CII National Award for Excellence in Energy Management 2022

M/s BILT Graphic Paper Products Limited
Unit : Ballarpur

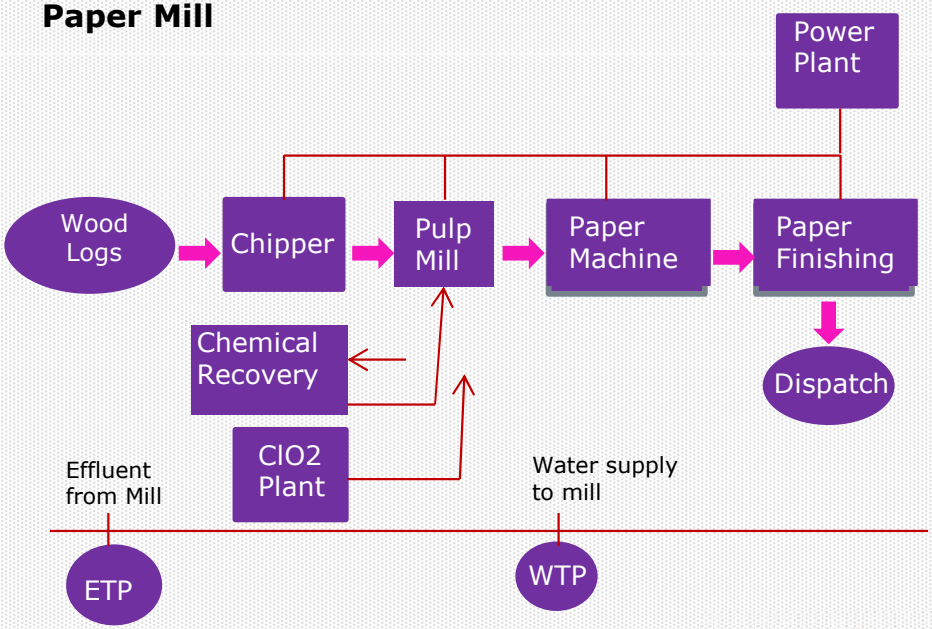
Presented by:

1) Mr. Giriraj Neema
2) Mr. Rajith Shenoy
3) Ms. Samriti Pandey

Mill Overview

- **Integrated Pulp & Paper manufacturing unit- Manufacturer of Uncoated Writing & Printing Grades of paper.**
- **Only "Wood/ Bamboo based Integrated Pulp & Paper Industry" in the State of Maharashtra.**
- **2,99,500 TPA Paper Production Capacity with Seven Paper Machines.**
- **67.5 MW Power Generation Facilities.**
- **Pulp Mill with Continuous digester, ODL & ECF Bleaching Process Technology.**
- **Certified Unit for ISO 9001, ISO 14001, ISO 45001 & ISO 50001.**
- **Adopted Best available Environment Friendly Process Technology.**

