

Oral Care



Skin Care



Hair Care



Home Care



Confederation of Indian Industry

23rd

National Award for Excellence in Energy Management 2022

23 – 26 August 2022

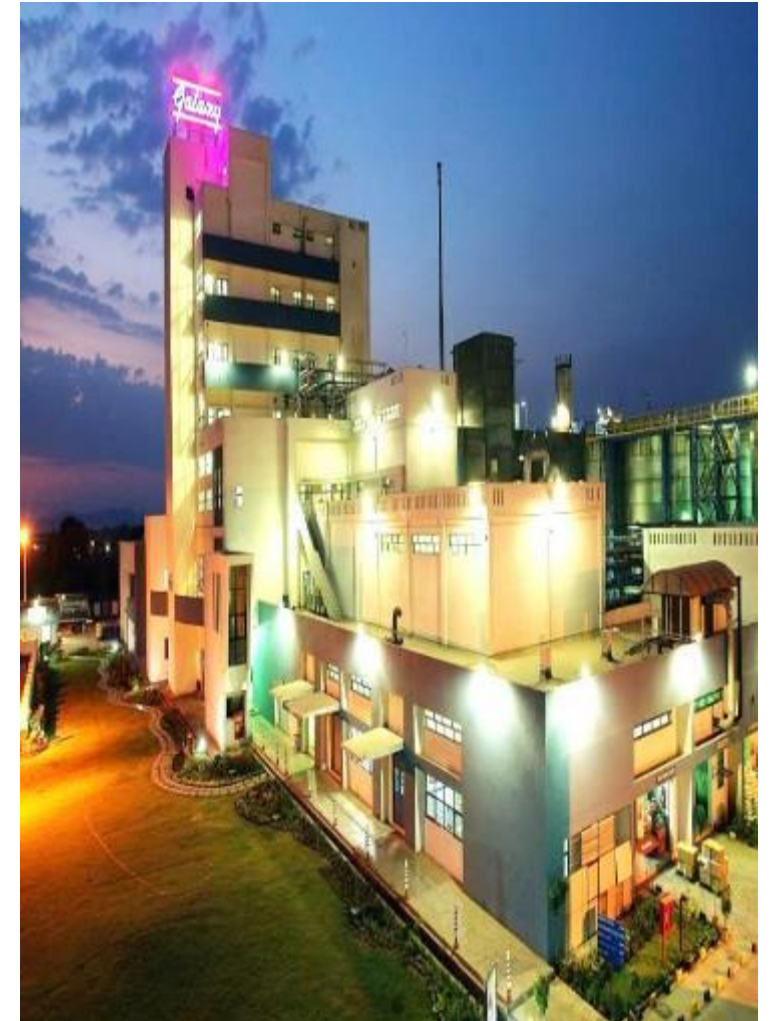
53 – 58 अगस्त 2022
Galaxy Surfactants limited.

V/23 Industrial Area, Taloja, Navi Mumbai, Maharashtra, 410208



- **Mr. Amit Kakkar (General Manager)** amit.kakkar@galaxysurfactants.com
- **Mr. Kunal Waghmare (Senior Executive)** kunal.waghmare@galaxysurfactants.com
- **Mr. Ashish Chaudhari (Senior Officer)** ashish.chaudhari@galaxysurfactants.com
- **Ms. Pragati Kumbhar (GET)** pragati.kumbhar@galaxysurfactants.com

- Based in India, Galaxy is one of the leading manufacturers of surfactants and specialty care products with an advanced portfolio of innovative products and solutions
- Preferred supplier to leading Multinational, Regional and Local FMCG brands
- Established track record of providing a wide range of innovative and high-quality ingredients
- One of India's leading manufacturers with global presence
- Strategically located plants in India, Egypt and US



- Established in 1997
- Manufacturing Units – 7 Across the world

Silver Jubilee Year -2022

Continuous Process Plants

- Sulphonation Units-3
- Dryer Units - 7

Batch Process Plants

Amides and betaines, Ethoxylation and Syndet Soap Noodles

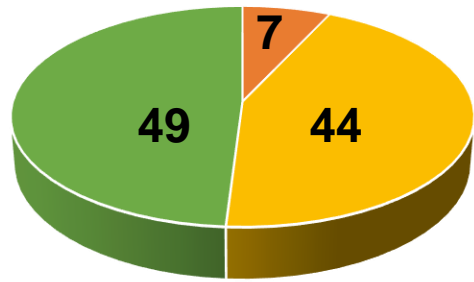
Production Quantity

Production of Surfactants and Specialty Chemicals like SLES, SLS, CAPB, Syndent etc. is **1,96,150** Metric Tonnes

Patents Granted Since 2000 - **79**

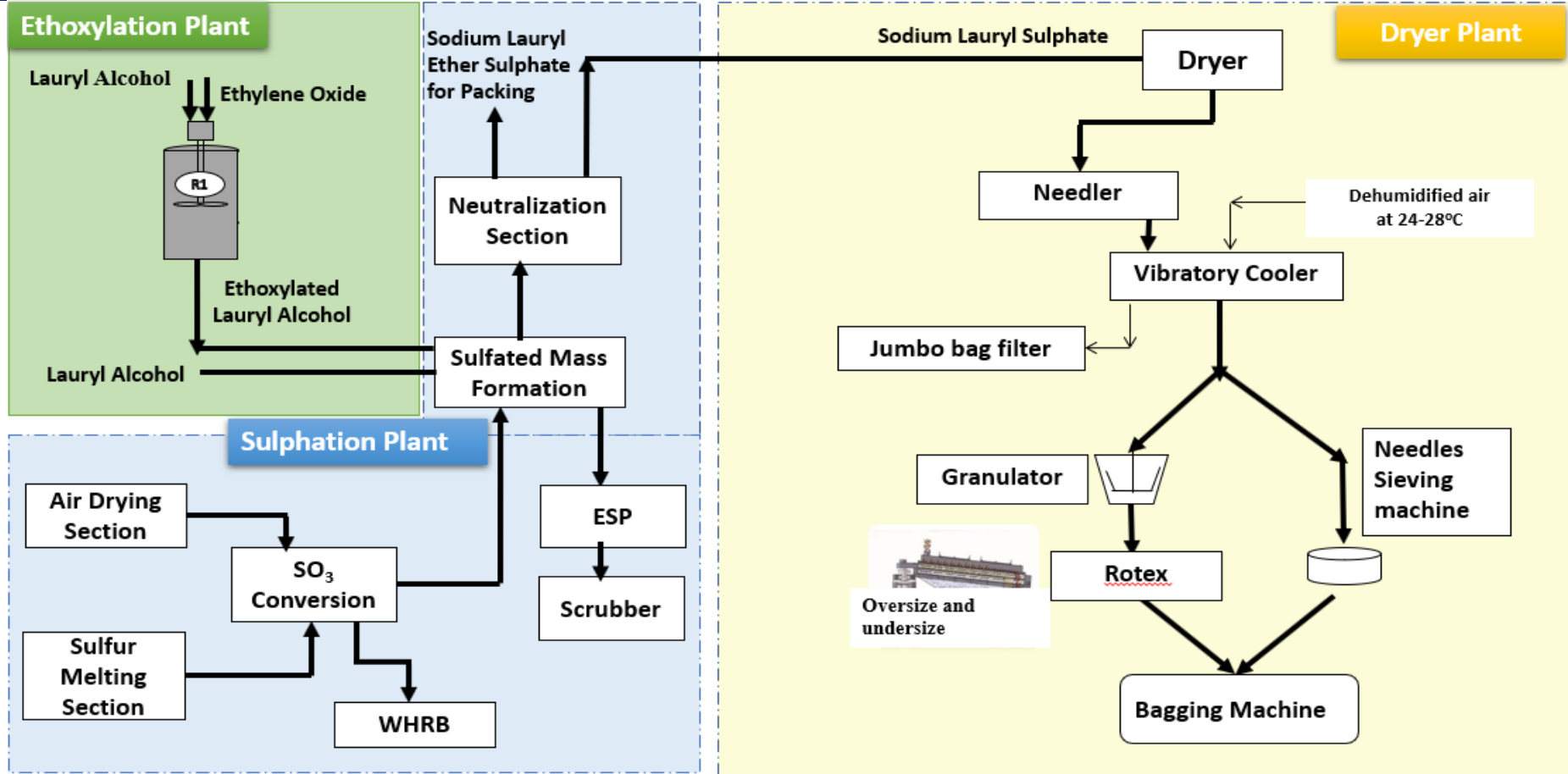
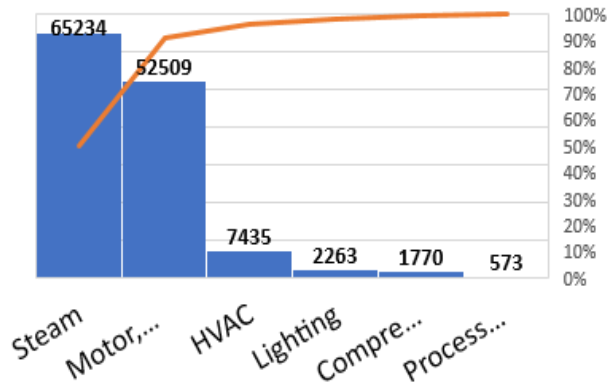


| ISO STANDARDS |
|----------------|
| ISO 9001 |
| ISO 14001 |
| ISO 14064 |
| ISO 50001:2018 |
| ISO 45001 |



- Furnace Oil
- Electricity
- Coal
- Diesel

Energy Profile



Transformers: 2 x 2500 KVA, 1 x 1600 KVA

Coal Boiler : 5 TPH

Utility Chillers : 1 x 250 TR , 1 x 210 TR

Air Compressor : 2 x 293 CFM with VFD

Thermopac Boiler : 600000 Kcal

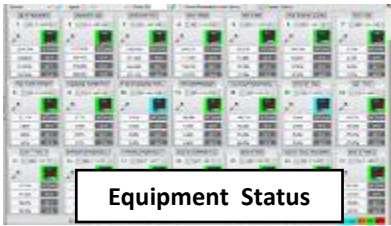
Max Demand : 3500 KVA

Load factor : 70-75 %

Power factor : >0.995

(APFC + Harmonic filters)

