National Award for Excellence in Energy Management-2023
Hero MotoCorp Ltd.-Vadodara

Presenter:

1. Debashish Nayak (HOD-Maintenance & Utility)
2. Saroj Behera (Section Head-Utility)
3. Akshay Beejawat (Team Manager-Business Excellence)

13th Sept 2023

Content

- Brief Introduction on Company/Unit
- Manufacturing Process
- Sp. Energy Consumption in last 3 years (FY 20-21 to FY 22-23)
- Benchmarking Study
- Energy Saving projects implemented in the last three years
- Innovative Projects implemented
- Utilisation of Renewable Energy sources
- Waste utilization and management
- GHG Inventorisation
- Green Supply Chain Management
- EMS System and other requirements
- NET ZERO commitment

Brief Introduction of Organisation

Leadership Commitment toward Sustainability

"We must do something for the community from whose land we generate our wealth"

- Dr. Brijmohan Lall Munjal (1st July 1923 - Forever)

Vision

"BE THE FUTURE OF MOBILITY"

Mission

Create	Collaborate	Inspire
• Redefine mobility through creation of mobility roadmap • Set best practices and benchmark for the industry	• Leverage partnership and exhibit teamwork • Co-create solutions that benefit the community, while caring for both the internal and external environment eco systems and support sustainability	• Move forward with purpose • Inspire our colleagues, customers and communities. • Thrive on the local and global stage

Values

Hero MotoCorp is highly committed to sustainability initiatives with its vision of "Be the future of mobility" and mission to Create, Collaborate and Inspire, and follow its values at all its level.

Brief Introduction of Organisation

Product Range

Milestones

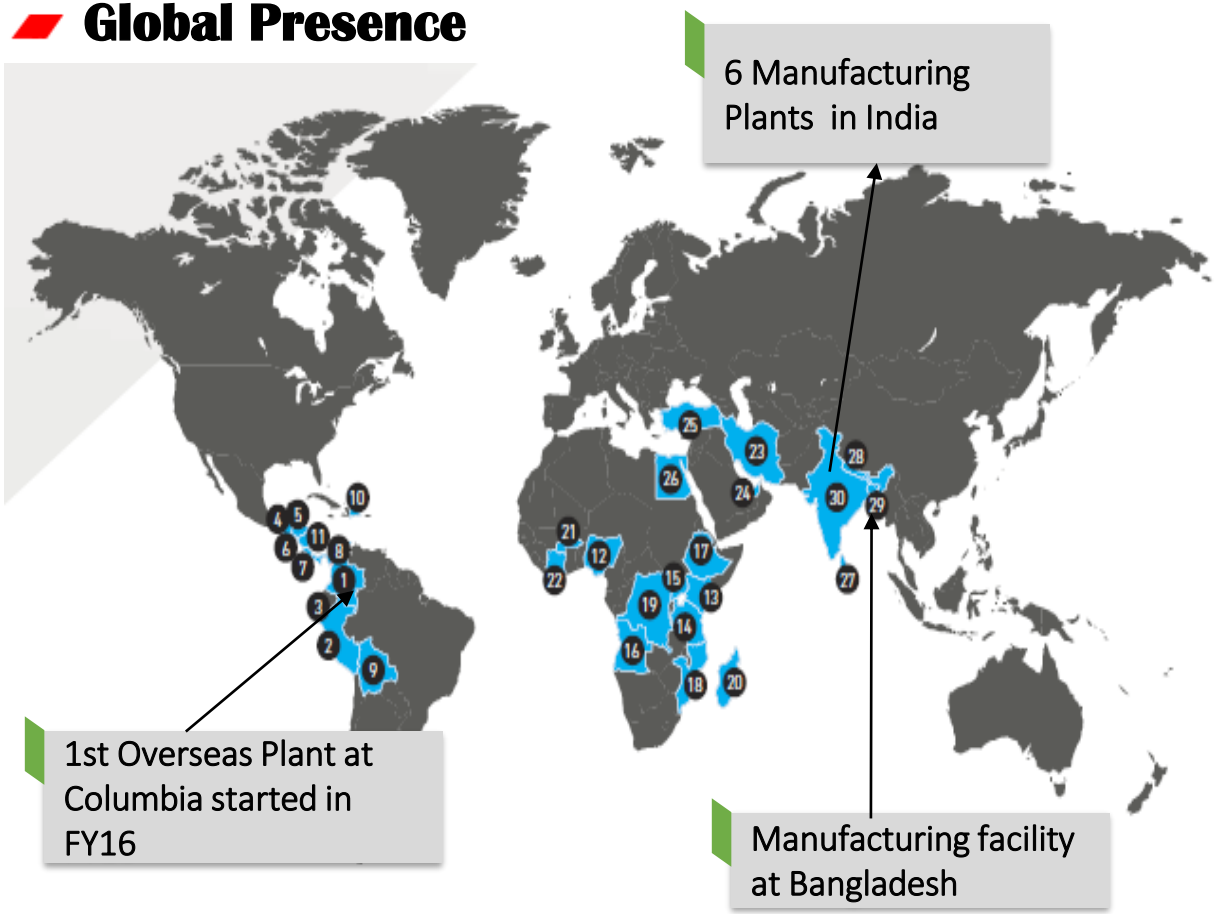
Manufacturing Happiness Since 1985

With Innovation at its core, Hero MotoCorp continues to provide mobility to the aspirations of millions around the world.

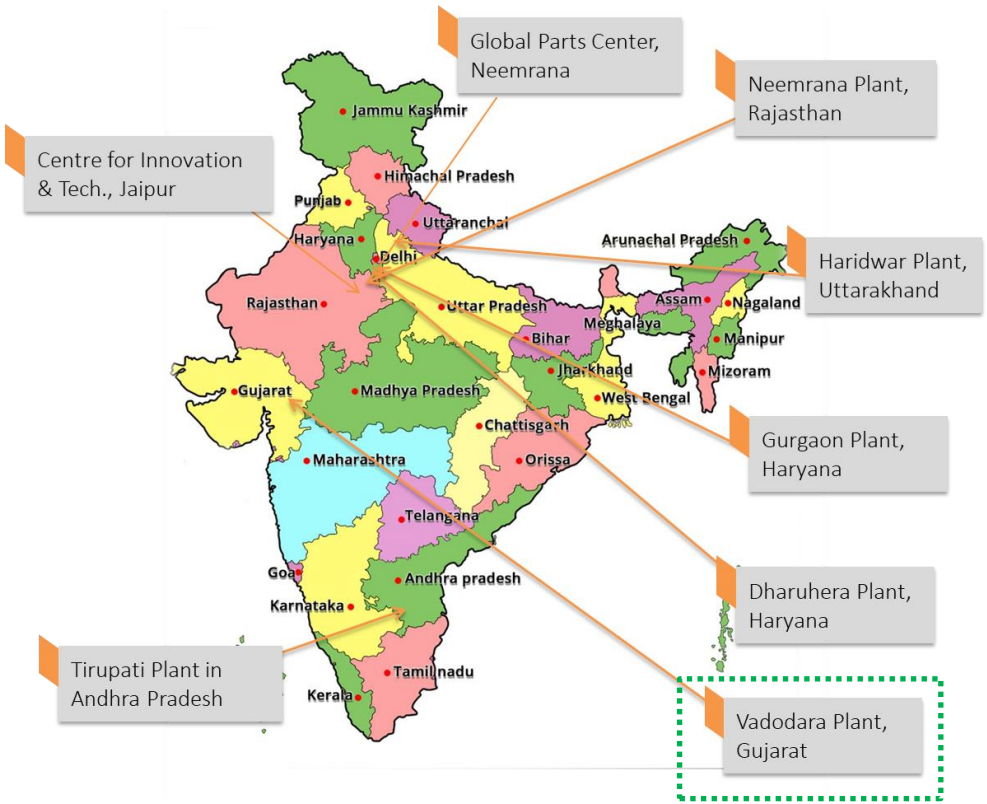
With a wide product range from 100CC to premium segments and innovation at its core, HMCL continues to provide mobility to the aspirations of millions around the world. We have 110 Mn + Satisfied customers and Number 1 Two wheeler manufacturer for more than the last two decades.

Brief Introduction of Organisation

Global Presence



Manufacturing Units in India



47 Countries
Worldwide Presence

3.2%
Share of international sales

$ 14.2 Million
Revenue from GB Parts Business

16
New Products & refreshes

32%
Contribution from premium segment to international sales

With Worldwide presence in 47 Countries, a 3.2% share of International sales, and 16 New Products & refreshes lined up, HMCL has 32% contribution from the premium segment to international sales.

Brief Introduction of Plant

Vadodara Plant (HM5V)

Reasons for choosing Halol Location in Gujarat State

- Fiscal Benefits by State Sales
- To cater western region demand
- Near to Port (Opportunity for Export Business)

Products

Splendor Plus

HF Deluxe

Hunter Export BSIV

Passion X-Tech

Pleasure

Super Splendor

Key Highlights

- Total Plot Size – 187 acre (7.5 lakh Sq. Mt.)
- Designed by William Mc Donough (Cradle to Cradle Designer)
- Plant Capacity- 4000 VPD (Expandable up to 6000 VPD)
- Flexible lines for scooter & and motorcycle production
- Provisions for making it an export hub
- 2000+ employment
- Gender Diversity- 16 %

HM5V Plant location is chosen to get fiscal benefits, cater to the western region demand of country and business opportunities in Global market. The plant is manufacturing the highest selling models of 100 CC and Export CKD/SKD Hunter Model. The plant is built on the lines of Sustainability.