Basic Process Flow Diagram of Integrated Pulp & Paper Mill



History at a glance……

BGPPL

Production & Technology Up-gradation

PM – 1
9000 TPA Paper

1952

PM – 2 & 3

1962

PM – 4 & 5
Recovery Boilers

1964 , 1975

PM – 6

1983

Bamboo
MFW

1991

Bamboo
Subabul
MFW
Eucalyptus

2009

PM –7 : 165000 TPA
Total : 299500 TPA Pape
PP 4 : 67.5 MW

2013

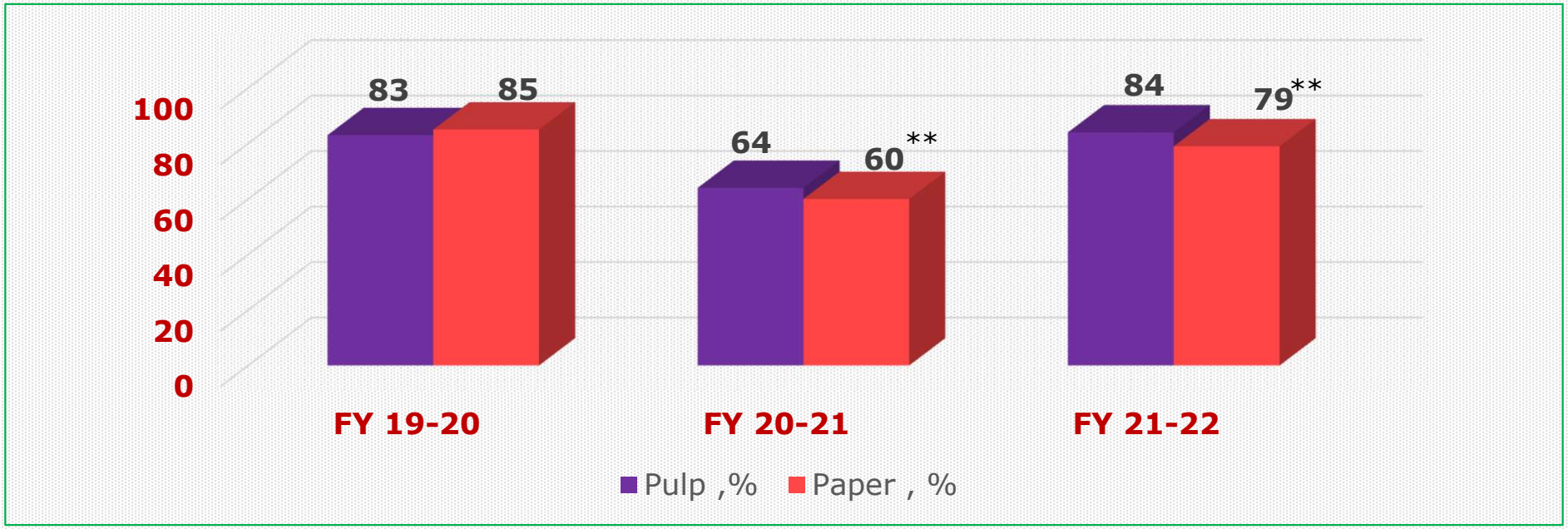
New Pulp Mill:
300000 TPA
ECF Bleaching

PM – 3 Rebuild
New Pulp Mill – ClO2
Bleaching

Bamboo
Subabul
MFW
Eucalyptus
Casurina

Raw Material Mix

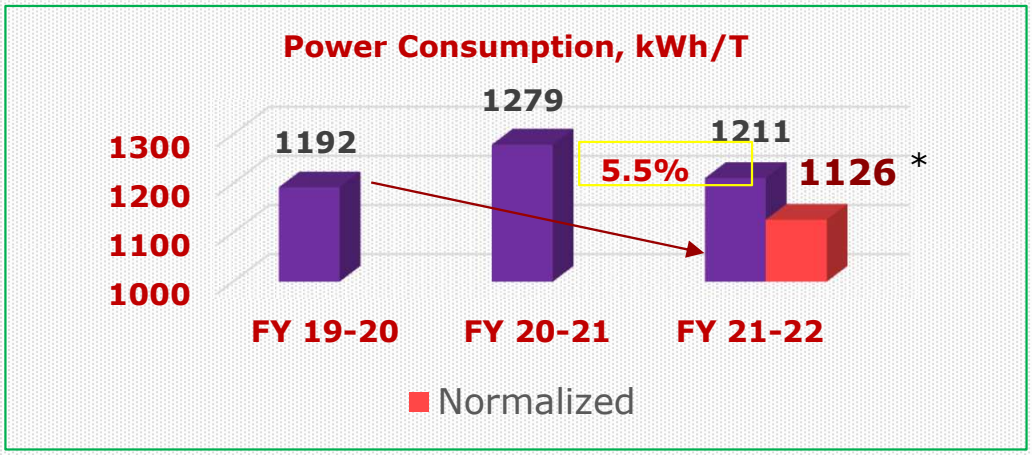
Capacity Utilization

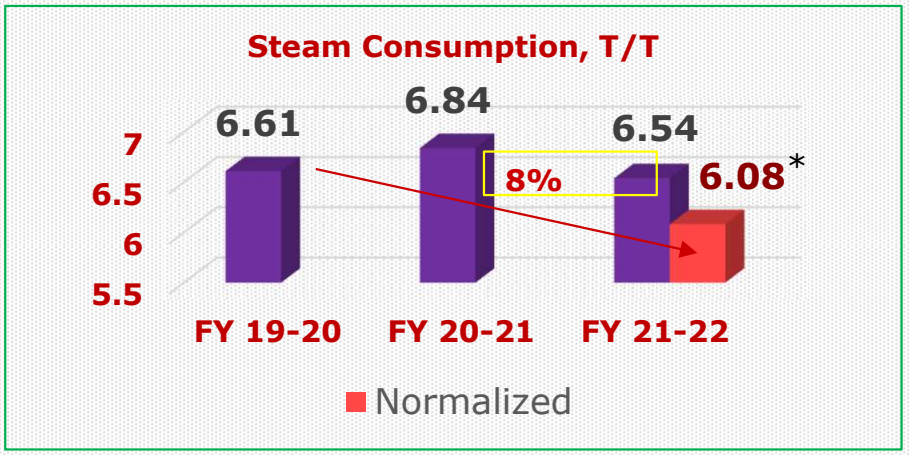


* * Capacity Utilization is on lower side due to Covid & Market demand.

	2019-20	2020-21	2021-22
Pulp Production, MT	227496.2	176121.9	229416
Paper Production, MT	256386	178692	237303
Capacity Utilization, Pulp	83	64	84
Capacity Utilization, Paper	85	60	79

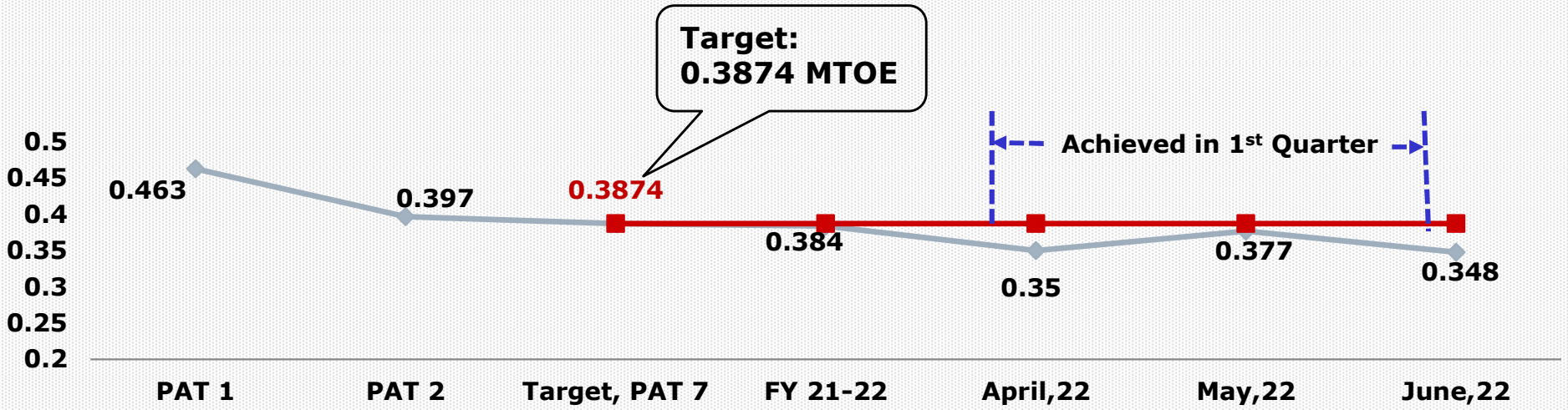
Specific Energy Consumption





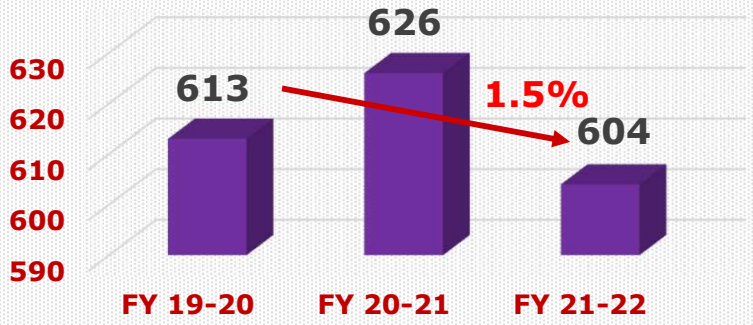
As production is low ,the SEC of FY 21-22 is on Higher side for FY 20-21 & FY 21-22
At normalized production, we are on lower side in SEC for FY 21-22
SPC is 5.5 % lower and SSC is 8% lower

