



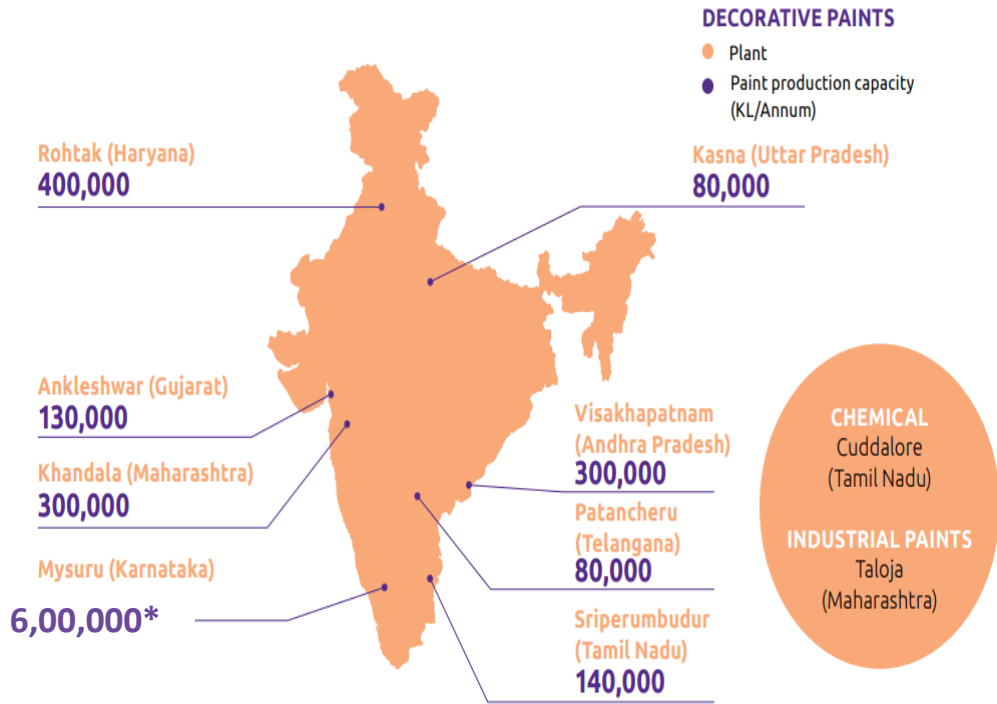
Asian Paints Limited, Visakhapatnam

Presented by -

1. Mr. Sunathkumar V- Senior manager, Plant Engg.
2. Mr. Sachin Agrawal - Assistant Manager, Plant Engg.
3. Mr. Shreet Kasliwal – Senior executive, Plant Engg.

Asian Paints - Bringing joy to people's lives

Paint manufacturing locations in India



75+ Years of Legacy

| | | | | |
|---|---|---|--|--|
| <p>India's No.1 Paint company</p> | <p>8th largest coatings company in the world</p> | <p>50 + Years of market Leadership</p> | <p>Operations in 16 countries</p> | <p>Ranked 15th in Most Sustainable Companies in India for 2023-24 by Business world magazine</p> |
| <p>26 Paint manufacturing plants</p> | <p>Consumers in 60+ Countries</p> | <p>Revenue: USD 4.4 Billion</p> | <p>Part of India's Super 50 Companies</p> | <p>8th most innovative company in the World : AUG 2017</p> |

Visakhapatnam plant – Overview & Layout

Year of establishment - 2019

Total plant area – 114 acres, Green belt – 38%



Fully automated paint manufacturing plant

Annual production capacity – 3 Lakh KL paint across 150+ product shades & 400+ SKUs

Product portfolio @ Asian Paints, Visakhapatnam

Interior Paint



Exterior Paint



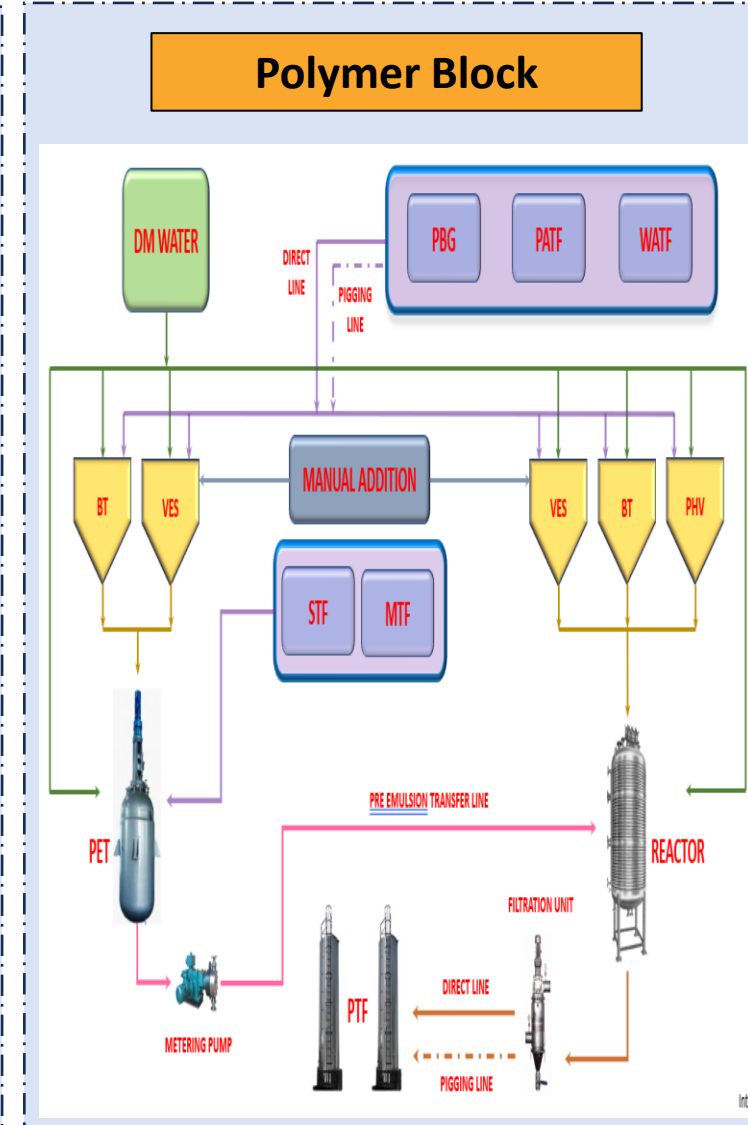
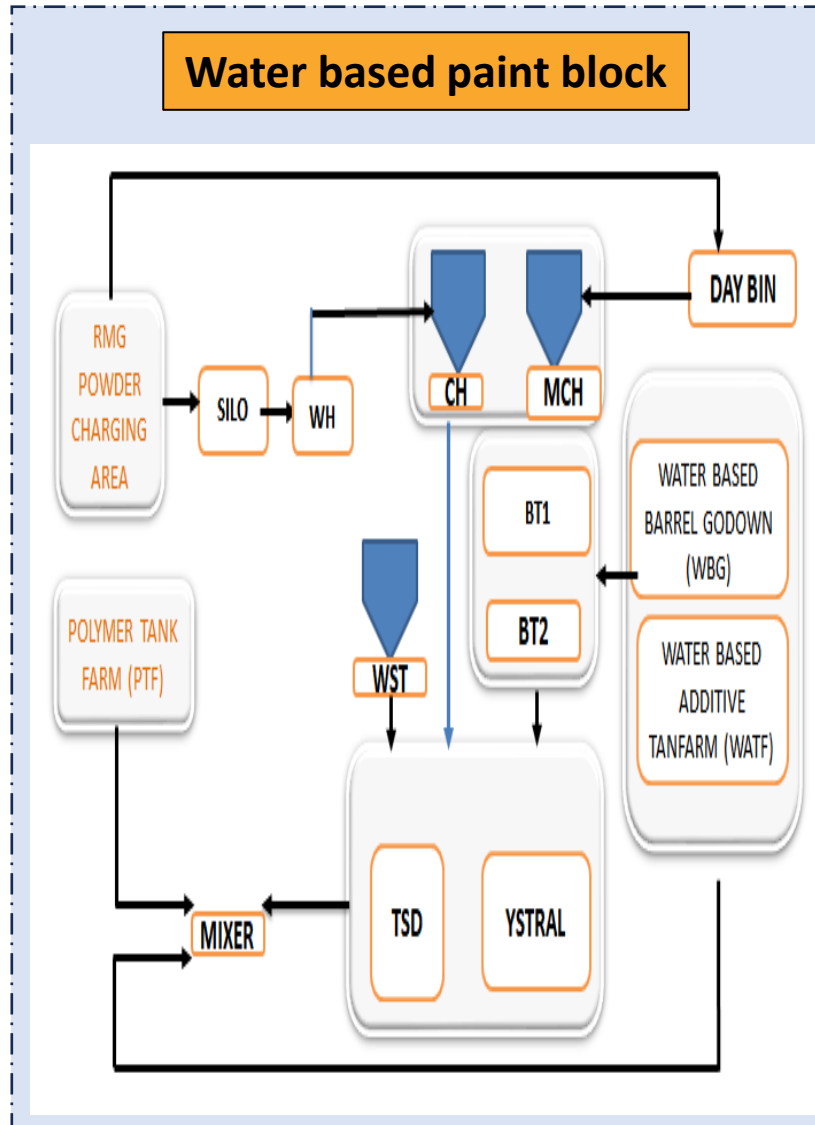
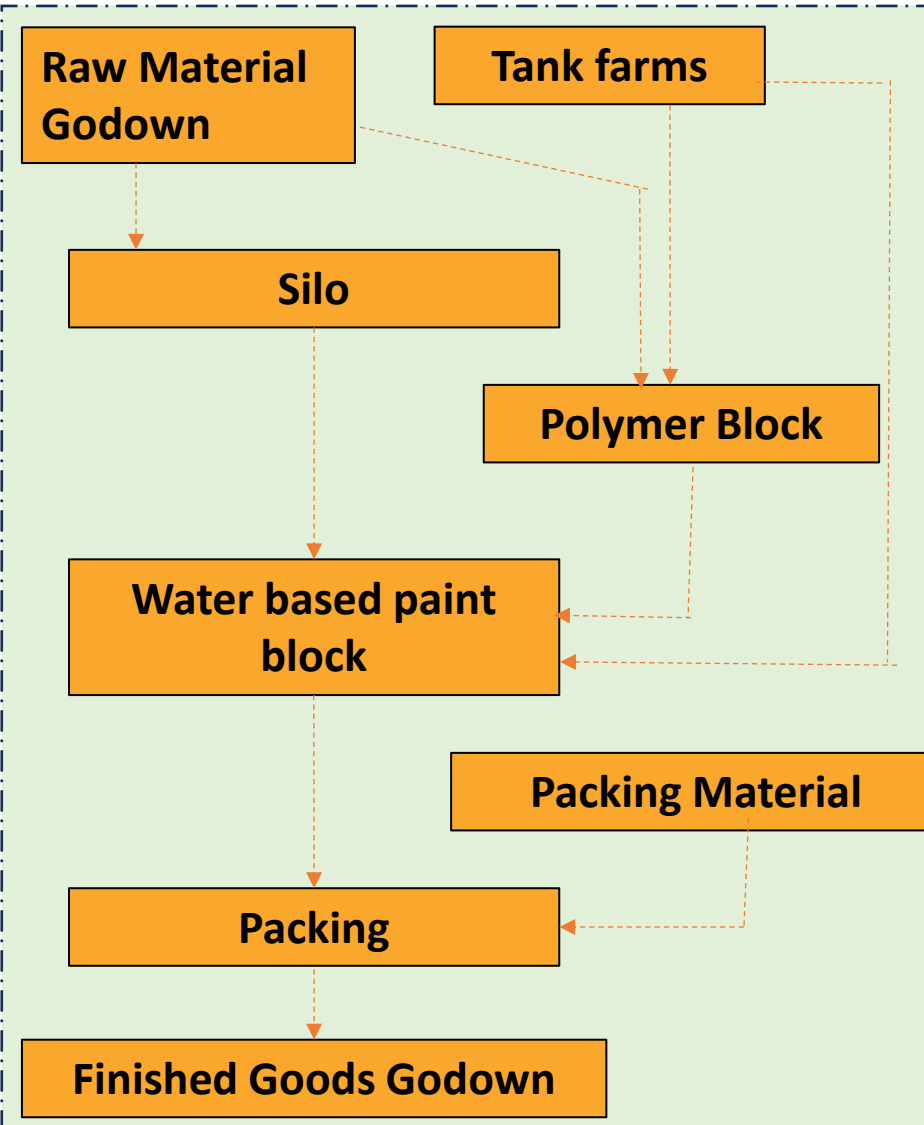
Water Proofing Range



