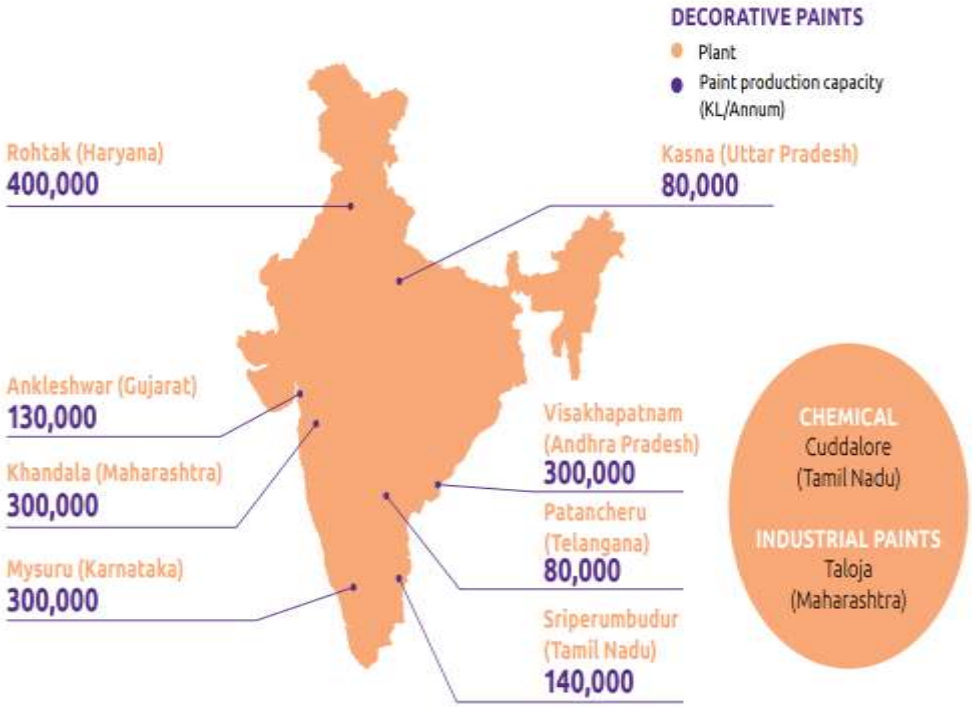
Asian Paints Limited, Vizag

Team

1. Mr. Jainesh Shah (Senior manager – Plant Engg.)
2. Mr. Shreet Kasliwal (Senior executive – Plant Engg.)
3. Mr. Sachin Agrawal (Senior executive – Plant Engg.)

Asian Paints - Bringing joy to people's lives

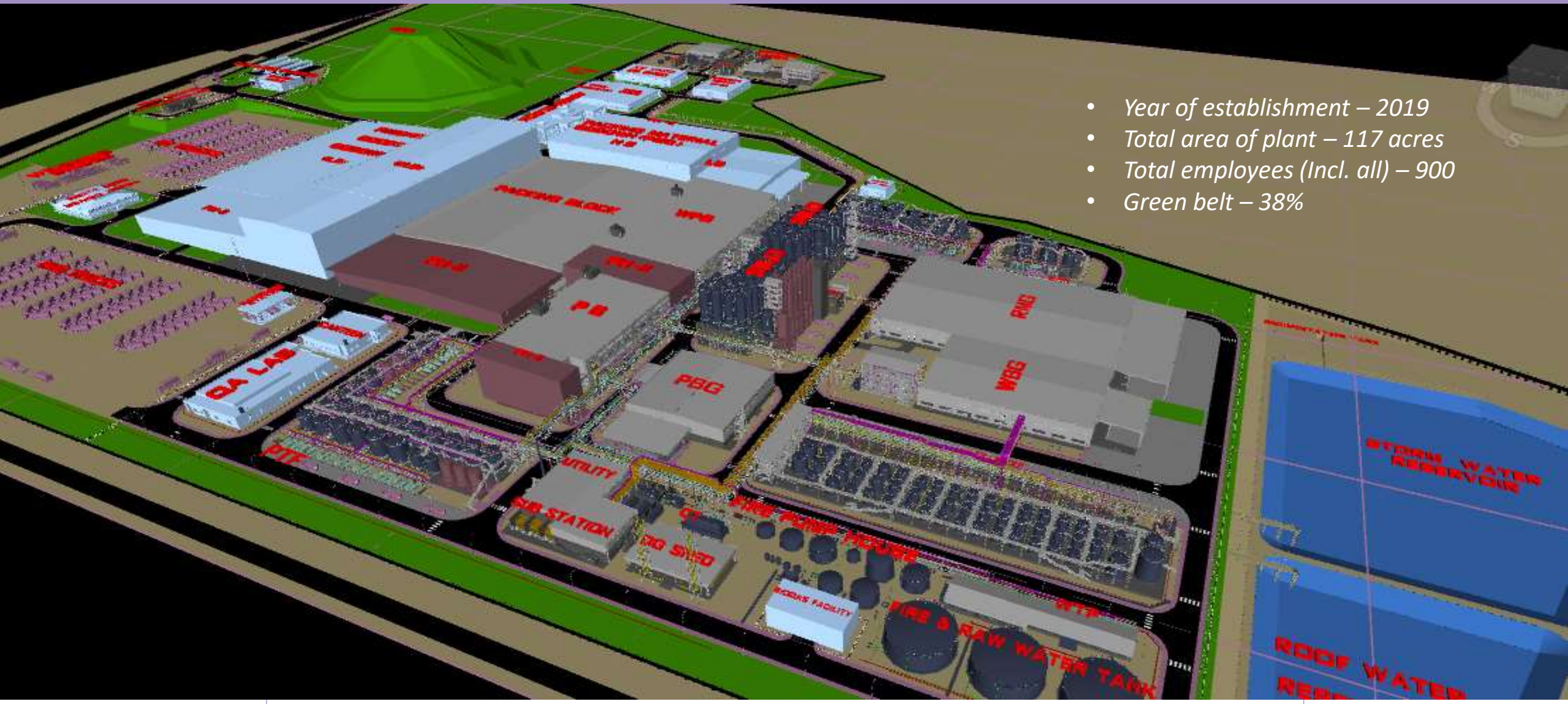
Paint manufacturing locations in India



80+ Years of Legacy

- India's No.1 Paint company
- 9th largest coatings company in the world
- 50 + Years of market Leadership
- Operations in 16 countries
- Ranked 15th in Most Sustainable Companies in India for 2022-23 by Business world magazine
- 26 Paint manufacturing plants
- Consumers in 60+ Countries
- Revenue: USD 4.4 Billion
- Part of India's Super 50 Companies
- 8th most innovative company in the World : AUG 2017

Vizag plant – Overview & Layout



- *Year of establishment – 2019*
- *Total area of plant – 117 acres*
- *Total employees (Incl. all) – 900*
- *Green belt – 38%*