MTOE Status

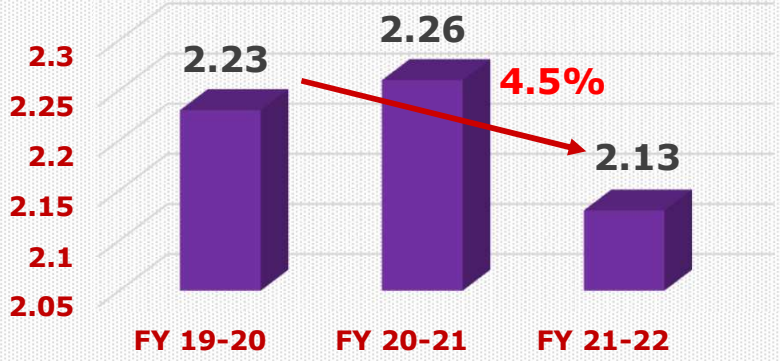


Section wise Energy Consumption

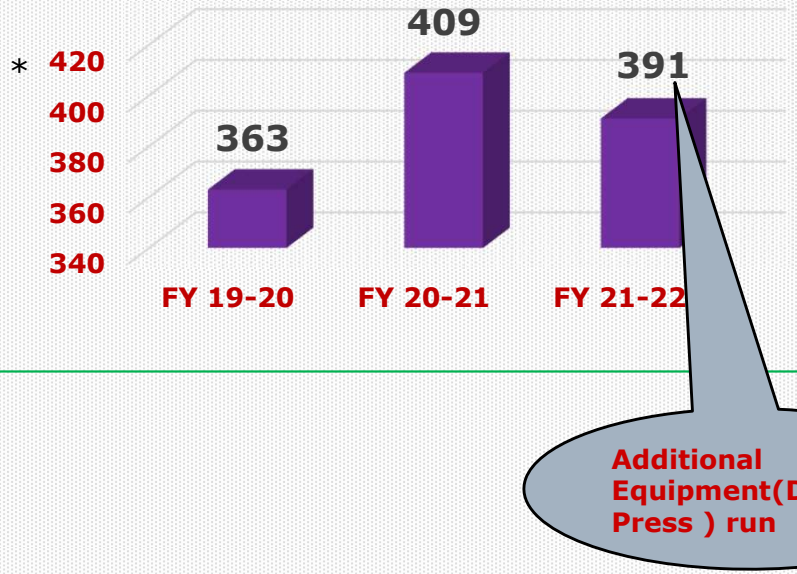
Power Consumption PM7 , kWh/T



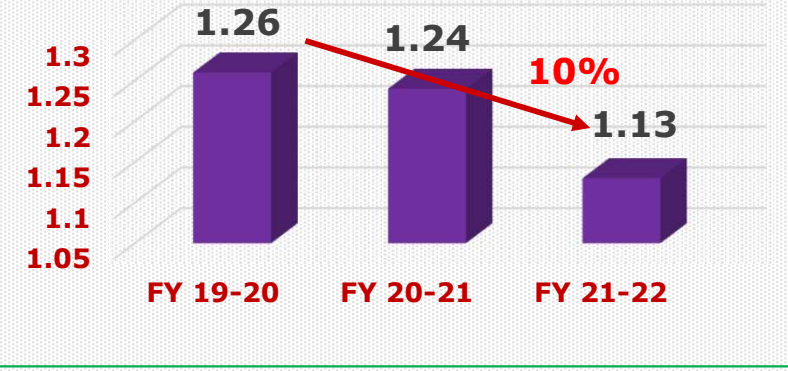
Steam Consumption PM7, T/T



Power Consumption Fiberline , kWh/T

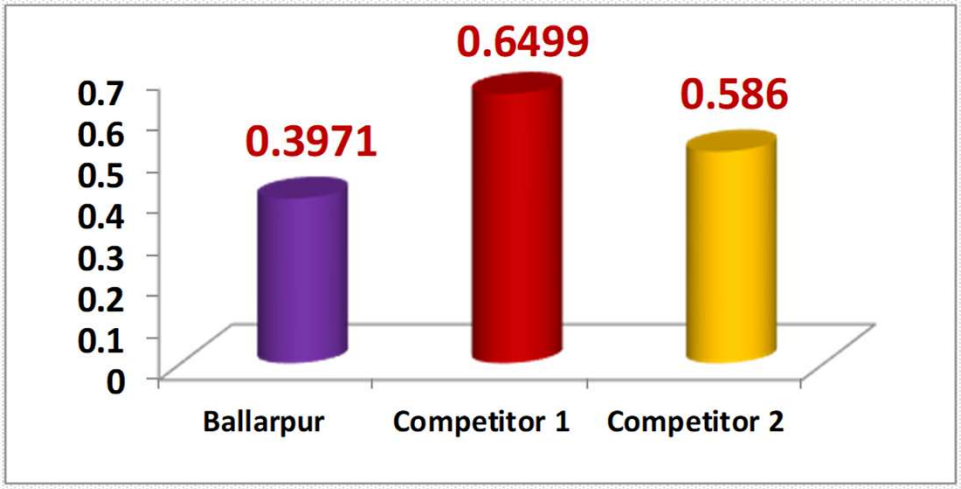


Steam Consumption Fiberline, T/T



Global Norms/ Benchmark Data

Bench Marking	Power kWh/T	Steam T/T	Remarks
Indian Pulp & Paper Mills	1400	12	CPPRI Study*
International Mills	900 - 950	6.5 – 7.0	High Volume Single m/c & Pulp Mill
BPU PM-7 (520 TPD)	604	2.13	
BPU Mill	**1211**	**6.54**	