IOT Based Monitoring System



Equipment Status



Shiftwise power consumption - Dashboard



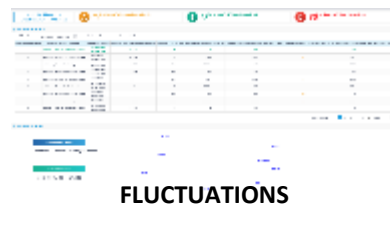
SLD of meters



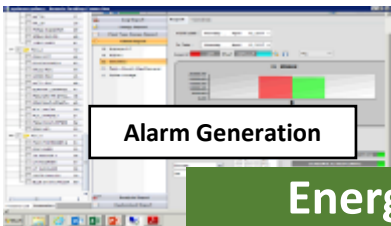
OVERVIEW



BASIC PARAMETERS



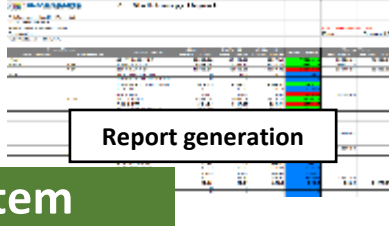
FLUCTUATIONS



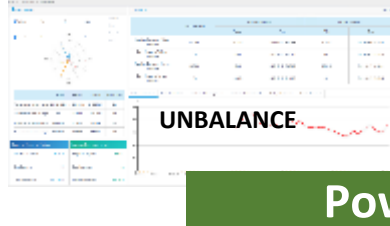
Alarm Generation



Limits



Report generation



UNBALANCE



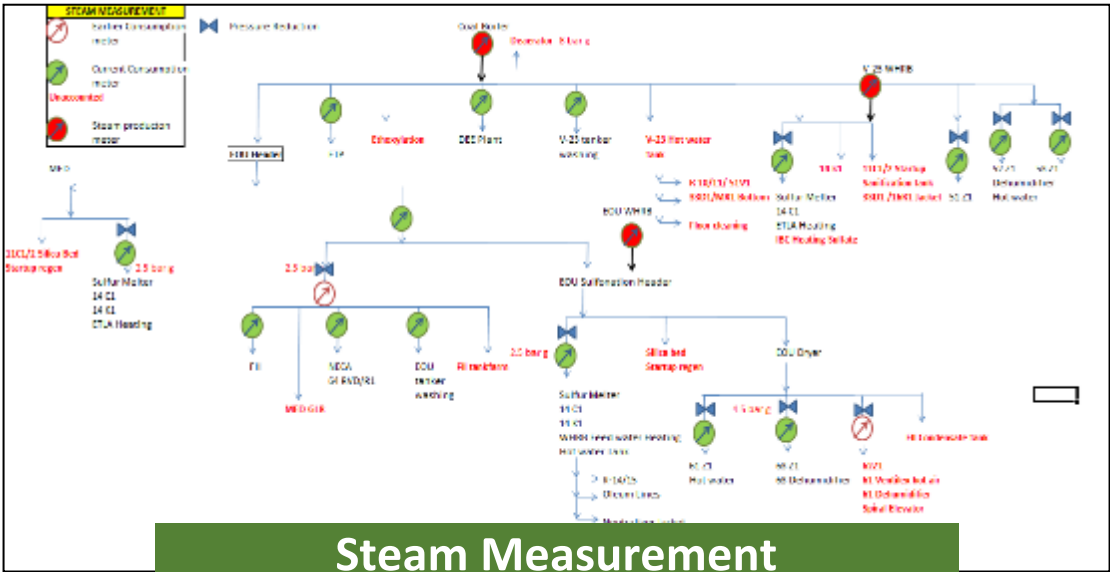
FLICKERING



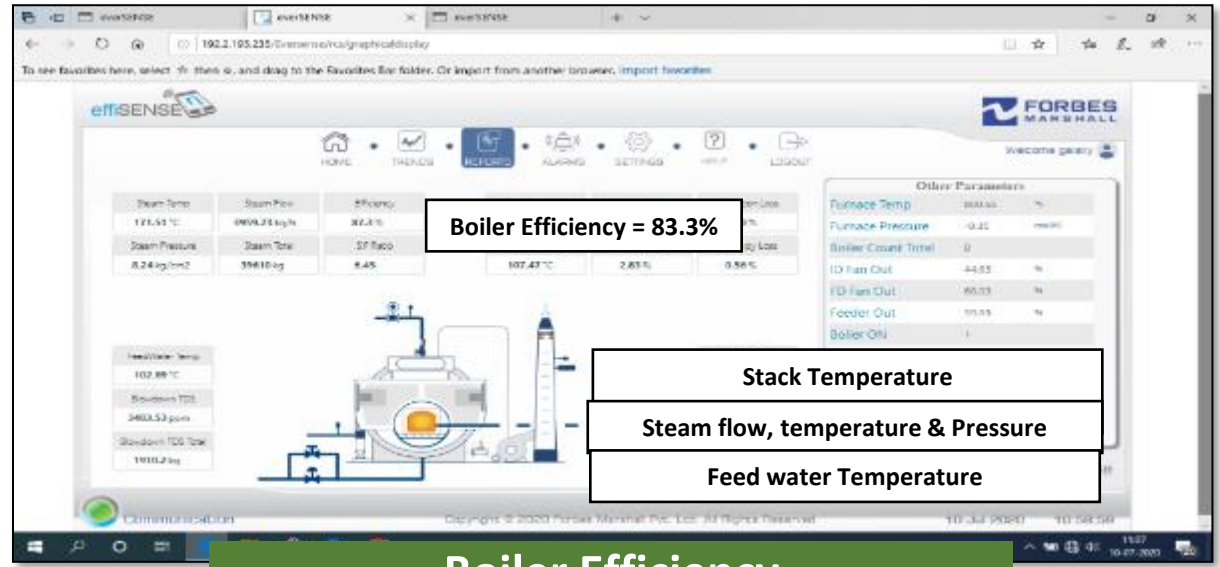
EVENT MEASUREMENT

Energy Management System

Power - Quality Software



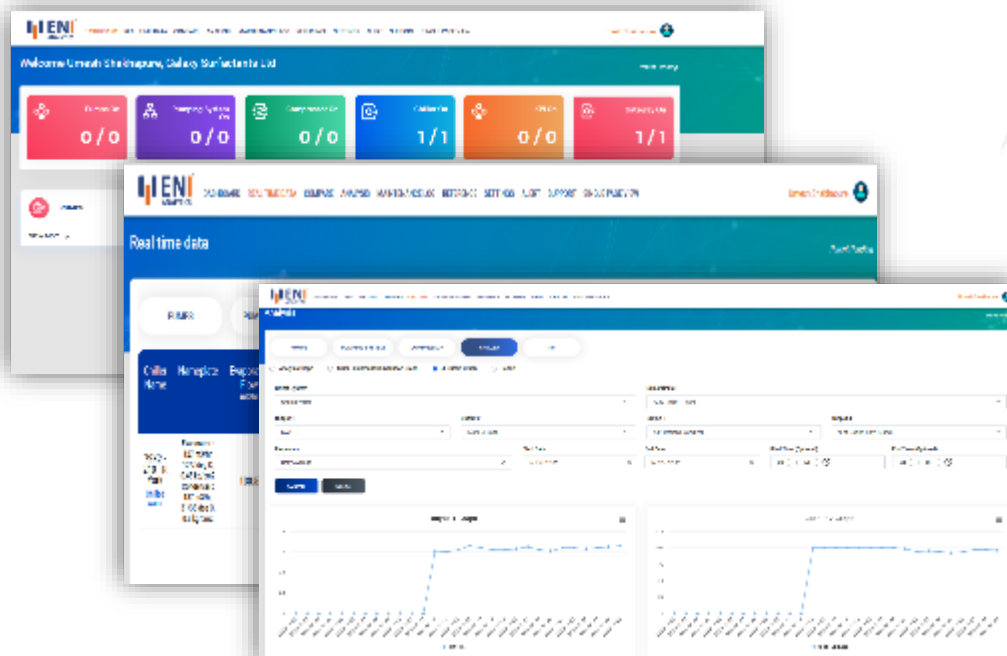
Steam Measurement



Boiler Efficiency = 83.3%

- Stack Temperature
- Steam flow, temperature & Pressure
- Feed water Temperature

Boiler Efficiency



Additional Implemented Modern Software's



Cloud based Monitoring System- Chiller

Sigma Air Manager - Compressor

Features

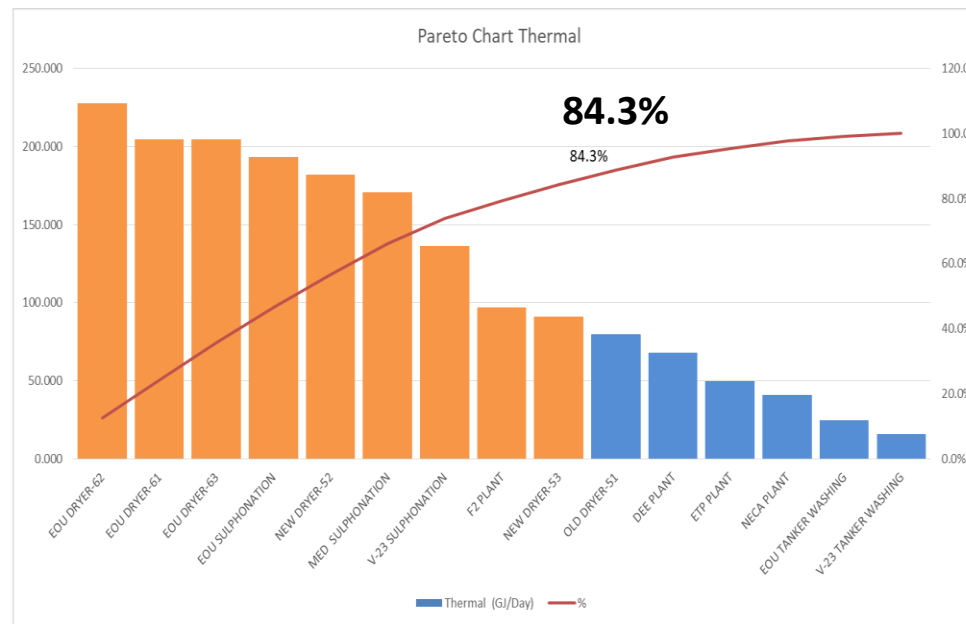
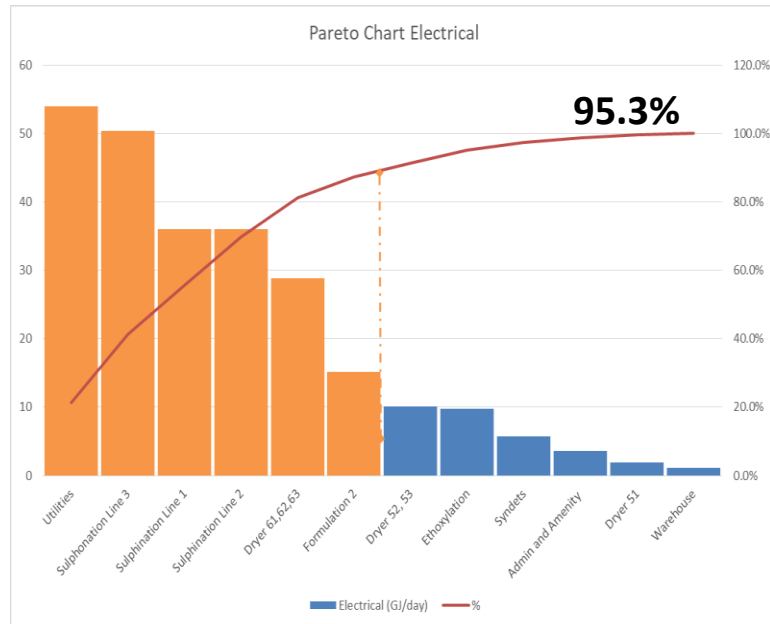
Real Time monitoring

Interactive Dashboard

History Trends/ Graphs

Alarm Generation

Daily Report Generation

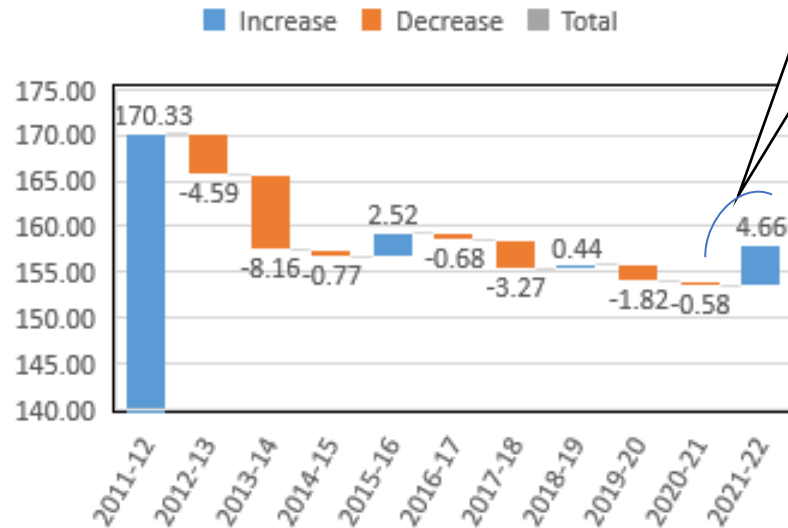


Target Setting- Plants Level (with 2 sigma approach)