Product portfolio @ Asian Paints, Vizag

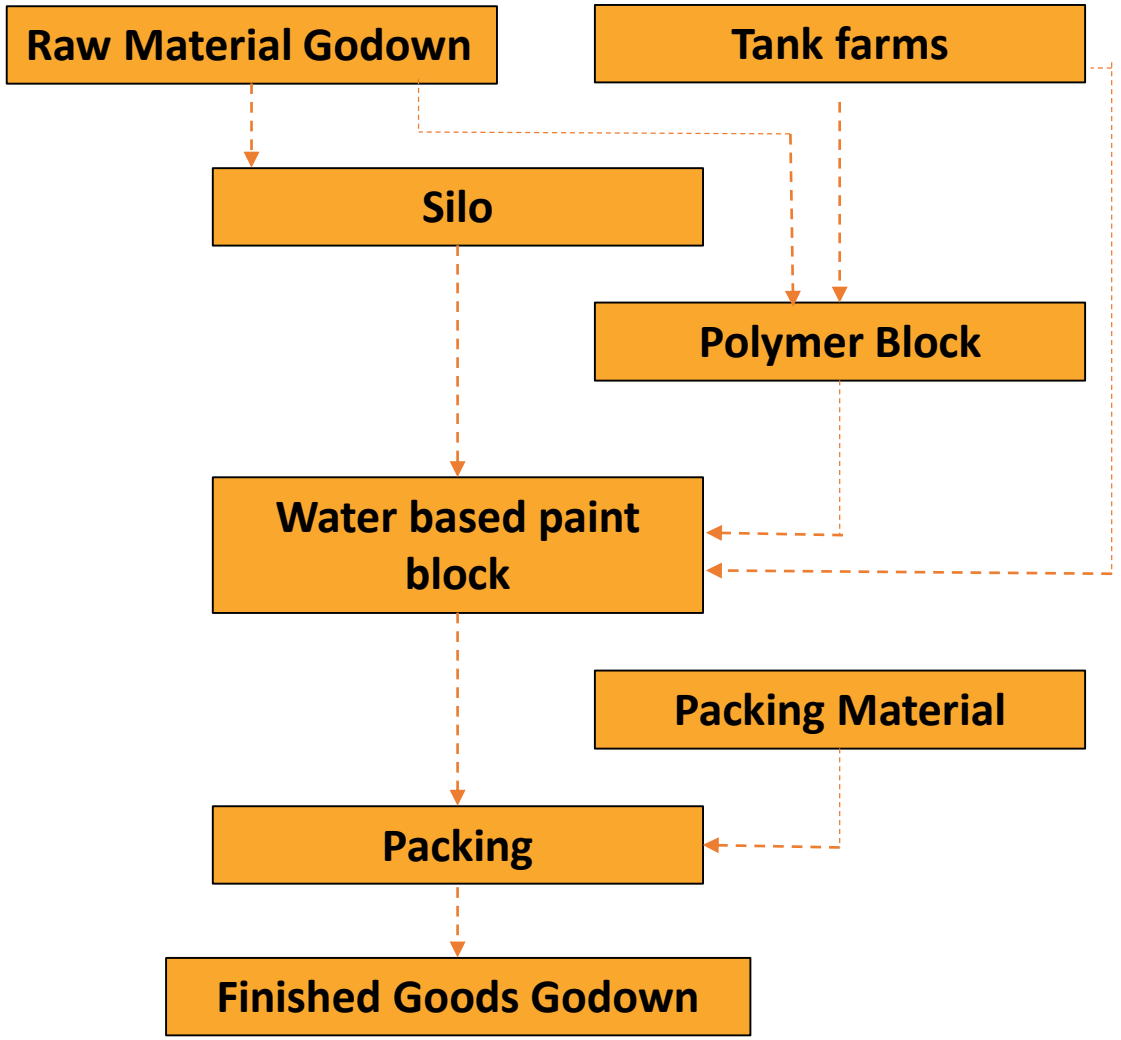
Interior Paint

Exterior Paint

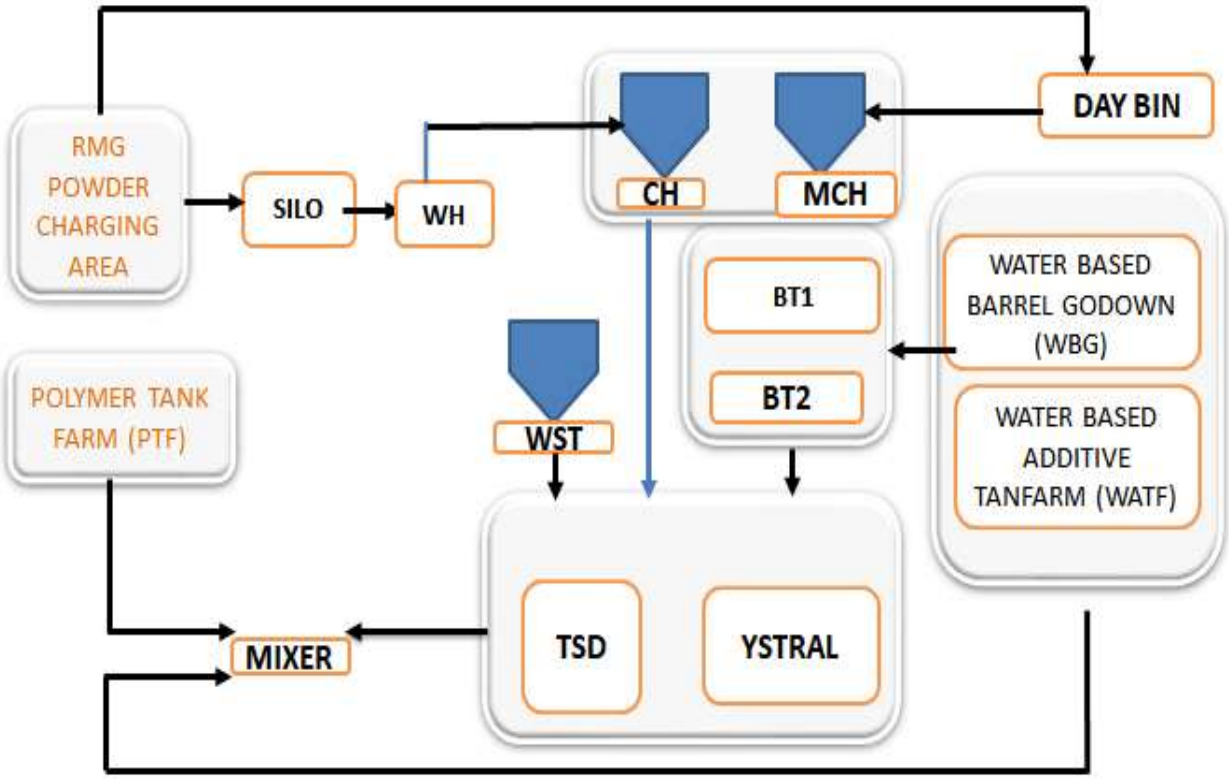
Water Proofing Range

Primers

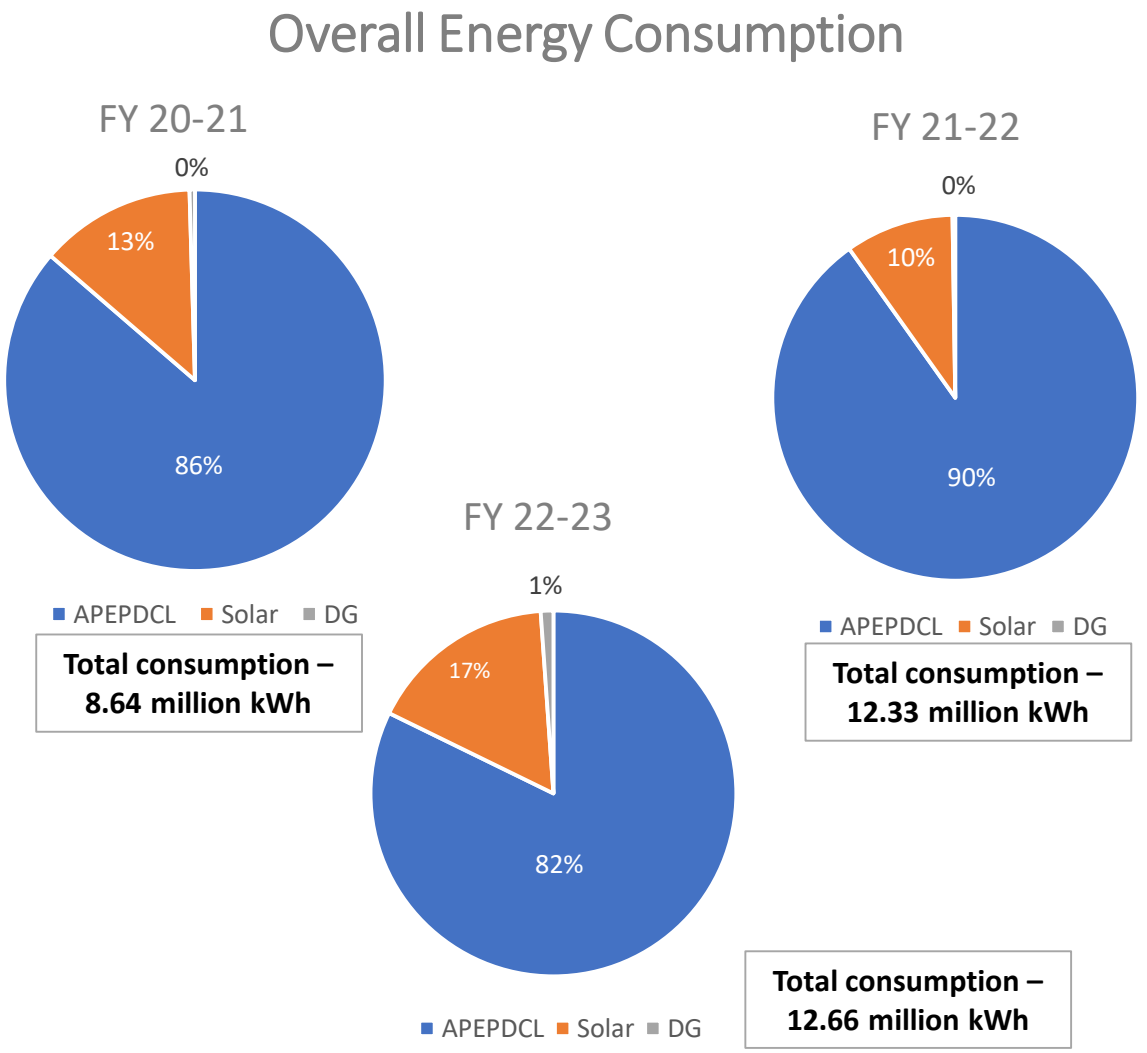
Vizag Manufacturing process

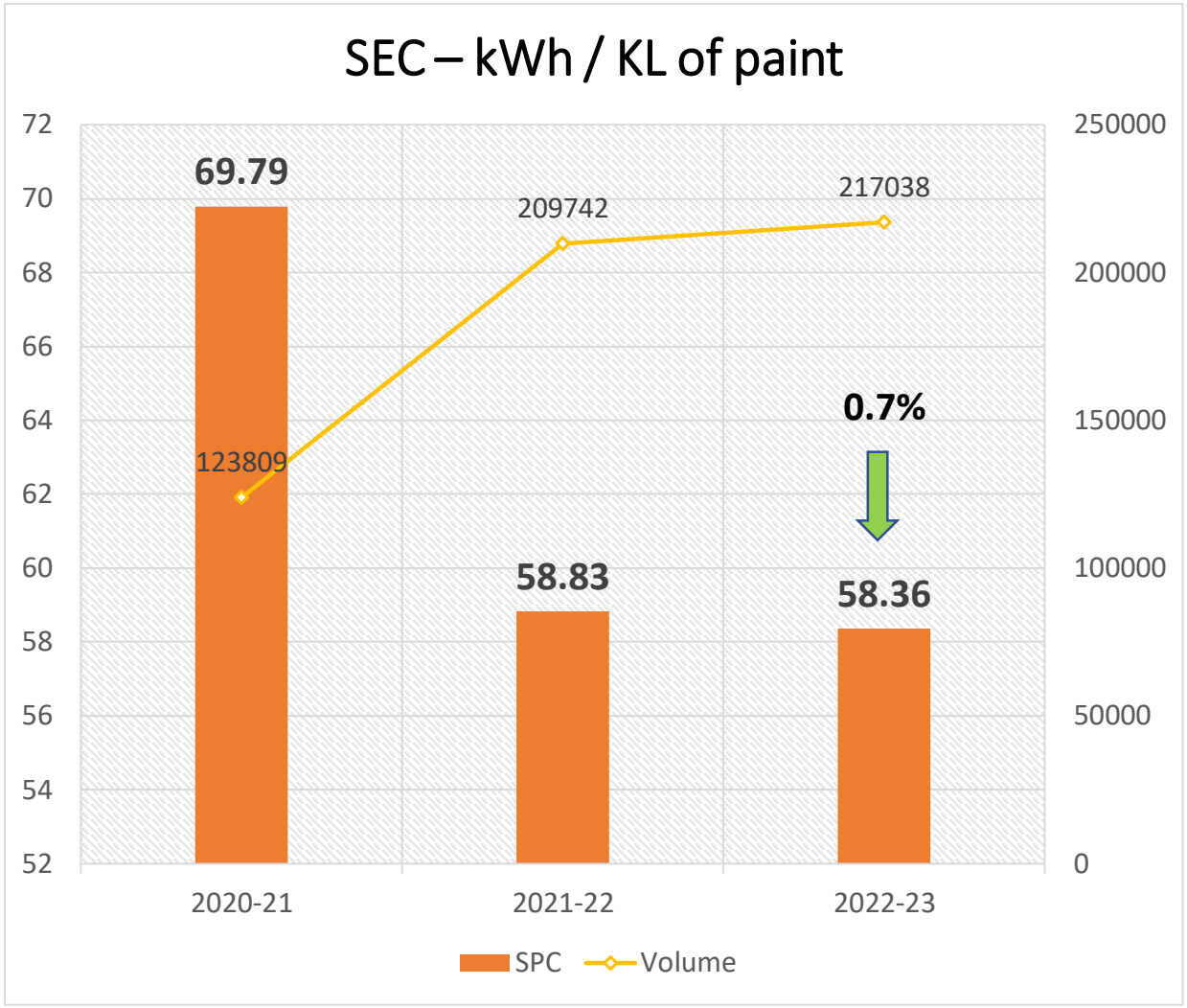


Water based paint block



Specific Energy consumption

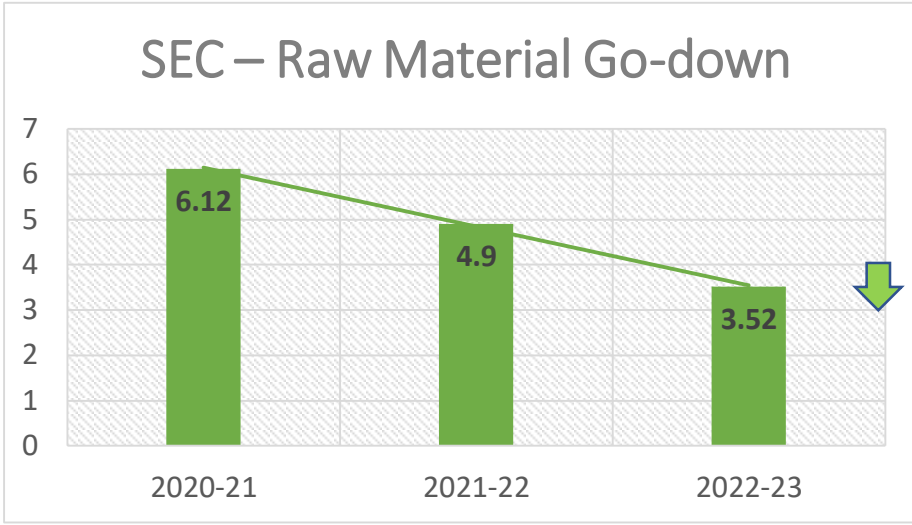




Section wise SEC

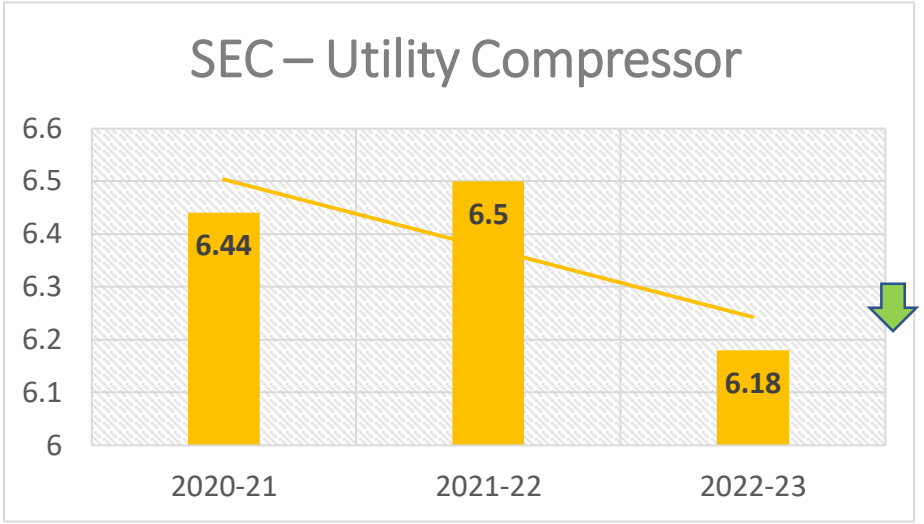
Reasons for improvement –

1. RM charging operation time reduced from **16 hours to 10 hours** (37.5% improvement) of pneumatic conveying system
2. It was achieved by optimization of data file, equipment modification such as single super-flow.
3. Introduced new & optimized method for slow moving RM charging such as tanker unloading



Reasons for improvement –

1. Air leak drive – Air leak reduced to 21% from 23.8%
2. Implementation of Intelligent air flow controller to enhance the efficiency of air network
3. Operation of 110KW VSD Compressor in place of existing non VSD compressor, which saves almost 35% compressor energy consumption.



