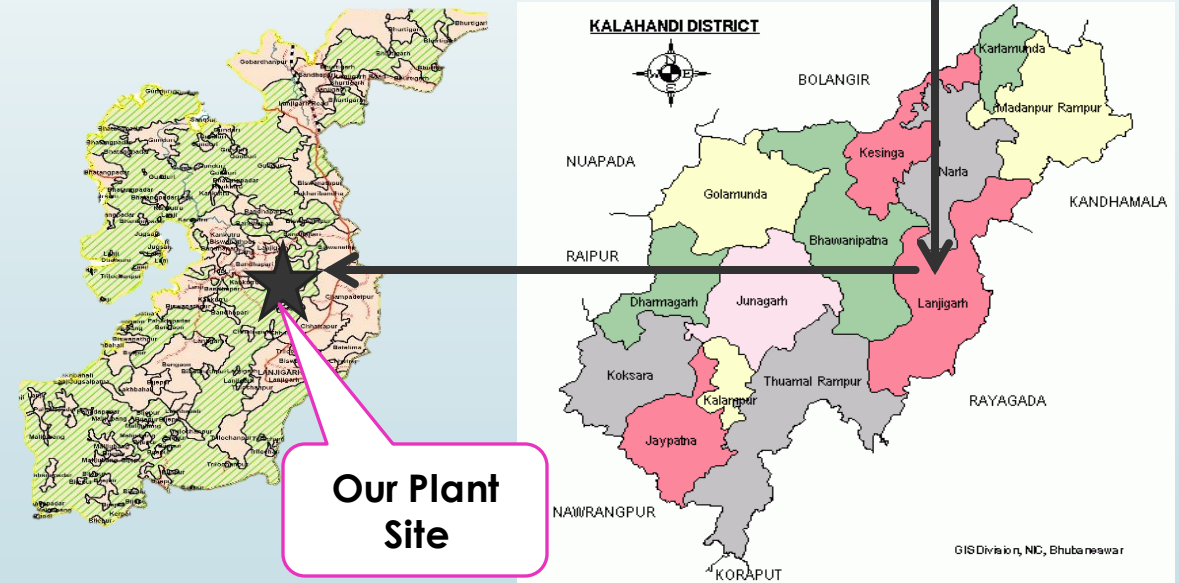
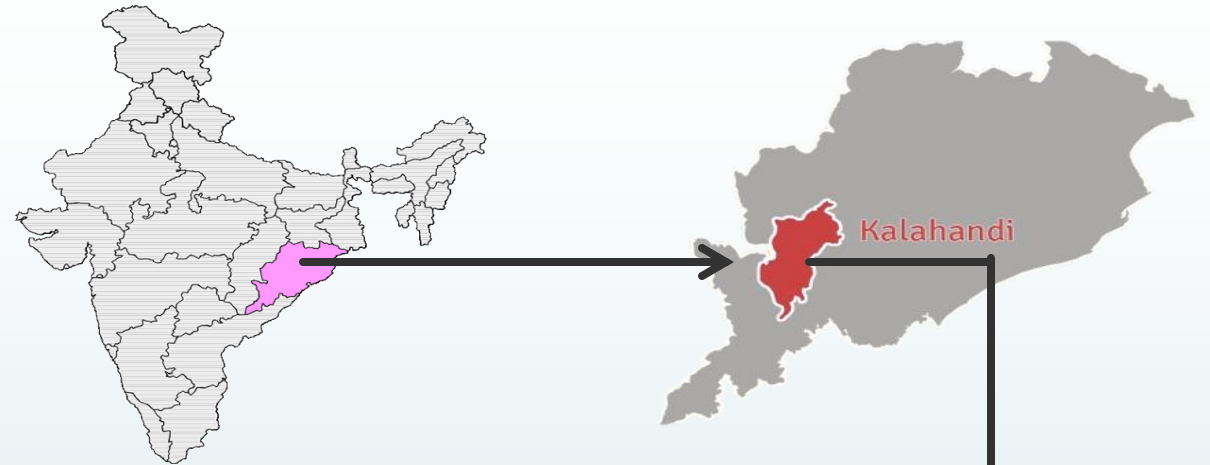
23 RD NATIONAL
AWARD EXCELLENCE IN
ENERGY MANAGEMENT



DATE:-23.08.2022

LOCATION MAP & PLANT PROFILE

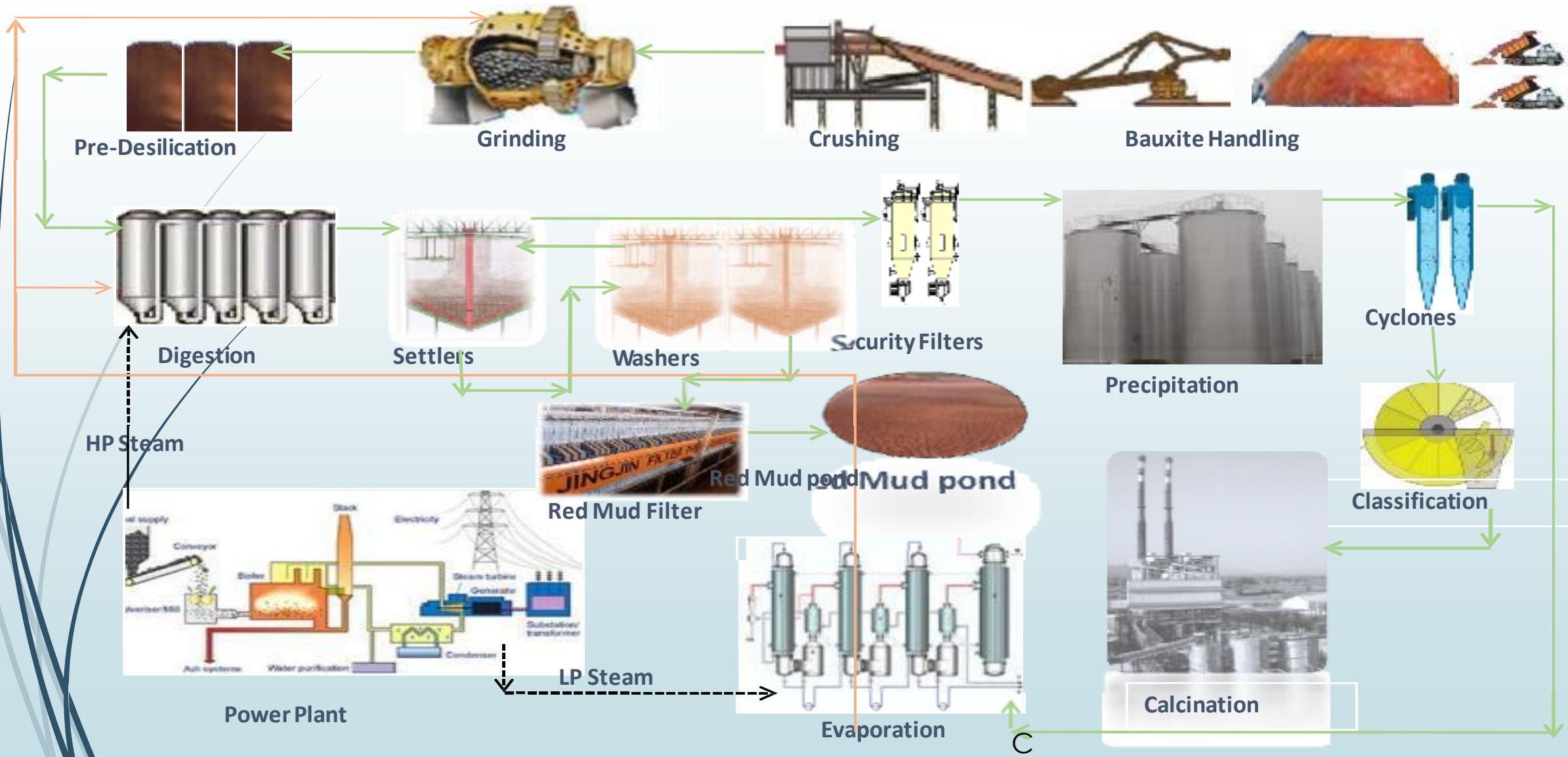
- ✓ 2 MMTPA Alumina production with 90 MW CGPP
- ✓ Expansion is in progress: 2 to 5 MMTPA
- ✓ 32 Km long railway line
- ✓ 65 Km water pipeline
- ✓ Dry red mud disposal using press filter