*Based of above Analysis Utilities, Sulphonation, dryers and F 2 plants are SEUs in Utility which covers more than **95.3 %** of Electrical Energy and **84.3 %** of Thermal Energy.*

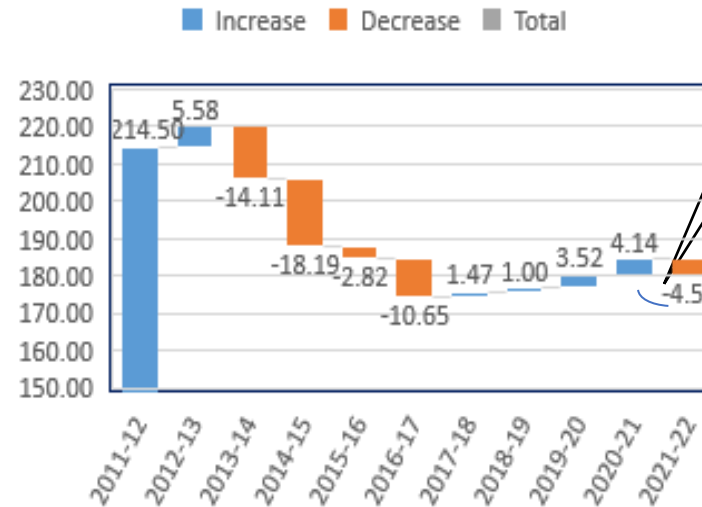
Performance- SEC- (Electrical) KWh/MT

4.6 % Increase

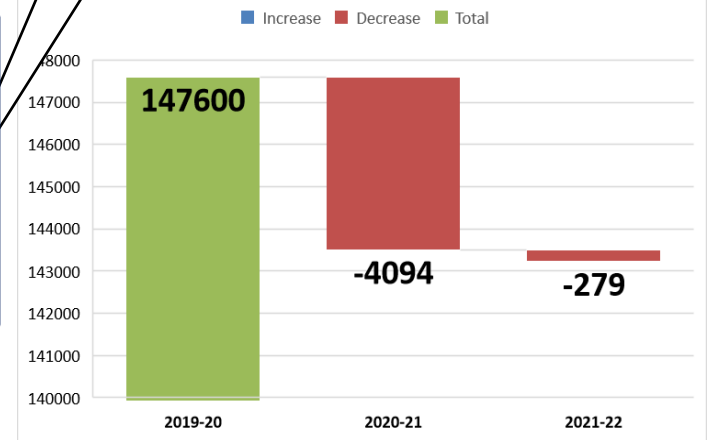


Performance- SEC –(Thermal) KWh/MT

4.49 % Reduction

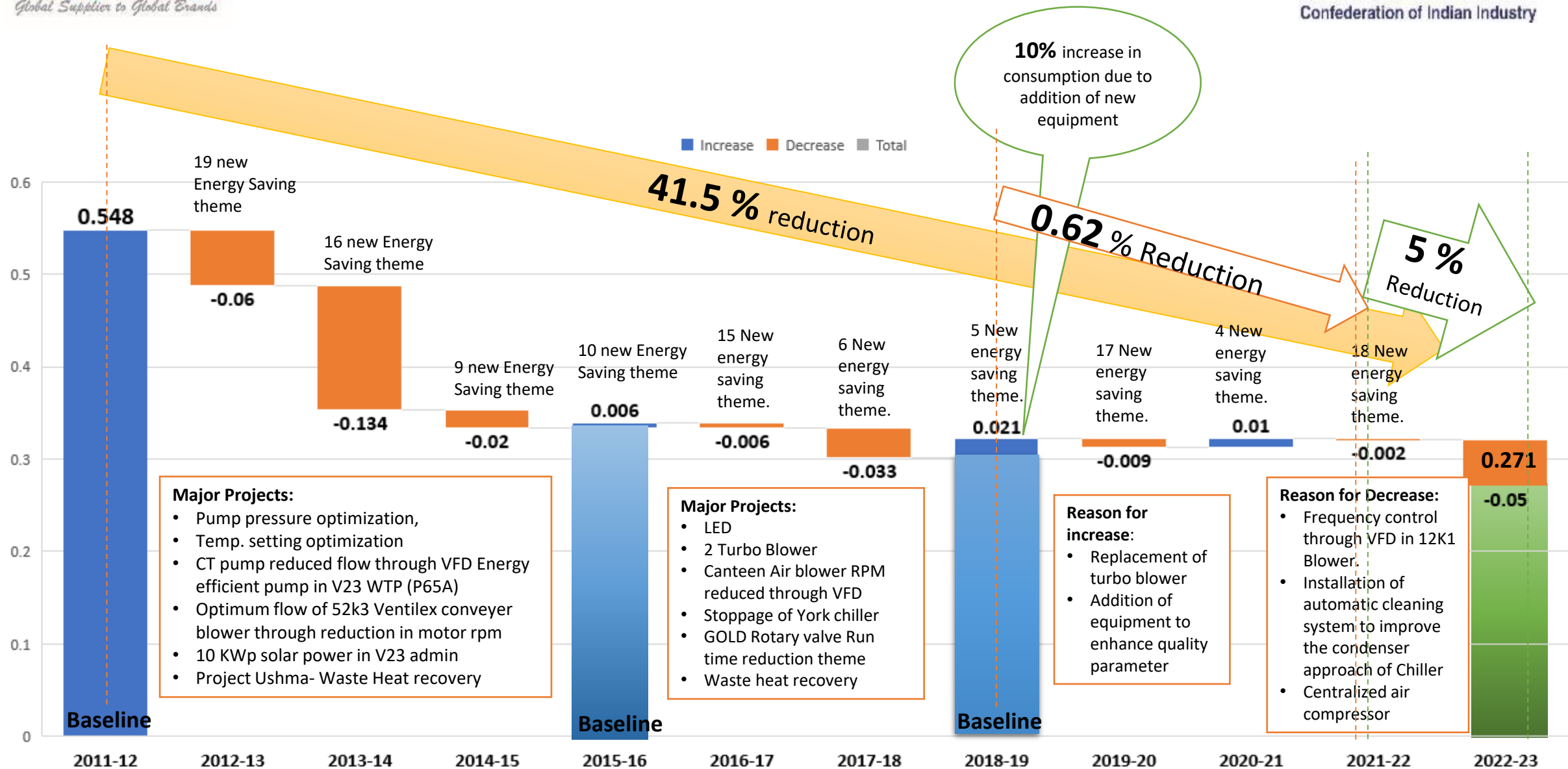


Production data



- **Load additions** in Energy intensive plants for improvement in Quality , safety and Yield.

- For steam , **Monitoring** improved.
- Consumption decreased due to **Encon themes** implemented (Especially in Dryers).



Major Projects:

- Pump pressure optimization,
- Temp. setting optimization
- CT pump reduced flow through VFD Energy efficient pump in V23 WTP (P65A)
- Optimum flow of 52k3 Ventilex conveyer blower through reduction in motor rpm
- 10 KWp solar power in V23 admin
- Project Ushma- Waste Heat recovery

Major Projects:

- LED
- 2 Turbo Blower
- Canteen Air blower RPM reduced through VFD
- Stoppage of York chiller
- GOLD Rotary valve Run time reduction theme
- Waste heat recovery



Reason for increase:

- Replacement of turbo blower
- Addition of equipment to enhance quality parameter

Reason for Decrease:

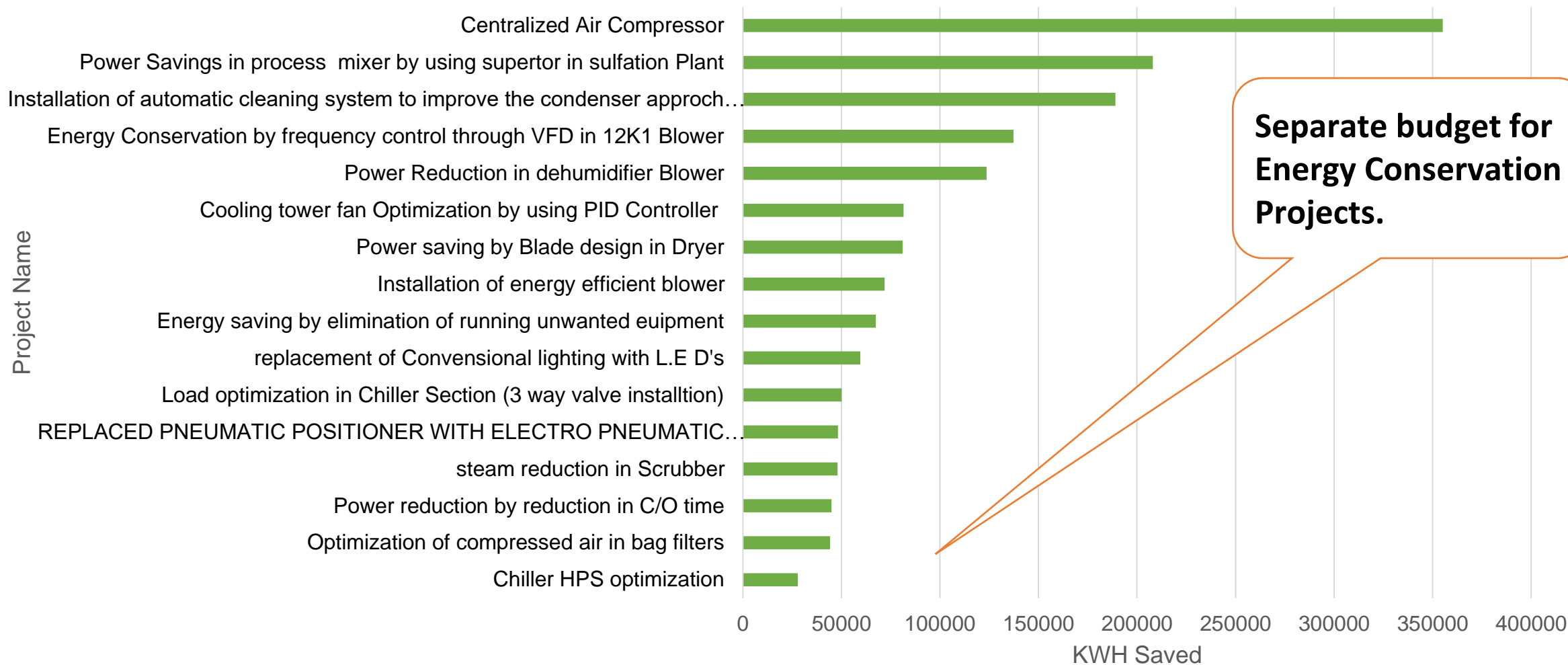
- Frequency control through VFD in 12K1 Blower.
- Installation of automatic cleaning system to improve the condenser approach of Chiller
- Centralized air compressor

- Internal Benchmarking was carried out among different factories of Galaxy:

| | | |
|---|----------------|---|
|  | OEM | GALAXY  |
| Feed Rate (Lauryl Ether 1 EO) | X Kg/Hr | 1.16X Kg/Hr |

| Location | Year of Commissioning | Sp. Consumption |
|--------------------|-----------------------|-----------------|
| Taloja (L1) | 1997 | X |
| Taloja (L2) | 2004 | 0.85 X |
| Taloja (L3) | 2010 | 0.94 X |
| Jhagadia (Gujarat) | 2018 | 0.79 X |
| Egypt | 2011 | 0.78 X |

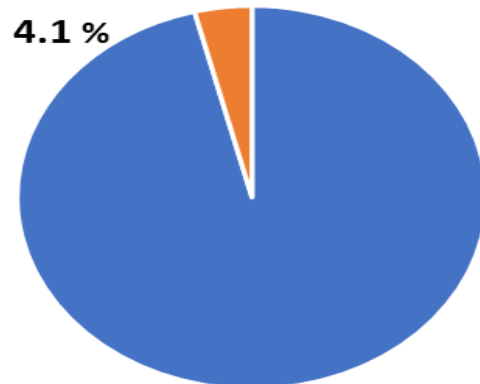
Top 15 EnCon Projects Implemented (2019-22)



Separate budget for Energy Conservation Projects.