Brief Introduction on Plant

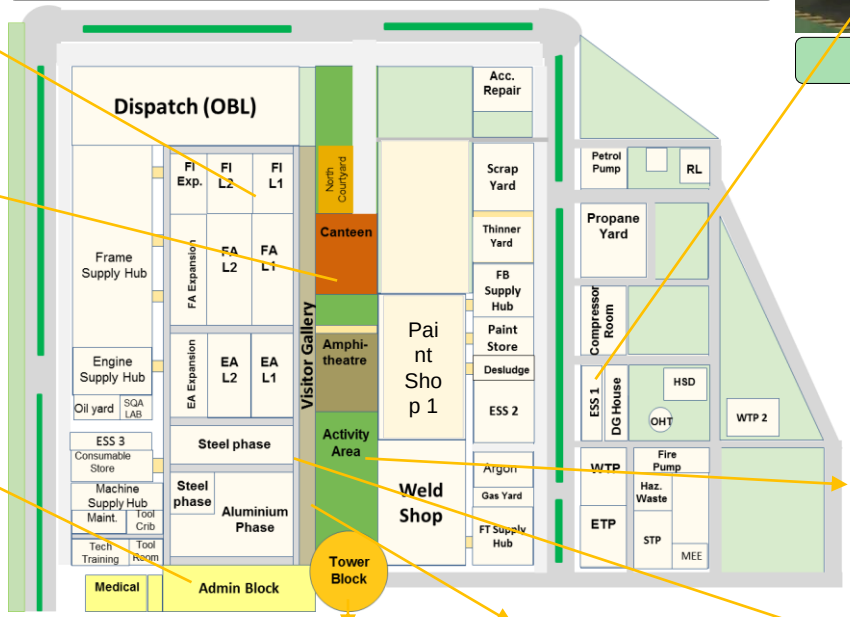
Bigfoot Air Cooling System

Inverted Trusses

Gas Insulated Switchgear

100% LED lights across plant

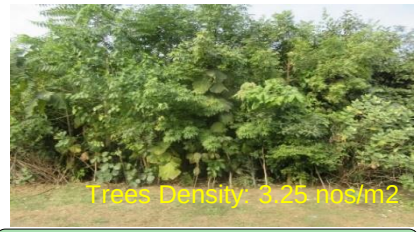
Energy Efficient canteen



1.78 MW Solar panels

160 Rain Water Recharge Shaft Water Harvesting

Hydroponic



Dense forest- Miyawaki technique

Tower block - 12 Kwp BIPV cells

RTO

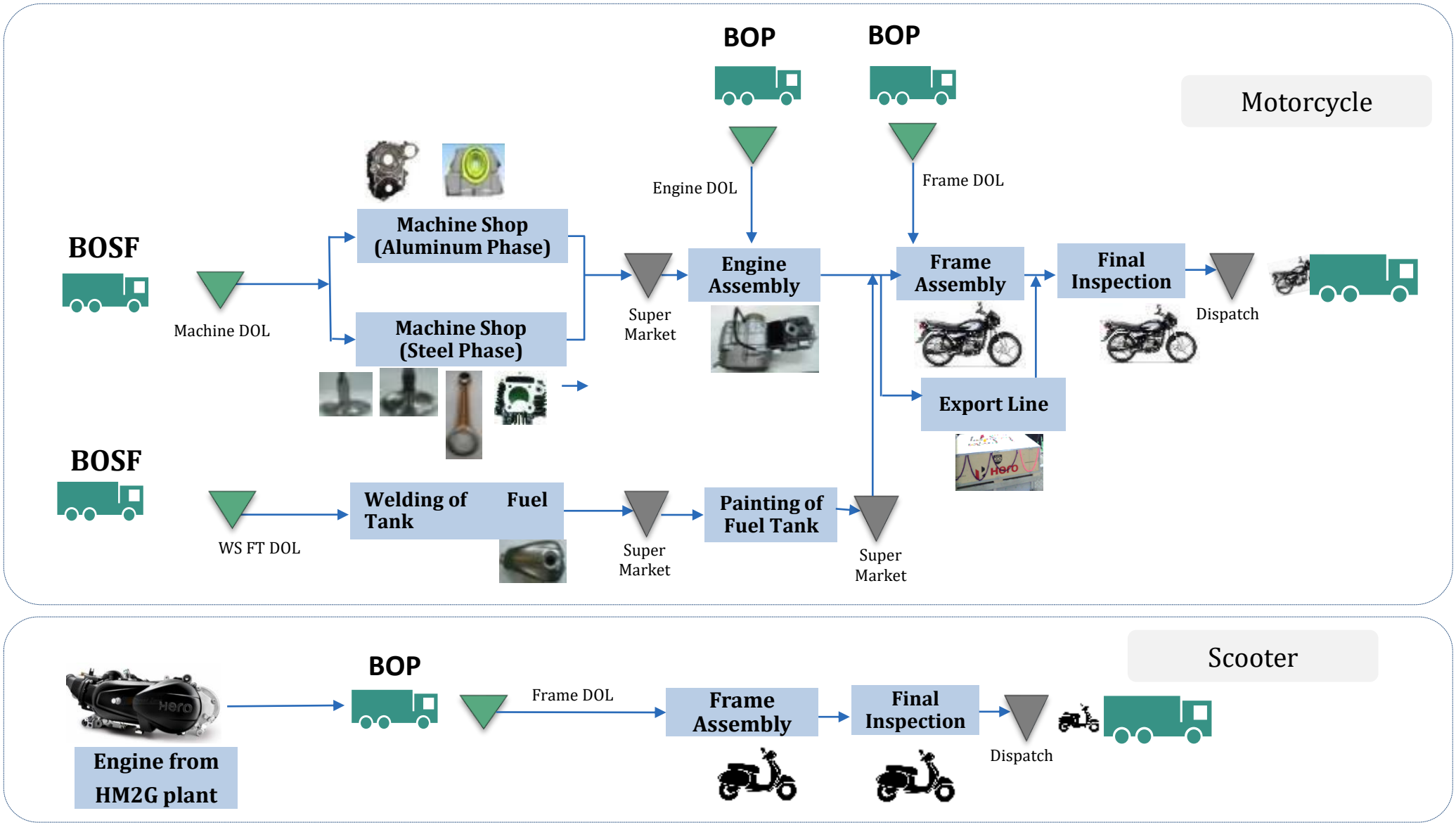
17 Green walls- In-plant & visitor gallery

Mechanical Evaporator Zero Liquid Discharge

HM5V plant is equipped with various unique facilities in terms of infrastructure, Green initiatives and technologies like Hydroponics, Big Foot, Green Walls, Energy efficient offices, water harvesting shafts, etc.

Manufacturing Process

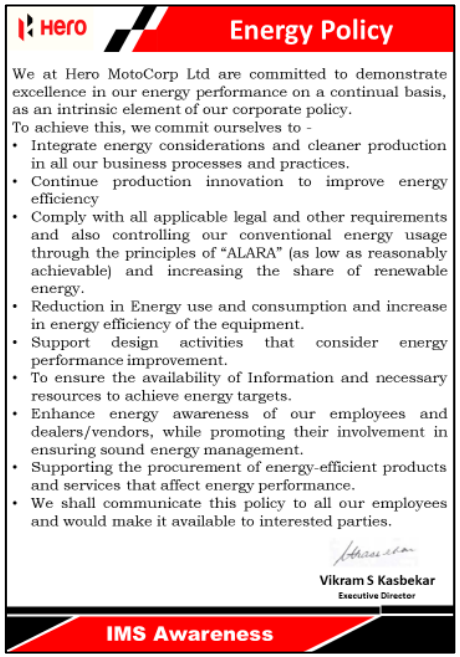
Process flow of Plant



There are 7 components which are machined and 1 component fuel tank which goes through process of welding and painting. After machining & painting, assembly of engine & vehicle is done.

Manufacturing Process

Energy Policy



Hero

Energy Policy

We at Hero MotoCorp Ltd are committed to demonstrate excellence in our energy performance on a continual basis, as an intrinsic element of our corporate policy.
To achieve this, we commit ourselves to -

- Integrate energy considerations and cleaner production in all our business processes and practices.
- Continue production innovation to improve energy efficiency
- Comply with all applicable legal and other requirements and also controlling our conventional energy usage through the principles of "ALARA" (as low as reasonably achievable) and increasing the share of renewable energy.
- Reduction in Energy use and consumption and increase in energy efficiency of the equipment.
- Support design activities that consider energy performance improvement.
- To ensure the availability of Information and necessary resources to achieve energy targets.
- Enhance energy awareness of our employees and dealers/vendors, while promoting their involvement in ensuring sound energy management.
- Supporting the procurement of energy-efficient products and services that affect energy performance.
- We shall communicate this policy to all our employees and would make it available to interested parties.

Vikram S Kasbekar
Executive Director

IMS Awareness

- *Integrate Energy consideration & Cleaner Production.*
- *Innovation to improve energy Efficiency*
- *Comply legal requirements*
- *Principle of ALARA*
- *Reduction in Energy Use & Consumption*
- *Increase in Energy Efficiency*
- *Availability of Information & Resources*
- *Enhance Awareness*
- *Procurement of Energy Efficient Products*
- *Communication of Policy*

Pillars of Energy Management

Energy Management Cell

Energy Management Working Committee	Review	Role
Head of Plant Operations	Monthly Review	Commitment & Support
Manufacturing Head	Fortnightly Review	Assessing Energy Profile & Establishing Baseline
Maintenance Head, HR Head, Energy Manager, Production Head, SHE Head	Weekly Review	Project Planning & Implementation
	Daily Review	Idea Generator Project Implementer Employee Awareness Technology Evaluator Evaluating Energy Performance Recognize Achievement

Energy Performance Management

Excellent Energy Unit

Energy Efficiency Improvement	Energy Use Optimization	Energy Consumption Reduction	Renewable Energy
Loss Elimination Equipment Efficiency Improvement Evaluating Energy Performances	Maximizing System Efficiencies Energy Mode Optimization	Optimizing Input Energy Requirements TPM Implementation RCT Projects Implementation	Hybrid Power Utilization Efficiency Improvement of Existing System

Total Employee Involvement

The plant is driven by Energy Policy and Pillars of Energy Management. Energy Management Cells with defined roles and review helps to achieve Energy Performance management and achieve the aim of Excellent Energy Unit.