**An ISO 9001, 14001 & OHSAS 18001
Certified Company**

The 1st organization to be certified as ISO 50001

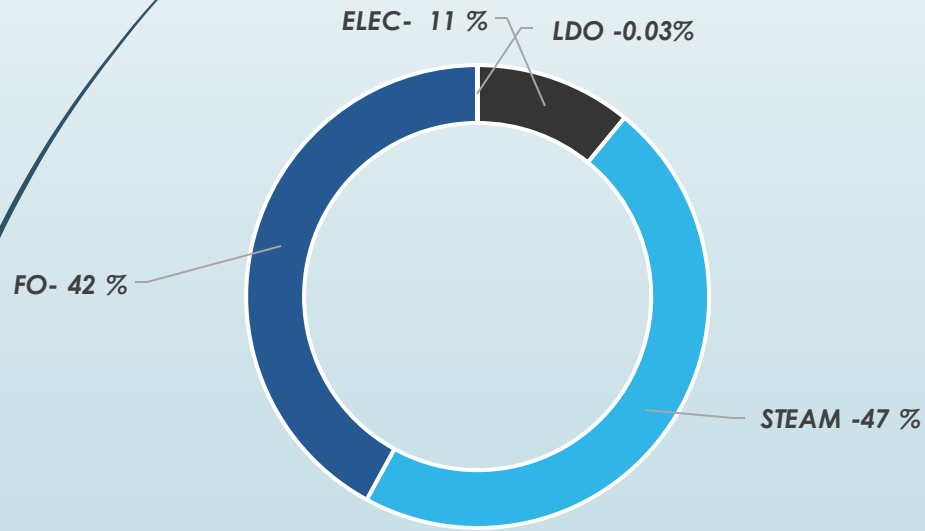
ALUMINA MANUFACTURING PROCESS



ENERGY CONSUMPTION TREND (FY20-22)

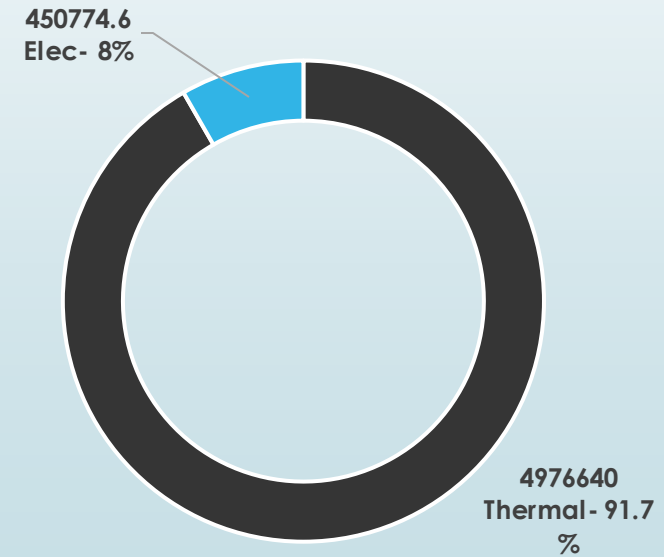
Hydrate Production	Hydrate Production	Alumina production	Power (KWH/T)	Steam (T/T)	FO (Kg/T)	Total Energy (GJ/T)	Total Energy (TOE/T)
FY 2019-20	1825325	1810702	216.75	1.73	70.59	7.27	0.2572
FY 2020-21	1847778	1840893	215.66	1.72	71.13	7.25	0.2556
FY 2021-22	1969212	1967910	217.54	1.68	70.63	7.16	0.2523

Energy Break Up- Alumina



■ Power total GJ ■ Steam GJ ■ FO+CLO GJ ■ LDO GJ

Thermal Energy-Electrical Energy Break Up

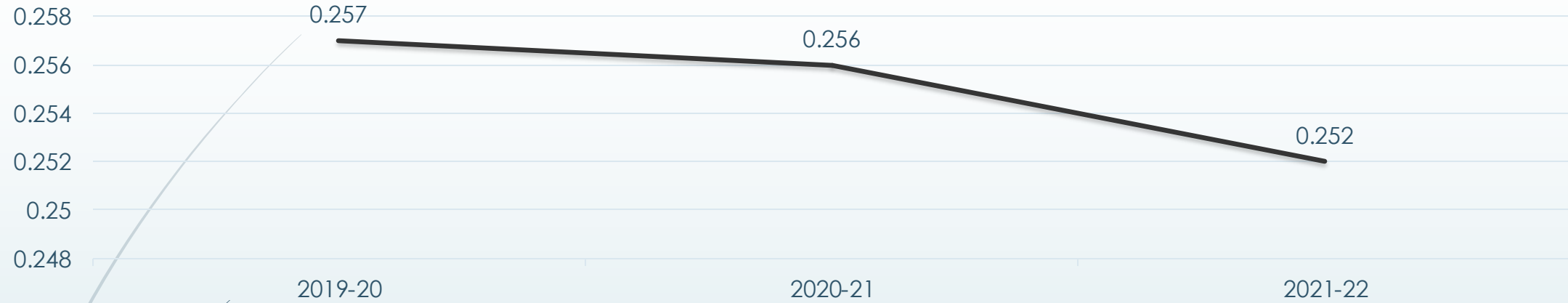


■ Thermal Energy Million Kcal ■ Electrical Energy Million Kcal

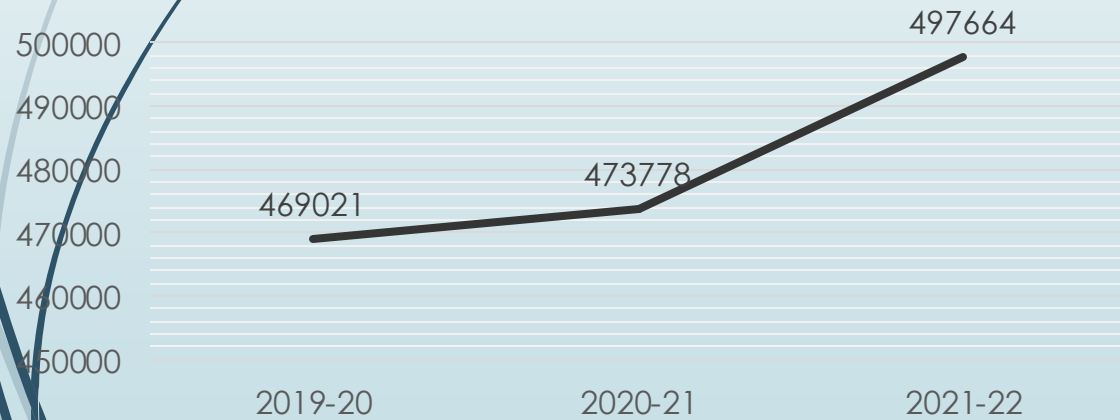
ENERGY CONSUMPTION TREND (FY19-22)



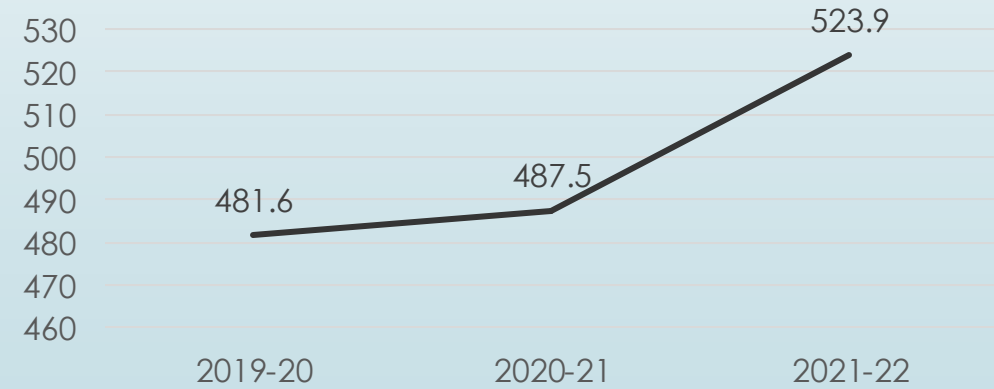
Specific Energy (in TOE/T)



Annual Thermal Energy Consumption (in TOE)