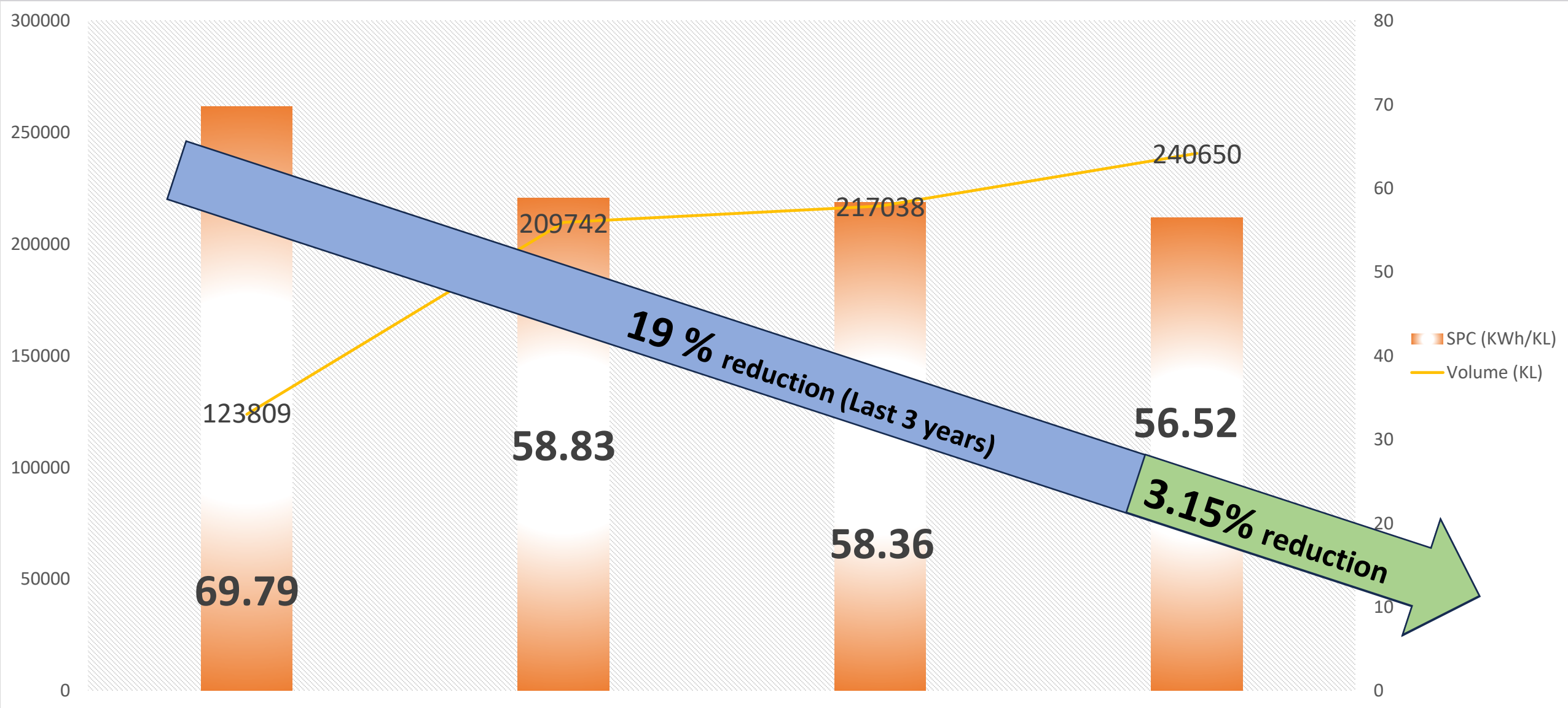
Primers



Asian Paints, Visakhapatnam - Manufacturing process

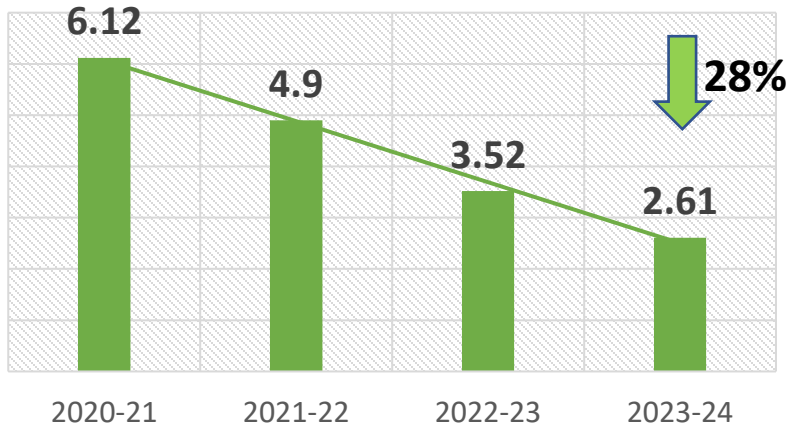


Overall Specific Energy consumption



Section wise SEC

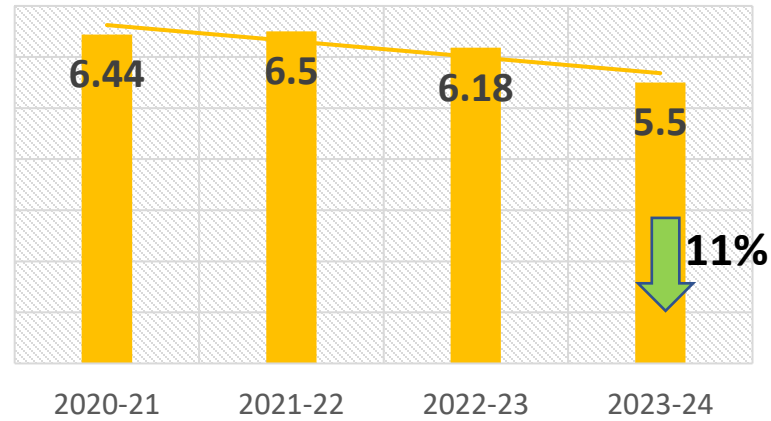
SEC – Raw Material Godown



Improvements –

- Powder vessel super-flo modification in existing FIBC
- Operation hr reduction by 6 hr by bulker charging
- Introduction of tank tilter power conveying system for rutile
- Eliminated Idle running of silo blowers by changing the low pressure setpoints

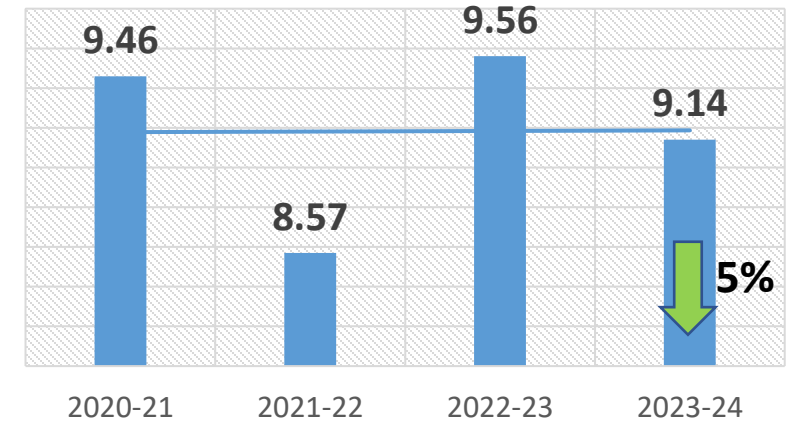
SEC – Utility Compressor



Improvements –

- Packing filler AODD pumps manual operation to Auto operation
- Reduction of standard pigging time/time elapsed air stoppage after elapsed time
- Pigging air operation pressure optimization (PCV valves)
- Conducted external air leak audit & closed 189 open air leak points