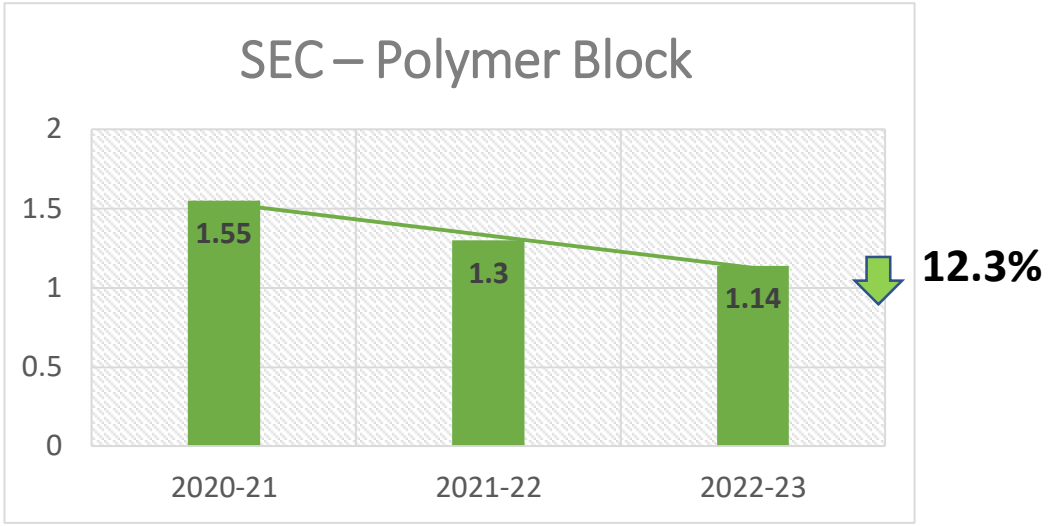
Section wise SEC

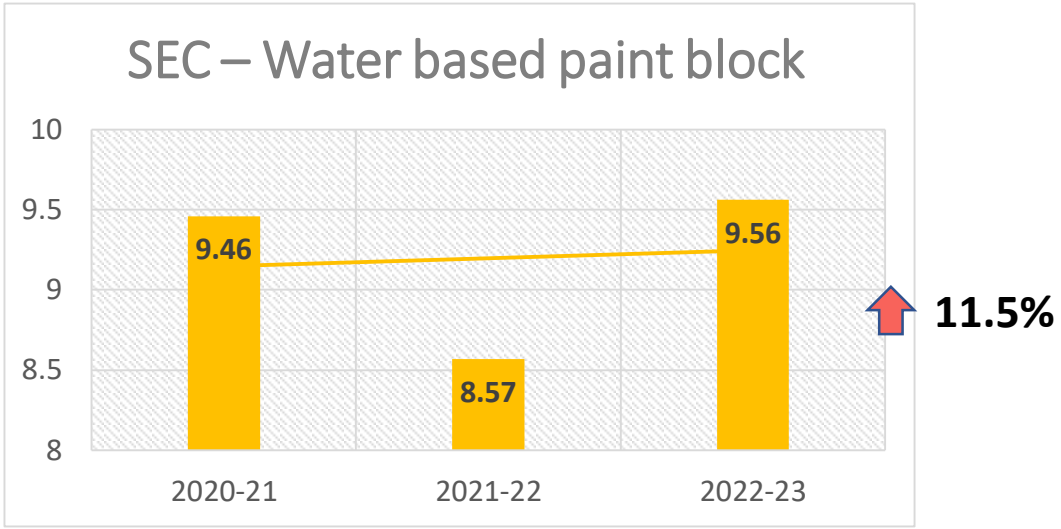
Reasons for improvement –

1. Optimization in reactor cycle time from 9.8 hrs. to 8.2 hrs.
    1. Feed rate optimization
    2. Auto temperature control in DCS
    3. Equipment modification – strainer, discharge line
2. Reactor hygiene improved by scheduled cleaning – helped in reduction of chilling & cooling water consumption

Reasons for variation –

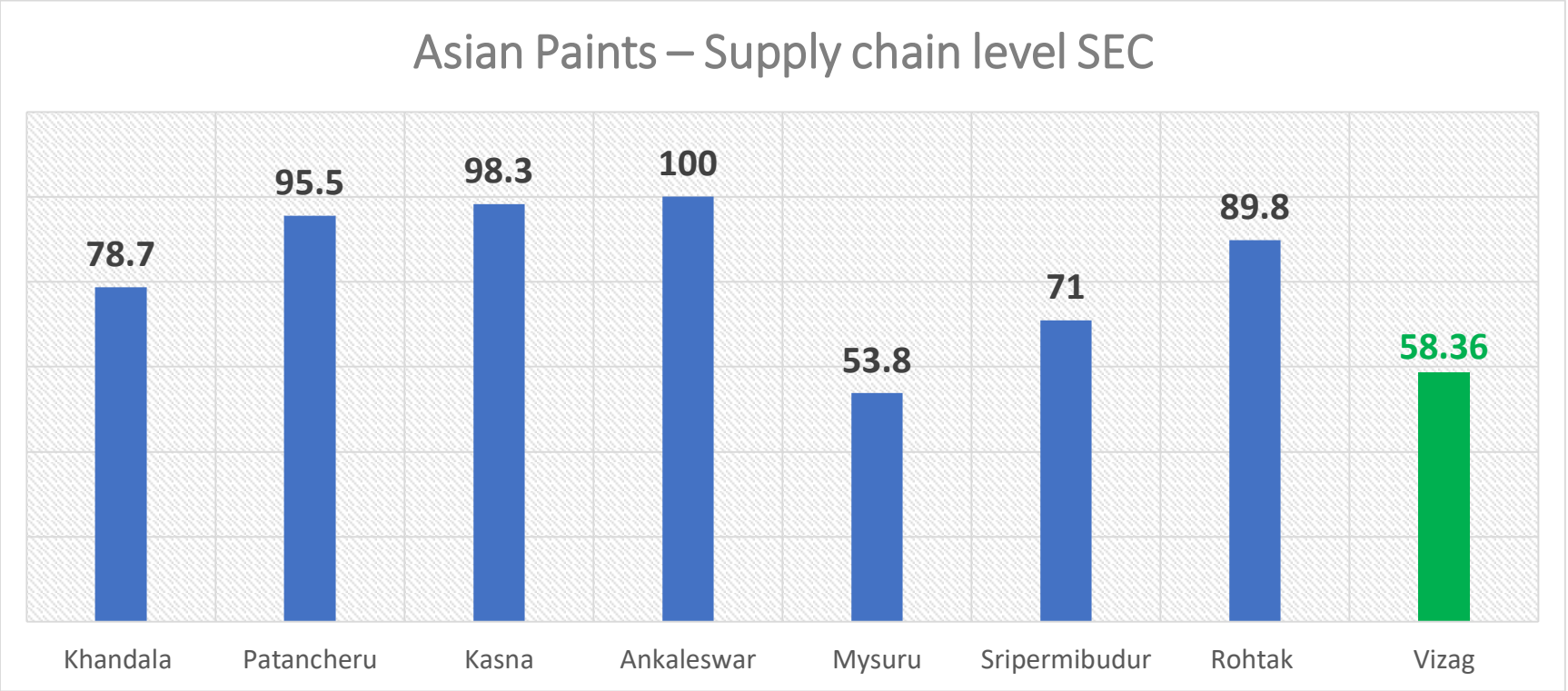
1. 1100mm cowl disc replacement with 950mm cowl disc in Twin shaft disperser
2. Change in general production guidelines to make our products sustainably advantaged
3. Increment due to a change in product mix driven by changing customer demand.
4. Changes in tip speed & optimized idle running of cowl.





Energy benchmarking

Internal benchmarking



At Asian Paints supply chain level, Vizag plant is the 2nd lowest in terms of Specific Energy Consumption

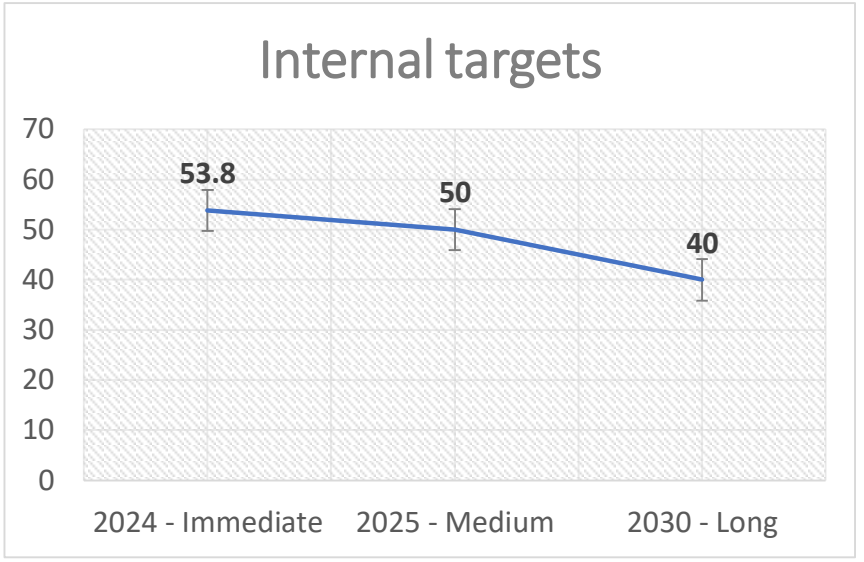
Energy benchmarking

National benchmarking

Specific Energy Consumption of Vizag plant is the lowest when compared to the leading paint manufacturers in India