Actual of the Competitors (Integrated Pulp & Paper) with reference to unit Ballarpur in FY 14-15 (Ref.: Notification of PAT-2 Cycle)

- **SEC is below the Avg. Consumption of the global SEC**
- **Complied both the PAT Cycle**
- **Geared up to crack the next PAT Cycle**

Road Map For PAT cycles

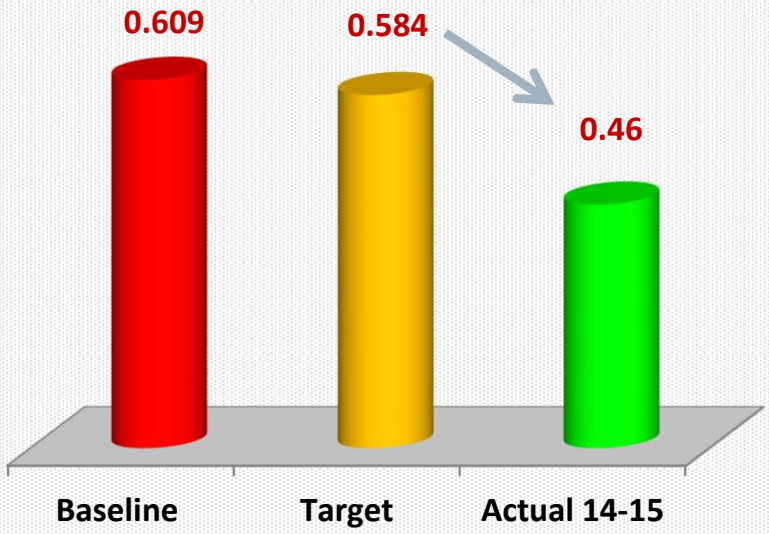
- Set Structured Objective and Target
- Devised Strong Review mechanism
- Employee involvement and Awareness
- Brainstorming in Ground level to come up with optimization projects
- Regular Internal as well as External Audits for further reduction potential
- ISO 50001: 2018 system adherence & system strengthening

Action Taken:

- Interdepartmental EC team taking rounds
- Initiated projects:
  - Millwide Pump Efficiency calculation ,
  - Steam Trap Study
  - Millwide VFD requirement

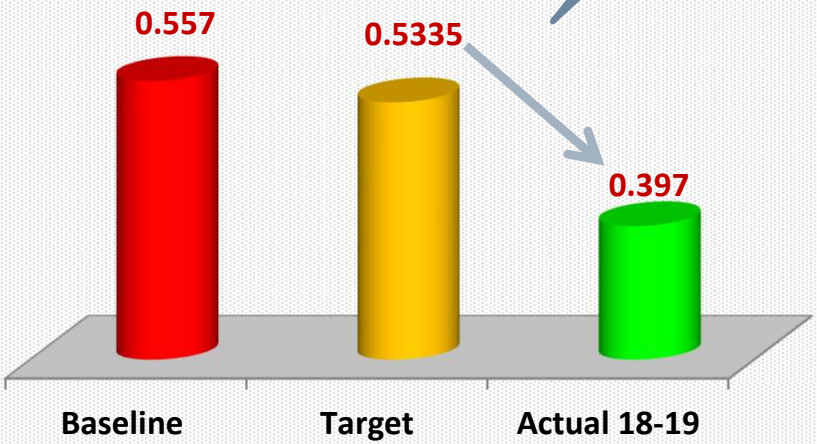
Target SEC in short term/ Long Term

PAT Cycle- 1

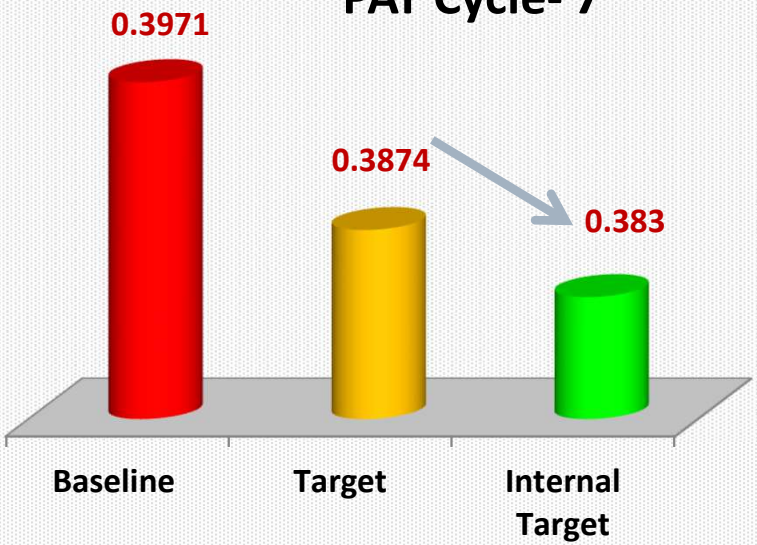


PAT Cycle- 2

Achieved the target



PAT Cycle- 7



PAT 1 Compliant – 16587 Ecerts received

PAT 2 Compliant - Highest 33842 Ecerts received

PAT 7 Received Target of 2.44 % reduction over 0.3971 (achieved SEC of FY 18-19)