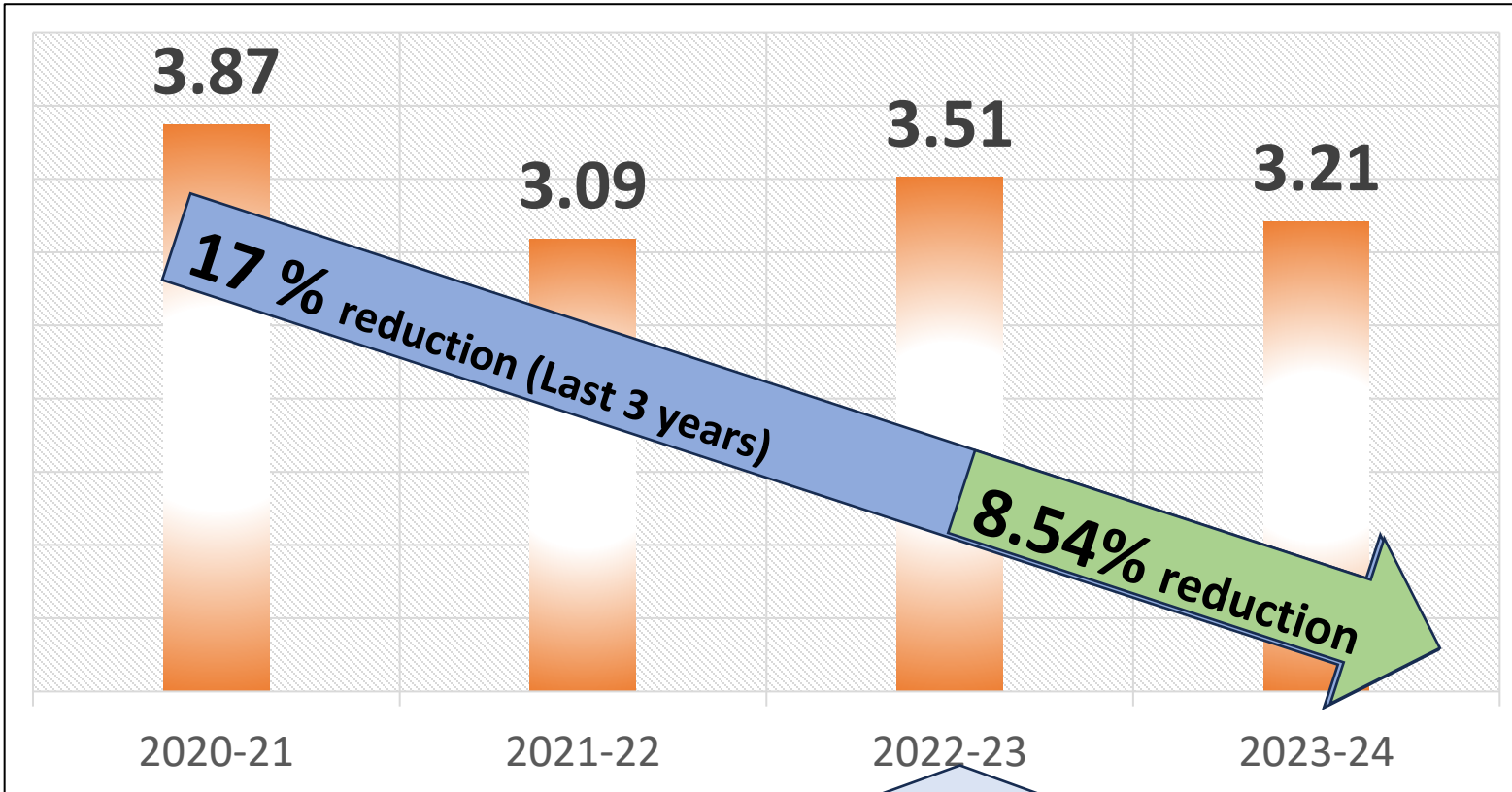
SEC – WPB TSD



Improvements –

- Flowrates increased to 800kg/min in all products
- MCH double discharge issue elimination
- Cowl disc modification for all TSDs.
- Dedicated FIT installation for CT reduction.
- Six Sigma PIP project for cycle time reduction by 30 min.

Overall Specific Fuel Consumption



Reasons for increase

1. Introduction of backward integration emulsion products for in house production
2. In-house waste processing

Project - Electrical boiler installation at waste processing plant

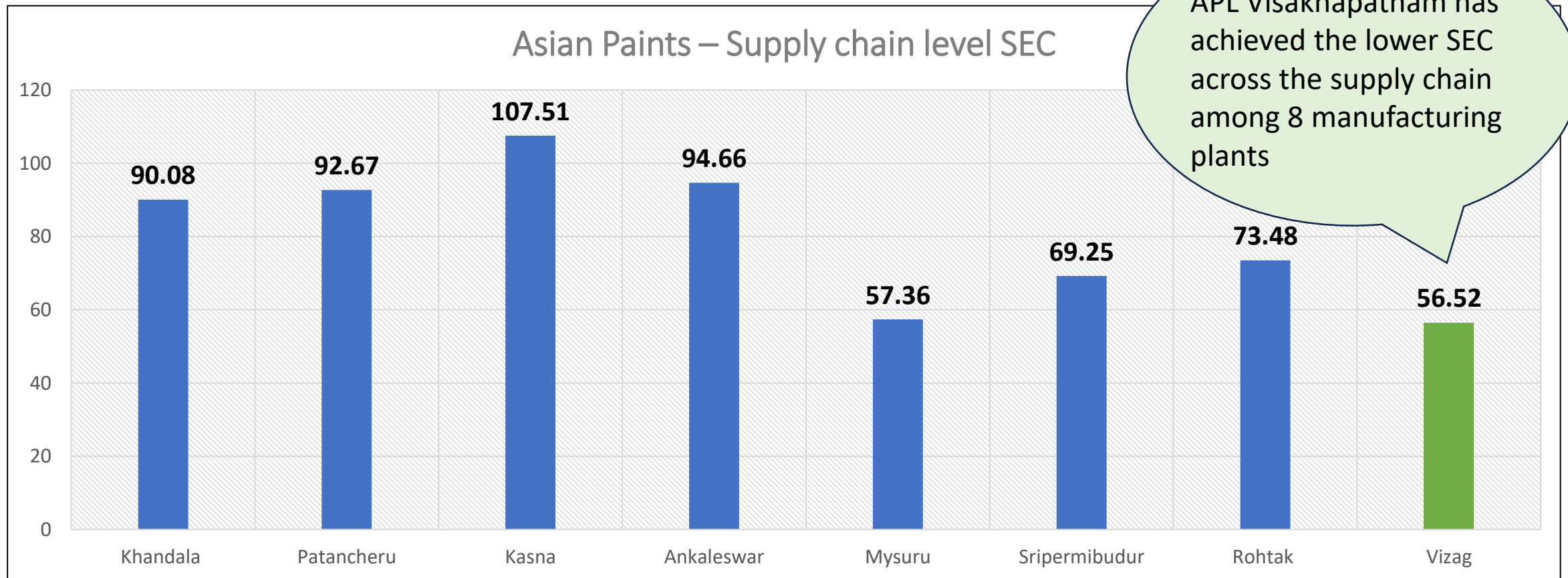


Further plans to bring SFC@1.5 (50% reduction)

1. Heat pump for polymer processing
2. Effimax 3000 for boiler efficiency improvement

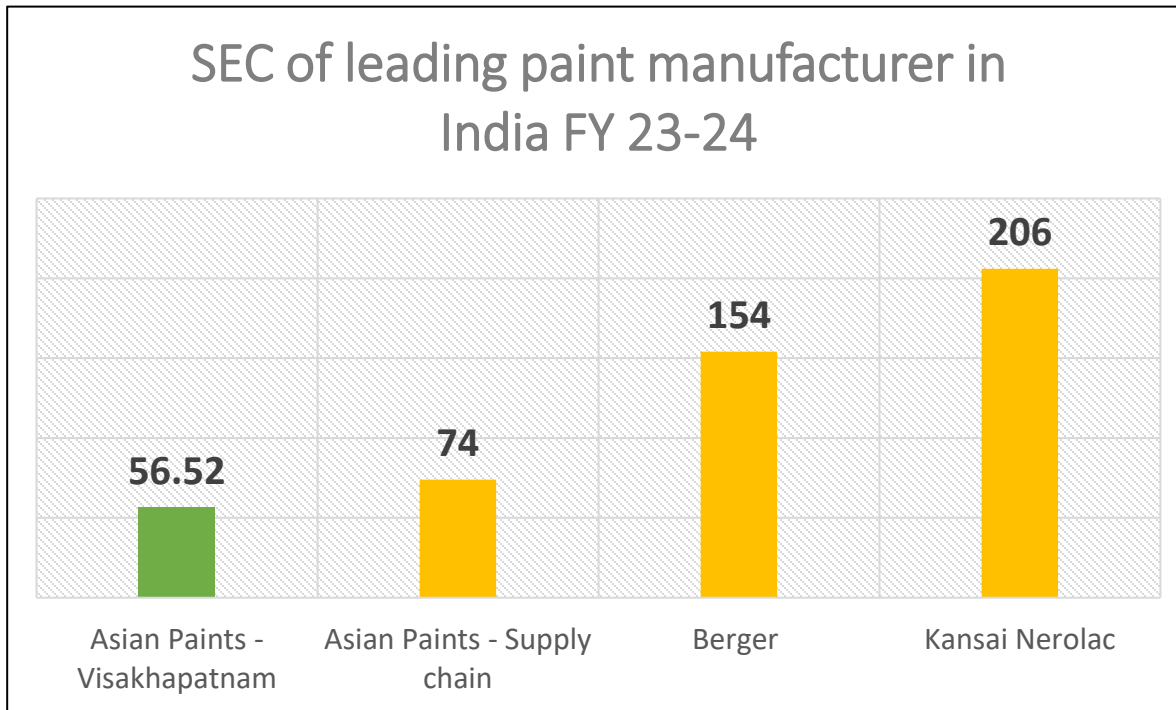
Energy benchmarking

Internal benchmarking



Energy benchmarking

National benchmarking



Specific Energy Consumption (KWh/Kl) of Visakhapatnam plant is the lowest when compared with leading paint manufacturers in India

Promises



Major ENCON projects planned FY 24-25

01

15%
savings



Artic master for air cooled chiller

- Additional process – subcooling
- This reduces the temperature thereby reducing the pressure hence causing a reduction in the overall chiller work done.
- The overall operating saving is 15%

02

5%
savings



Effimax 3000 for boilers for fuel reduction

- Effimax setup we will be able to control the fuel flow parameters by monitoring oxygen levels, stack temperature and etc.
- Effimax has direct control on firing in the boiler