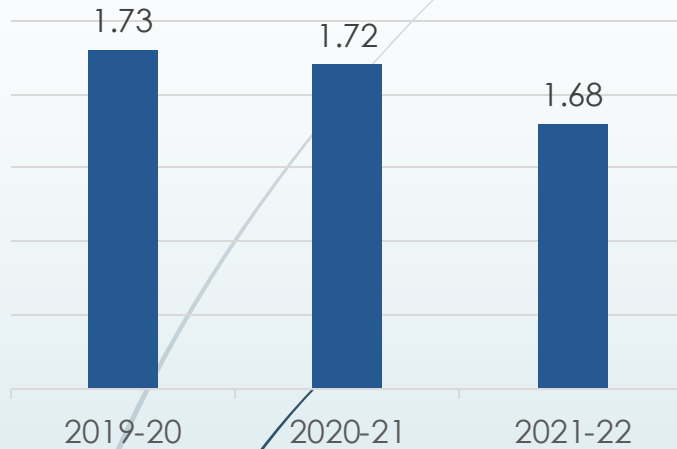


Annual Elec. Energy Consumption (in million kWh)

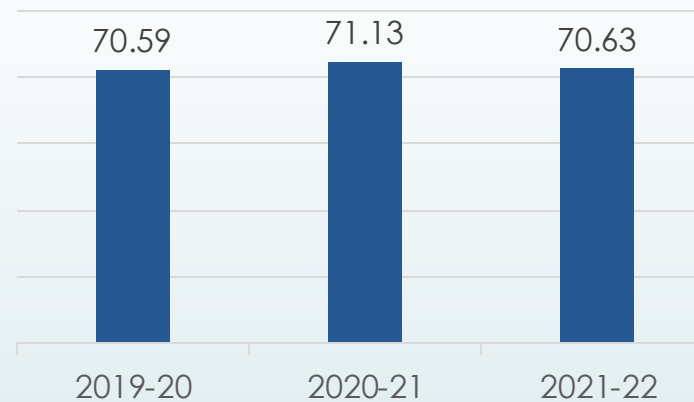


SPECIFIC ENERGY CONSUMPTION TRENDS

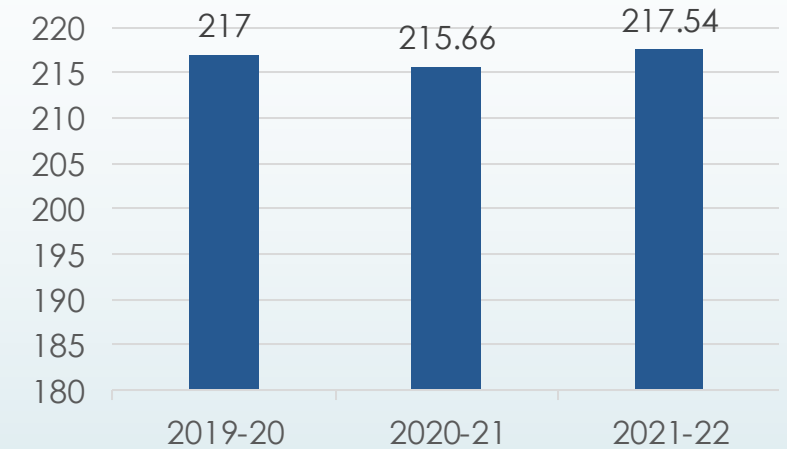
Specific Steam Consumption (T/T)



Specific FO Consumption (Kg/T)



Specific Electrical Energy (kWh/T)



Due to 3 Evaporation operation

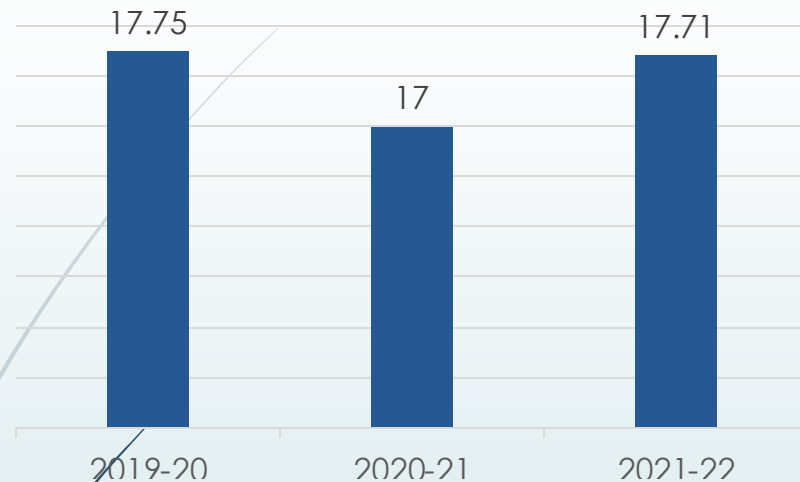
- ☑ Digestion 0 Heater HX 0005 replacement
- ☑ APC in all 3 evaporation units
- ☑ Evaporation 3 Acid wash system commissioning & Cal 1 & 2 acid wash system development
- ☑ Continuous dosing of Max HT Chemical in Evaporation units
- ☑ Improvement in steam economy from 3.35 to 3.8 T/T
- ☑ Replacement of cal-1,2 distribution plates

- ☑ Adjustment of P01 flap gate for both calciner for PO3 temp maintenance (50-60 C difference)
- ☑ >95% operation in APC optimization for better optimization of calciner parameters
- ☑ Increase of both calciner atomizing air in burner nozzles (increase up to 6.5m³/hr in each nozzle) for proper atomization in burner.
- ☑ De bottlenecking of both Calciner to enhance capacity from 2500TPD to 3000TPD

- ☑ Evaporation 3 CW pump & motor resizing from 980 to 600 Kw
- ☑ Reduction in pulley size of 3 evaporation test liquor pumps 28 PU 0001N/2N & 36 EPU101-C
- ☑ Replacement of 12 Nos HT motors to CACA to TEFC
- ☑ Conversion of 2 Nos . Digestion condensate pumps from DOL to VFD
- ☑ Replacement of 2000 LED lights
- ☑ Retrofitting of 650 KVAR capacitor banks
- ☑ Pulley modification of 6 No. ISC pumps

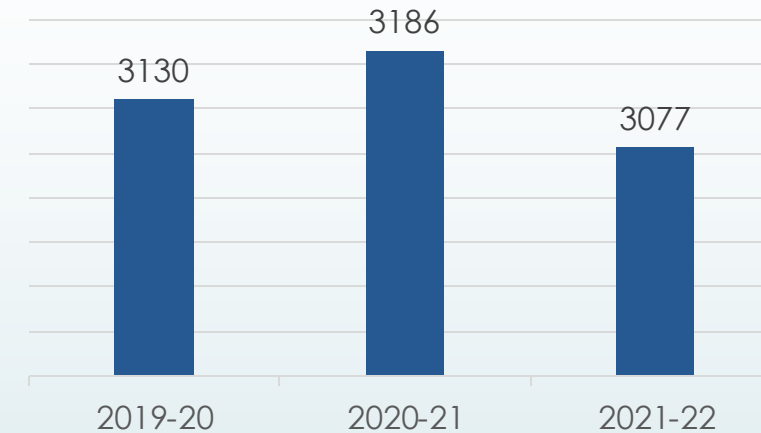
STATION HEAT RATE & AUXILLARY POWER

CGPP Auxillary Power (in %)