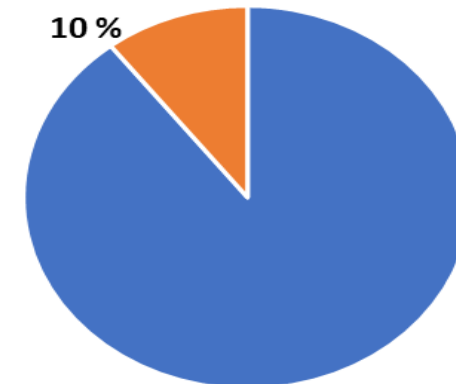
| Year | No. of Energy saving projects | Investments (INR Million) | Electrical savings (Million kWh) | Thermal savings (Million Kcal) | Savings (INR Million) |
|------------|-------------------------------|---------------------------|----------------------------------|--------------------------------|-----------------------|
| FY 2019-20 | 17 | 26.9 | 0.714 | 159.574 | 8.662 |
| FY 2020-21 | 4 | 0.175 | 0.093 | 85.391 | 2.74 |
| FY 2021-22 | 18 | 11.71 | 0.8797 | 2188.23 | 20.31 |

Electrical Energy Saved in 2021-22



■ Total Electrical Energy Used in Millions KWh ■ EnCon Projects Saving

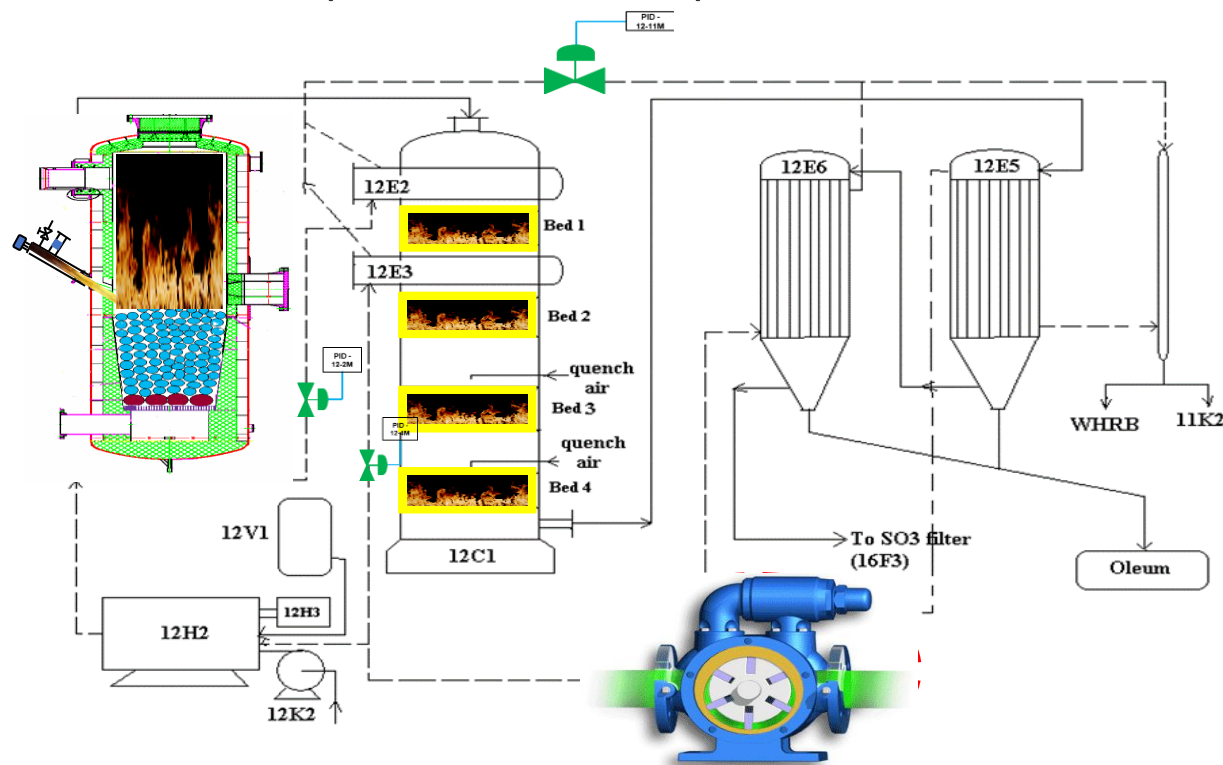
Thermal Energy Saved in 2021-22



■ Total Thermal Energy Used in Millions Kcal ■ EnCon Projects Saving

Project Details:

Implementation of Innovative logic for air Flow regulation instead of manual valve throttling with the help of VFD & 4 different Temperature PID Loop



Benefits-

- ✓ Energy savings Rs **18.3** Lacs YTD
- ✓ Reduction in GHG to **170.1** tonnes of CO2
- ✓ Increased the equipment Availability to **100 %**.
- ✓ Reduced EnPI of the sulphonation plant by **2 %**.
- ✓ Increased the production from 7536 MT/Month to 8950 MT/Month.
- ✓ Annual KWH Savings - **206641** KWH

INSTITUTE
of QUALITY



Confederation of Indian Industry

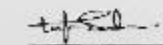
Certificate

This is to certify that team from
Galaxy Surfactants Ltd

is awarded with
Gold Award

in Innovative Category for presenting a Case Study at the
41st CII National Kai-Zen Competition

Programme Date: 23 - 24 September 2021
Certificate Unique Code: CII-Q/2021/SEPT/11715
Certificate Issued on: 24 September 2021

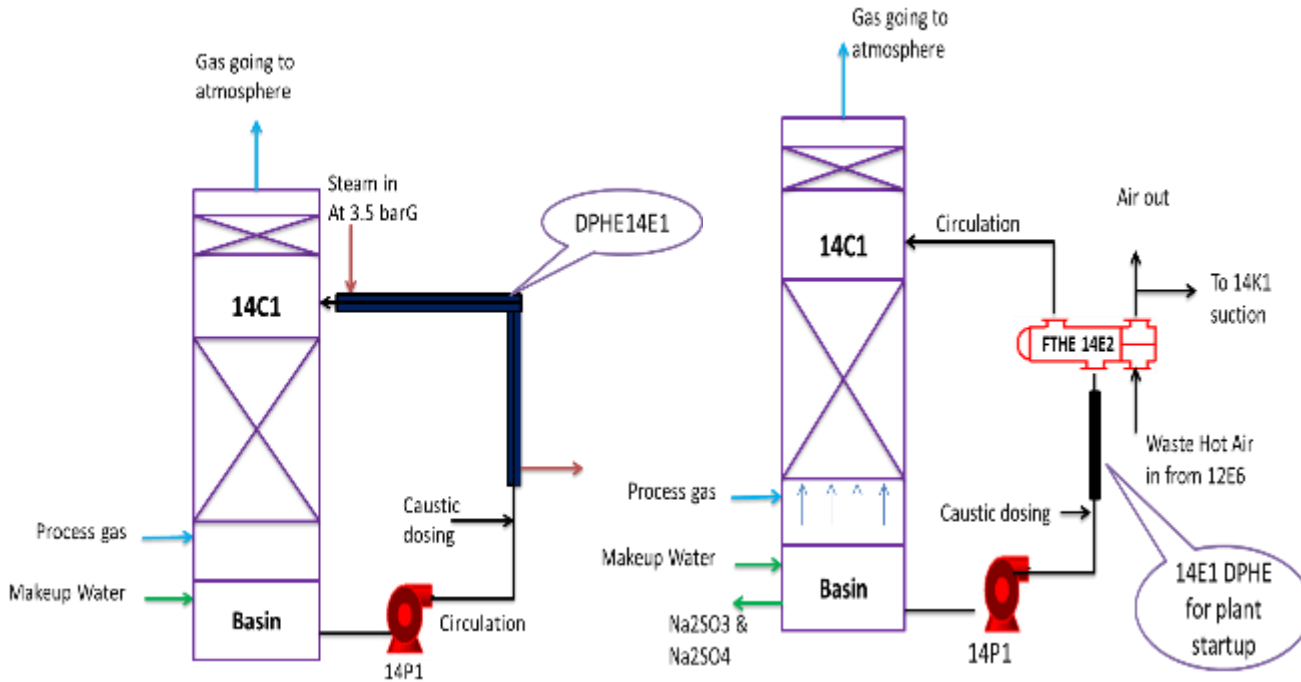


Vipin Sahni
Executive Director
CII Institute of Quality

CONFEDERATION OF INDIAN INDUSTRY - INSTITUTE OF QUALITY

Project Implemented through Kaizens

Utilization of process waste heat from heat exchanger (100 deg.) as a replacement for steam used for heating process product to achieve desired temperature (35 deg)



| | |
|-------------------|----------------------------|
| Investment | 10 Lakhs |
| Savings | 387 MT (9.74 Lakhs) |
| ROI | 12 Months |

37th CII KAIZEN COMPETITION

KAIZEN IDEA - SHEET

Responsible Kaizen

Plant: Line 1

Machinery: 14C1 Sodium Sulphate - 300 802 cooler

Problem Statement: Higher steam consumption in 14C1 Sodium Sulphate - 300 802 cooler. This is due to the use of steam for heating process product.

Idea (logical correlation with root cause): This is a simple idea of heat recovery from 12E6 heat exchanger. The waste heat from 12E6 heat exchanger can be used to pre-heat the process gas before it enters the basin. This will reduce the steam consumption in 14C1 Sodium Sulphate - 300 802 cooler.

Problem Statement: Higher steam consumption in 14C1 Sodium Sulphate - 300 802 cooler. This is due to the use of steam for heating process product.

Root Cause: Higher steam consumption in 14C1 Sodium Sulphate - 300 802 cooler. This is due to the use of steam for heating process product.

Benefits:

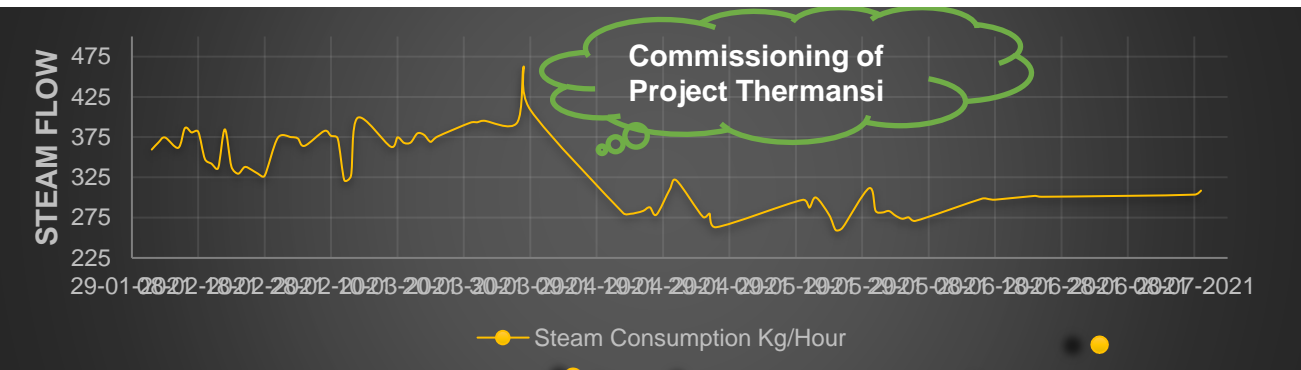
- 1) 387 MT steam saving
- 2) 9.74 Lakhs saving
- 3) 12 months payback

Team Members:

- 1) Akshay Verma
- 2) Shalank Dixit
- 3) Yogesh Kumbhar

Benefit (P/Q/C/D/M):

Since implementation of this theme, total steam consumption reduction is 387 MT which saved the total cost of 9.08 lakhs.