03

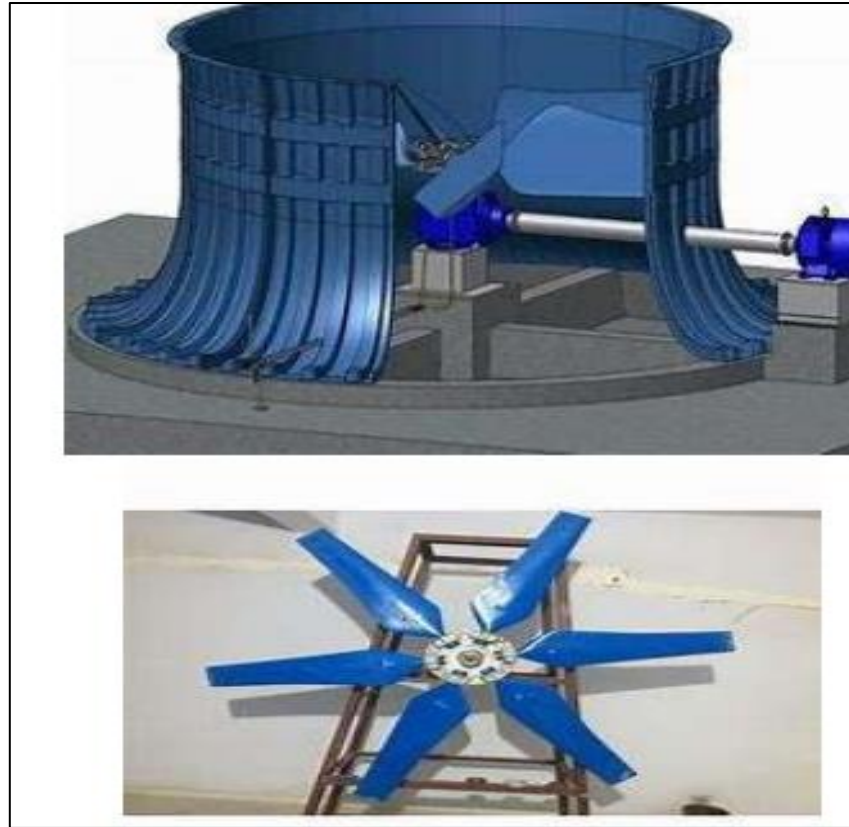
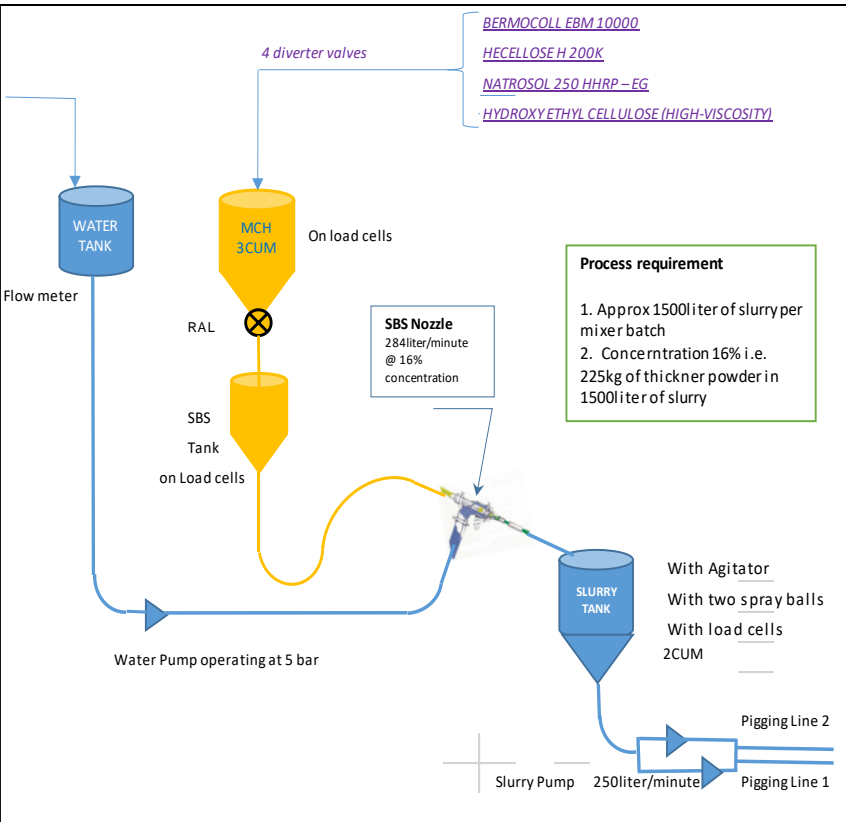
2%
savings



Power factor correction & Active harmonic filter

- Upgradation to the existing system - for maintaining ideal power quality
- Reduce the losses in the system

Energy savings projects implemented FY 2021-22



Semi Bulk System in processing -

1. Thickeners added directly into slurry tank by single pass addition of water
2. Total investment - **36 lakh**
3. Overall units saved – **0.99 lakh kWh/annum**

Energy efficient cooling tower fan -

1. Hollow FRP fan with high grade epoxy resin lowers energy consumption by 20 -25%.
2. Total investment - **6 lakh**
3. Overall units saved – **0.32 lakh kWh/annum**

Intelligent Flow Controller (IFC) -

1. Sustain air flow to meet sudden demands
2. Total investment - **6 lakh**
3. Overall units saved – **0.9 lakh kWh/annum**

Energy savings projects implemented FY 2022-23

Presence sensor installation for dust collector

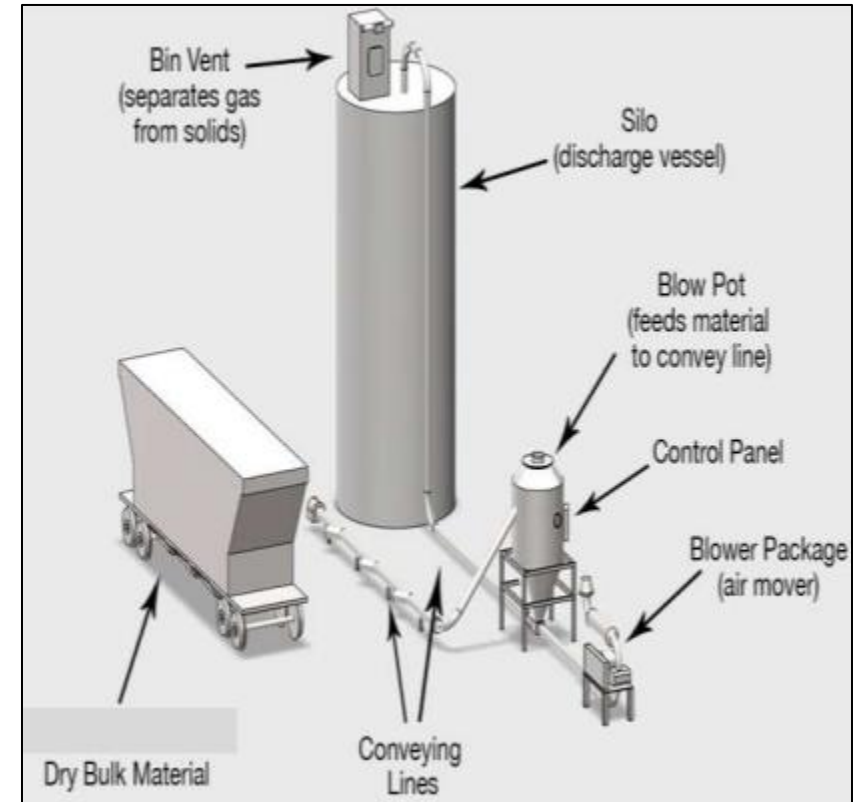
1. In RMG block, bag folding machine dust collector manual operation eliminated by presence sensor
2. Overall Units saved – 0.52 Lakh KWh/annum

Conveying rate improvement of slow conveying RMs from FIBC to SILO

1. Six sigma project - Logic modification, flushing time optimization, compressor idle running elimination
2. Overall Units saved – 0.32 Lakh KWh/annum

IoT based Wi-Fi motion sensor installation for split ACs

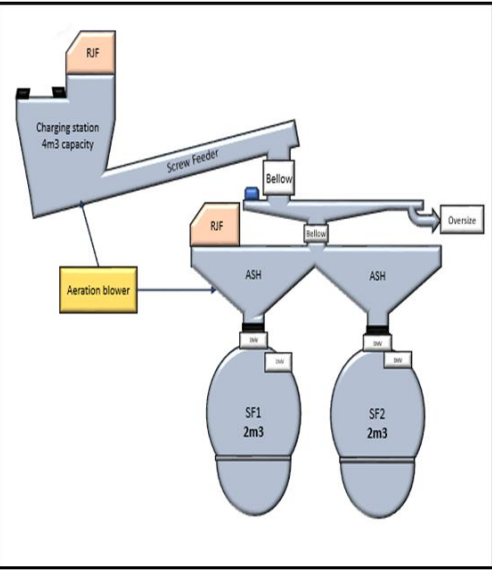
1. Motion, presence, temperature sensor with in-built humidity-based optimization installed across the plant for split ACs
2. Overall Units saved – 0.28 Lakh KWh/annum



Extender powder conveying through bulk containers

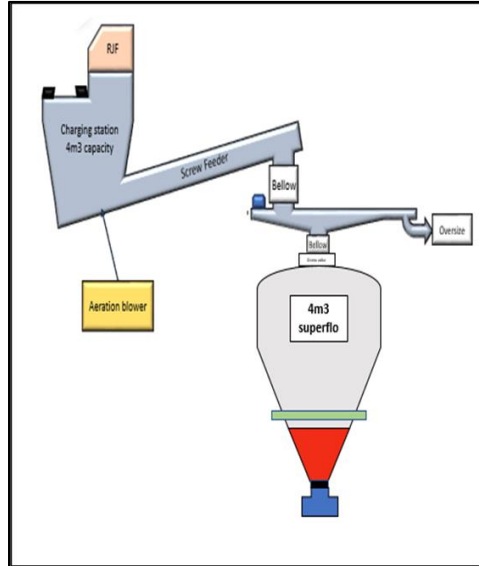
1. Compared to existing FIBC setup conveying time has been reduced by 50%
2. Less electrical equipment in overall setup
3. Overall Units saved – 0.73 Lakh KWh/annum