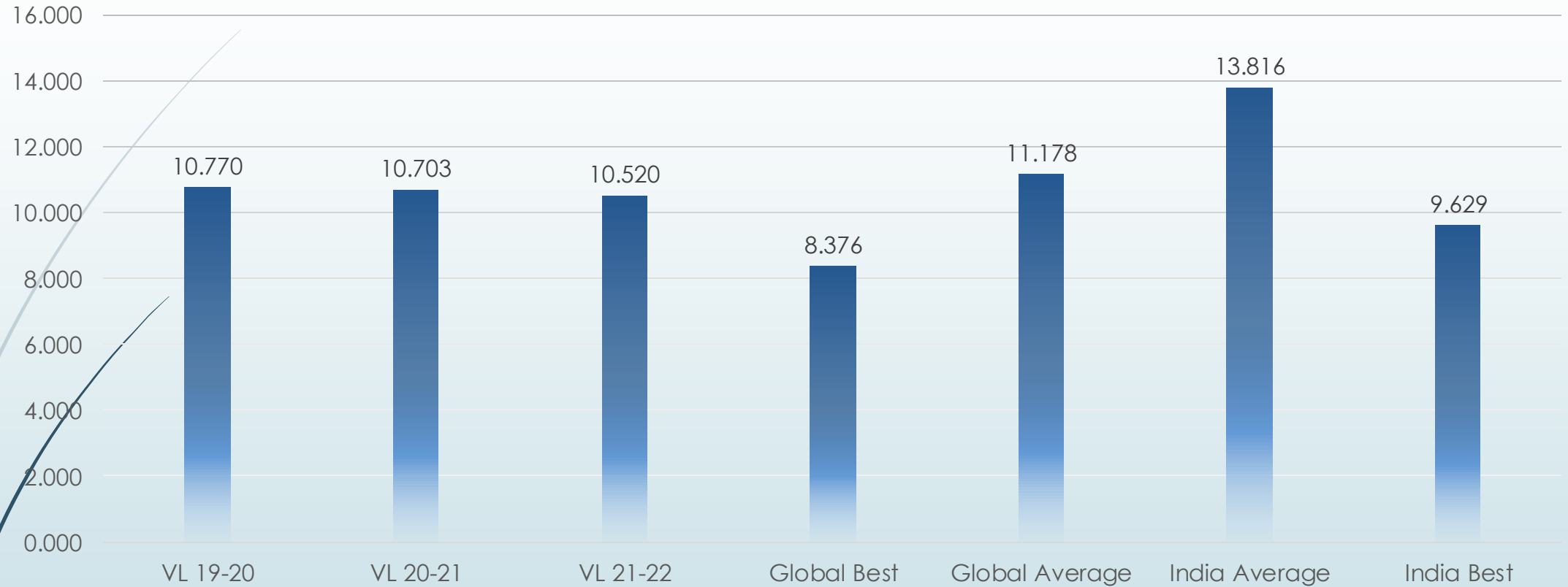
Due to ESP back filter
in operation

CGPP-Station Heat Rate



- Cooling Tower 3 Cells fill refurbishment
- Turbine 2 Gear Box Replacement & Capacity Utilization
- Boiler-1 and 2 Ring Roller replacement in all 4 bowl mills
- Anticorrosive coating in Cooling Water pumps
- Replacement of faulty Steam Traps
- 617 MW of Renewable Energy Import during Turbine shutdown
- Better Belt utilization in CHP
- Improvement of Turbine Condenser vacuum to -0.87 K pa

PERFORMANCE BENCHMARKING



In GJ/T of Alumina (including CGPP)

PERFORMANCE BENCHMARKING

BENCHMARKING WITH UTKAL ALUMINA REFINERY-FY'22				
Particulars	UOM	Lanjigarh	Utkal	Remarks
		YTD FY22		
Production:				
Hydrate Production	KT	1969	2048	Utkal is having high recovery and high net liq productivity
Calcined Alumina	KT	1968	2022	Calcined circuit capacity is higher in Utkal compared to Lanjigarh
Specific Consumption:				
Bauxite	T/T	2.93	2.95	Lanjigarh is lower in bxt specs due to higher THA because of import bxt mix
Caustic	kg/T	72	47	Utkal's non chemical soda loss is low @6 kg/T compared to 10.6 kg/T of Lanjigarh,Utkal's washer circuit is designed to higher solids of ~1150 gpl compared to ~750 gpl in Lanjigarh
Lime	kg/T	31	19	Due to high TOC with EGA bxt mix,Lanj lime cons is higher because of high liq impurity level
Steam	T/T	1.68	1.74	Lanj best achieved specific steam consumption is lower at 1.56 t/t
Energy	kWh/T	216	153	Utkal design has better power consumption.
Fuel Oil	kg/T	70.6	69.8	-
Efficiency:				
Alumina Recovery	%	93.65%	95.4%	Utkal has higher recovery by due to single source OMC bxt and MHA<0.5% compared to Lanj with import mix of higher G/H, MHA~1.5%% and higher BOR~1.300
Net liquor Productivity	gpl	83	90	Utkal precip circuit designed at higher yield, lanjigarh best achieved in Q4 FY22 is at 88 gpl.
Bauxite Quality:				
Gibbsitic Alumina	%	39.99%	38.80%	
Reactive Silica	%	2.46%	1.73%	

ROADMAP TOWARDS BENCHMARKING

- ✓ Improvement in precipitation productivity to minimize specific energy consumption by 10%
- ✓ Further Improving evaporation rate and calciner energy
- ✓ Introduction of FD (Fluidized bed) fan based calciner in FY 2022-2023
- ✓ Alternative energy source like use of Natural Gas instead of FO and coal.
- ✓ Reducing total energy consumption through improved methods of calcination, cogeneration and process improvements
- ✓ Achieve substantial energy efficiency gains by introducing APC and digitization
- ✓ Optimizing the efficiency of the overall process and capacity utilization
- ✓ Proposal of installation of 15MW solar power plant.
- ✓ Implementation of zero waste projects to minimize global GHG emissions

Projects Identified & to be completed before 2025

Year	No. of Energy Saving Projects	Investment (million INR)	Electrical Savings (million Kwh)	Thermal Savings (million kcal)	Impact on SEC (Electrical and Thermal) In GJ/T
FY 2022-2023	20.00	644.70	19.79	56793.98	0.15
FY 2023-2024	15.00	108.53	161.00	104134.35	0.56
FY 2024-2025	10.00	91.20	15.17	59085.00	0.17

Encon Projects (Last 3 Years Data)

Year	No. of Energy Saving Projects	Investment	Electrical Savings (million Kwh)	Thermal Savings (million kcal)	Savings (INR million)	Impact on SEC (Electrical and Thermal)
FY 2019-2020	4	15.5	1.2	75805.4	159.2	0.1776
FY 2020-2021	7	11.2	34.2	13.4	119.7	0.0680
FY 2021-2022	15	76.3	5.5	339759.3	63.9	0.7960

Adoption Of Technology for better Energy Outputs

Digestion 2 Heater Replacement

- Specific Steam consumption was brought down from 1.71 T/T to 1.68 T/T .
- Annual Reduction in Steam consumption: 60,000 T/Year
- Annual savings: Rs 7.08 Crores
- Investment: Rs 35 Lakhs
- GHG Reduction per annum: 38480 T/Co2



Installation Of 600 Kvar Capacitor banks

- 100 Kvar*4 and 200Kvar*1 Capacitor banks are installed in SWR 3.2 and SWR 2.1 respectively.
- Power factor improved from 0.81 to 0.85
- Total current saving in HT side : 45A
- Total power saving per annum:105 MWH
- Monetary saving per annum: 4.8Lakhs
- Reduction of GHG/ annum- 87 Tons



Adoption Of Technology for better Energy Outputs

Overhauling of TG-2 and replacement of damaged Gear Box

- TG-2 Specific steam was running at 8.8 T/MW against the target of 8.5 T/MW. Turbine overhauling with damaged Gear box replacement brought down specific steam consumption.
- Annual Reduction in Coal consumption: 13154 T/Year
- Annual savings: Rs 4.02 Crores
- Investment: Rs 1.91 Crores
- GHG Reduction per annum: 15549 T/Co2



Replacement of CACA motor to TEFC motor

- Replacement of existing CACA HT motors with improved design of TEFC motors
- Total Power saving per day: 2653 KWH
- Total power saving per annum: 955 MWH
- Monetary saving per annum: 42.98 Lakhs
- Reduction of GHG/ annum- 788 Tons



Installation of VFD in Digestion Condensate Pumps

- Monetary saving per annum: 19.5 Lakhs
- Reduction of GHG/ annum- 356 Tons of CO2
- VFD conversion was done as Digestion condensate pumps were operating with 30% value throttling & for speed control
- Total Power saving per day: 1200 KWH
- Total power saving per annum: 432 MWH



Replacement of conventional fans to BLDC fans

- Old Fan set is replaced with BLDC fans
- Remote controlled & per Fan set savings of 40 W
- Total Energy saving per day : 20 kWH
- Total Energy saving per annum: 6 MWH
- Monetary saving per annum: 0.3 Lakhs
- Reduction of GHG/ annum- 17 Tons
- Stage 2 replacement of 1700 fans in plant & colony planned



Adoption Of Technology for better Energy Outputs

LED light installation across all the units inside refinery

- Traditional lights replaced with LED lights in Red & White Area
- Total Energy saving per day : 1375 kWh
- Total Energy saving per annum: 502 MWH
- Monetary saving per annum: 25 Lakhs
- Reduction of GHG/ annum- 414 Tons



Replacement of Pulley in Evaporation units

- Pulley dia. reduced from 645mm to 485mm and had reduction in rpm from 1176 to 891 rpm in both pumps
- Total Power saving per day: 6.6 MWh
- Total power saving per annum: 1650 MWH
- Monetary saving per annum: 74 Lakhs
- Reduction of GHG/ annum- 1360 Tonns



Conversion of IE 1 motors to IE 3 motors inside refinery by National Motors Replacement Plan