Manufacturing Process

Energy Distribution Process

Energy Source

Energy Transmission

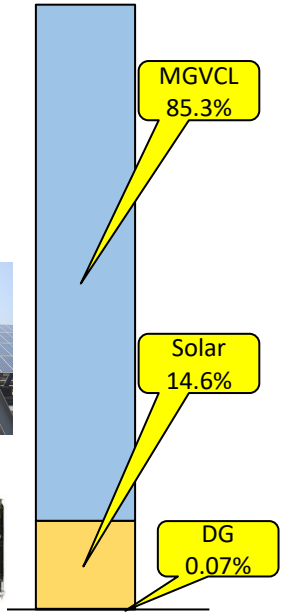
Area wise Percentage Distribution

Electrical

MGVCL

SOLAR

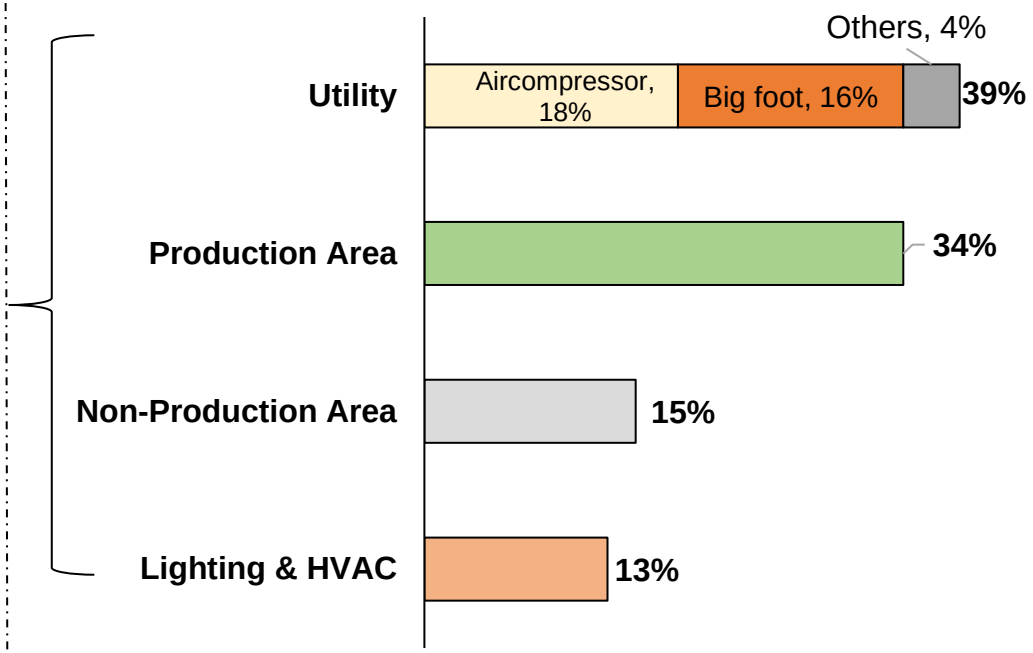
DG



ESS 01

ESS 02

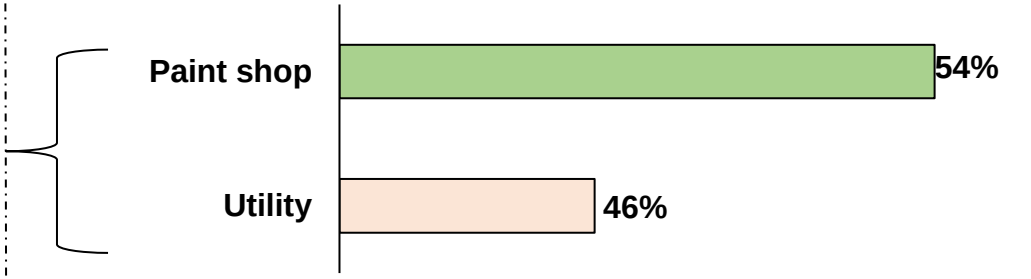
ESS 03



Thermal

GUJARAT GAS

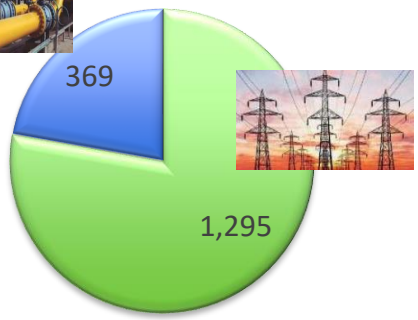
GAS SKID



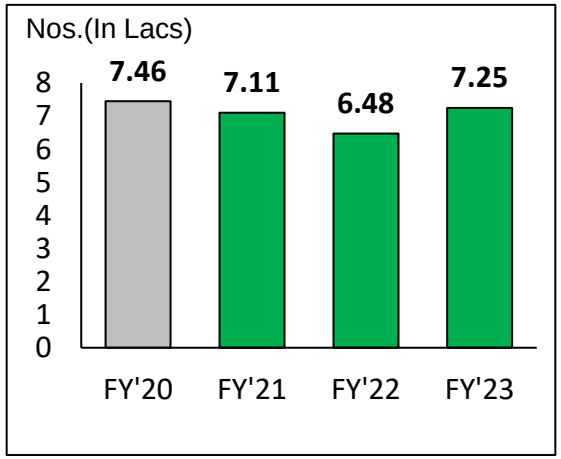
Electrical Power sources are Grid power, solar power, and DG(kept as backup). These energy sources are transferred to shops through ESS. Natural gas is transferred through a gas skid to use in Paint shop & Utility.

Specific Energy Consumption in the last 3 years

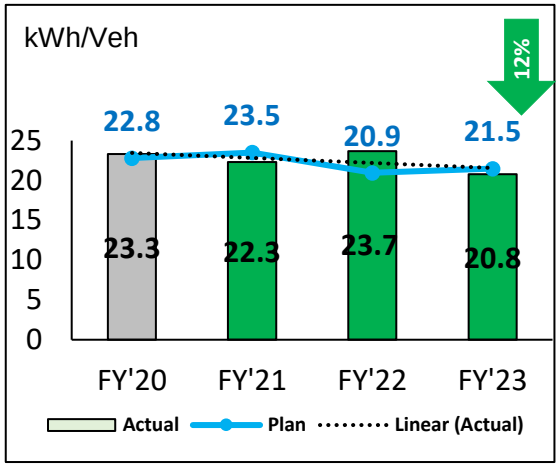
Energy(ToE)FY23



Production



Electrical SEC



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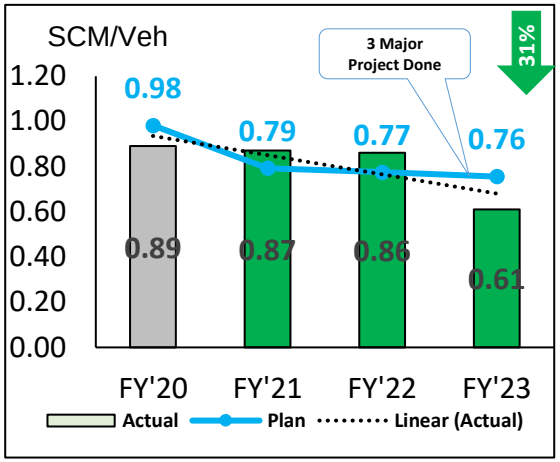
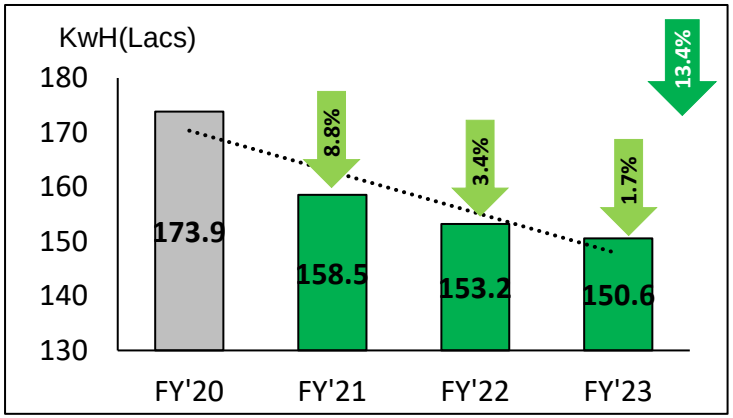
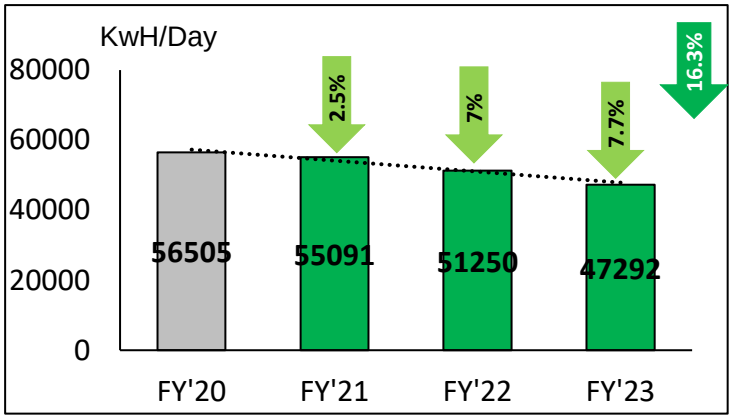


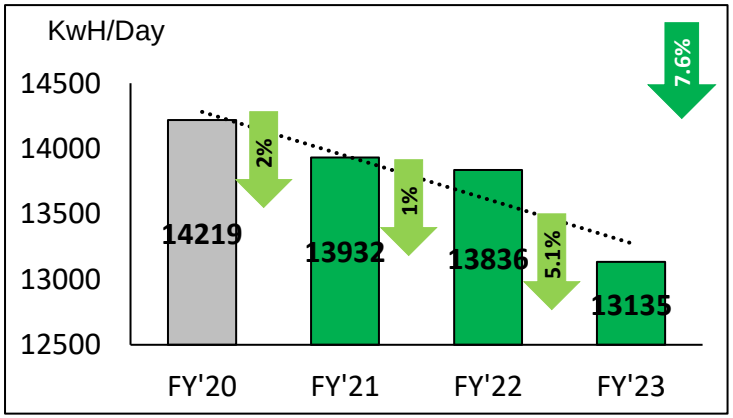
Kwh Consumption



Power Consumption (Production Day)



Power Consumption (Non-Production Day)



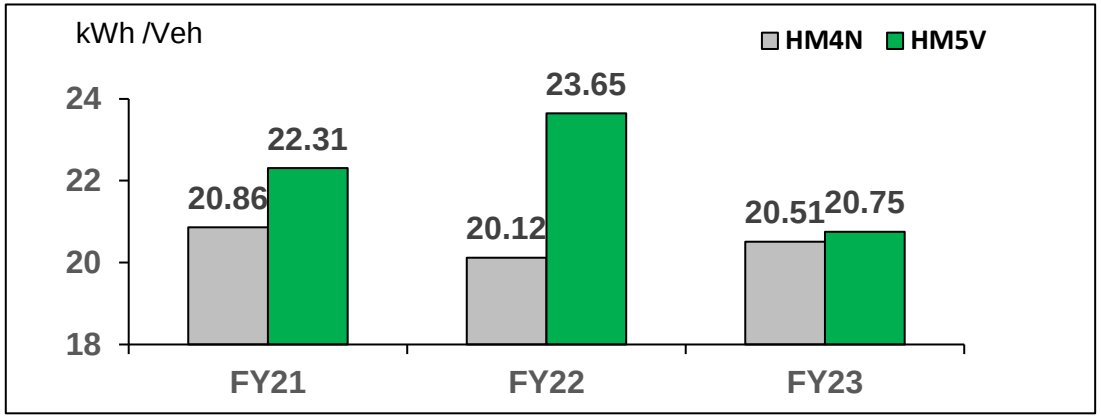
13.4% Reduction in Overall Plant Kwh

16% Reduction in Working Day Kwh and 7.6% reduction in Non-Working Day

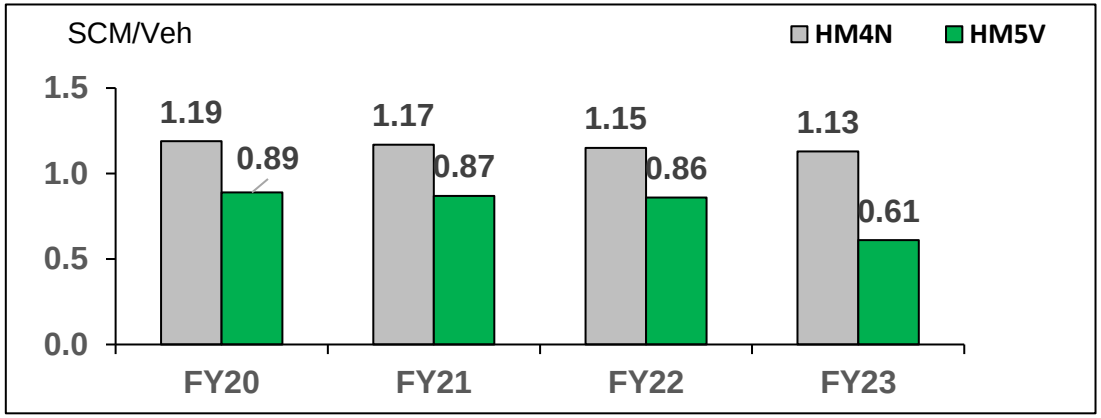
Electrical and thermal consumption has been reduced throughout the years and Power consumption on production and Non-production days are also tracked.