Energy savings projects implemented FY 2023-24



Single conical super flow membrane for FIBC

1. Improvement in transfer rate from 9 TPH to 16 TPH
2. Compressor operation reduction by 10%
3. Total investment - 45 lakh
4. Overall units saved – 1.2 lakh KWh/annum



Frigitech for air cooled chiller -

1. To avoid fouling & maximise heat transfer in air cooled chiller
2. Total investment - 2 lakh
3. Overall units saved – 0.76 lakh KWh/annum

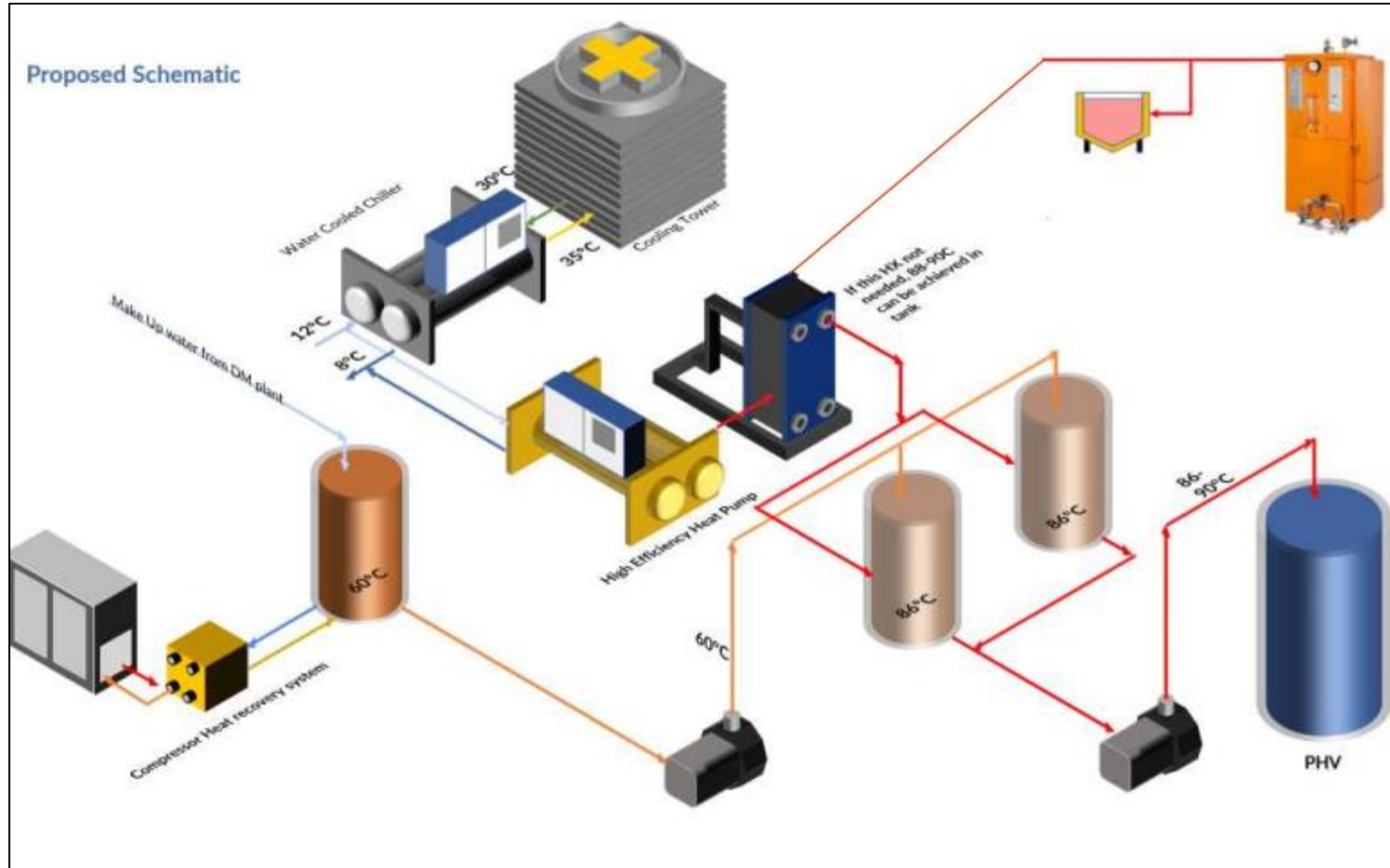
Individual flowmeter to add wash water & main water simultaneously

1. TSD cycle time reduction by 15 min.
2. Total investment – 25 lakh
3. Overall units saved – 0.5 KWh/annum

Packing lines SPC improvement

1. Dedicated energy monitoring provision for each line
2. No flow logic integrated in all the packing lines
3. Overall units saved – 0.8 lakh KWh/annum

Innovative project – Heat Pump as alternate for DM Water heating



Background

Currently desired steam for water heating in emulsion process is generated using LPG/diesel boiler.

Problem statement

1. **Under-utilization** - Boiler generates a steam of 2600 kg per hr. and the IHO steam consumption per day is around 300-400 kg.
2. **Start & stop losses** – Boiler takes around 30 min. For startup & in day 4-5 startup happens
3. **High diesel consumption & operational cost**

Solution

1. Installation of high efficiency heat pump of capacity 304 Kw/Hr.
2. Unique proposal to use heat recovery & heat pump at the same time

benefits

1. **40% reduction in SFC**
2. Compressor heat recovery system
3. Total investment - **Rs. 1.4 Cr**
4. Overall fuel saving – **0.91 lakh Kg LPG**

Innovative project – Hydraulic tilter for conveying rutile RMs to Silo

Problem statement–

1. Less conveying rate of rutile RMs via flexible intermittent bulk conveying (FIBC) setup
2. High energy consumption due to involvement of numerous electrical equipment
3. High material waste due to long distance

Solution

1. PICK AND TILT TYPE TIPPLER FRAME - Crane is eliminated by introduction of advance hydraulic tippler which can pick and tilt the container

Benefits

1. 100% improvement in conveying rate & cycle time compared to FIBC conveying system
2. 55% less power consumption as compared to FIBC
3. Total investment - **5.9 Cr**
4. Overall units saved – **2.1 lakh kWh/annum**



Utilization of Renewable Energy sources – Solar power plant

On Site Generation- Rooftop power plant

| Financial Year | Technology | Installed capacity (MW) | Consumption (KWh) | Renewable Energy % |
|----------------|-----------------------|-------------------------|-------------------|--------------------|
| 2020-21 | Poly crystalline | 0.996 | 11,42,198 | 13.2% |
| 2021-22 | Poly crystalline | 0.996 | 11,84,560 | 9.6 % |
| 2022-23 | Poly-Mono crystalline | 2.24 | 21,08,697 | 16.65 % |
| 2023-24 | Poly-Mono crystalline | 2.24 | 23,19,973 | 17.06 % |

Solar plant of capacity 1MW was installed in FY 2018-19
 Solar plant of capacity 1.264MW was installed in FY 2022-23