EC Motor for AHU

1

EC Motors for AHU

Discussion with vendor is going ON

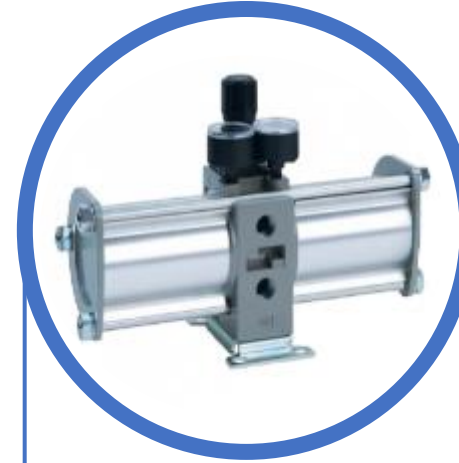


Flowmeters Installation

2

Installation of Flow meters at equipment level to monitor Compressor losses

Installation stage



Mechanical Booster

3

33% Energy Saving by reducing Compressor set point by installation of Booster.

Done with Feasibility check



Air cooled Chiller

4

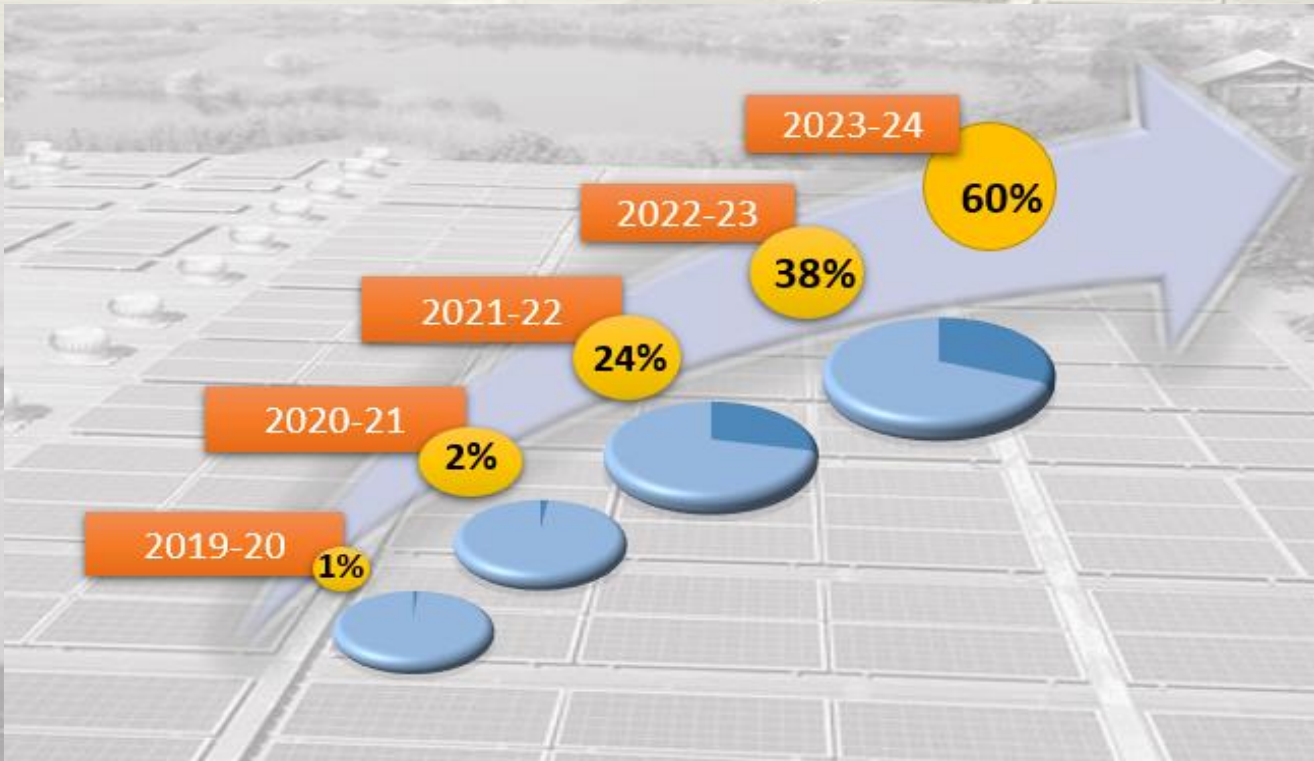
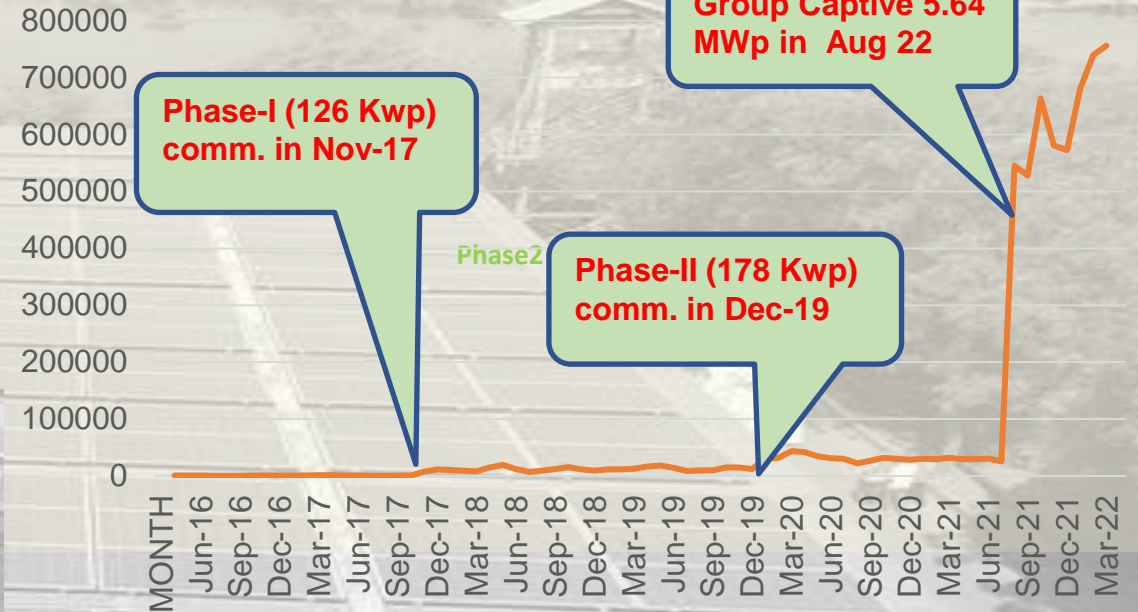
Centralised Chiller set point Optimization by Installing new chiller to Plant having less but continuous demand @ low Temp.

Installation stage

Total Installed Capacity (Taloja Plant)

- ❑ Purchased Solar - **304** KWp
- ❑ Inhouse Solar - **10** KWp
- ❑ Group Captive – **5.64** MWp