- Replacement of existing IE 1 motors with improved efficiency design of IE 3 motors
- Total Power saving per day: 4.95 Mwh
- Total power saving per annum: 1780 Mwh
- Monetary saving per annum: 80 lakhs
- Reduction of GHG/ annum-1479 tonnes

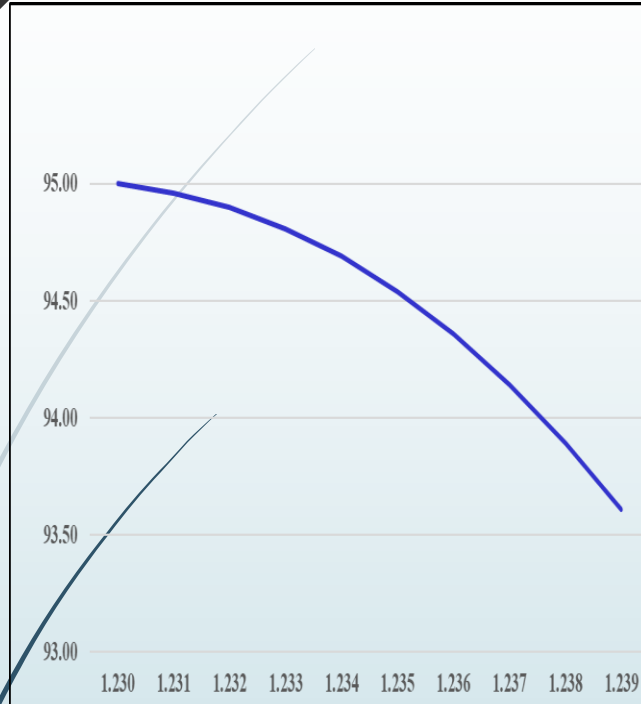


Max HT Chemical Dosing in Evaporation Units

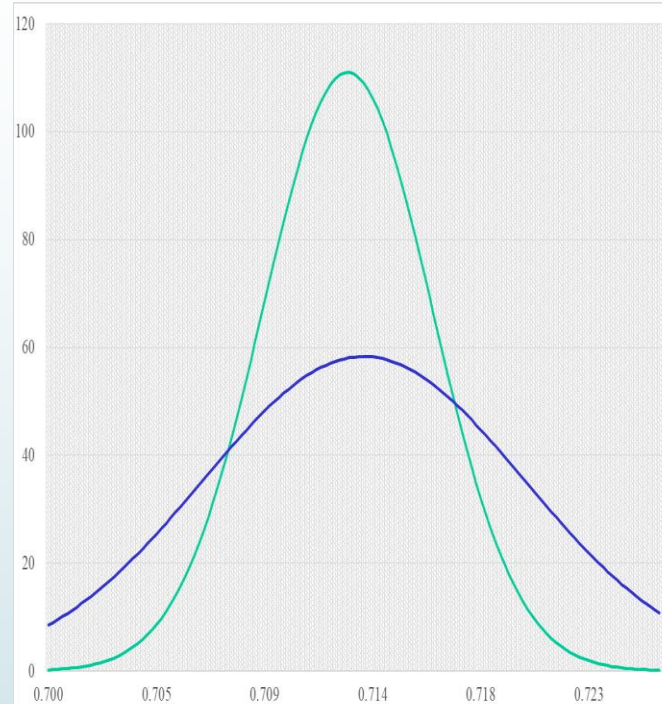


- Shut down frequency for acid cleaning of tubes got reduced
- Inhibits the growth of scaling in Calandria tubes
- Increase heat transfer
- Steam beniefiets of 0.01 T/T is achieved

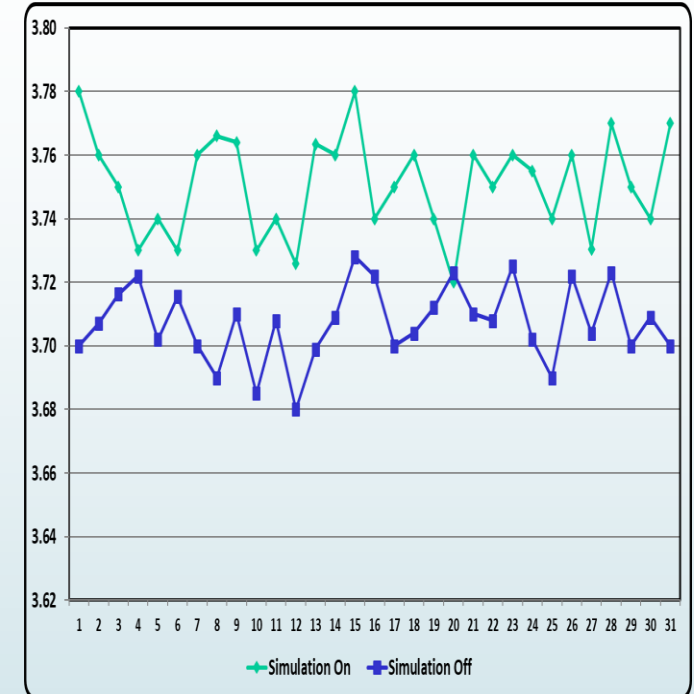
APC in Evaporation units



Digestion Efficiency vs Alumina to Caustic ratio



Standard Deviation Of Alumina to Caustic Ratio



Steam Economy variation Results

Remarks

- **Optimum Digestion Efficiency** has been worked out under variable **Alumina to Caustic Ratio**
- **Model** has made the simulator to work closer to its **constraints**
- **Simulation software** has helped to achieve **steadier plant operations & process control parameters**

MODEL ARCHITECTURE

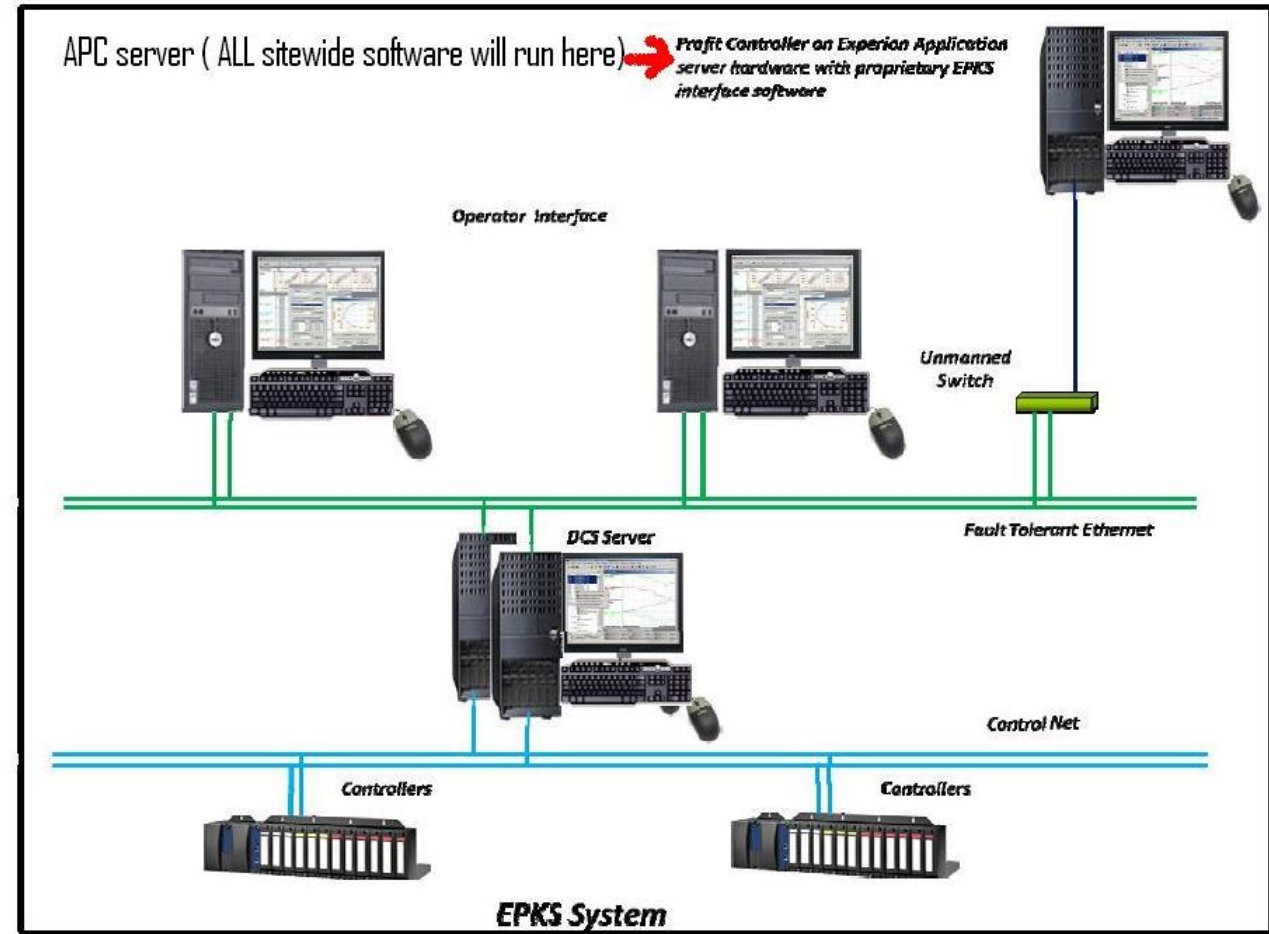
TYPICAL SYSTEM ARCHITECTURE DIAGRAM

TANGIBLE BENEFITS

- Reduction in Steam Consumption by 0.012 t/t
- Reduction in COP by 36 Rs./t Alumina