Total Solar installed capacity of Asian Paints, Visakhapatnam is **2.264MWp**



1.264MWp Solar rooftop power plant



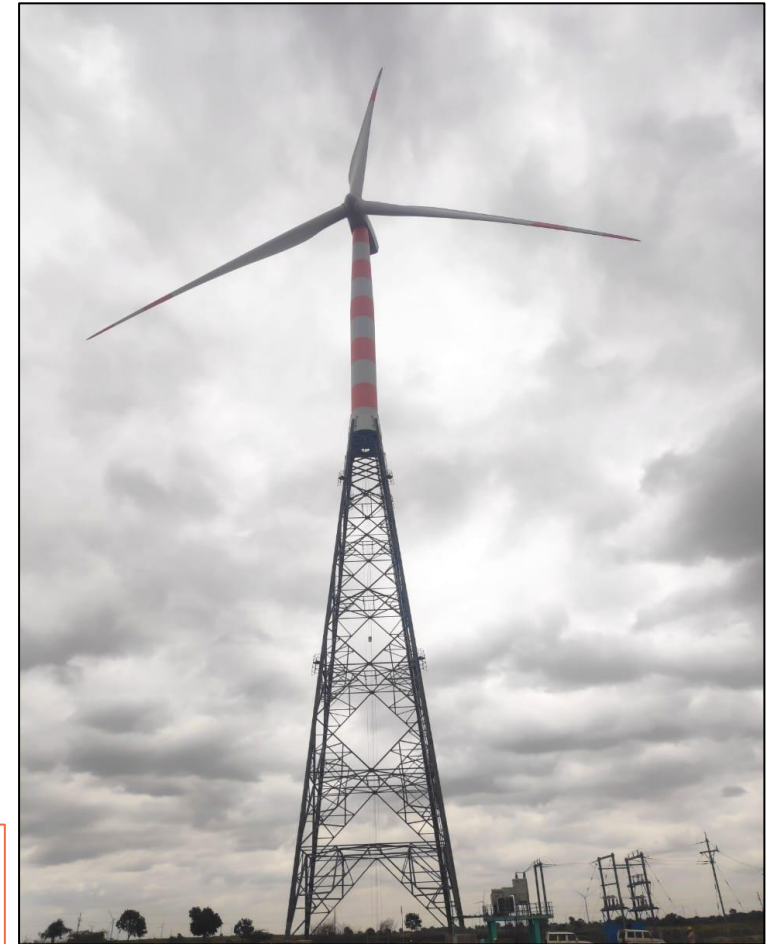
1MWp Solar rooftop power plant

Utilization of Renewable Energy sources – Wind power plant

Off Site Generation

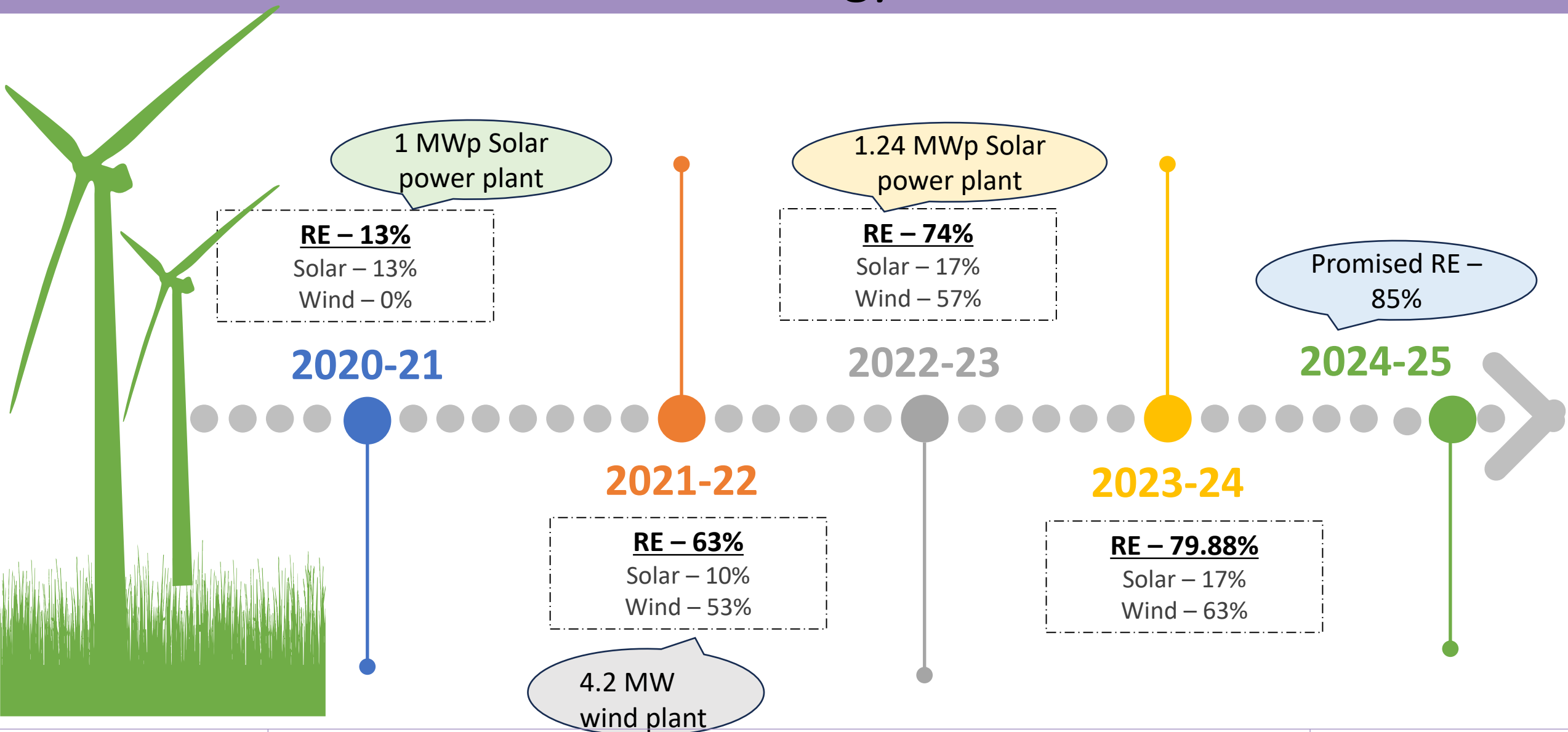
| Financial Year | Technology | Installed capacity (MW) | Consumption (KWh) | Renewable Energy % |
|----------------|------------|-------------------------|-------------------|--------------------|
| 2020-21 | Wind | 4.2 | - | - |
| 2021-22 | Wind | 4.2 | 65,73,636 | 53.28 % |
| 2022-23 | Wind | 4.2 | 77,68,195 | 61.32 % |
| 2023-24 | Wind | 4.2 | 85,73,817 | 63.03 % |

Windmill of capacity 4.2MW was installed in FY 20-21 & generation started from May-21
Banking facility was availed for windmill in FY 2022-23



Hybrid Wind Turbine- S120

Renewable Energy Scenario



GHG Inventorisation

| Category | FY 20-21 | FY 21-22 | FY 22-23 | FY 23-24 | Target 2030 |
|---|----------|----------|----------|----------|--|
| Scope 1 (tCO2e) | 11.9 | 10.25 | 11.85 | 11.29 | 80% reduction in emission intensity over baseline Baseline - FY 2013: 131.15 |
| Scope 2 (tCO2e) | 28.5 | 23.45 | 22.85 | 21.31 | |
| Specific Emission KgCO2e/KL of production | 40.4 | 33.7 | 34.7 | 32.6 | |

75% reduction in emission intensity over baseline

Project cost – 1.2 Cr



DG Retrofit emission control system

- DG Set's Retrofit Emission Control System removes harmful components such as diesel particulate matter (DPM), carbon monoxide (CO), hydrocarbons (CH4), Sulphur dioxide (SO2), and nitrogen oxides (NOx).
- 1st Carbon cutter machine installed for 500 KVA category

Sustainability – Zero Liquid Discharge & water positive facility

Rainwater collection & Utilization facility

storm water
run off
reservoir
having
capacity of
4400 KL

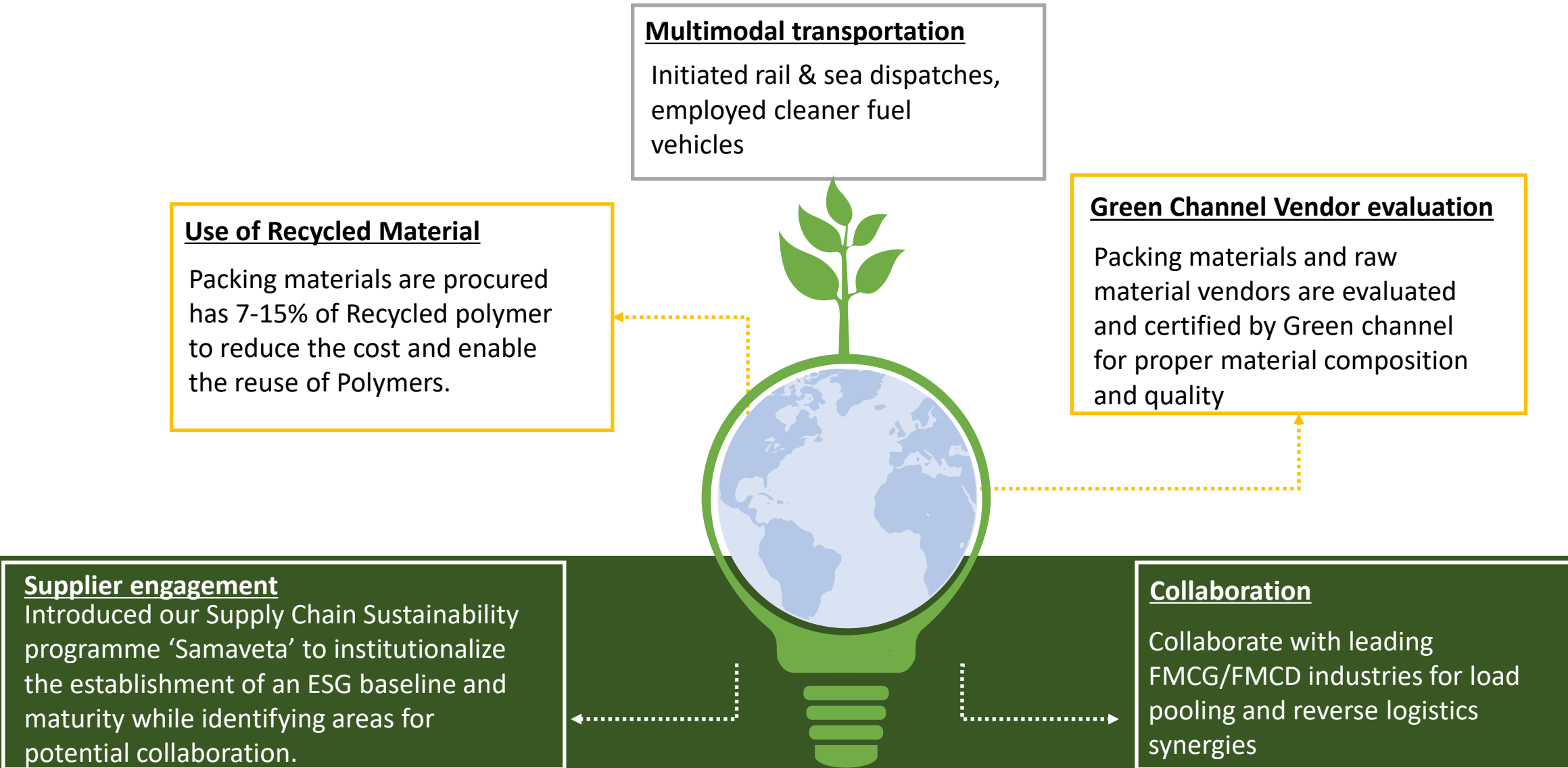


Roof top
rain-water
reservoir
having
capacity of
2200 KL

- **Solar sludge drying shed -**
Natural method of drying
chemical sludge
- **Project cost –** Rs. 45 Lakhs