Target & roadmap

Asian Paints, Vizag has taken the following targets after taking in consideration the design of the plant



Major ENCON projects planned

Sr. no.	Title of the project	Annual savings (million kWh)	Investment (In ₹Mn)	Comments
1	Hydraulic tilter for charging low density RM to SILOs	0.12	59	Currently, Rutile RMs are conveyed to Silo from FIBC
2	Twin Flat membrane superflo to single conical membrane for extender Flexible Intermediate Bulk Container	0.12	4.5	This change will result in conveying rate improvement as well as reduce SEC
3	Individual Flow meter for Twin Shaft Disperser to add wash water & main water simultaneously	0.05	2.5	It will decrease the TSD cycle time by 5%
4	IoT based Wi-Fi motion sensor installation for split ACs	0.02	0.2	It will minimize the idle operation
5	Installation of VFD for 160KW compressor	0.08	0.6	Currently, 110KW VFD compressor is used as primary
6	Packing lines SPC improvement	0.12	0	modifying the stop & stop logics of different conveyors involved in the packing machines
7	Chilling & cooling line replacement	0.03	1.6	It will decrease the heat transfer losses of cooling & chilling water

Major ENCON projects planned

Hydraulic tilter for conveying rutile RMs to Silo

Issues faced –

1. Low conveying rate for low density (rutile) RMs in conventional setup – 5 to 8 TPH
2. High energy consumption due to long distance through pneumatic transfer
3. Dusting issues
4. High man-machine interaction

Solution proposed -

1. With hydraulic tilter conveying rate up to **20 TPH** can be achieved which provides an astonishing increment up to **250%** compared to existing setup
2. Less energy consumption – up to 40% savings
3. Total investment - **5.9 Cr**
4. Overall units savings projected – **1.2 lakh kWh/annum**

Energy savings projects implemented in last 3 years

FY 2020-21

Sr. no.	Title of project	Annual savings (million kWh)	Total annual savings (₹Mn)	Investment (In ₹Mn)	Payback period (months)
1	Intelligent Flow Controller (IFC) installation for compressed air network	0.09	0.55	0.6	13
2	Cowl disc replacement in Twin shaft disperser (TSD)	0.35	2.03	3.29	18
3	Increment in powder addition rate from Charge hopper to TSD (450 to 600 Kg/min.)	0.07	0.42	0	0
4	FIBC oversize dust collection blower optimization	0.04	0.50	0.08	2
5	Introduction of powder tankers for unloading powders into SILO in place of FIBC	0.07	0.43	0.2	5
6	Wash water storage tank, RM storage tank agitator running optimization	0.01	0.062	0	0

Energy savings projects implemented in last 3 years

FY 2021-22

Sr. no.	Title of project	Annual savings (million kWh)	Total annual savings (₹Mn)	Investment (In ₹Mn)	Payback period (months)
1	Improvement in RM conveying rate by changing the flushing time	0.06	0.36	0	0
2	Energy efficient, low weight cooling tower FRP blades installed to improve aerodynamics	0.03	0.19	0.6	36
3	Motion sensor installation for Exhaust fans & Lights in washrooms	0.03	0.16	0.069	4
4	TSD SPC optimization by optimizing the grinding timings as per general production guidelines	0.02	0.14	0	0
5	Thickener parallel addition logic implementation in 50+ formulations	0.01	0.07	0	0

Energy savings projects implemented in last 3 years

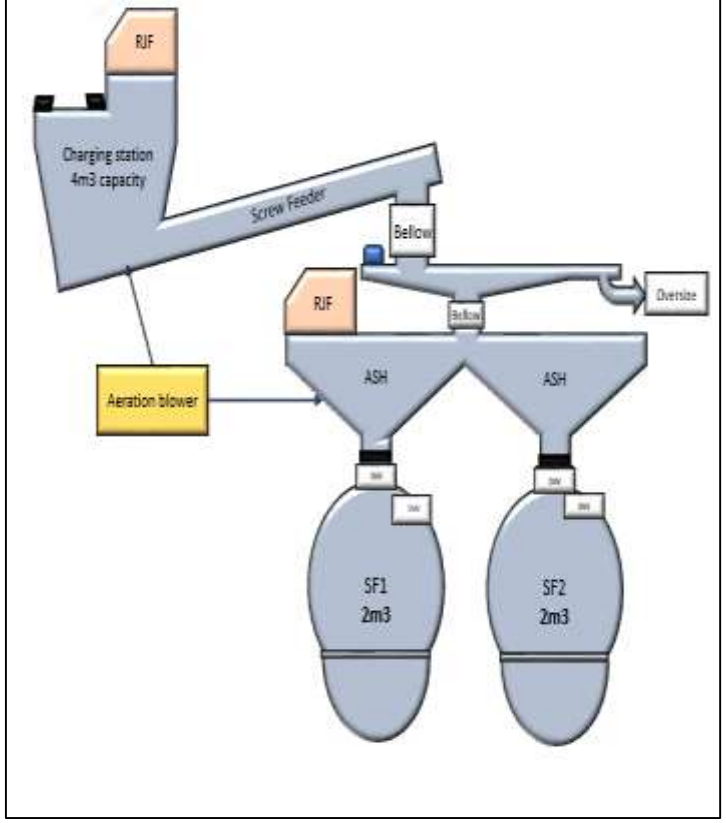
FY 2022-23

Sr. no.	Title of project	Annual savings (million kWh)	Total annual savings (₹Mn)	Investment (In ₹Mn)	Payback period (months)
1	Presence sensor installation for RMG bag folding machine dust collector	0.05	0.3	0.01	1
2	Introduction of RMs like Calcium carbonate SS, Steatite 500 & CCH in powder tanker	0.07	0.43	0	0
3	Ystral SEC optimization – Timely replacement of conti & change in logic	0.04	0.23	0.5	26
4	Reduction in operation time from 16 hr. to 10hr. in RMG block	0.02	0.13	0	0
5	5 days operation of Polymer block	0.02	0.13	0	0

Innovative project – (1)

Single conical super flow membrane for FIBC

Before



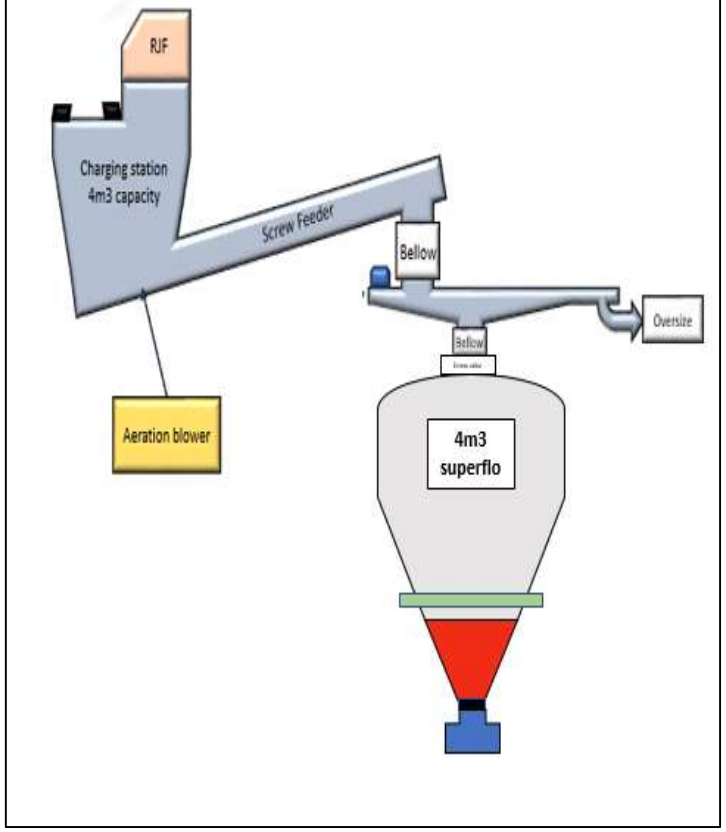
Issues faced –

1. Air slide hopper – unable to transfer @ 8 to 9 TPH
2. Flat membrane gets damaged within 2.5 months
3. Conveying air distribution is not proper due to flat membrane