➤ **TOTAL : 5.954 MWp (38 % of Total Ele. Energy)**



Renewable Energy Resources –

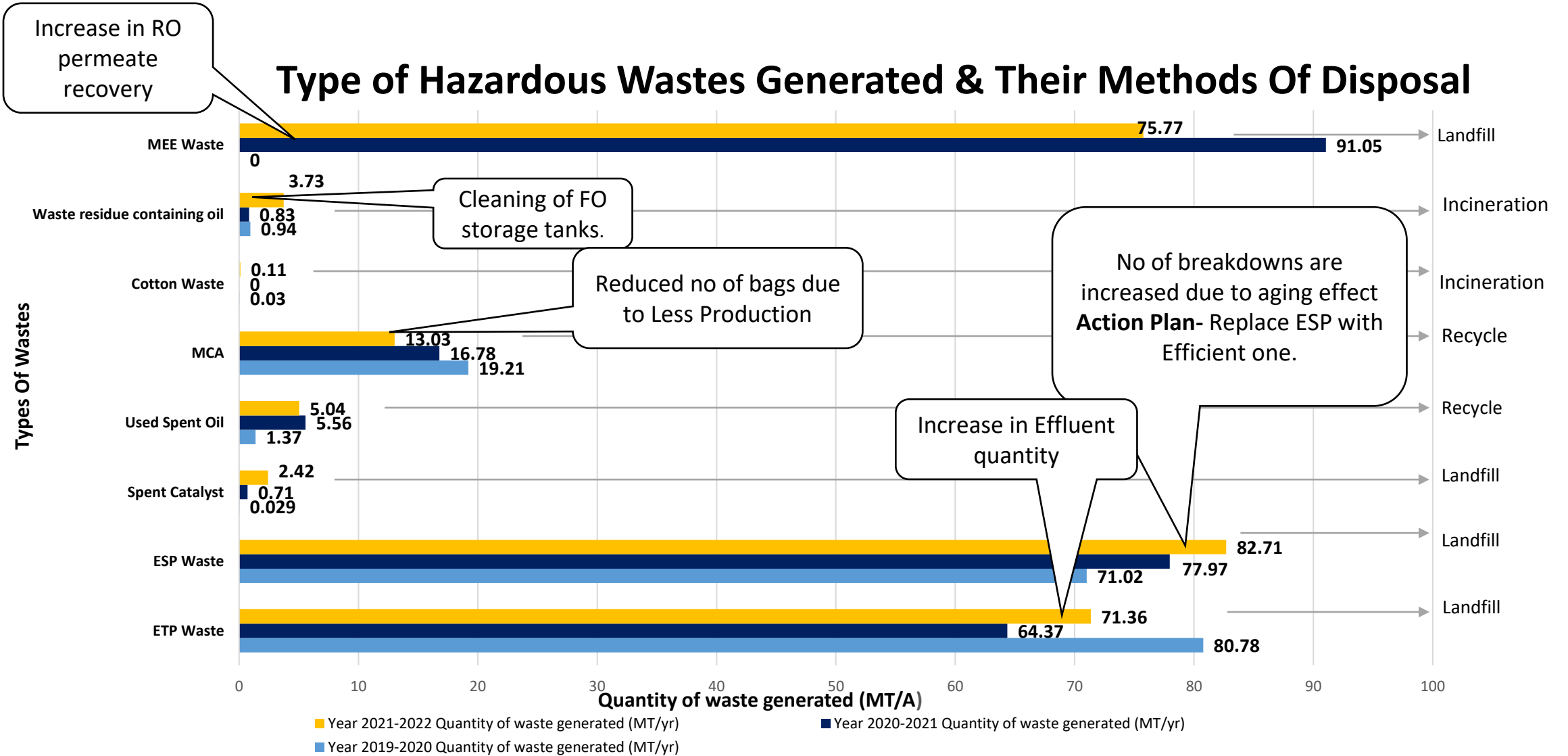


Rooftop Solar



Solar Water Heater

Type of Hazardous Wastes Generated & Their Methods Of Disposal





Stearic acid

The number of **25 kg** paper bags for stearic acid saved are **23,638**



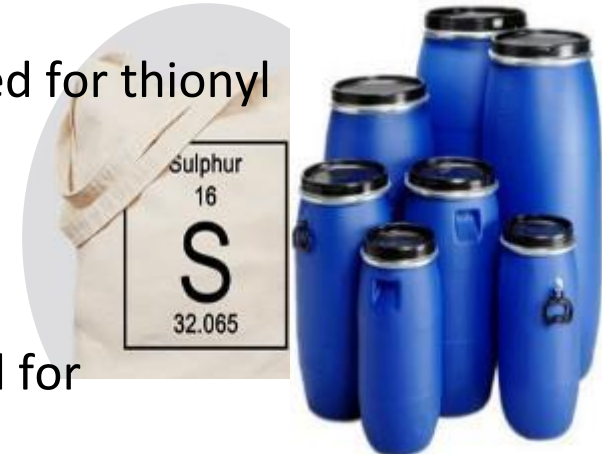
Thionyl chloride

The number of **drums** saved for thionyl chloride are **5167**



Undecylenic acid

The number of **drums** saved for undecylenic acid are **371**



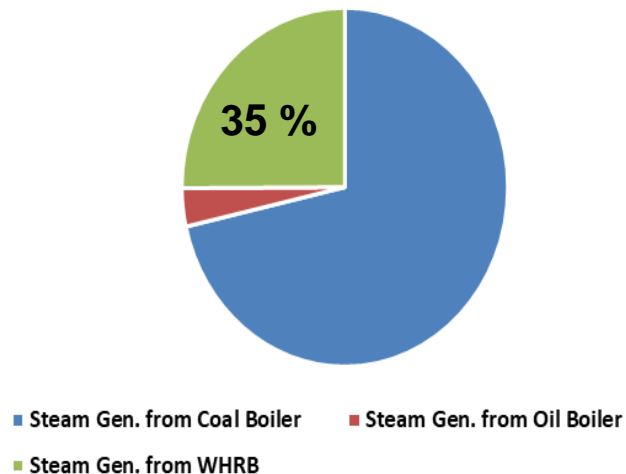
- Bags Reused - **5** Times
- Instead of **bags** for solid stearic acid, **Tankers** are used for transportation of liquid stearic acid.
- For FY 2021-22, we have avoided about 10MT of plastic by implementing Narrow mouth and open top drums without liners.



Zero Liquid Discharge Unit since May 2017

- Condensate recovery (>50 %) as condensate sent to boiler feed tank.
- 10% MEE has been installed and commissioned in Feb 2020. Various process effluent reduction themes implemented resulting 5.1% reduction effluent generation and also 5.2% reduction in domestic waste generation.
- 1.9 tons of ESP waste at V23 sulphonation unit was reduced by equipment design changes capturing efficiency improved to 50%.
- WHRB Capacity = 2* 1 TPH.

WHRB Performance 2021-22



| Year | Name of Fuel | Quantity of waste Fuel used (MJ) |
|------------|---------------|----------------------------------|
| FY 2019-20 | Waste Hot Air | 1,69,04,214 |
| FY 2020-21 | Waste Hot Air | 1,42,95,679 |
| FY 2021-22 | Waste Hot Air | 1,30,11,090 |

Scope 1

HFC Refilling, Coal, Diesel/ Petrol (Vehicle), Fire Extinguisher, FO, HSD, LDO, LPG, Natural Gas, Scrubber Emission

Scope 2

Purchased Electricity

Scope 3

RM, PM & Services, Fuel & Energy, Upstream transportation & distribution, Waste, Business Travel, Employee Commuting, Downstream transportation

Climate Change



Sustainability Goals
2022-23

SCIENCE BASED TARGETS

In order to achieve 42% reduction in scope 1+2 emissions in the target year, implementing reduction by 4.38% in current year *

RENEWABLE ELECTRICITY

To achieve a 100% share of renewable energy(GSL and GCE) by target year ensuring a 17.68 % share of renewable energy this year ^

ENERGY EFFICIENCY

Implementation of ISO 50001:2018, Energy Management System in at least one location in India or Egypt

ALTERNATE FUEL

Moving forward towards elimination of coal and furnace oil in operations (India)to achieve target year goals ^

TREE PLANTATION

Ensuring plantation of 3.4 lakh trees cumulatively to achieve target year goal of cumulative(India) 15 lakhs tree plantation *

*on the basis of target year 2030-31

^On the basis of target year 2025-26



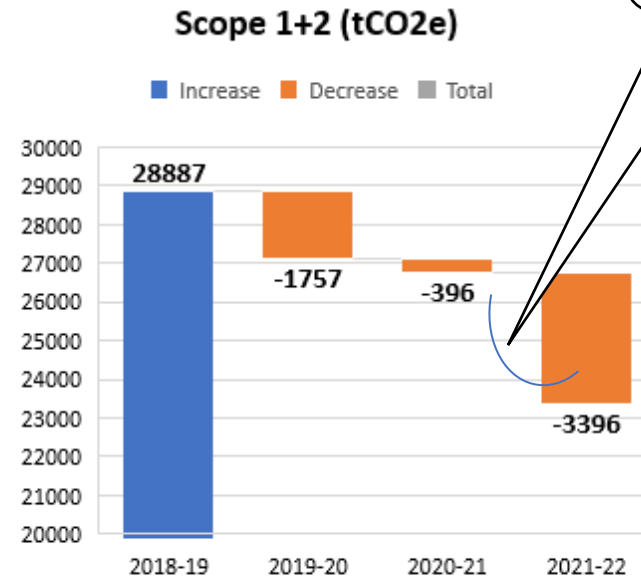
Sustainability Report

<https://www.galaxysurfactants.com/interactive-report.aspx>

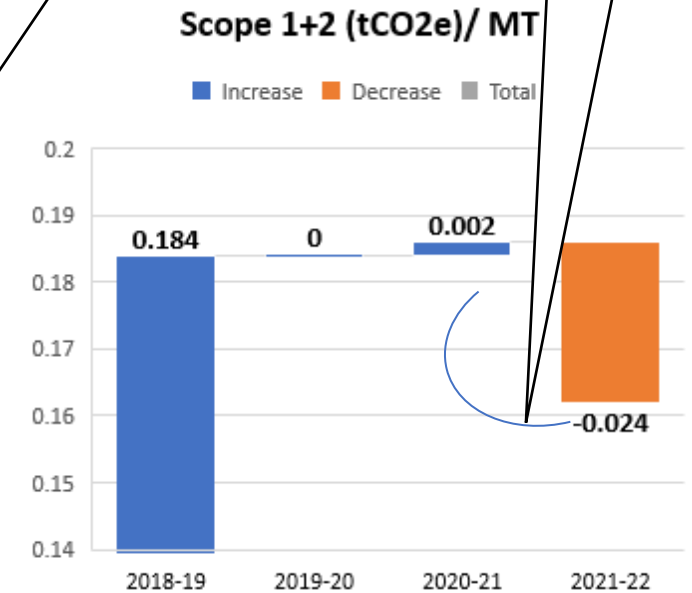


GHG Reduction (Intensity India)

- Target: 35%
- Achieved: 33.9%
- Base Year: 2012-13



12.7 % Reduction



12.9 % Reduction



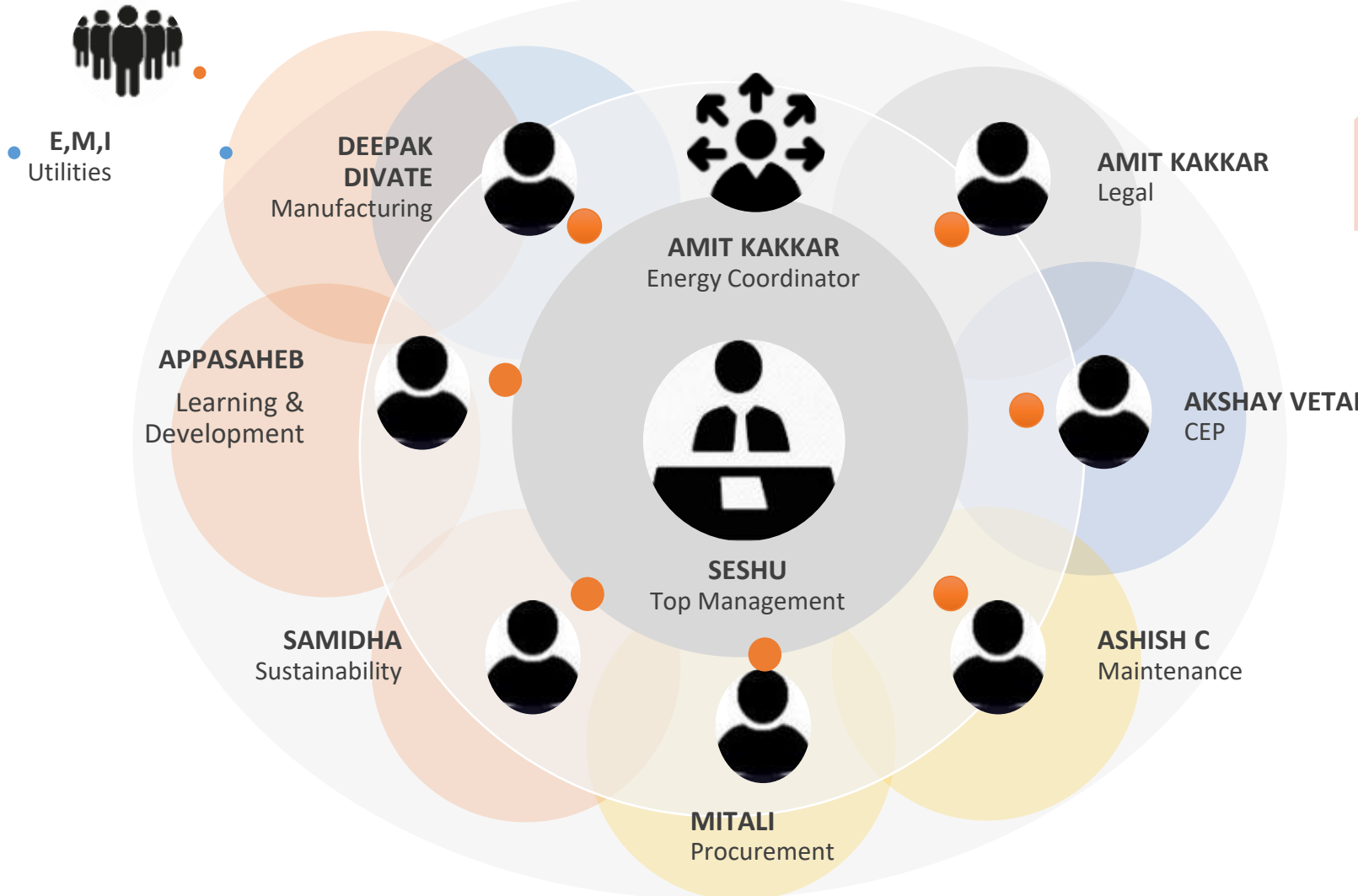
Company Name

Galaxy Surfactants Ltd.