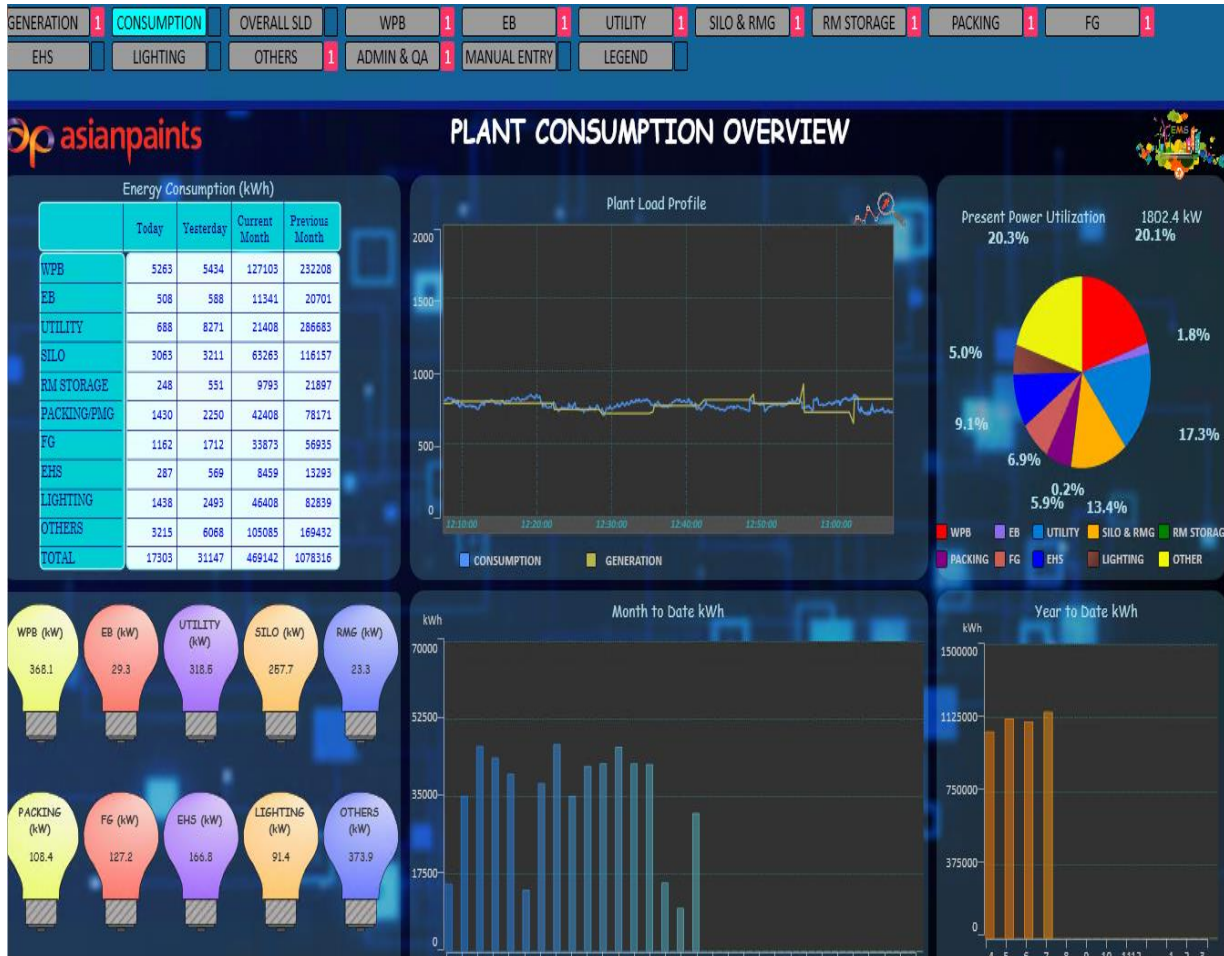


Green Supply Chain Management

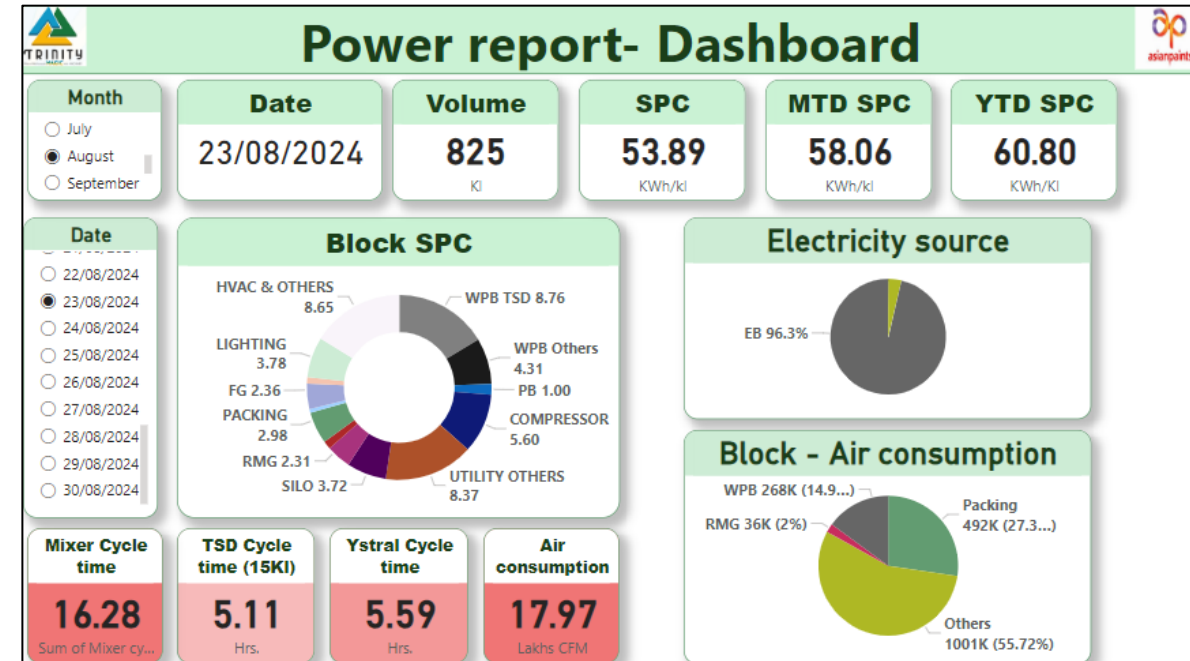


Energy management system

Energy Management Software



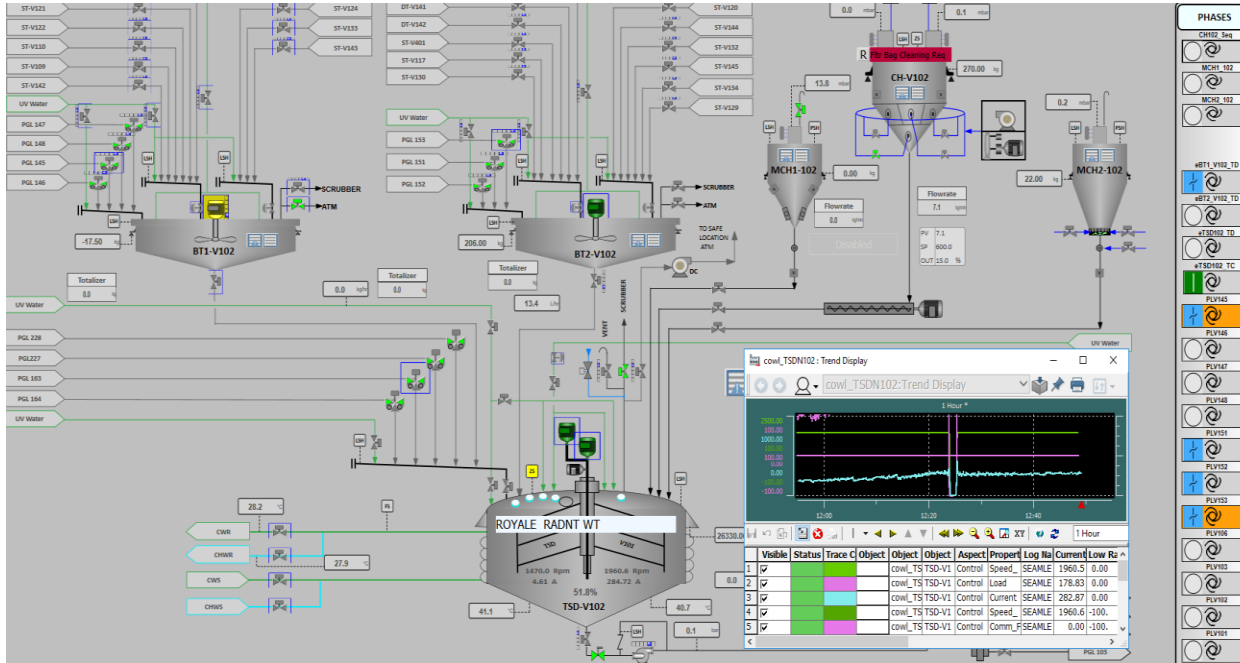
Power monitoring through analytical tool - Power BI



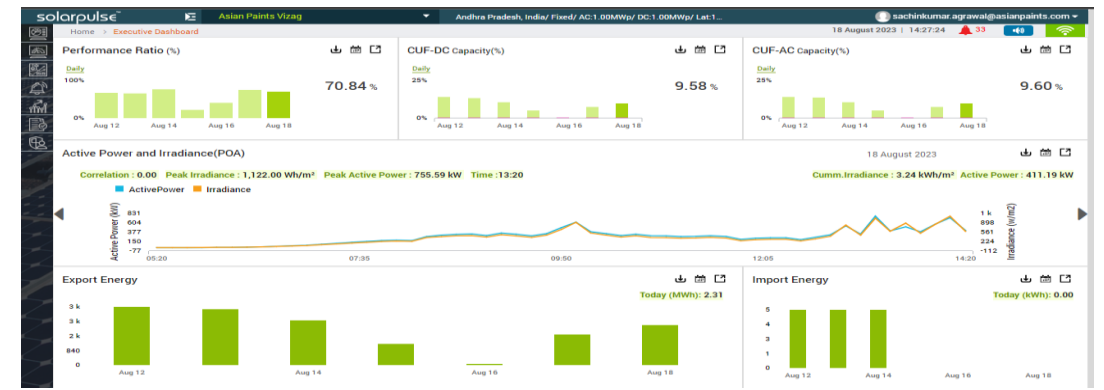
Daily power report circulated across the plant highlining the deviations for power consumption against the standard power consumption