INTANGIBLE BENEFITS

- Stable operation
- Improved Equipment health
- Less operator stress with minimal manual intervention



Evap-3 cooling tower pump and motor replacement for energy saving

- Optimization is required for Evaporation 3 unit as it is drawing more power than other two units of evaporation
- 50% of energy got wasted in recirculation valve
- So an in-House project has been implemented to reduce power consumption by replacing both pump and motor of lower capacity



(Before)



(After)

Energy Saving Project -47E-PU-1001: Downsizing of pump & motor set		
	Before	After
Pump Model	WPILMNO-16LN350	20/24 CME
Design Flow (m3/Hr)	3917	3500
Required Flow (m3/Hr)	3000-3500	3000-3500
Head (m)	60	44
Pump RPM	993	989
Discharge Valve opening (%)	50	100
Recirculation Valve opening (%)	50	25
Motor Rating (Kw)	980	600
RPM	990	988
Running Current (A)	94	52
Running Power (KW)	874	516
Power Factor	0.77	0.84
Energy consumption (MWh) / day	21.0	12
Savings per day @ Rs 5 /- per unit (INR)	45000	
Annual Savings ((INR) @ 300 days operation	1,350,000.00	

PAT & NATIONAL ENERGY CONSERVATION AWARD



- VL-Lanjigarh Received **15044** EsCERTs in PAT-II cycle compared to 762 certificates received in PAT-I cycle.
- Organization received first ever National energy conservation award (**first prize**) for the year 2020 by BEE and MIP.



EsCERTs Received

	15044
762	
PAT-I	PAT-II

अभय बाकरे, आईएनएसईई
 Director General

ऊर्जा दक्षता ब्यूरो
 (भारत सरकार, नई दिल्ली)
 BUREAU OF ENERGY EFFICIENCY
 (Government of India, Ministry of Power)

Date: 6.01.2021

D.O.No. 2001/NECA/BEE/2020/3036-117

Dear *Shri Anil Agarwal*

I am pleased to inform you that in response to your application for participation in the National Energy Conservation Awards - 2020 (NECA 2020), the Award Committee has selected your unit, *M/s Vedanta Limited, Lanjigarh (Odisha)* to be the winner of **First Prize** in the **Aluminum (Small)** Sector.

- We congratulate your unit for this exemplary achievement in these challenging times of pandemic which has affected one and all.
- The award function shall be held on **11th January, 2021 (Monday)** at **03:00PM through Video Conference (VC)**. We wish to inform you that **Shri R. K. Singh, Hon'ble Minister of State (I/C) for Power and New & Renewable Energy and Minister of State in Ministry of Skill Development & Entrepreneurship** has kindly consented to be Chief Guest of the function. Detailed programme shall be communicated to you separately.
- You may kindly provide details of participants (up to 2 nos.) who would attend the VC. The details should include Name, Designation, Mobile Number and Valid Email Id. The above information may be sent through e-mail at bee-secretary@beeindia.gov.in and kamran.shaikh@beeindia.gov.in.
- It is recommended that the above news is not relayed / disclosed to the media or elsewhere until the event is over.

Yours sincerely,
Abhay Bakre
 Abhay Bakre

Shri Anil Agarwal
 Chairman
 M/s Vedanta Limited
 Vedanta House
 75, Nehru Road, Vile Parle (East), Mumbai - 400099.

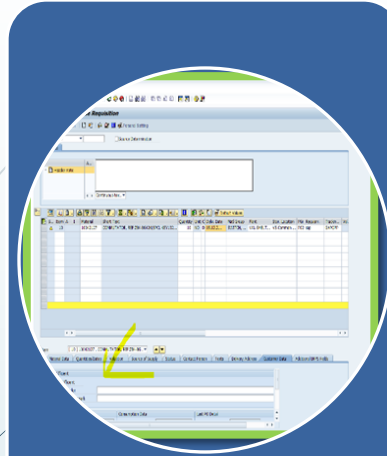
Copy:
 Shri Rakesh Mohan
 COO
 M/s Vedanta Limited, 1st Floor, Module C/2, Fortune Tower, Bhubaneswar-751023, Orissa

बचत एवं राष्ट्रिय में ऊर्जा बचाव Save Energy for Benefit of Self and Nation
 चौका रोड, वीले पार्ले, मुंबई-४०००९९, महाराष्ट्र. टेलीफोन: ११० ६६६/४th Floor, Sawa Bhowan, R.K. Puram, New Delhi-110 066
 टेलीफोन/टेली: ९१ (११) २६१७३१० (दूरभाष, दिल्ली) २६१६७०६, वॉयस/फैक्स: ९१ (११) २६१७३२६
 ई-मेल/E-mail: dg-bee@nic.in, abhay.bakre@nic.in, वेबसाइट/Website: www.beeindia.gov.in