2021 Supplier Engagement Rating

A

Energy Management Cell

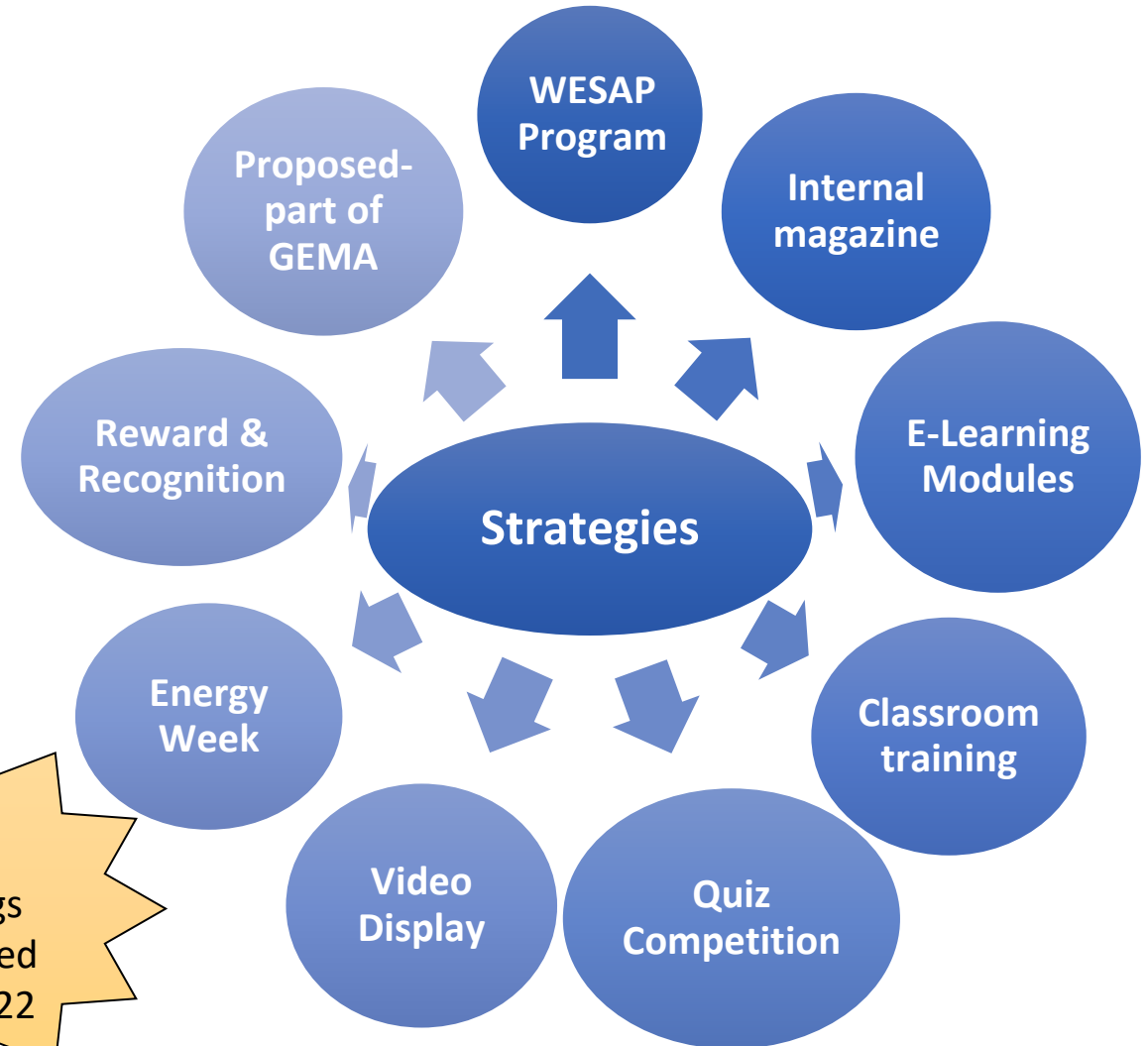


- 1 **MRM – Status of Energy Saving Project**
- 2 **Energy performance review- included in MIS and DPR's**
- 3 **Plant Monthly meeting**
- 4 **Sustainability Cell Meeting**
- 5 **Annual Performance Report, Sustainability Report & BRR**
- 6 **Corporate -Management Review & Quarterly meeting**

Strategy Adopted for Awareness creation and Employee Involvement

- Team of 22 Internal auditors available
- 3 BEE certified Manager and 2 BEE certified Auditor.
- E-Module on energy conservation and requirements of EnMS ISO 50001
- Celebration of Energy week
- WESAP – Training
- 16 Major loss- Training
- Energy Policy & Requirements EnMS ISO 50001:2018 Video
- Reward and Recognition

14
Trainings
Conducted
in 2021-22





Communication from Top Management and Energy Coordinator

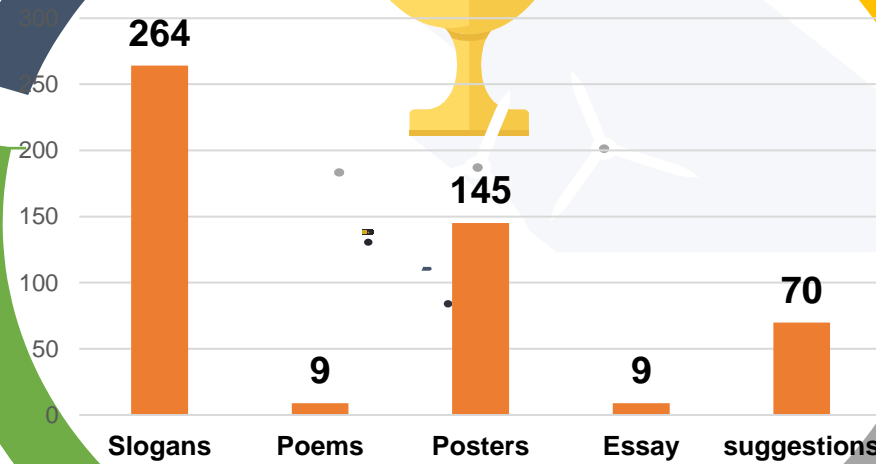


Classroom Training



Poster Competition

Energy Conservation Week Participation



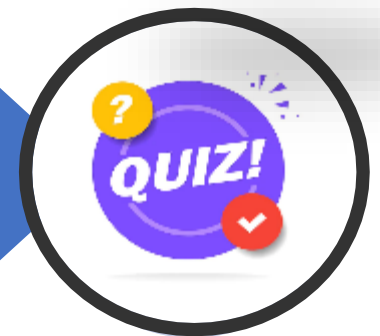
Slogan Competition



WESAP Suggestion Competition



Quiz Competition

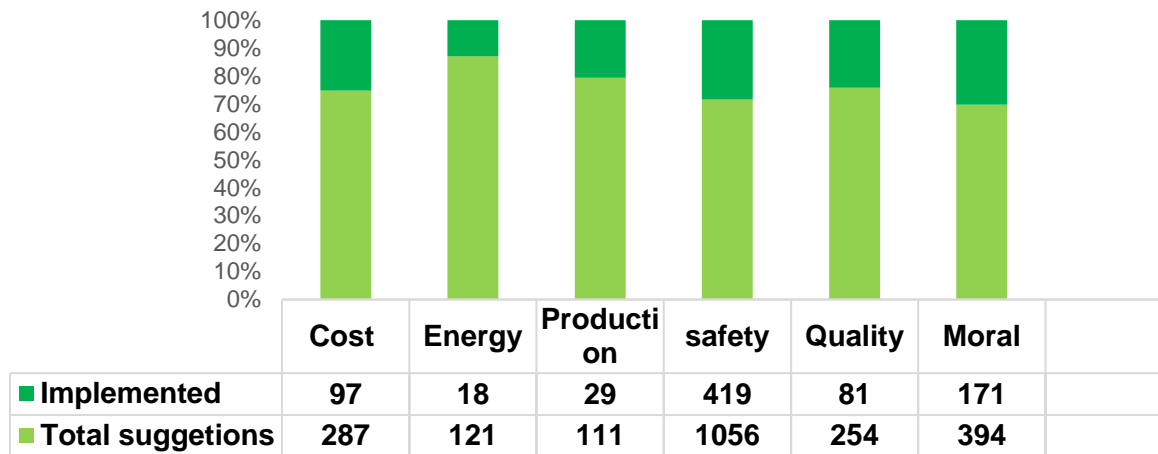


- Initiated suggestion mechanism to address losses by involving plant operators.
- Conducting awareness sessions on 16 types of losses resulted in **4124** suggestions in 2021-22
- No. of Feasible suggestions - 2223
- TOTAL WESAP Saving including CEP +carry forward to 2021-2022 (Rs. in Cr.) 2021-22 - **4.70** Cr.