Energy management system

Energy monitoring & control through DCS



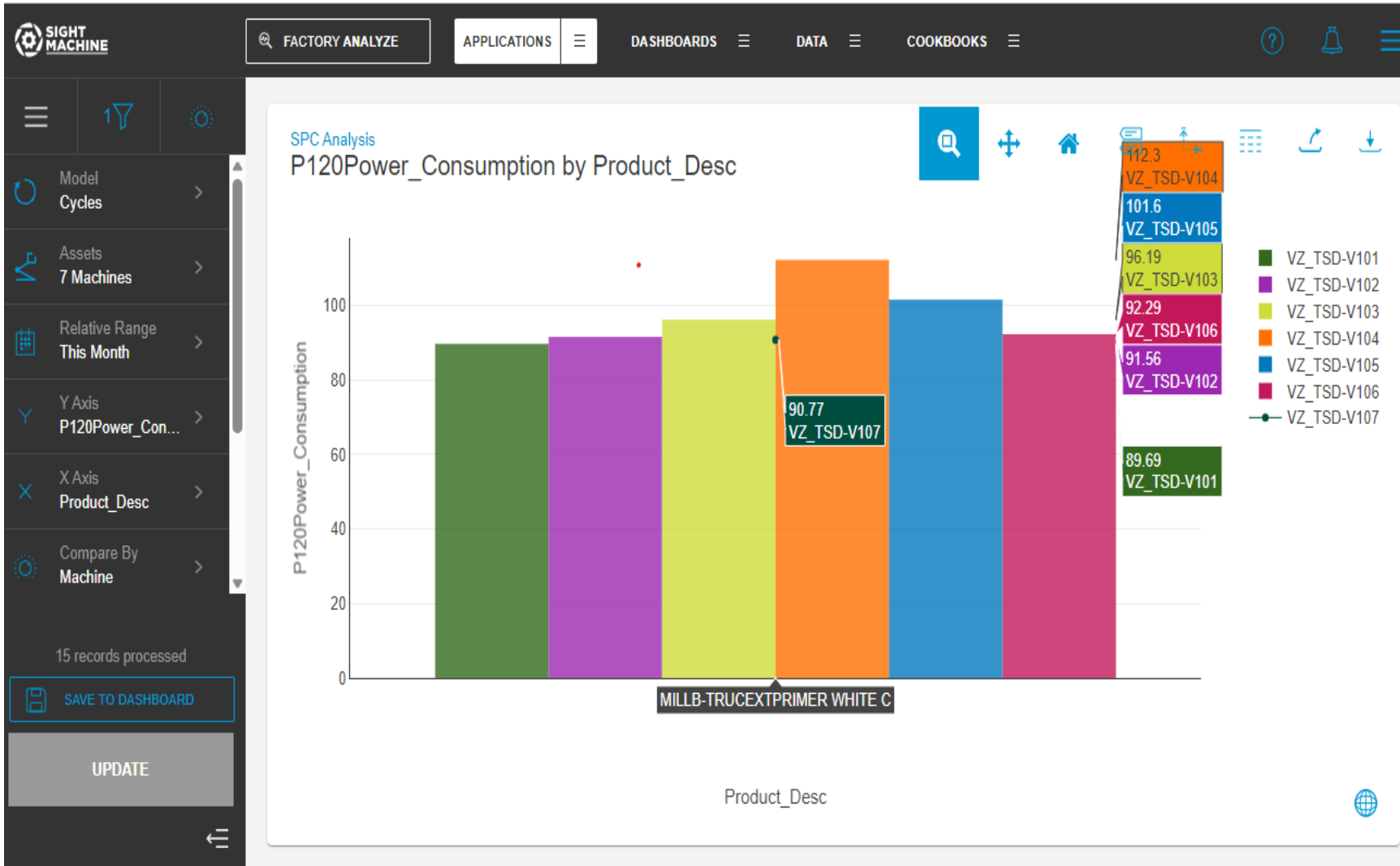
Solar generation – real time monitoring



Wind generation monitoring



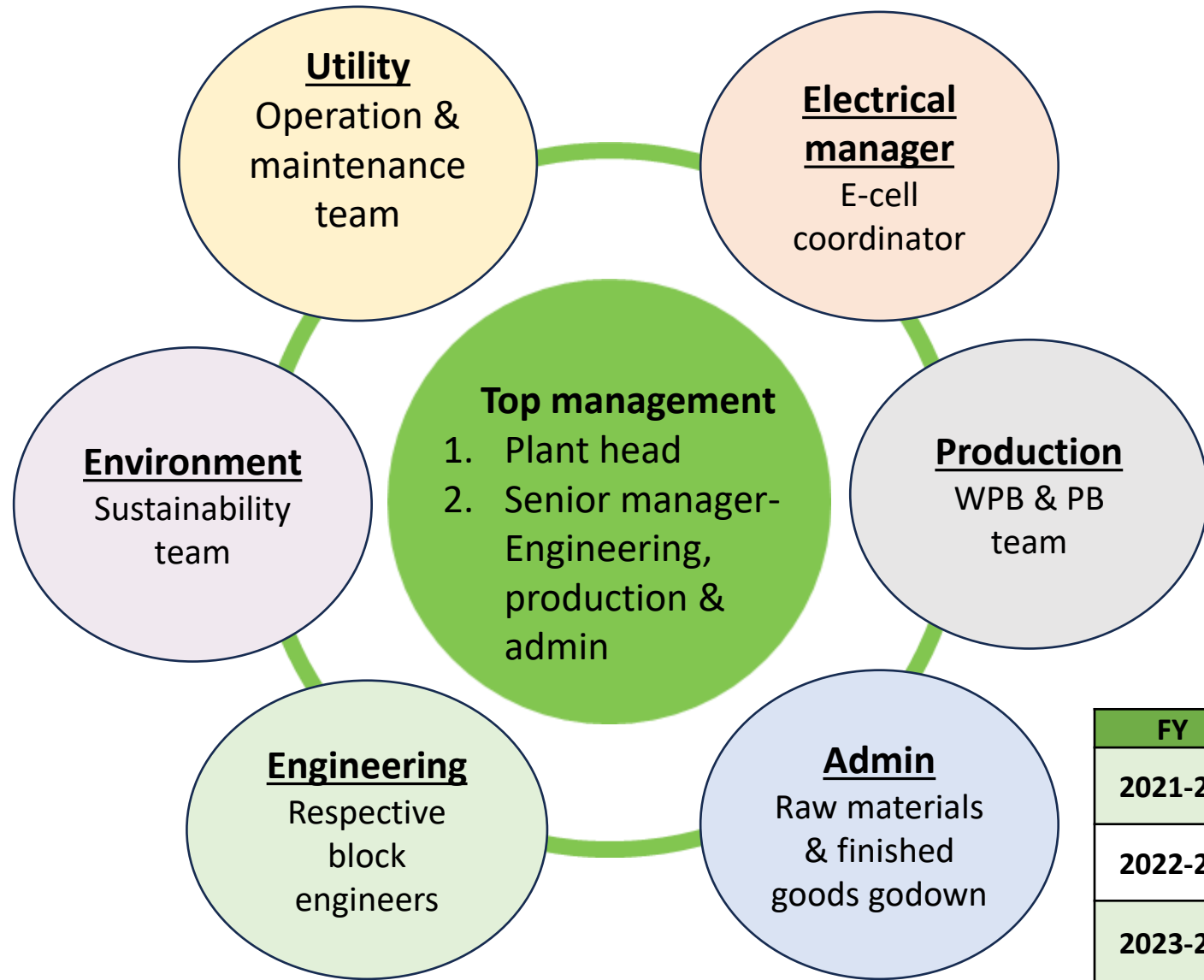
Significant achievements



Data analytics platform – Sight Machine integration with manufacturing process

1. DA platform integrated with MES to gain process related insights.
2. Data visualization helps to identify gaps & deviations easily.
3. Product wise & phase wise SEC can be tracked very easily within few clicks.

Employee involvement – Energy Management cell



1

BP21 – SEC & RE review with GM

- SEC & RE are taken as critical business parameters & performance review of the same is held on monthly basis

2

Pravaah – Supply chain level meet

- All manufacturing plants representative meet on monthly basis to discuss the performance & opportunities

3

Trinity – Plant level meet

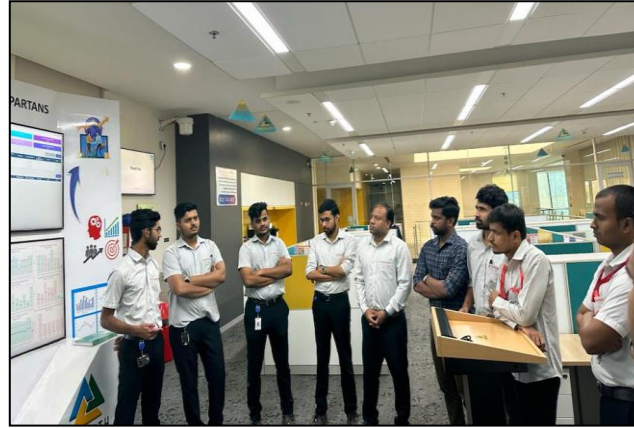
- All E-cell members meet on monthly basis in presence of plant hierarchy to discuss performance & support required

| FY | Team Size | Team composition |
|---------|-----------|---|
| 2021-22 | 8 | Block representative & central coordinator from engg. team |
| 2022-23 | 15 | Sr. Manager plant engineering, Block manager & representative from each block |
| 2023-24 | 28 | Plant head, all senior managers, all other block members |

Awareness creation & idea generation

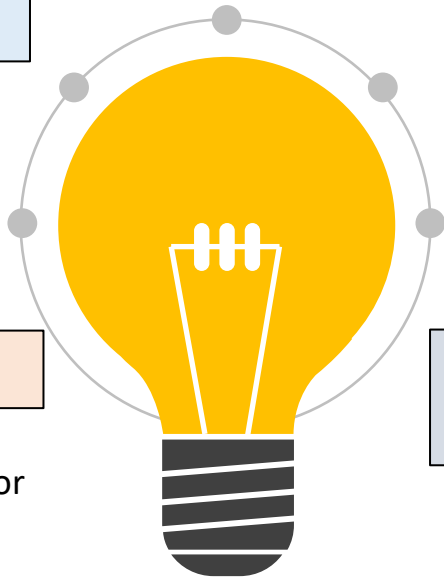
Energy cell meeting

In FY 2023-24, total 128 ideas were generated during monthly E-cell meeting



Kaizen drive

In FY 2023-24, total 600+ kaizens were generated in go green category



Energy week celebration

Various awareness session & competitions were conducted



Energy audit

Audit conducted by BEE certified auditor & 14 major actionable identified

Brainstorming sessions

Blockwise brainstorming sessions held for idea generation



Awards & certifications

Energy

1. **State Energy Conservation Award (SECA) – Gold category** in Dec 2022 for Excellence in Energy Conservation organized by Govt. of AP
2. **State Energy Conservation Award (SECA) – Silver category** in Dec 2021 for Excellence in Energy Conservation organized by Govt. of AP
3. **National award for excellence in energy management 2023 (CII)**

Safety & sustainability

1. **Global Safety Award 2023** in Platinum category by energy & Environment foundation
2. **Two Gold awards – process industries category in 4th CII National Safety Practice Competition** in Apr 2021
3. **Golden Peacock Occupational Health & Safety Award - 2024**

Technology

1. **Gold award – CII Champions Trophy 2021 – Industry 4.0 (LCA & DRA)** in June 2021
2. **Gold winner – Control category in 12th CII National Poka Yoke Competition** Jan-23
3. **Platinum & gold award in 9th CII national competition on low cost automation**
4. **Gold award awards in 7th CII National Competition on Digitalization, Robotics & Automation – Industry 4.0** in Sep 2022 for IOT enabled truck unloading system

Awards & certifications



THANK YOU

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