ENERGY MONITORING & DIGITALIZATION



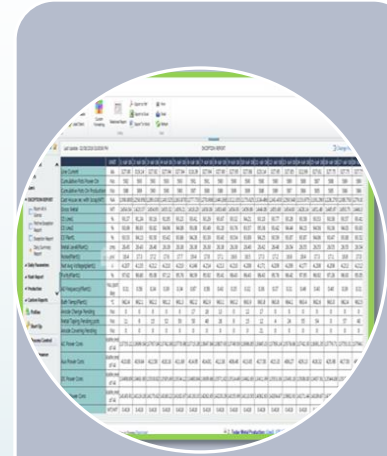
BAUXITE CONTROL TOWER



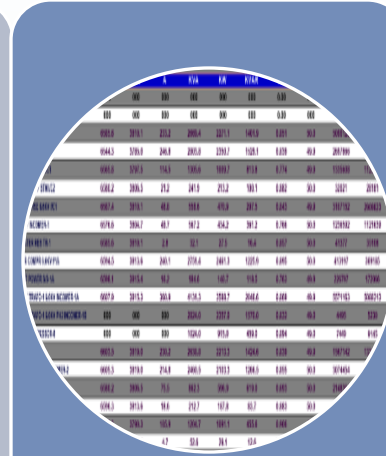
ENERGY EFFICIENT PROCUREMENT



E-CER (CAPEX PROJECT) ENERGY IMPACT ASSESSMENT



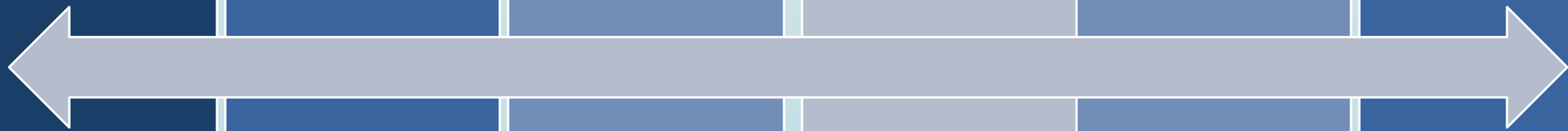
MES ONLINE FLASH REPORT



ONLINE ENERGY MANAGEMENT



LIEP Portal

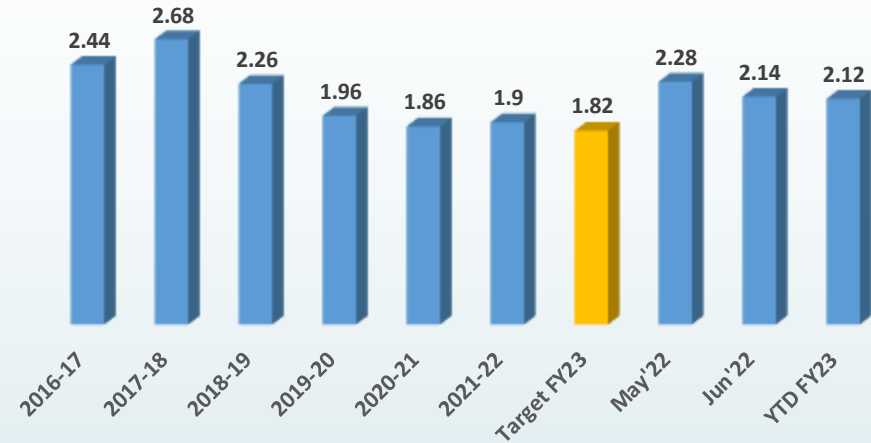


ENVIRONMENTAL PERFORMANCE

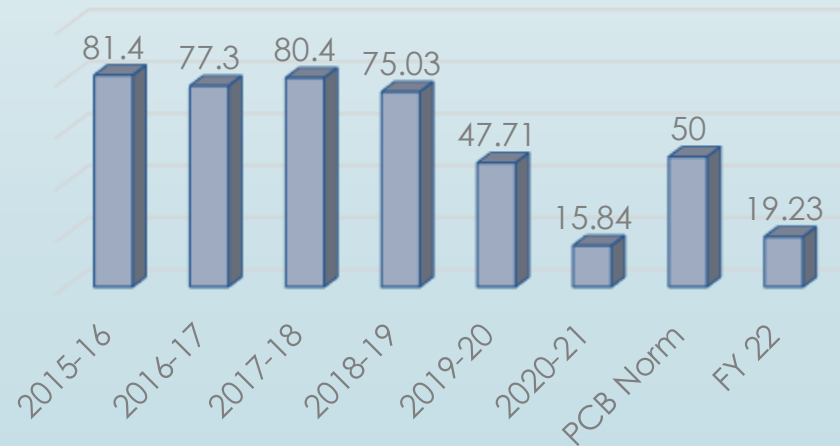
Specific GHG Emission (tCO₂e/MT of Hydrate)



Specific Water Consumption (M³/ MT of Hydrate)



Emission Trend
CPP -PM (mg/Nm³)



Continuous Ambient Air Quality Monitoring Station (CAAQMS)



Water sprinklers at bauxite handling

AIR QUALITY MANAGEMENT

Dust suppression system

- Fly ash Disposal through HCSD (High Con. Slurry Disposal) to Ash Pond
- Covered conveyers for Bauxite & Coal & pipe conveyer for Alumina
- Dry fog system at transfer points of Bauxite Handling Area and Coal Handling Plant
- Water Sprinkling by using rain gun, mist canon, water tanker at Bauxite yard, Red Mud pond, Fly ash

Emission Control system

- Online ESP with bag filters at CPP to achieve PM level < 50mg/Nm³
- Online ESP at Calciner stacks
- Online Wet Scrubbers at Lime handling Plant
- Online Bag Filters on Alumina storage silo and Bauxite crusher house.

Monitoring system

- Continuous Emission Monitoring Systems (CEMS) installed in stacks to monitor emission & real time data is getting transmitted to CPCB & SPCB.
- Six nos. of CAAQMS (Continuous Ambient Air Quality Monitoring Systems) are installed in & around the site to monitor ambient air quality & real time data is transmitted to OSPCB.
- Environmental air quality & Stack emission monitoring is being conducted by NABL Accredited third party approved laboratory as well

WATER QUALITY MANAGEMENT

Effluent Management

- Site is Zero Liquid Discharge & Reuse of all process wastewater in system
- Reuse of Treated Sewage Water for Horticulture in Refinery & Township
- All process ponds like BRDA (RMP), PWL, Caustic pond, Storm water pond & Ash pond are used for rainwater collection & reuse.

Water pollution Control

- Separate Storm Water and Caustic Drains
- Alkali resistant RCC Flooring, Steel Lined Sump pit, trenches of all process areas
- HCSD processing of red mud in Red mud filtration unit to prevent wet disposal in pond

Water Quality Monitoring

- Online pH meter installed in the storm water collection pond
- Daily Monitoring of Surface water quality in & around refinery
- Daily monitoring & analysis of treated domestic wastewater
- Seasonal Monitoring of environmental water quality parameters of ground water, surface water in & around the refinery

Waste generated by the site is broadly divided into the following three categories and channelization of the same as per the SOP for each of the wastes-

Process Waste

Waste categorized Under E(P) Rules, 1986

Other Waste

Red Mud

Fly Ash

Lime Grit

Hazardous Waste

E-Waste

Used Batteries

Metallic

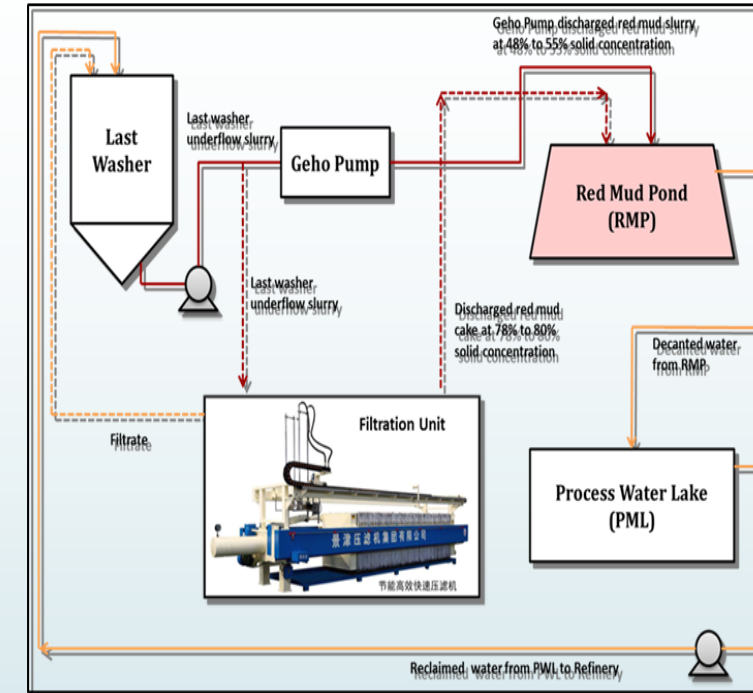
Non Metallic

Food & Housekeeping Waste

Horticulture Waste

RED MUD MANAGEMENT- RED MUD FILTRATION

1. Mud Stacking Stability : 95% compaction by engaging sheep roller.
2. Stability Analysis of Tailings Dams
3. Digitization of 27 no. of piezometers and inclinometers for monitoring water level in BRDA & RCRF on real-time basis.
4. Dust control mechanisms in BRDA :
5. Innovative Projects taken to enhance life of pond :
 - ❖ Wick drain installation in wet mud area
 - ❖ Installation of Gabion wall :
 - ❖ R & D Projects :
 - Partnered with IIT Bombay for utilization of red mud in road construction.
 - Study with CRRRI for usage of Red Mud as a construction material for roads, pavements, etc.
 - Study for iron recovery from bauxite in collaboration with IIT KGP
 - Collaboration with M/S ZAAK for conversion of Red Mud into usable Sand.
 - ❖ **Benefits :**
 - There is a recovery of appx. 8-10 Kg/T of caustic soda being lost in red mud slurry resulted in COP savings of 3-4 \$/T of alumina.
 - Eliminate the risk of groundwater contamination (Pond bottom HDPE liner, Stormwater channelization)



Settler washer

Geho Pump



Red mud Filtration unit



Red mud press Filter



Fly Ash Management & Ash Utilisation

- Site is equipped with a 90 MW Co-Generation Power Plant(CGPP)
- Plant generates Ash of approximately 4.2 Lakh MT/Annum
- **Utilisation :**
 - Given free to the brick manufacturing units in the vicinity of the plant.
 - 108 local brick manufacturing units are developed & are partnered.
 - For road construction inside the plant & in nearby villages
 - Utilized in dyke strengthening of the tailing dams like BRDA & PWL etc.



HAZARDOUS WASTE/E-WASTE/BATTERIES MANAGEMENT

Hazardous Waste Management - As per Hazardous and Other Wastes (Management and Transboundary Movement Rules, 2016).