Benchmarking Study

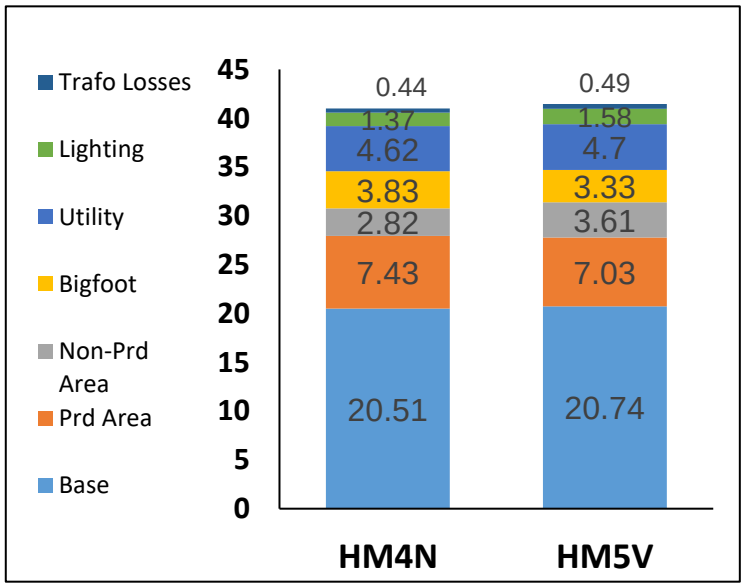
Electrical SEC



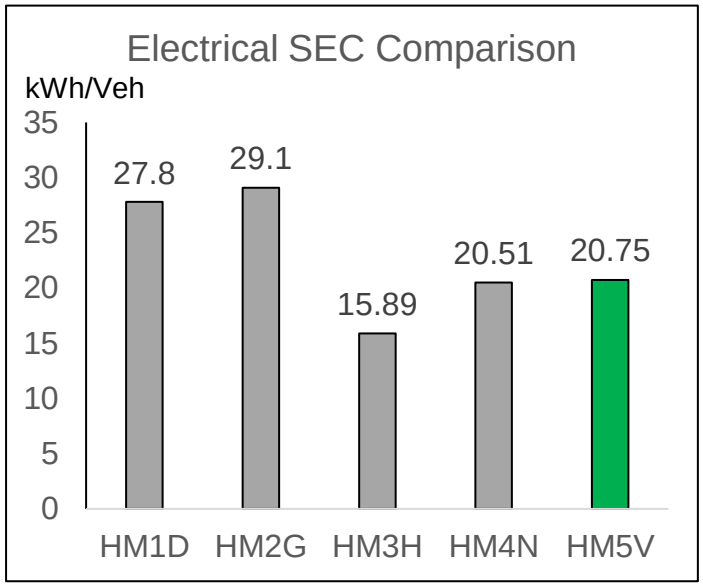
Thermal SEC



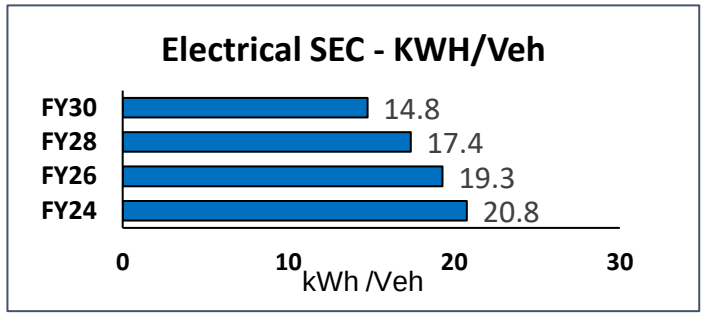
Major area

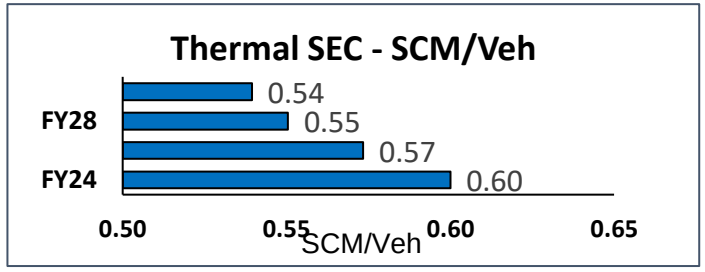


Hero Plant Comparison



Short Term & Long Term Target



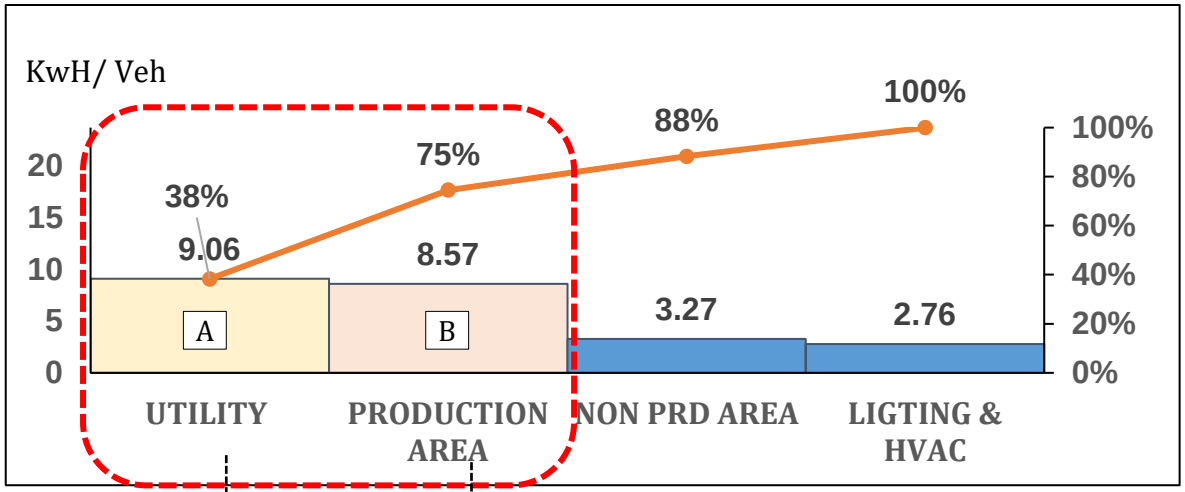


Vadodara Plant took Neemrana Plant as a benchmark to improve in FY21 due to similarity in operation and capacity. Improvement has been done to reach the comparable level

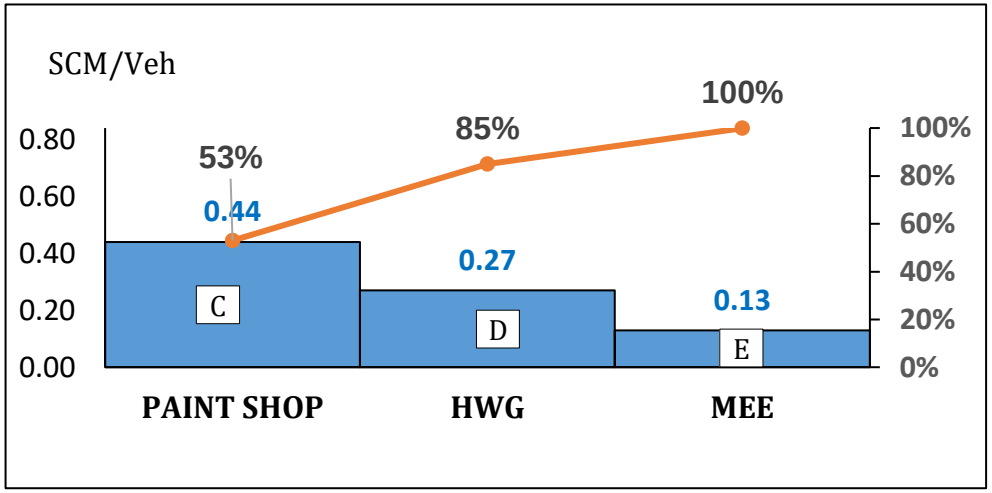
Energy Saving projects implemented in last three years

Analysis

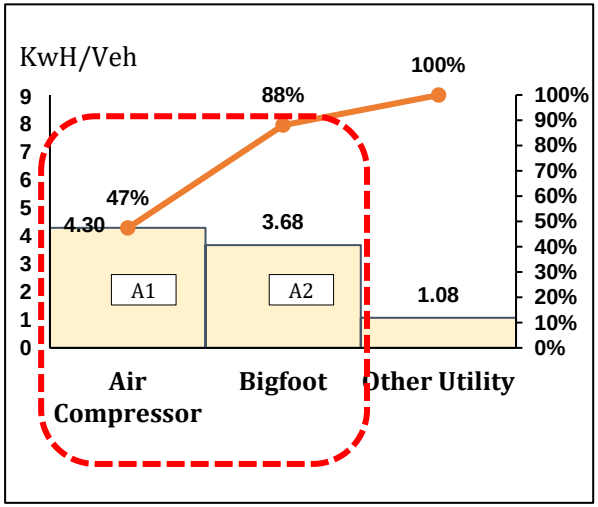
Area wise Electrical Energy consumption: FY22



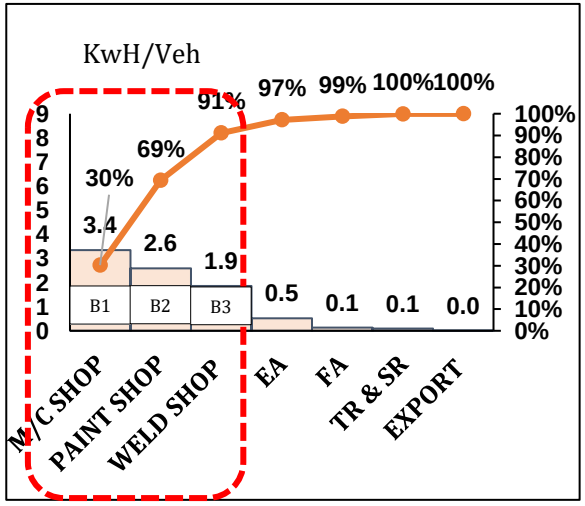
Area wise Thermal Energy Consumption : FY22



Utility Energy Consumption: FY22



Production Power Consumption: FY22



Major projects Identified based on Energy Consumption in FY23:

- Air Compressor
- Big Foot
- Machine Shop
- Paintshop
- Weld shop
- Hot water generator
- MEE

In a similar way, Projects were identified at the start of each years for energy performance improvement

Comprehensive energy analyses are performed annually, and actions are planned to minimize the energy usage of key contributors.