Solution & Benefits –

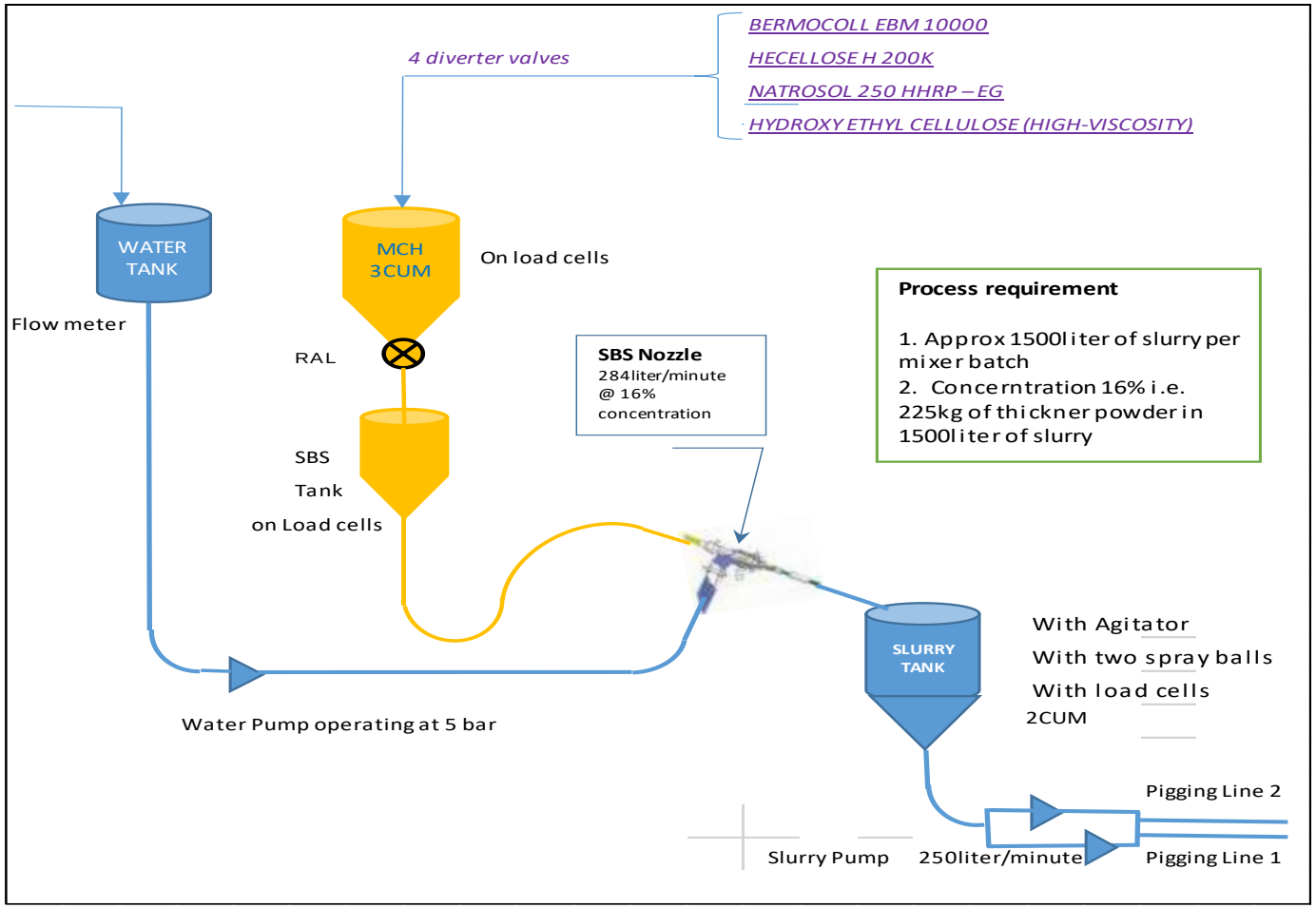
1. Conical membrane design – transfer up to 16 TPH
2. Discharge: Through bottom
3. The average conveying rate improvement of 33%
4. Transfer compressor operation reduction by 10%
5. Total investment - **45 lakhs**
6. Overall units saved – **1.25 lakh kWh/annum**

After



Innovative project – (2)

Semi Bulk System



Background –

1. In paint processing, thickener addition in TSD is most power consuming phase
2. Power consumption around 2% of overall process

Solution & benefits –

1. Thickeners added directly into let-down tank by single pass addition of water
2. Reduces water used to disperse thickeners
3. Dispersion process to prepare slurry doesn't require any power.
4. Total investment - **36 lakhs**
5. Overall units saved – **1 lakh kWh/annum**

Utilization of Renewable Energy sources

On Site Generation

Year	Technology	Installed capacity (MW)	Generation (Mn kWh)	% of overall Electricity consumption
FY 2020-21	Solar	1	1.14	13.2
FY 2021-22	Solar	1	1.18	9.5
FY 2022-23	Solar	2.24	2.11	16.6

Solar plant of capacity 1 MWp was commissioned in FY 2018-19
Solar plant of capacity 1.264 MWp was commissioned in FY 2022-23

Total Solar capacity of Asian Paints, Vizag is **2.264 MWp**

1.264MW Solar plant

1MW Solar plant

Utilization of Renewable Energy sources

Off Site Generation

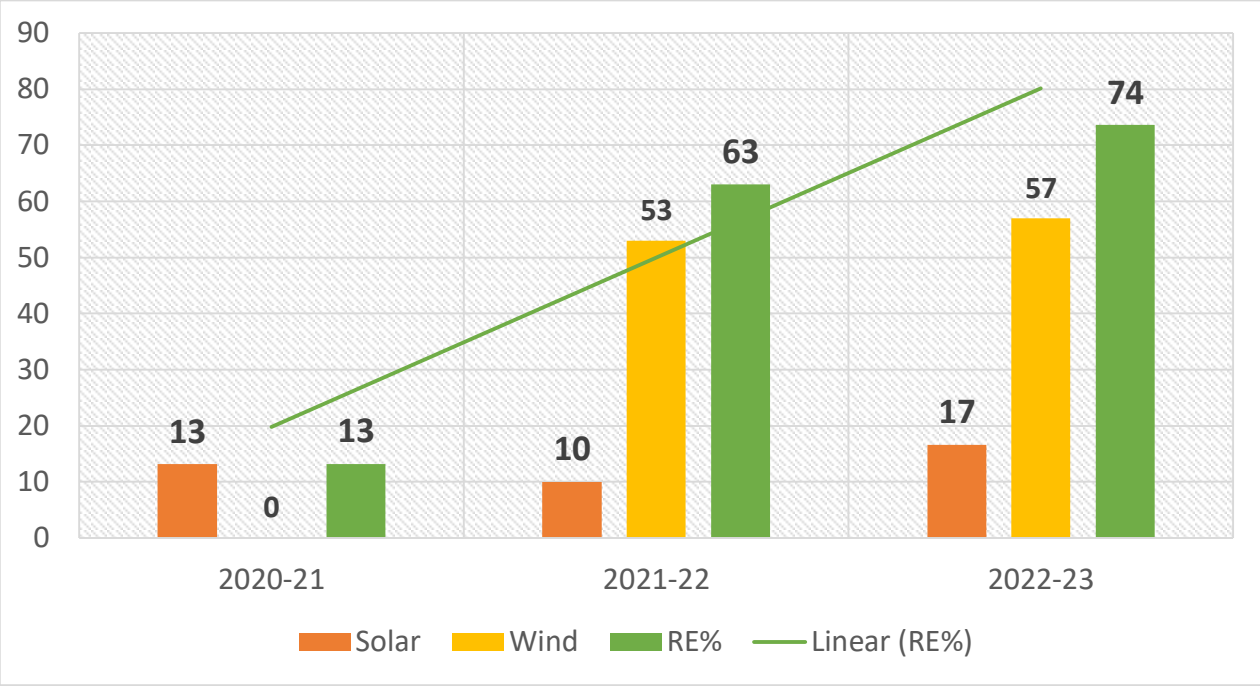
Year	Technology	Installed capacity (MW)	Wind Unit Consumption (Mn kWh)	% of overall Electricity consumption
FY 2020-21	Wind	0	0	0
FY 2021-22	Wind	4.2	8.73	70.3 %
FY 2022-23	Wind	4.2	9.83	77.6 %

Windmill of capacity 4.2 MW was commissioned in FY 21-22
Banking facility was availed for wind mill in FY 2022-23

Wind mill @ Beluguppa, Anantapur

Renewable Energy Scenario

Solar, Wind & RE%



Key challenges & intervention

Issues faced –

1. Low RE% due to Real Time Adjustment (RTA) in initial stage for wind power consumption due to GO Ms. No. 35.
2. Slow and interrupted wind settlement due to tri partite interventions in adjustment process i.e. APEPDCL, APSPDCL & APTANSCO.
3. Difficult to achieve RE% 100 due to APERC clause for minimum consumption of electricity i.e. 50*(80% of CMD).