Major Encon Projects planned in FY 2022-23

S. No.	Description of energy efficiency improvement measure	Investment (Rs. In Million)
1	Installation of Biomass Boiler to consume wood bark generated by debarking process in Chipper	**7**
2	Replacement of aluminum Fan blades of Cooling Tower of Evaporator Plant with FRP blades.	**1**
3	Installation of 3 new energy efficient Triton aerator in Effluent Treatment Plant.	**9**
4	Installation of new energy efficient pump for mill water header, in place of existing inefficient pump.	**1**
5	To replace existing Lobe blower with New Energy Efficient Screw Blower at MBBR system in Effluent Treatment Plant.	**10**
6	Implementation of SEC system at PM-4 & PM-6 refiner to improve paper quality	**0.1**
7	Replacement of existing identified conventional lighting lamps with energy efficient LED lamps .	**1**
8	Installation of 7 no.s of VFD at identified locations in Recovery Boiler & Evaporator plant.	**3.5**
9	Installation of Steam & condensate system in PM1	**1.5**
10	Replacement of MC Pump of Fiberline with energy efficient pump.	**1.25**

Energy Saving Projects Implemented – 3 years summary

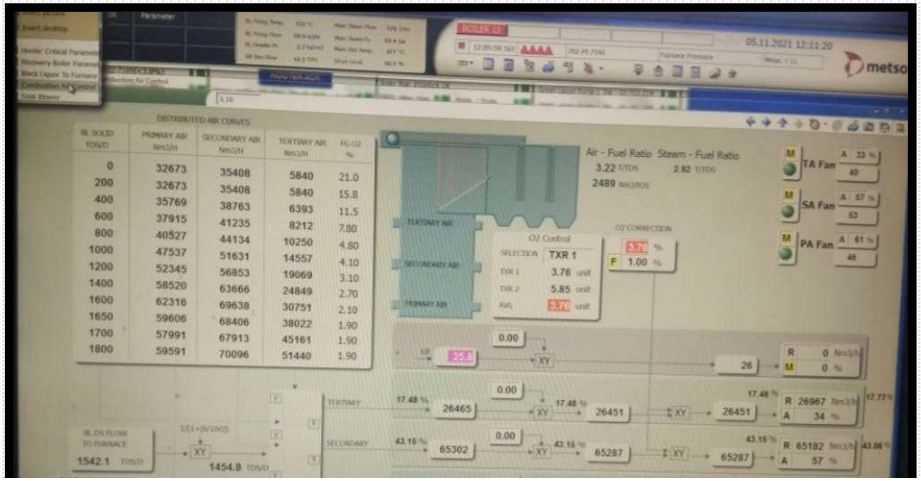
Year	No. of Projects Implemented	Elect Energy Savings (Lac kWh)	Thermal Energy Saving Coal (MT)	FO (kL)	Investment Made (Rs. Lacs)	Monetary Savings (Rs. Lacs)
Apr-19- Mar-20	17	96		2030	131	1005
Apr-20-Mar-21	9	72	7307		357	427
Apr-21-Mar-22	6	37	5150		110	477

Innovative Project: Project 1

Title: Automation of Combustion Air System in Recovery Boiler

Details:

- Providing auto control for combustion Air and Fuel based on optimized calculation
- Proper distribution through Primary, Secondary and Tertiary Air Fans at various firing rates of black liquor solids
- Increased Specific Steam Generation from 3.13 to 3.17 per month
- Improvement in steam credit
- Maintains % of Excess Oxygen in Flue Gas as per optimized calculation and reduces the Carbon Monoxide content.
- Monitory Gain : Rs. 41 Million

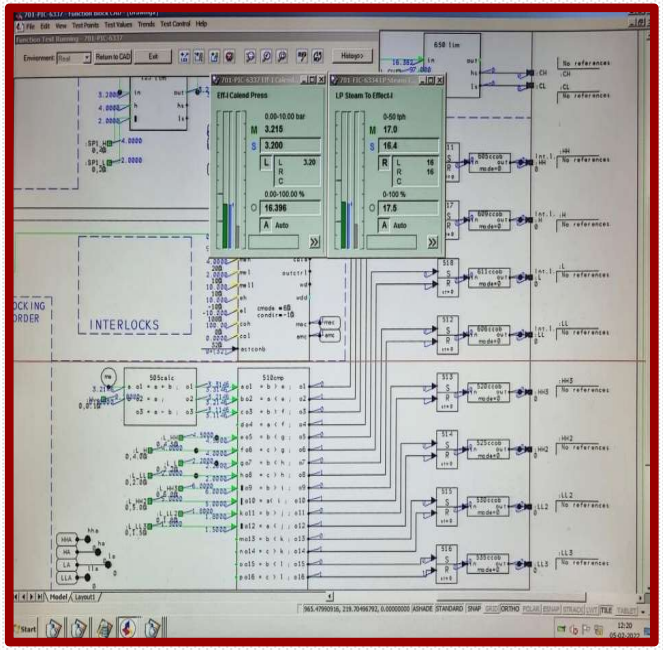


Innovative Project: Project 2

Title: **Automated Cascade Steam Pressure - Flow Control of Calendria and Lamella in Evaporator**

Details:

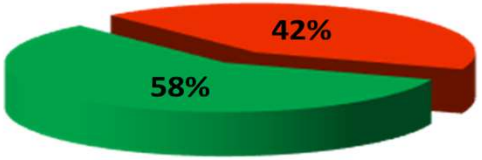
- **Providing cascade Steam Pressure – Flow control logic for Effect-I Calendria and Finisher IA, IIA and IB Lamellas**
- **Proper utilization of Steam at different pressures with respect to fouling**
- **To stop the steam wastage**
- **Reduction in fouling tendency in Effect-I and Finisher IA, IIA and IB**
- **Steam saving of 4310 MT/Annum as a resultant**
- **Monitory Gain : Rs. 4.3 Million**



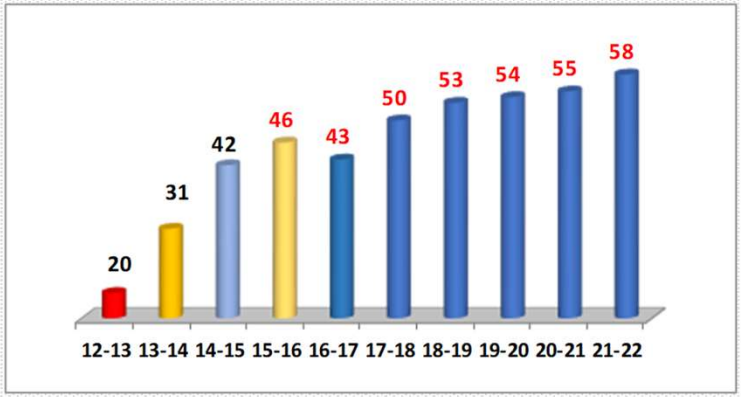
Renewable Energy Resources

During FY 12-13, were getting 20% of Renewable Energy from black liquor through Recovery Boiler