Hazardous Wastes	Utilization / Disposal Method
Vanadium Sludge	Sale to authorized recyclers.
Used Oil	Sale to authorized recyclers.
Spent Resin	Co-incineration in CPP
Sludge contaminated with oil	Co-processing in authorized cement kiln
Oily Cotton Waste	Co-processing in authorized cement kiln
Hazardous Containers	Captive reuse/ Disposal through original supplier/ actual authorized users
Mercury wastes	Disposal to TSDF
E Wastes	Sale to authorized recyclers.
Used Batteries	Buy back to supplier

Other Wastes	Utilisation
Housekeeping Waste, Waste Gunny bags	Municipality
Food Waste	Biogas Plant
Horticulture Wastes	Vermicompost Pit
Packaging Wood	Scrap recycler
Plastic Scrap	Scrap recycler
Metal Scrap	Scrap recycler
Rubber Scrap	Scrap recycler
Empty Drums (Plastic / Metal)	Scrap recycler
Empty Lime Bags	Scrap recycler

MUNICIPAL SOLID WASTE MANAGEMENT

- All the MSW wastes from Plant & Township are disposed to Cement plant for coprocessing through Municipality
- Waste segregation at source for dry waste & Wet Waste

Collection and segregation of scrap in Reg Tag area

Regular scrap transfer to Scrap yard

Auction and sell of scrap to recyclers



BIRD CONSERVATION DRIVE



MASS PLANTATION DRIVES



TOWNSHIP

Biodiversity Management & Green Belt Development



PLANT SITE

AWARENESS CAMPAIGNS



RED MUD POND AREA

BEST PRACTICES - ENVIRONMENT



Rainwater Recharging Structure in Township to recharge more than 1 lakh m3 of water



Solar Power station 180 Kw peak in refinery and and 200 Kw peak in township



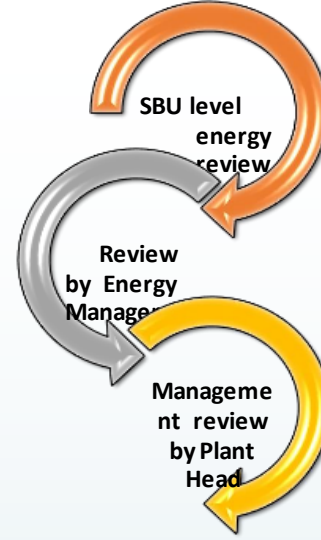
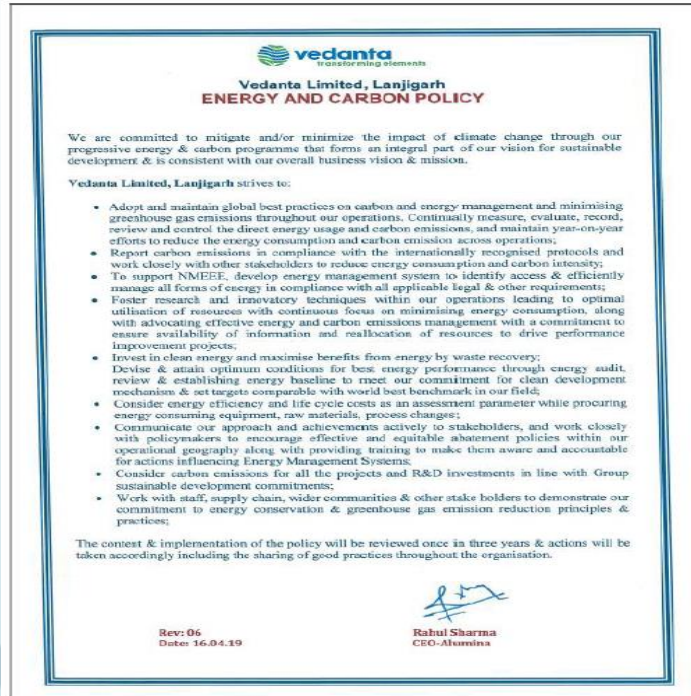
Gabian Wall installation for Life enhancement of existing pond by space augmentation



Bio-gas supplied to Jawan Barrack for cooking

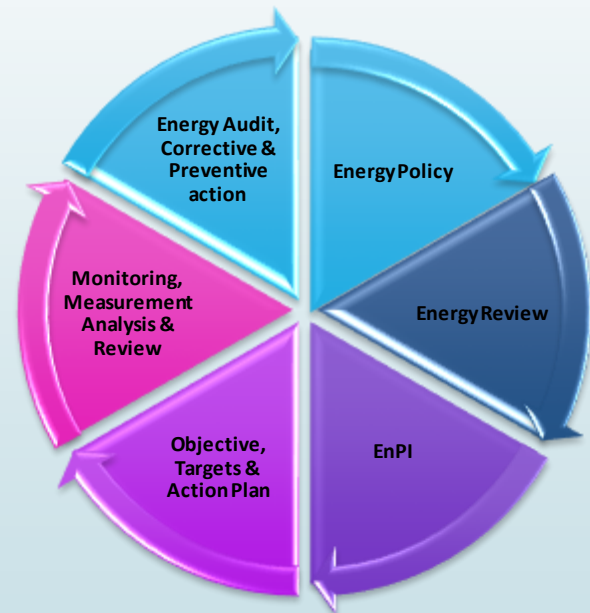
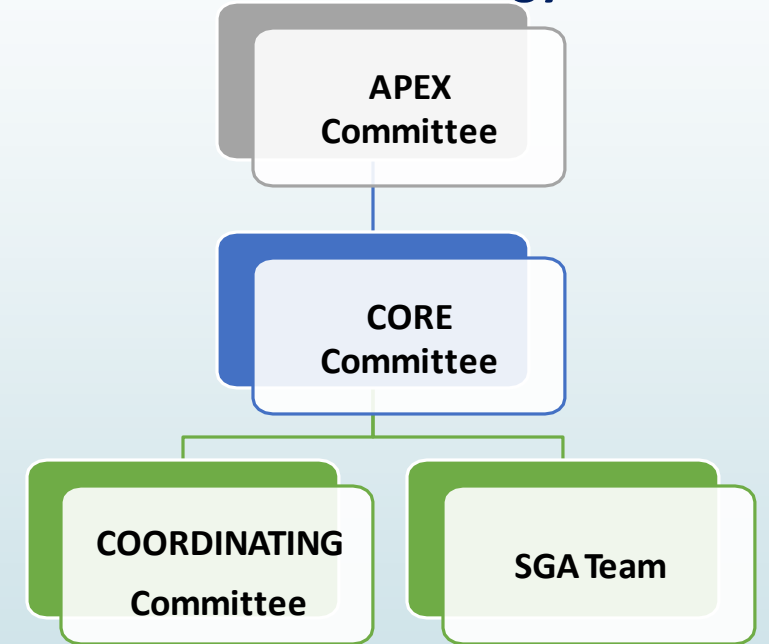
Year	Type of waste	Quantity (MT)	GCV (Kcal/kg)
FY 19-20	Food waste	4.129	3927.5
FY 20-21	Food waste	6.93	3927.5
FY21-22	Food waste	14.612	3927.5

Waste to Energy



EMS (ISO-50001:2018)

Formation of Energy Cell



Annual Turnover of the Company (in Million INR)	54310
Budget allocated for Encon Energy Saving Projects (in Million INR)	76.74

People involvement in different Energy Saving Activities

Excellence through constant innovation and engagement

- ❖ Occupancy sensors in all the office buildings
- ❖ SCADA system modification for display and monitoring of conveyor idle time .
- ❖ In house timer arrangement for lighting systems .
- ❖ Numbering system of LED lights at multi purpose halls , conference rooms to segregate the circuit number wise
- ❖ Sunroof (Utilization of Day light) at workshop.
- ❖ Conventional fans switched to BLDC



Energy Week Celebration



Energy Idea QR code across all the areas



Idea generation Session



Energy awareness in ToolBox Talk.



Energy Walk Lead by Senior Management



Awards & Recognition for Energy initiatives

AWARDS & RECOGNITION



Noteworthy Water Efficient Unit- 14th National Award for Excellence in Water Management 2020 organized by CII.



Quality Conclave(NCQC) Awards



IMEA Award-Gold category



Quality Conclave(CCQC) Awards



Kalinga Safety Award FY21

Learnings from Previous CII Events

- ❖ *Scope for implementation of Waste heat recovery in refinery.*
- ❖ *Installation of Screw Compressor with VFD in different individual units.*
- ❖ *Replacement of conventional fans with BLDC.*
- ❖ *Scope for microturbines in PRDS system in CGPP.*
- ❖ *Benchmarking data from other industry peers.*



www.vedantalimited.com



Anurag Tiwari (COO)

Anurag.Tiwari@Vedanta.co.in



9833213904



Sanjay Kumar Jena (E.M)

Sanjaya.Jena@Vedanta.co.in



9937292875



Aiming to create a more beautiful, sustainable, clean planet...