Intervention –

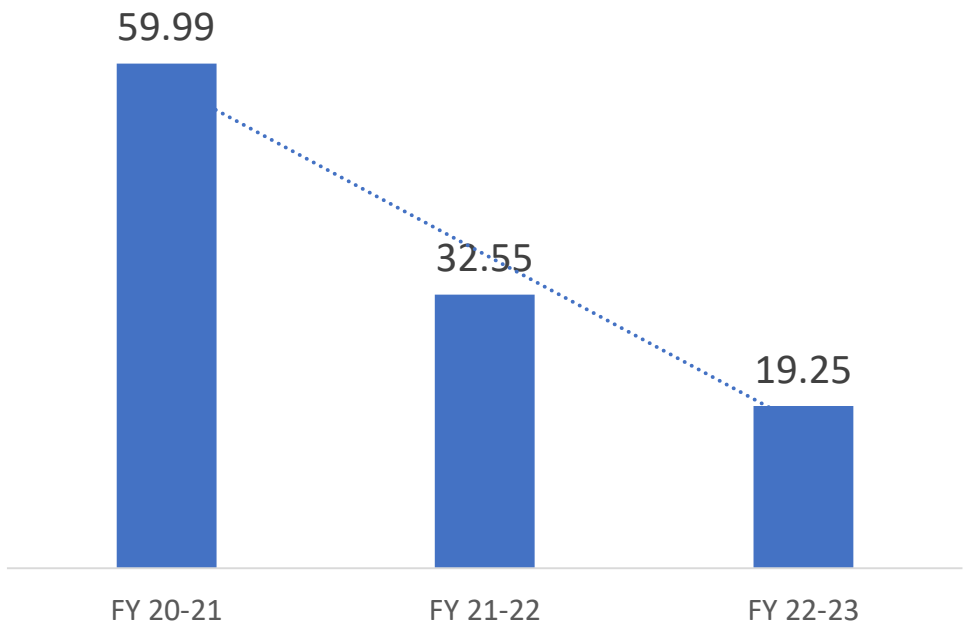
1. Got banking facility for wind adjustment.
2. Initiated vendor registration for pooled cost w.r.t. un-utilized wind generated units.

High lights-

1. Improvement in PR% from 69 to 72 through Chemical cleaning of rooftop solar modules.
2. Optimal load shifting to get maximize utilization of wind energy.

GHG Inventorisation

Specific Emission tCO2e/Kl of production- Asian Paints Limited- Visakhapatnam



GHE Emission- Asian Paints Limited-Visakhapatnam			
Category	**FY 20-21**	**FY 21-22**	**FY 22-23**
Scope 1 (tCO2e)	266	584	606
Scope 2 (tCO2e)	7,161	6,243	3,572

Reasons for reduction in emission intensity –

1. Continuous focus on implementing Energy Efficiency initiatives.
2. Continued investments in Renewable Energy.
    1. FY 21-22 solar capacity increased to 2.264 MWp.
    2. Chemical cleaning of solar module helps us to increase PR%.

Green Supply Chain Management

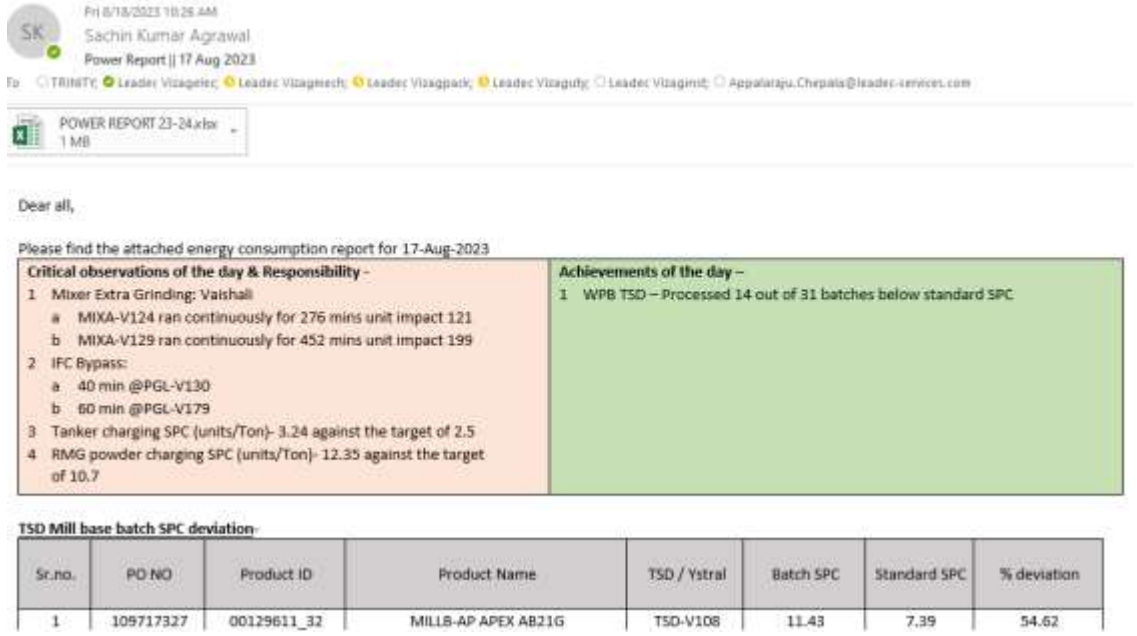
Initiatives

1. Proportion of recycled plastic used in our packaging in FY 22-23
   - 15% (recycled content across products)
   - 20% (in green seal certified products)
2. Collection of plastic packaging from painters and consumers across states
3. Introduced Green channel partners
4. Multimodal transportation

Energy management system

Live monitoring of energy consumption

Daily power report



Sachin Kumar Agrawal
Power Report || 17 Aug 2023

POWER REPORT 23-24.xlsx
1 MB

Dear all,

Please find the attached energy consumption report for 17-Aug-2023

Critical observations of the day & Responsibility -

1 Mixer Extra Grinding: Vaishali
   a MIXA-V124 ran continuously for 276 mins unit impact 121
   b MIXA-V129 ran continuously for 452 mins unit impact 199
2 IFC Bypass:
   a 40 min @PGL-V130
   b 60 min @PGL-V179
3 Tanker charging SPC (units/Ton)- 3.24 against the target of 2.5
4 RMG powder charging SPC (units/Ton)- 12.35 against the target of 10.7