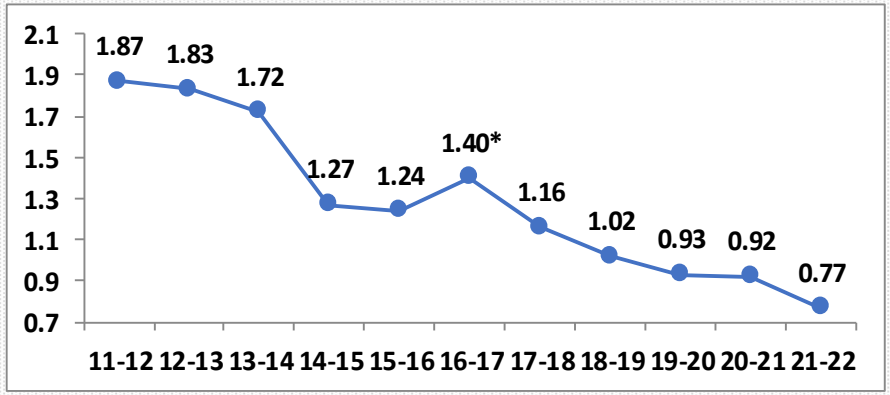
Presently, almost 58 % of Renewable Energy getting from black liquor through New Recovery Boiler



Increase in % Share of Green Energy



Decrease in Usage of Coal , MT/ T of Product



*Frequent Start stop of the plant due to financial issues. Startup of Fiber line and Recovery section takes three days before the actual paper production,

Solid Waste....

Wood-Bamboo Dust - 18000 MT/annum

Sold to outside parties as bio-fuel.

Firing Bamboo Dust in our CFBC boiler to replace coal

Year	Quantity , MT	GCV, (kCal/kg)	Heat Value(Mkcal/Yr)
19-20	8655	2496	21603
20-21	11813	2560	11813
21-22	18426	2486	45807 (Consumption doubled wrt FY 19-20)

Wood Dust- Biomass

Lime Sludge- For Cement Manufacturing

ETP Sludge - 14000 MT/annum

Utilized by outside parties for board manufacture.

7 board mills are operated around the mills area.

Coal Ash - 85000 MT/annum

Fly utilized by Cement Industries.

Bed ash for Bricks manufacturing.

Lime Sludge - 30000 MT/annum

Recycled by reburning in Rotary Limekiln

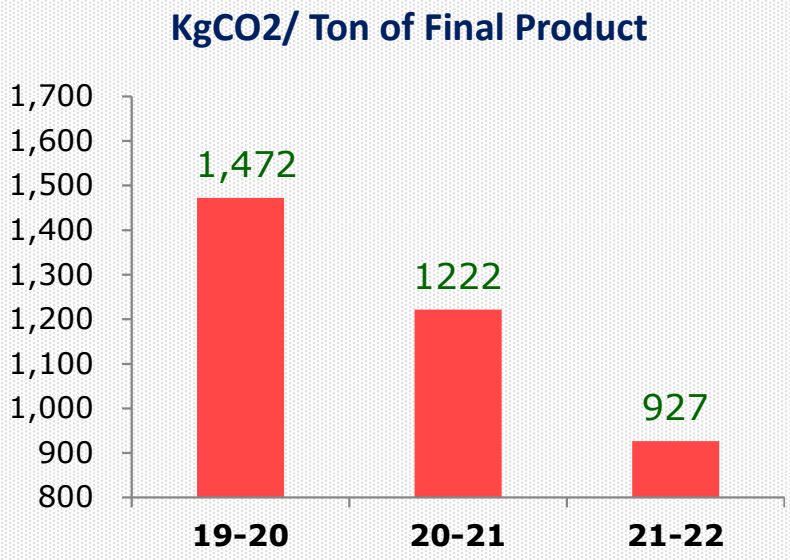
Excess purged out sludge sent to M/s Ultratech Cements, Awarpur, M/s Dalmia Cement

Hazardous Wastes:

Used oil given to registered recycler- 24000 kg/annum

Asbestos containing gland packing waste- Member of CHWTSDF, Nagpur, hazardous waste given to CHWTSDF, Nagpur.

GHG Emission Data



Short Term Target:

Reduction by 1% Every Year

Action Plan:

-Improvement in Recovery Boiler efficiency to decrease dependency on fossil fuel

- Installation of Biomass Boiler to consume the debark generated in chipper by debarker

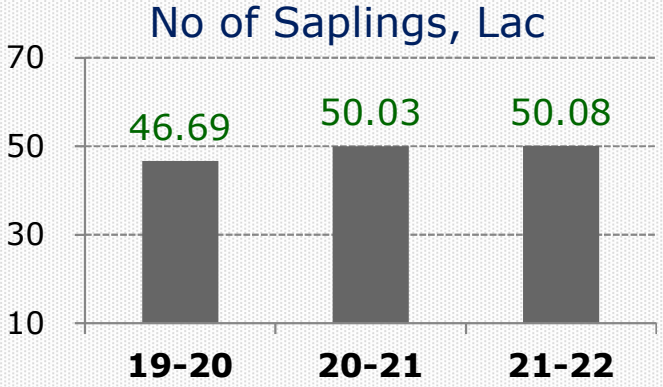
- Adoption of energy efficient technologies