Energy Saving projects implemented in last three years

Summary

23 Projects in FY21

ENERGY CONSERVATION PROJECTS : FY 2020-21

Cat.		Description
Air Compresso	1	Power saving through installing Low CFM air compressor - utilization during Non working day
Utility	2	STP Air Blower Automation operation 10 min stop every 4hrs interval of Air Blower
	3	By providing VFD on Garden+Clarifier Pump and Filter Feed Pump at WTP-2
	4	By cleaning the Filters of Air Blowers of 3 Nos. Big Foot
	5	ESS-2 exhaust fan modification based on temperature input.
	6	By replacing the De-Rated Capacitor Unit with New Units. – 2 Nos.
	7	By providing VFD on Sewage Lifting Pump at STP – 1 No.
	8	1) Fire Electrical Pump frequently operates due to pressure switch installed in place of mechanical switch 2) Pressure switch system to be replaced
	9	5-8 Highbay lights continues to ON even in day time Timer Installation on Highbay Lights
	10	ETP Exhaust fan timer installation for energy saving
	11	Reduction in NG consumption through HWG Burner Set point reduced from 76 °C to 73 °C
	12	By reducing the Compressed Air Generation from 7 Bar to 6 Bar (Current Status- 6.7)
Paint shop	13	Supply and Exhaust fans continues to run at rated frequency when painting is not being done when robots are as per existing logic Supply and Exhaust fans frequency Ramp down during robot idle time
	14	Paint shop FDV running hrs. reduced through timer installation
	15	Supply and Exhaust fans continues to run at rated frequency when painting is not being done during lunch tin existing logic Supply and Exhaust fans frequency Ramp down during Lunch Time
	16	Hot Air Recirculation fans continues to run even after process stop Fans OFF Limit Temperature Set point to be increased/Shut down SOP to be revised in case Automatic System
	17	Cooling Zone starts 15-20 mins before line starts Separate ON-OFF Provision for Cooling Zone
Lighting & Ventilation	18	6-8 Highbay lights (connection with UPS) continues to run even when not required Timer Installation on Highbay Lights
	19	Gangway Between Al phase to Weld shop Provide timer for Light operation
	20	4 Highbay lights run for 8 hrs continuously required for dent repairing process which is being done at a small 2 Nos Tubelights installation for dent repairing area so as to eliminate running of 4 Highbay lights
	21	Zone Lights ON/OFF Switch is very far Tubelights power connection can be done with emergency lighting power board
	22	Wall Mounted Fans run idle other than tea break timings Timer Installation on 6 Wall Mounted Fans so as to Eliminate Wastage of power in not required Duration of th
	23	Power saving through Various RCT initiative 1- AHU no,-02 left blower made off- 769 Kwh/Day (one month) 2-Weld Shop G1+G2- 329 Kwh/Day (one month)
TOTAL		

22 Projects in FY22

ENERGY CONSERVATION PROJECTS

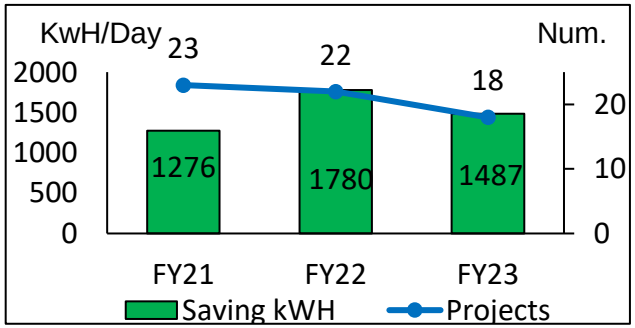
Cat.		Description
Utility	1	Temp. sensor in ESS-3 & interlocking with exhaust fans (horizontal deployement
	2	BigFoot running Optimization Cost Saving
	3	CQA lab AC made off on every Sunday, per NWD KWH saving 220 kwh.
	5	High must & street light rescheduling
	6	Doom Light of Finanace and HR room to be switch off & Manual switch provided
	7	canteen FDV running hour Optimaiztaion
	8	Mee running plan from 17 to 11 days by incresed input feed Power Saving
	9	Mee running plan from 17 to 11 days by incresed input feed Fuel Saving
Weld shop	10	Temp. sensor in weld shop cooling tower interlocking with fans.
	11	Weld shop I-03 optimization
	12	Weld shop Oxygen bank need to running by utility Compressor
Paint Shop	13	Mitsubishi A series VFD to be run in mode 4
	14	Paint shop 2 Panel ac to be stop in non operation time
	15	Paint shop 2 De-watering pump run when seal liquid tank level come down
Assembly	16	EA washing machine vaccum pump elimination
	17	Engine Assembly AC to be turned off and temp to be maintained at 25
Lighting and Ventilation	18	PE 2nd Floor corridor VRV blower to be turned off and fancy lighting to be turne
	19	Weld Shop above line-01 &02 highway light made off permanantly
	20	FA dol 1st floor tube light alternate made off permanantly
	21	Machine dol light alternate off to be done
	22	Employees gate HERO LOGO provide time for ON/Off in automode
TOTAL SAVINGS		

18 Projects in FY23

ENERGY CONSERVATION PROJECTS : FY 2022-23

Categ		Description	Investment (Rs. Lac)	Actual Annual Saving (Lakh kWh)	Annual Saving (in Rs Lacs)
Utilities		Running Elimination and Pump Running starting on	0.5	0.33	2.65
		lization Increase by MLTP-4 to MLTP-5 Change Over on Every Non- working Day	0	0.12	1.00
	3	Elesol Plate installation to save Energy Losses in Air Compressor	5.04	0.37	2.98
	4	Using Hybrid Solar panel we can save 25-55% of AC power consumption	2.5	0.02	0.14
	5	MEE Plant Running Day Optimization from 11 days to 9 days for power saving	0.77	0.32	2.59
	6	MEE Plant Running Day Optimization from 11 days to 9 days for fuel saving	0	0.33	20.79
	7	Eliminated one Pump at ETP , soft water transfer pump by line modification	0	0.08	0.63
	8	Non- working day Solar Utilization Increase by MLTP-2 to MLTP-3 Change Over on Every Non- working Day	0	0.02	0.14
Lighting & Ventilation System	9	Power Consumption reduce by reducing unnecessary tube light at Export Line	0	0.05	0.20
Paint Shop	10	Paint shop -02 will completely shutdown saving is 300 kwh per day	0	0.80	6.39
	11	Magnetic Resonator for hot box chamber of PBRO to reduce NG consumption by 10%	8	0.10	6.40
Weld shop	12	Weld shop Power Consumption reduction by 1.Export line - weld -L3 will run in alternate day 2.Weld L1 Will run in alternate day till volume 2200 VPD. 3.In Lunch and dinner Dust and fume to be off 4.Low temp chemical to be introduced in WM no 02 and 03..	0	0.11	0.91
	13	Power saving by Elimination of Heater in Weld washing machine- Introduction of Cold cleaning agent		1.38	11.07
Machine shop	14	Power saving by Elimination of Heater in **CR washing machine**- Introduction of Cold cleaning agent	0	0.06	0.50
	15	Power saving by Elimination of Heater in **Engine washing machine**- Introduction of Cold cleaning agent	0	0.06	2.43
	16	Power saving by Elimination of Heater in **AL CC/ AL CH washing machine**- Introduction of Cold cleaning agent	0	0.42	3.33
	17	BLT Communization for BS4 & 6 in Export Line	0	0.05	0.39
Stores	18	Machine Machine dol area is HVLS Fan Running Our Reduce	0.1	0.01	0.10
TOTAL SAVINGS			16.9	4.7	62.6

Energy Saving Projects



Energy Saving Projects summary Last 3 years

Year	Investment In Lacs	No of Project	Kwh Saving In Lacs	Cost Saving In Lacs	"ZERO" Investment Project
2020-21	2.73	23	**2.4**	19.5	16
2021-22	0.762	22	**6.3**	61.2	18
2022-23	16.91	18	**4.7**	62.6	11

Through analysis and RCT participation throughout the years, we have completed 63 Projects with 13.4 Lacs kWh savings in the last 3 years.

Energy Saving projects implemented in last three years

#	Category	Project Description	Investment (₹ In Lac)	Annual Saving (In Lacs KWH)	Annual Saving (In Lacs SCM)	Annual Saving (₹ In Lac)
1	Energy Consumption	Energy Consumption reduction by elimination of Heater in washing machines through introduction of Cold cleaning agent working on ambient temperature	0.00	2.17		24.46
2	Energy use Optimaization	Energy use optimization by MEE Plant running days reduction from 17 days to 8.5 days reducing power and fuel consumption	0.00	0.84	0.83	52.10
3	Energy Efficiency	Air Compressor Energy Efficiency improvement through Harmonics & Noise effect losses reduction with the implementation of Elesol Plates in the compressor	5.04	0.37		2.98
4	Energy use Optimaization	Energy use optimization by mode 4 implementation in Mitsubishi A series VFD	0.00	0.36		2.34
5	Energy Efficiency	Cooling Tower Pump Efficiency improvement by implementing Pressure based operation control and consequently elimination of one pump running.	0.50	0.33		2.65
6	Energy use Optimaization	Energy use optimization through weld shop oxygen bank running by utility compressor	0.00	0.23		1.50
7	Energy Efficiency	Energy consumption reduction though paint shop FDV running hrs. reduction by timer installation	0.02	0.21		1.37
8	Energy Consumption	Energy consumption reduction in engine assembly washing machine by vacuum pump elimination	0.00	0.18		1.17
9	Energy Efficiency	Energy Efficiency improvement in weld shop by temperature sensor implementation in cooling tower and interlocking with fans	0.25	0.17		1.07
11	Energy Efficiency	Energy Efficiency improvement of Hot water generator by setting burner set point from 76 °C to 73 °C	0.00	0.00	0.15	4.91
10	Energy Use optimization	Energy Use optimization by non- working day Solar utilization enhancement by changeover of MLTP-4 to MLTP-5 on every non- working day	0.00	0.12		1.00