Achievements of the day –

1 WPB TSD – Processed 14 out of 31 batches below standard SPC

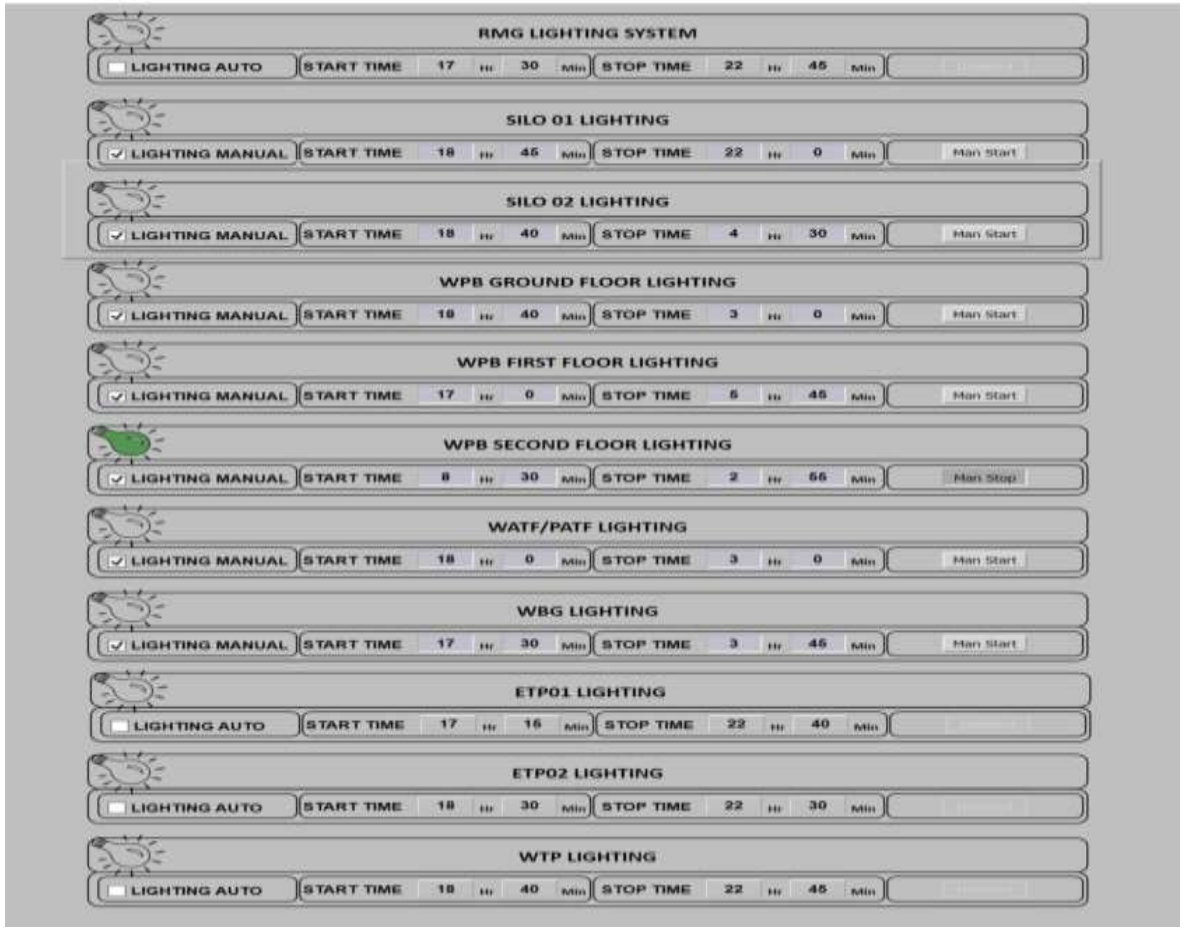
TSD Mill base batch SPC deviation

Sr.no.	PO NO	Product ID	Product Name	TSD / Ystral	Batch SPC	Standard SPC	% deviation
1	109717327	00129611_32	MILLB-AP APEX AB21G	TSD-V108	11.43	7.39	54.62

Daily power report circulated across the plant highlighting excess consumption & responsibility against the same is assigned to individuals

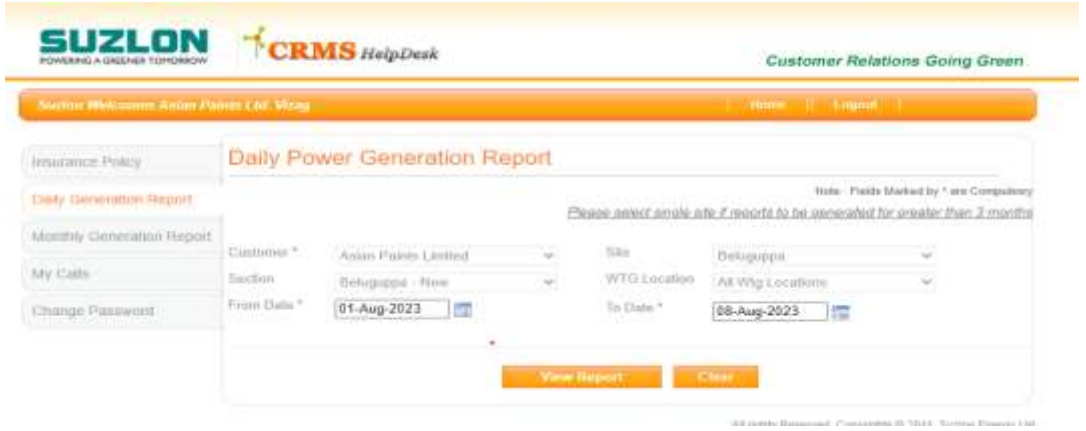
Energy management system

Lighting monitoring system through DCS

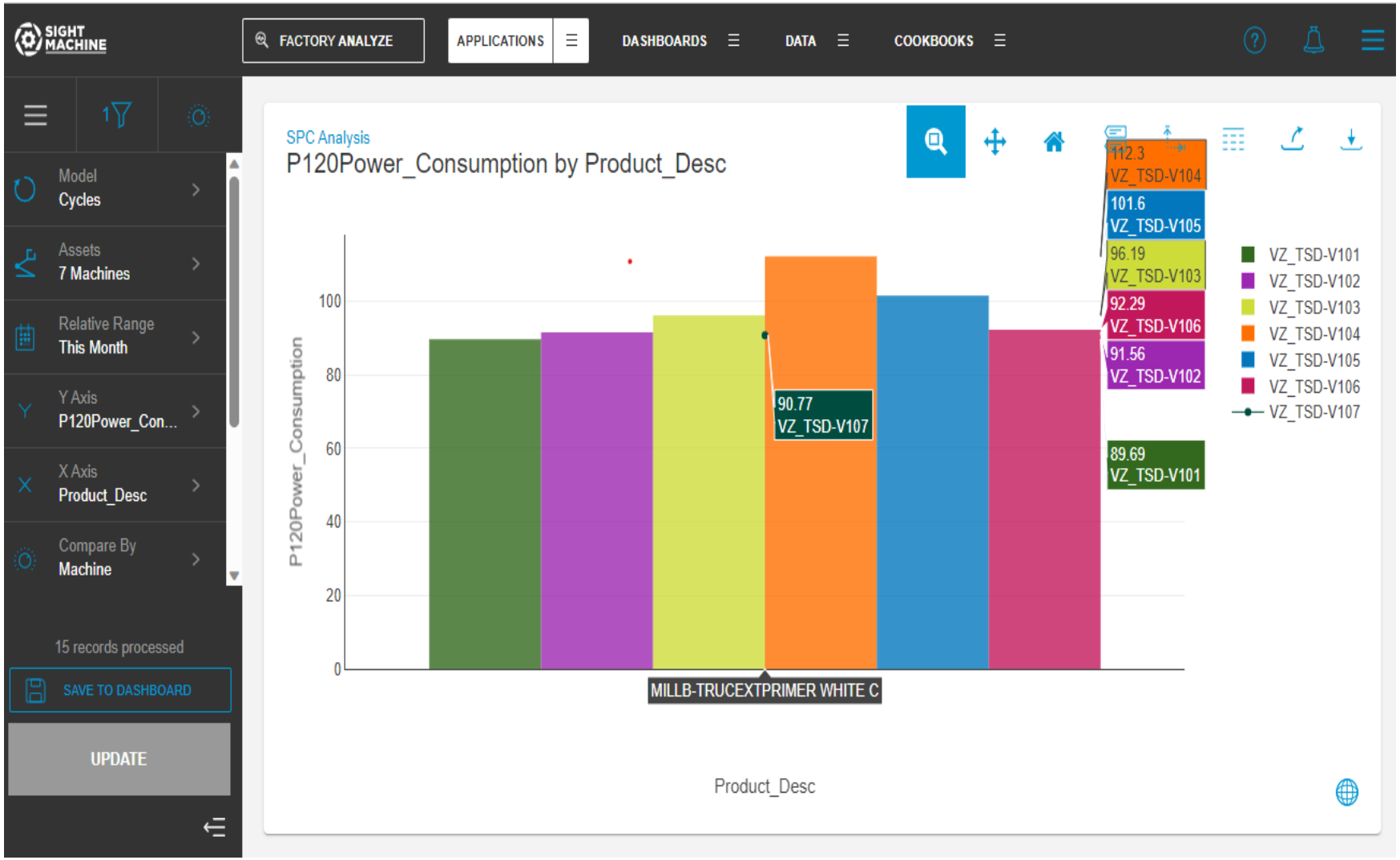


Solar generation – real time tracking

Wind generation tracking



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.

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

Safety & sustainability

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

Technology

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

Awards & certifications

Awards & certifications

Gold Award in 43rd CII Kaizen Competition
Inhouse EOW development for Polymer Block

GOLD

CII
Confederation of Indian Industry

Gold Award
7th CII National Competition on Digitalisation, Robotics & Automation
Auto Tanker Unloading in Tank Farms

Silver Award
AR Based Induction for New Joinees
7th CII National Competition on Digitalisation, Robotics & Automation

SILVER

Silver Award
Digitalization of KPI monitoring
7th CII National Competition on Digitalisation, Robotics & Automation

Awards & certifications

CII
Confederation of Indian Industry

Thanks !!!

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