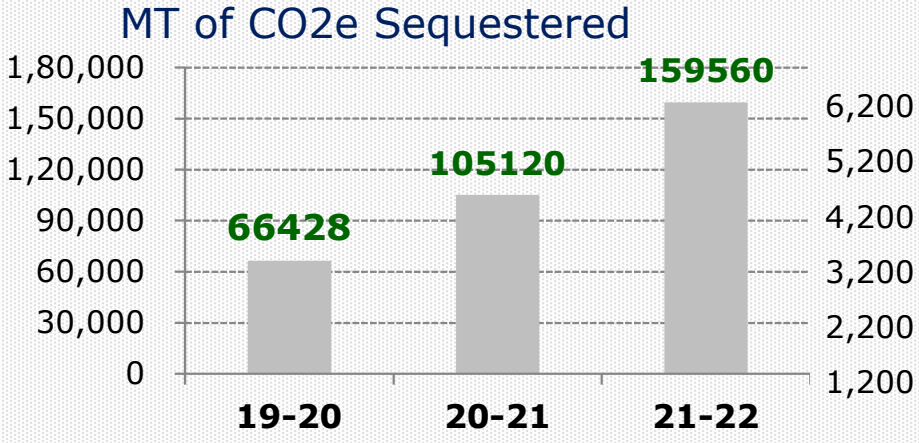
Wood: Plantation Details

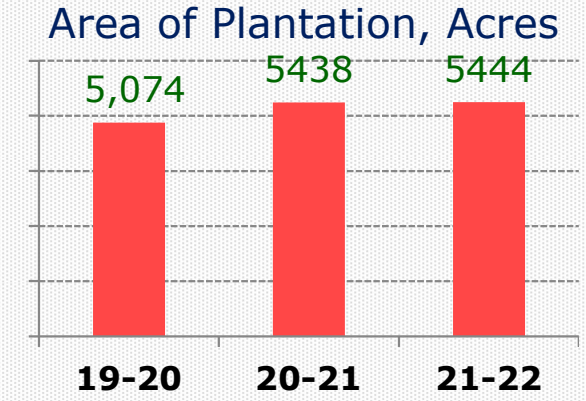
- **Farm Forestry-**
  Promoting plantation of pulpwood species in the farmers field.
- **Developing plantation nearer to the industry.**
- **Catchment area for plantation- within 500 KM.**

  (Akola, Amravati, Buldhana, Chandrapur, Gadchiroli, Nagpur, Wardha, Washim, Yavatmal)
  Reducing Scope -3 Green House Gas emission.

  Plantation- CO_2 sequestering during life cycle.







(Considering 3 years Rotation / 10 CER (10MT) per year per acre basis on Eucalyptus Plantations)

Implementation of ISO 50001:2018

- 1st Integrated Pulp & Paper sector who achieved ISO 50001:2011 certification in 2012
- Achieved the certification without any consultant
- Upgraded to ISO 50001: 2018 in Oct., 2020
- Yearly external audit & Quarterly internal audits
- Well established & mature system in place

Benefits:

- Enhanced awareness
- Strong review mechanism
- Implementation of Energy conservation projects, process optimization , capturing low hanging fruits

DNV

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.: 10000410247-MSC-RvA-IND | Initial certification date: 26 July 2018 | Valid: 26 July 2021 – 25 July 2024

This is to certify that the management system of

BILT Graphic Paper Products Limited

(Unit - Ballarpur) Post Office: Ballarpur Paper Mills, Ballarpur,District: Chandrapur - 442901, Maharashtra, India

has been found to conform to the Energy Management System standard:

ISO 50001:2018

This certificate is valid for the following scope:

Manufacture of Writing, Printing, Copier and Industrial Grade of Paper

Place and date: Barendrecht, 26 July 2021

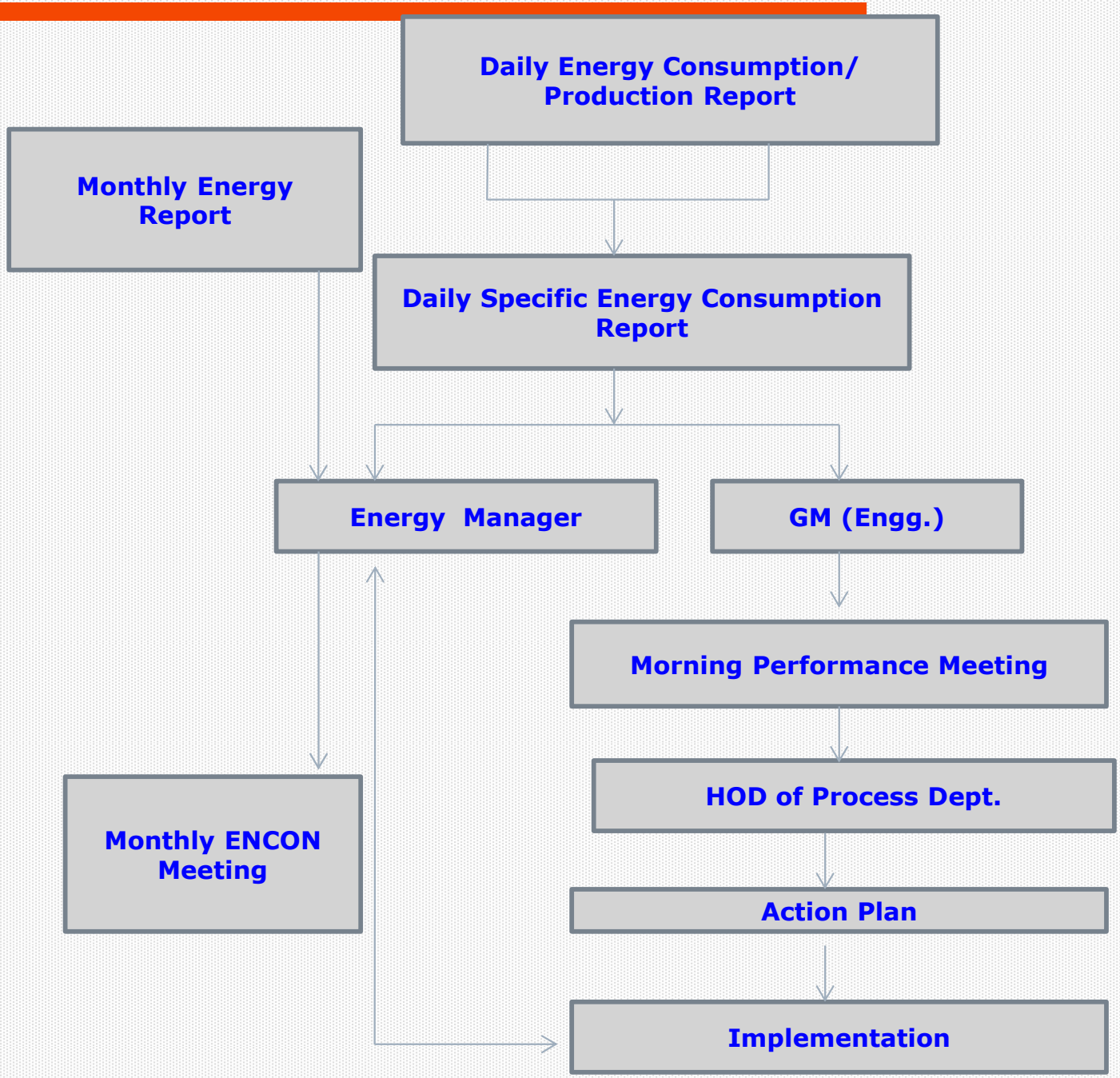
For the issuing office: DNV - Business Assurance, Zwolseweg 1, 2994 LB Barendrecht, Netherlands