Innovative Project

Top Projects identified in the last 3 years

Energy Saving projects implemented in last three years

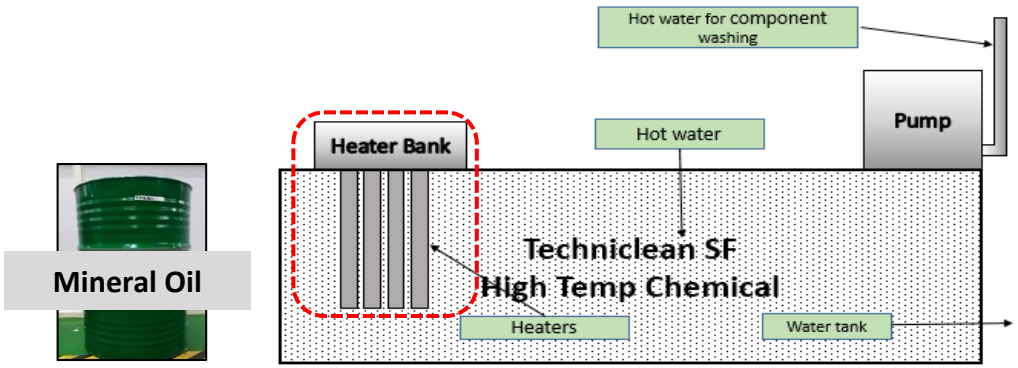
#	Category	Project Description	Investment (₹ In Lac)	Annual Saving (In Lacs KWH)	Annual Saving (In Lacs SCM)	Annual Saving (₹ In Lac)
11	Energy Efficiency	Energy Efficiency Improvement by Magnetic Resonator installation on hot box chamber of PBRO to reduce natural gas consumption reduction by 10%	8.00	0.00	0.10	6.40
12	Energy Efficiency	Energy Efficiency by installing Low CFM air compressor for utilization during non working day	0.00	0.10		0.66
13	Energy Use optimization	Energy use optimization of motor through Compressed air generation pressure reduction from 7 bar to 6.7 bar	1.5	0.97		6.3
14	Energy Use Optimization	Energy use optimization through interlocking of Exhaust fan with painting robot to eliminate energy loss during non-production time	0.00	0.09		0.59
15	Energy Use	Energy use optimization by elimination of one Pump at ETP and soft water transfer pump though line modification	0.00	0.08		0.63
16	Energy Efficiency	Energy Efficiency Improvement by providing VFD on Garden & Clarifier Pump and Filter Feed Pump at WTP-2	0.50	0.08		0.51
17	Energy Efficiency	Energy Efficiency improvement by installation of Temp. sensor in ESS-3 & interlocking with exhaust fan	0.50	0.07		0.48
18	Energy Efficiency	Energy Efficiency Improvement by pressure switch installation in place of mechanical switch in Fire Electrical Pump	0.09	0.03		0.20
19	Energy Efficiency	Energy Use optimization by non- working day Solar utilization enhancement by changeover of MLTP-2 to MLTP-3 on every non- working day	0.00	0.02		0.14
20	Renewble Energy	Renewable energy utilization by implementation of Hybrid Solar panel leading saving of 25-55% of AC power consumption	2.50	0.02		0.14

Innovative Project

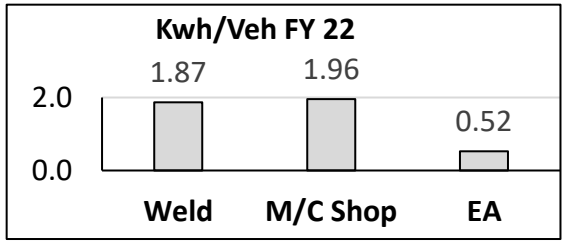
Top Projects identified in the last 3 years

Project: **Energy consumption reduction by elimination of heaters in washing machines by introducing a cold cleaning agent working at ambient temperature**

Background: Electric Heaters were used for solvent temperature @60°C resulting in high energy consumption of 200kwh/day. There are 7 nos. washing machine installed in weld shop, machine shop & engine assembly

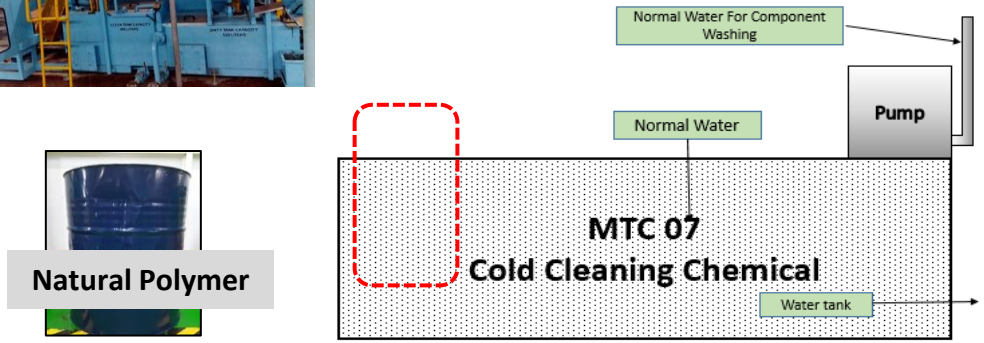


Coolant used – **Mineral Oil**
Heaters Used – 30 KW
Washing temp – 50-60 °C
Millipore Specs – 3 to 4 mg

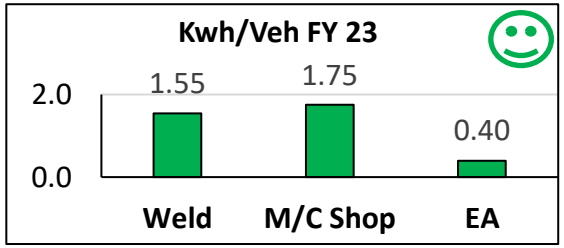


Project Concept: Introduction of cold cleaning agent considering of all quality parameters for cleaning components which replaced 30 kw Conventional Heaters system in Washing machine.

Major Activity : Concept finalization → Testing and trial of various chemical→Approval→Ordering→Validation



Coolant used -**Natural Polymer**
Heaters Used – Eliminated
Washing temp – Ambient
Millipore Specs - 3 to 4 mg



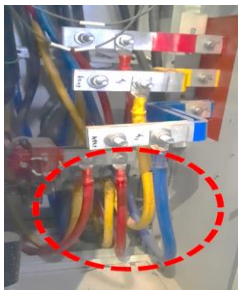
Benefits:
Energy Saving - **2.17 lakhs Kwh/Annum**
Cost Saving - **₹ 39 Lakhs/Annum**
CO2 Reduction - **153 Tons/Annum**
Heater Failure phenomena Eliminated

Energy saved 2.17 Kwh lakh/Annum resulting 18% Energy Consumption reduction in production Area

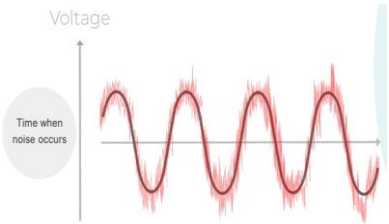
Project: Air Compressor Energy Efficiency Improvement through Harmonics and Noise Effect Losses Reduction with the Implementation of Elesol Plates

Background:

As per the energy review, air compressors are SEU equipment for utilities. Air compressor power consumption is 458 kWh/hr on full load, and the compressor has more than 8% harmonic voltage distortion factor.

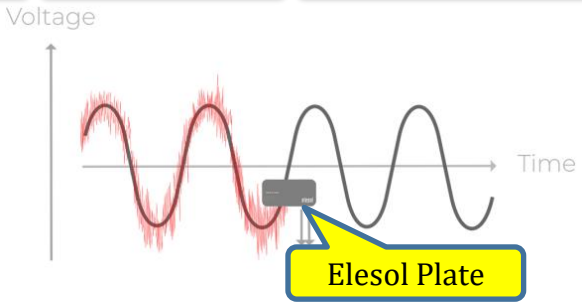


Project Concept: Elesols technology attenuates the amount of Harmonic and electromagnetic fluctuations in electrical current that are originated within transmission line and breaker boxes.



The presence of harmonics in electrical system means that current voltage are distorted and deviate from sinusoidal wave form incurring in extra energy cost.

Major Activity : Concept finalize → Testing and trial of various chemical → Approval → Ordering→ Validation→ Horizontal Deployment



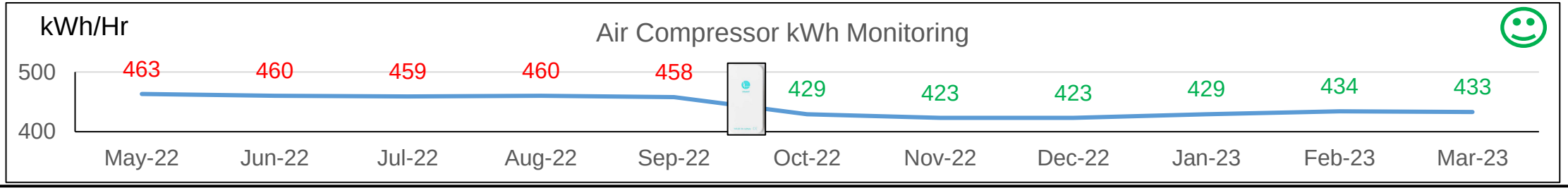
Investments: ₹ 3.78 lakh

Benefits:

Energy Saving - **0.74 lakhs Kwh/Annum**

Cost Saving - **₹ 2.98 Lakhs/Annum**

CO2 Reduction – **52 Tons/Annum**

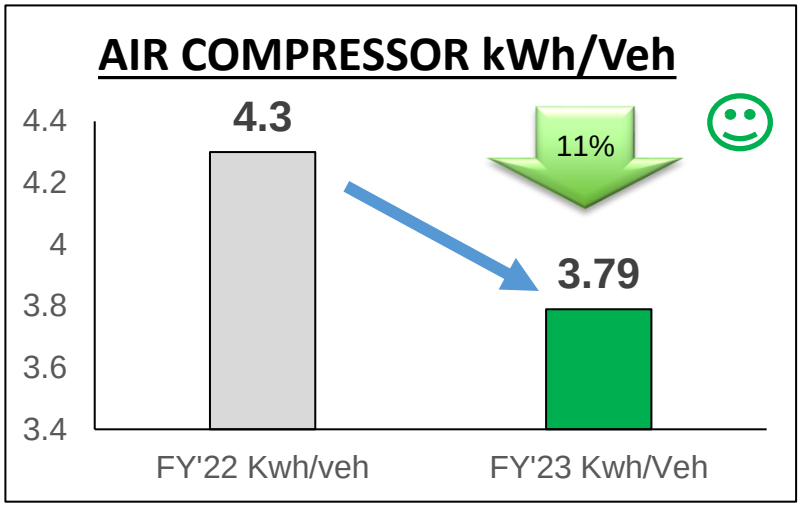


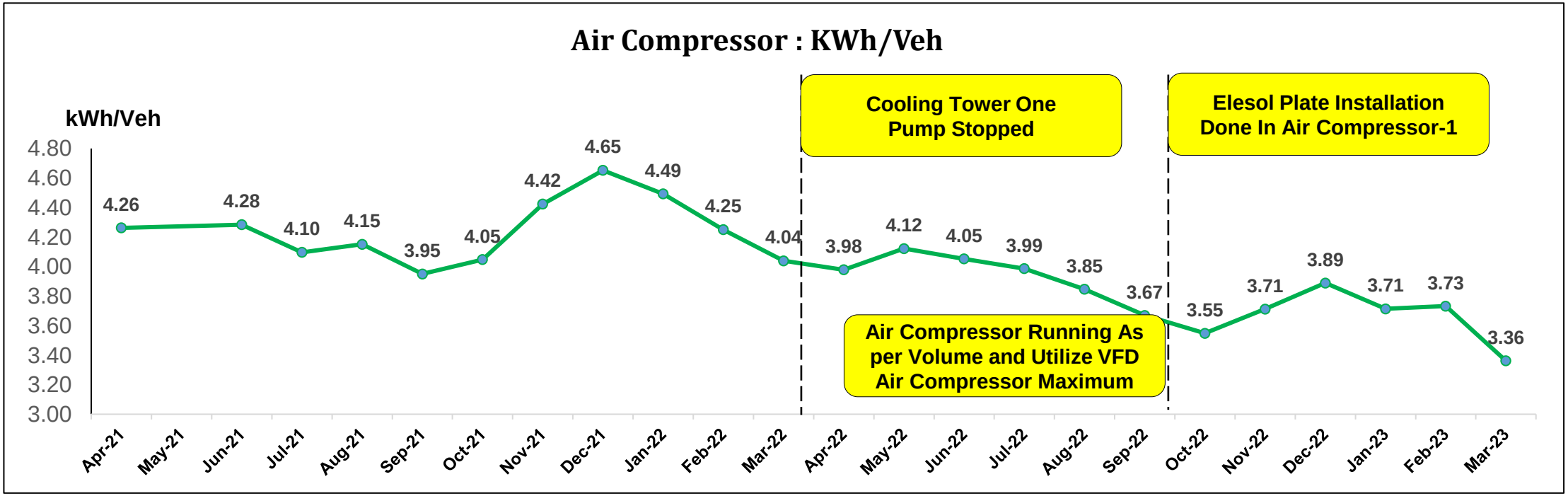
Energy saved 0.74 lakh Kwh/Annum resulting 6% Energy Consumption Reduction in Air compressor

Project: Energy Saving project for All five Air Compressors

Project Implemented:

1. Elesol plate Installation in Air Compressor -1: 29kwh/Hr Energy saving
2. Cooling tower Water pump numbers optimize by Interlocking water pressure - 120 kWh/day
3. Air Compresssor Load Mangement as per Production plan
4. Cooling tower Fan Interlocking as per Temperature requirement

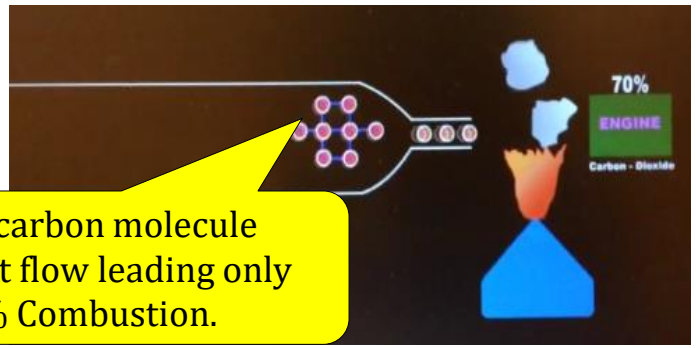




Energy saved 3.69 Lakh Kwh /Annum resulting 11% Energy Consumption Reduction in All Air compressors

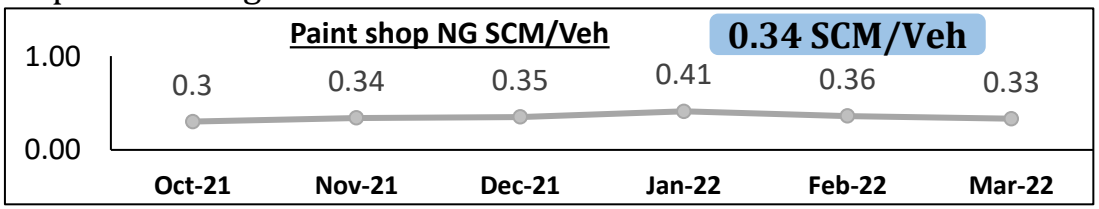
Project: Energy Efficiency Improvement by Magnetic Resonator installation in Paint Shop Oven gas burner for natural gas consumption reduction

Background: Natural Gas Holds 80% of the consumable cost of the paint shop. Start-up time of Paint Shop is high (1.25 hrs.)
NG consumption is 0.34 SCM/Veh which is high.

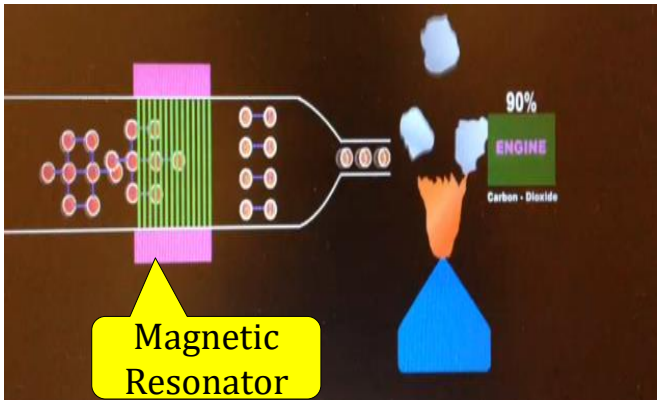


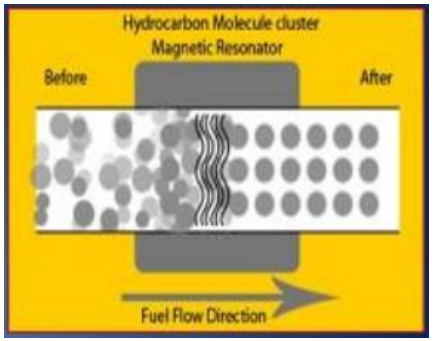
Project Concept :

- When a fluid or gas passes through a strong external magnetic field, the magnetic moment of the molecular clusters occurs. The Hydro-carbon clusters show time-fluctuating dipole properties. The time period of Time fluctuating dipole clusters of Hydro carbon fuel is expanded.
- After Magnetic resonator installation, magnetic interaction of Magnetic resonators & Polarization of hydro-carbon fuel takes place leading to 90% of effective combustion.



Major Activity : Concept finalize→ Testing and Trial→ Approval→ Ordering→ Validation→ Horizontal Deployment

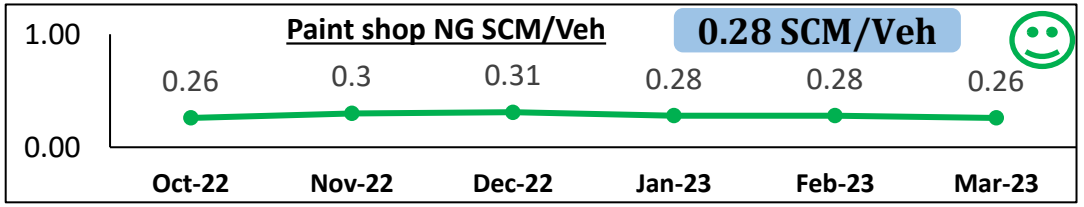




Investments: ₹ 3 lakh

Benefits:

Energy Saving - **0.42 lakhs SCM/Annum**
Cost Saving - **₹ 10.19 Lakhs/Annum**
CO2 Reduction – **94 Tons/Annum**
18% Fuel Consumption Reduction

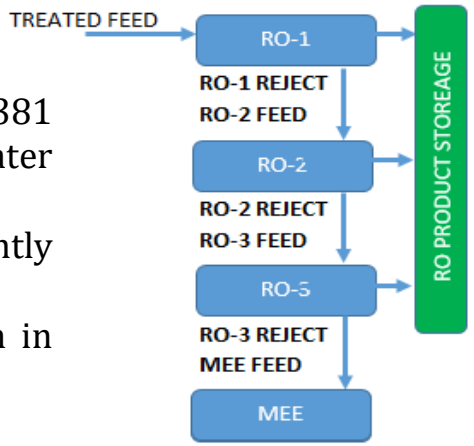


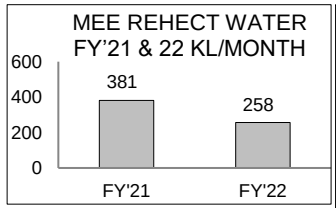
Energy saved 0.42 Lakh SCM/Annum resulting 18% Fuel Consumption Reduction in Paint shop

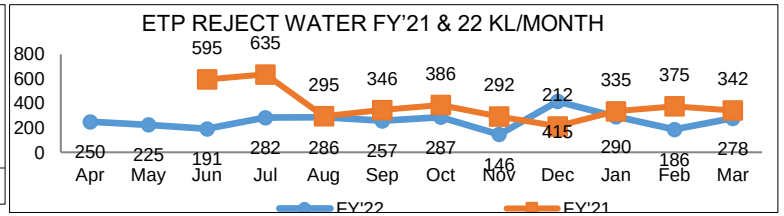
Project: Energy Efficiency Improvement of MEE Plant(ZLD) by optimizing Running Days and reject water reduction

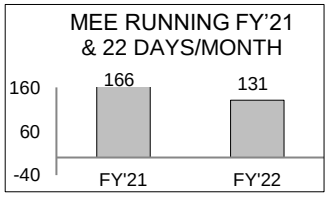
Background:

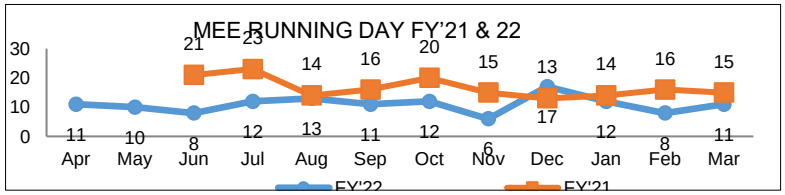
- Reject water generation is high 381 KL/Month & Boiler Condensate Water 2 KL/Day
- Calandrai Tube are Frequently clogged so Feed is very less
- MEE Running Day 17 days/Month in FY'21







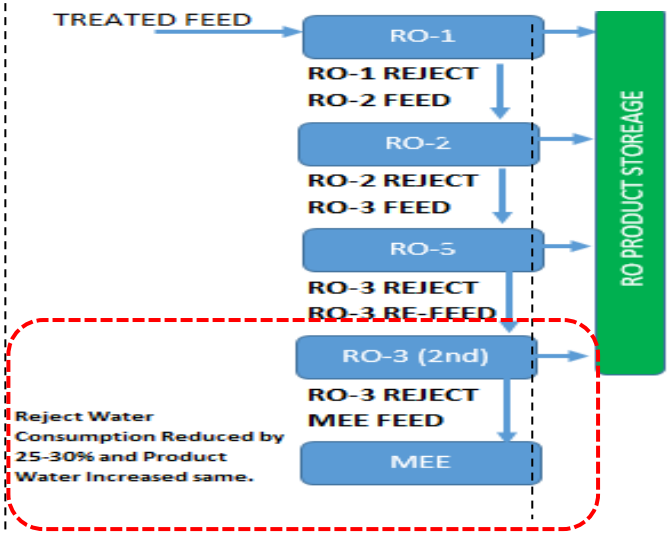


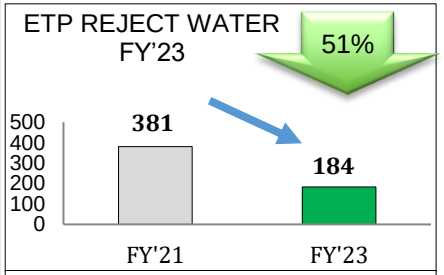


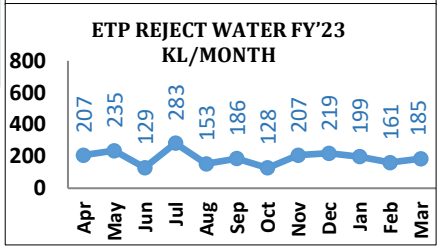
Project Concept: Reduce Reject water generation by in-house 4th stage RO creation by pipeline modification resulting in 25%–30% reject water reduction

Introduction of antiscalant chemicals for increasing the feed flow of the MEE Plant.