Successfully Completed
8 Years

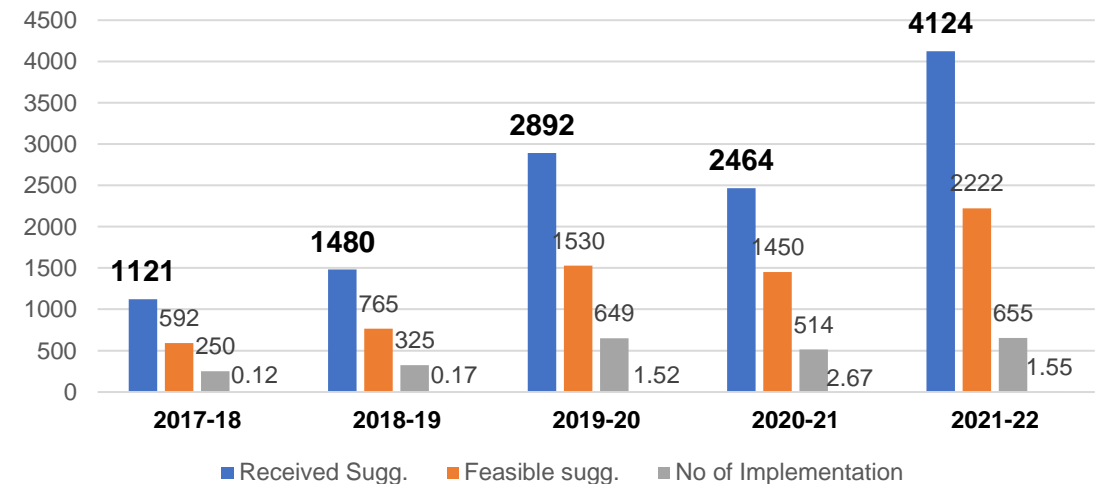


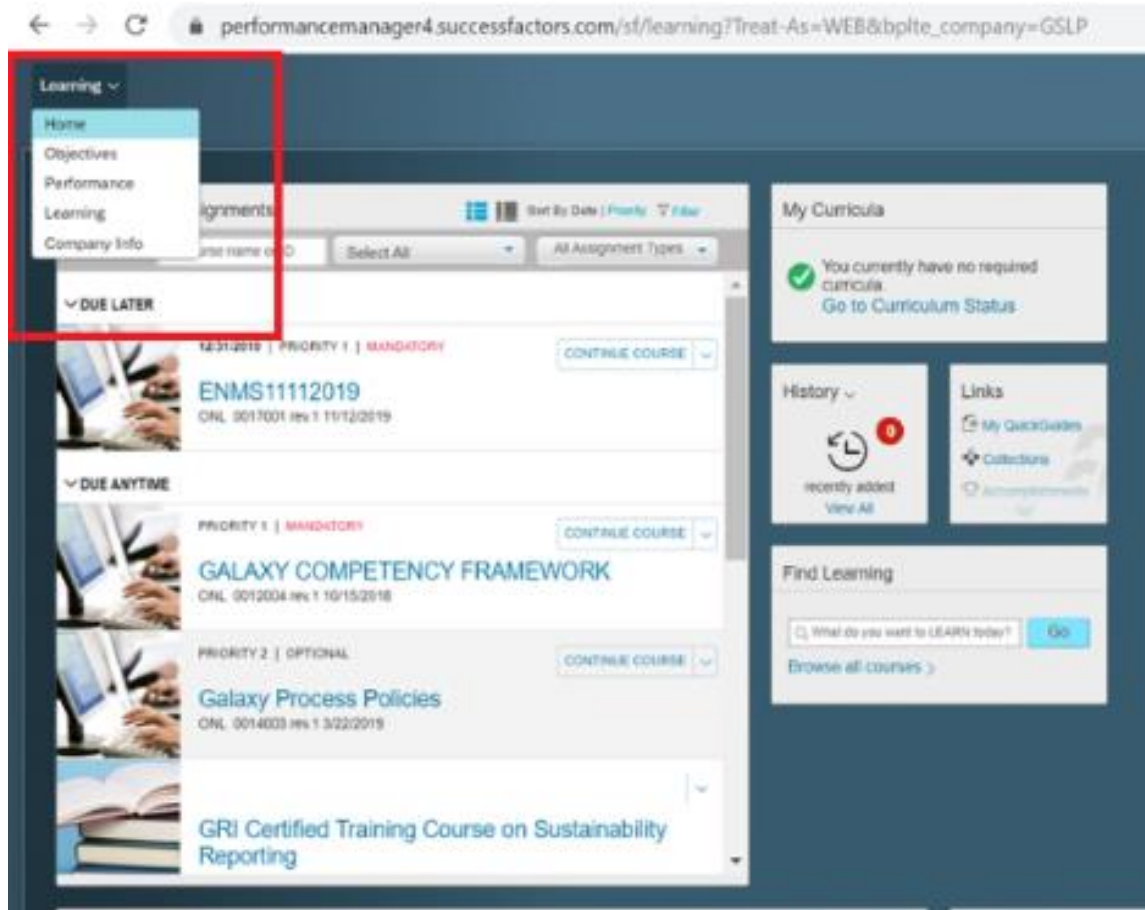
WESAP Suggestions



■ Total suggestions ■ Implemented

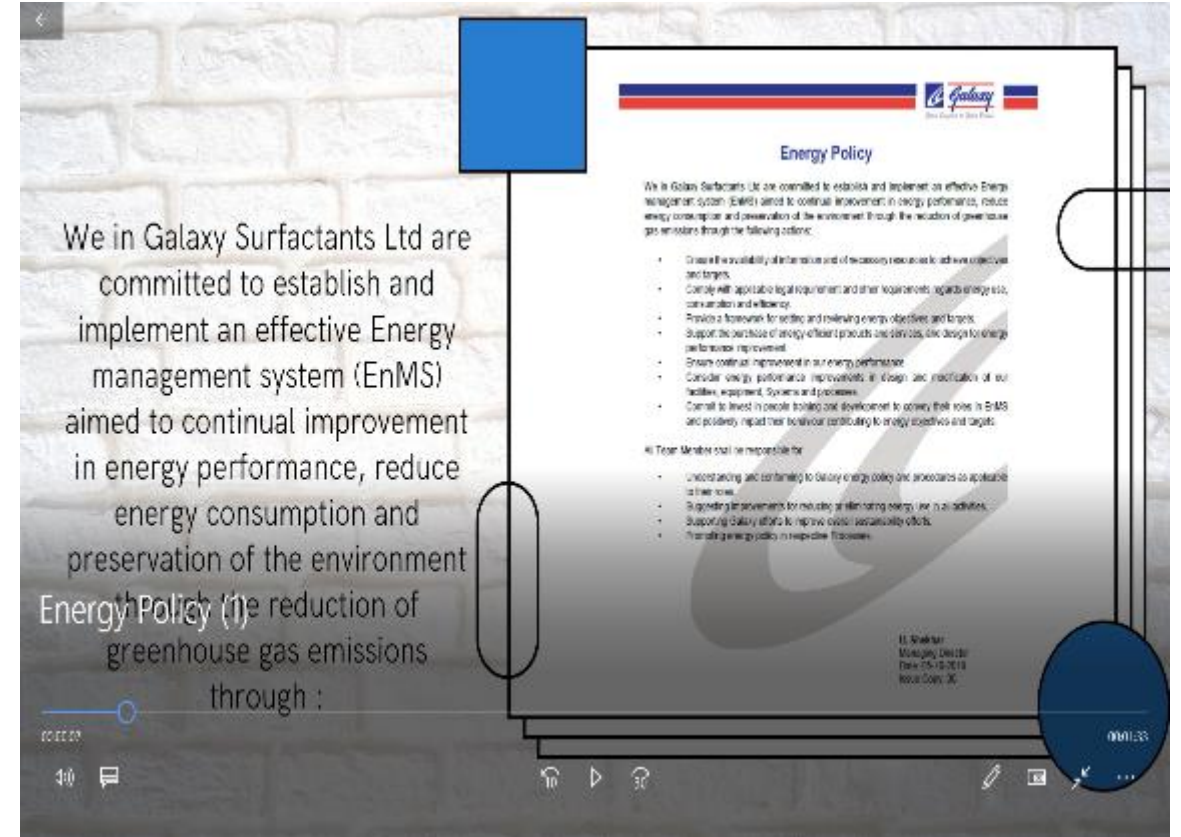
WESAP Performance





The screenshot shows a web browser interface for an e-learning platform. The URL is `performancemanager4.successfactors.com/st/learning?Treat-As=WEB&bplte_company=GSLP`. A red box highlights the 'Learning' dropdown menu, which includes options for Home, Objectives, Performance, Learning, and Company Info. The main content area displays a list of assignments with columns for 'Due Later', 'Due Anytime', and 'Continue Course'. Specific assignments include 'ENMS11112019', 'GALAXY COMPETENCY FRAMEWORK', 'Galaxy Process Policies', and 'GRI Certified Training Course on Sustainability Reporting'. On the right side, there are sections for 'My Curricula' (indicating no required curricula), 'History', 'Links', and 'Find Learning'.

E-Learning on EnMS



The screenshot shows a video player interface displaying a document titled 'Energy Policy'. The document content includes:

Energy Policy

We in Galaxy Surfactants Ltd are committed to establish and implement an effective Energy management system (EnMS) aimed to continual improvement in energy performance, reduce energy consumption and preservation of the environment through the reduction of greenhouse gas emissions through the following policy:

- Create the availability of information and necessary resources to achieve objectives and targets.
- Comply with applicable legal requirement and other requirements regarding energy use, conservation and efficiency.
- Provide a framework for setting and reviewing energy objectives and targets.
- Support the purchase of energy efficient products and services, and design for energy performance improvement.
- Ensure continual improvement in our energy performance.
- Consider energy performance improvements in design and modification of our facilities, equipment, systems and processes.
- Commit to invest in people training and development to ensure that roles in EnMS are properly impart their behaviour contributing to energy objectives and targets.

All Team Member shall be responsible for:

- Understanding and conformity to Galaxy energy policy and procedures as applicable to their role.
- Suggesting improvements for reducing and conserving energy, use in all activities.
- Supporting Galaxy efforts to improve overall sustainability efforts.
- Promoting energy policy in respective processes.

The video player interface includes a progress bar, volume control, and a 'Full Screen' button.

Video on Energy Policy



Energy Management System(EnMS)

Galaxy has adopted structured way of energy monitoring and control through EnMS 50001:2018. The certification was awarded to Taloja plant, India after successful audit conducted by BSI, a certification body.

CII Green Co

Galaxy has adopted the GreenCo rating system at its Taloja plant, India to assess its operations' environmental performance adopting a procedure-based approach. The plant thus became only the 2nd Surfactant unit in the country to achieve this feat.

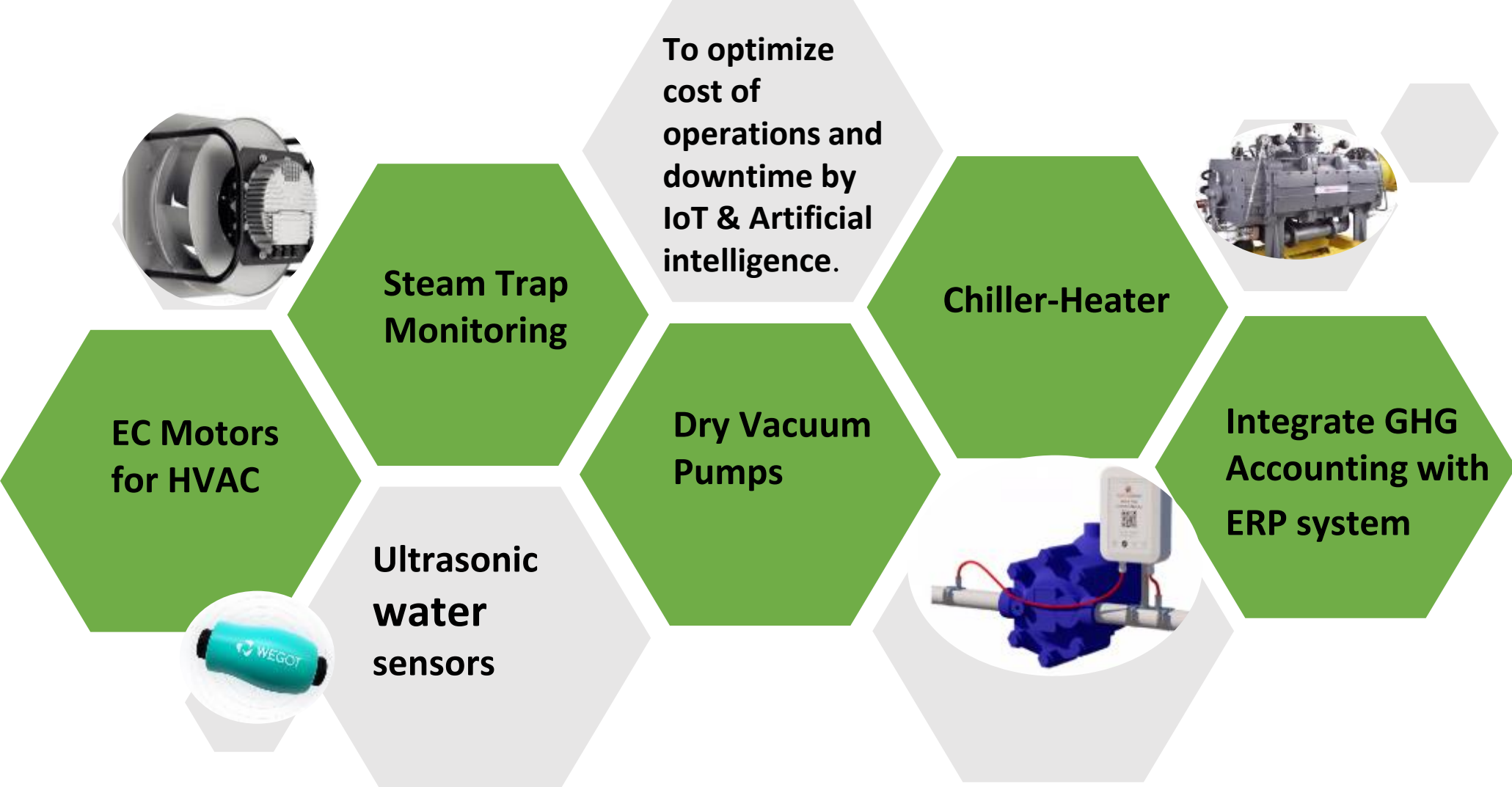


CII awarded Galaxy Surfactants LTD. Taloja Unit with
‘ Excellent Energy Efficient Unit ’



Effective Implementation of ISO:50001 Energy management system
(Winner)

Learnings from Award Programs



Oral Care



Skin Care



Hair Care



Home Care



Confederation of Indian Industry

*Let's Conserve the Energy in all Way,
& Preserve the Future in Every Way!*

Thank you !

Amit kakkar- General Manager

Mob : 9867963066

Email : amit.kakkar@galaxysurfactants.com