Erlo Kreik, Management Representative

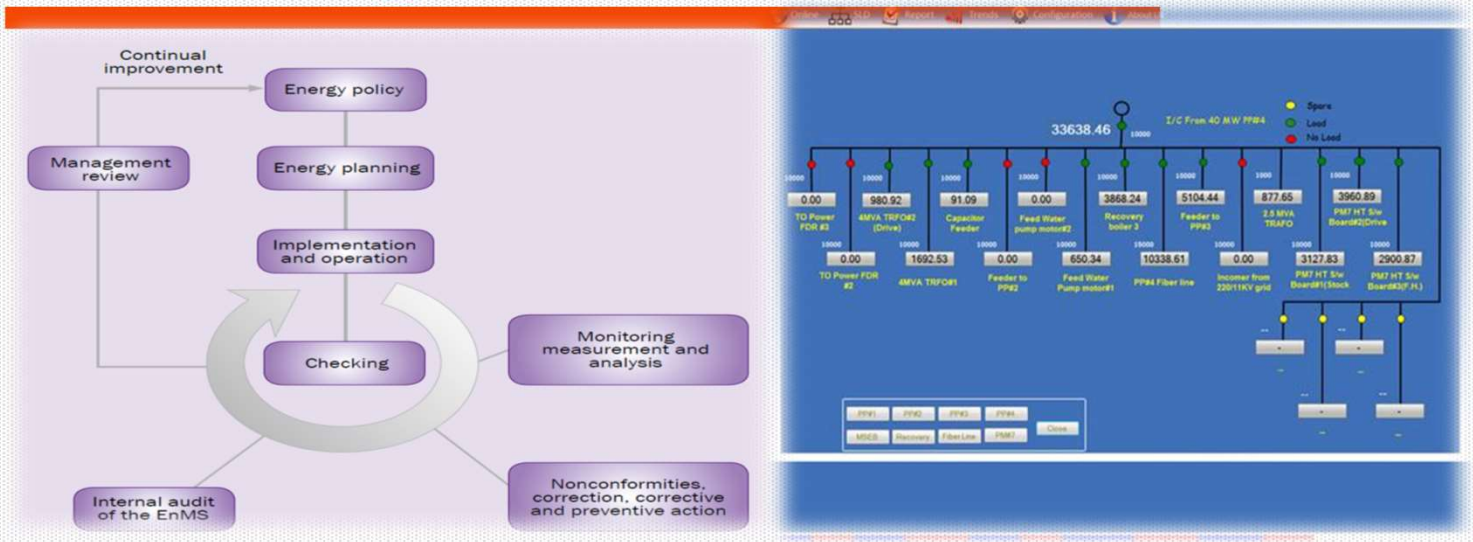
Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.

ACCREDITED UNIT: DNV Business Assurance B.V., Zwolseweg 1, 2994 LB, Barendrecht, Netherlands - TEL: +31(0)102922689 www.dnv.com/assurance

Management of Energy Conservation Program



Team Work, Employee Involvement & Monitoring



- ✓ Daily monitoring of utilities
- ✓ Daily meetings chaired by departmental heads
- ✓ Monthly meeting chaired by Unit Head
- ✓ Monthly VC with COO
- ✓ Separate capex approvals for EC activities
- ✓ No constraint of funds for energy conservation projects with faster payback
- ✓ More than budget allocation, focus is on in-house ideas for optimization of energy usage, TQMs, Implementation of best practices , Awareness of workmen, Management Programs and EnMS-50001-2018

Energy Conservation Awareness Drive

Gate Meeting

Oath Ceremony

Batch Distribution

Plantation

Energy Conservation Week Celebration

Plantation

Awareness Session

Shop floor Training

Painting Competition

Quiz Competition

National & State Level Achievements

1st Prize award in 16th State Level Energy Conservation Award for FY2021 by MEDA

"Certificate of Excellence" award in 15th State Level Energy Conservation Award for FY2020 by MEDA

Platinum Award in National Energy Management Award by SEEM-2019

1st Prize in 14th State Level Energy Conservation Award 2019 by MEDA

Platinum Award in National Energy Management Award by SEEM-2019

1st Prize in 13th State Level Energy Conservation Award 2018 by MEDA

Certificate of Merit in National Level Energy Conservation Award -2018 by BEE

Platinum Award in National Energy Management Award by SEEM-2017

1st Prize in National Energy conservation Award-2016

Platinum Award in National Energy Management Award by SEEM-2016

Energy Efficient Mill Award-2016 by CII

1st Prize in State level Energy Conservation Award by MEDA-2016

BGPPL

Thank You