By doing all the planned activities, MEE Feed improved from 20 to 24 KLD.







Investments: ₹ 0.77 lakh

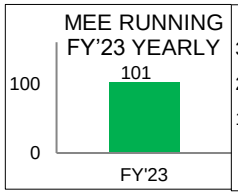
Benefits:

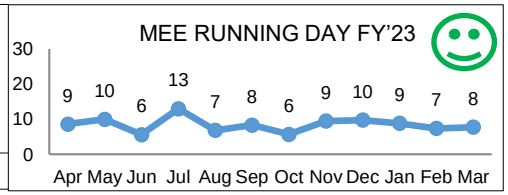
Energy Saving-0.39lakh SCM/Annum

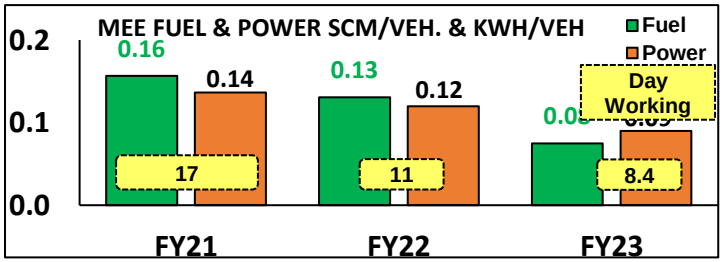
0.38 Lakh Kwh/Annum

Cost Saving - ₹ 27 Lakhs/Annum

CO2 Reduction – 124 Tons/Annum





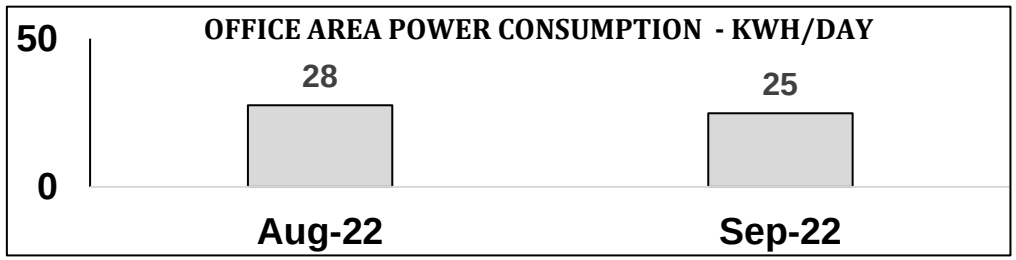


Energy saved 0.39 Lakh SCM/Annum&0.39 lakh Kwh/Annum resulting 53% Power&Fuel Consumption reduction in MEE

Project: Energy Consumption Reduction of VRV AC by Introduction of Hybrid Thermal Solar Panel

Background:

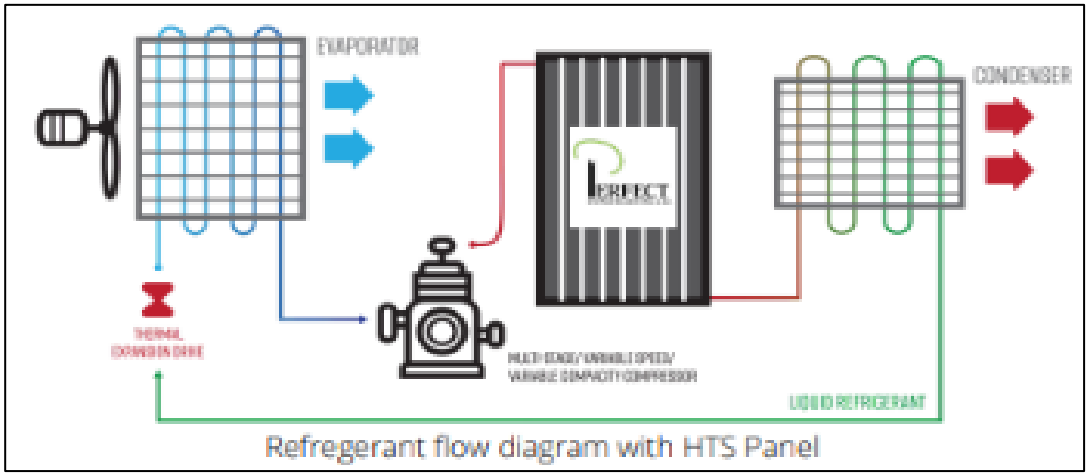
HVAC Energy Consumption was the major guzzler for office areas. Office AC Which a Capacity of 10Tr and Power Consumption is 26 kwh/day & running Hrs was 10hrs/Day



Project Concept :

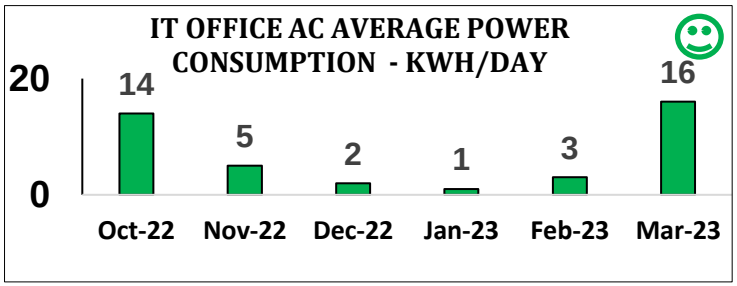
- Refrigerant leaves the compressor after heat and pressure is increased.
- Additional heat and pressure are added in the solar thermal panel using radiant energy from the sun.
- The refrigerant is delivered to condenser at designed pressure & and temperature.
- In this way, the compressor operates at a lower stage/speed, reducing the electrical energy needed to operate the compressor at full capacity.
- HTS panel implementation increases refrigerant pressure and temperature by using solar energy and reduces compressor loading.

Major Activity: Concept finalize→Testing and trial →Approval→Ordering→Validation→



Refregerant flow diagram with HTS Panel

Investments: ₹ 2.25 lac



Benefits:

Energy Saving - **0.20 lakhs Kwh/Annum**

Cost Saving - **₹ 0.17 Lakhs/Annum**

CO2 Reduction – **12 Tons/Annum**

Energy saved 0.20 Lakh Kwh/Annum resulting 30% Energy Consumption in IT Office VRV

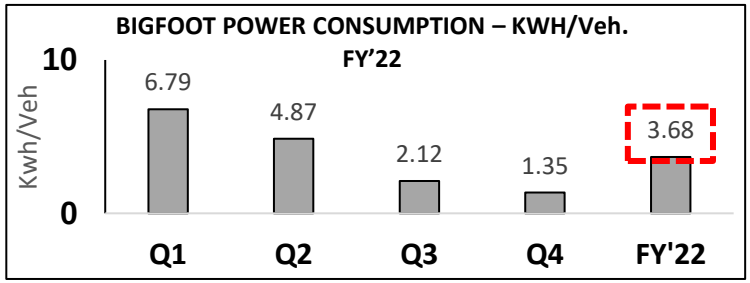
Project: Energy Consumption Reduction and energy efficiency Improvement of Bigfoot system

Background:

Hall Temperature Setting was on 25°C and Fresh Air Dampers Close 100% (During Summer & Winter) resulting in higher Chiller Running Hours

All Shutter (8 Nos.) On Manual Mode so Every Time opens resulting Heat Loss From there

Bigfoot SCADA is the proprietor part of OEM(USA) and the editable option has not been given to us So we cannot do Scheduling as per Our Requirement Due to that Power Consumption also Increased

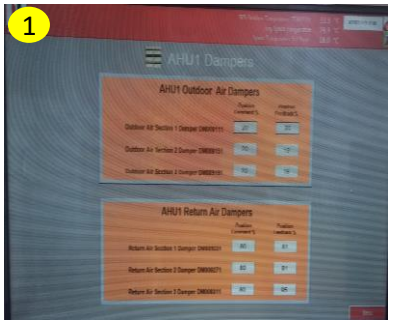


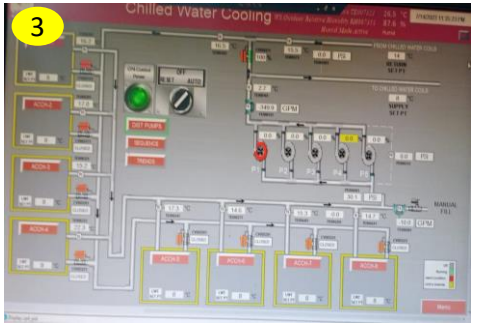
Project Concept :

Reduce Set Point up to 27°C of Hall Temperature and Utilize Fresh Air Damper in 1st Shift & 2nd Shift.

All shutters put it on Automatic ON/OFF Mode

Developed New software for the User Friendly Operation by a local Supplier





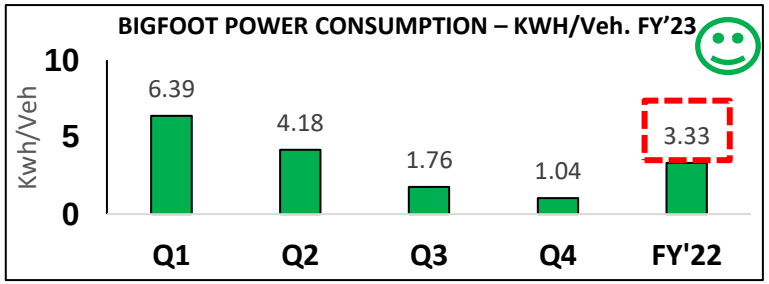
Investments: ₹ 9.5 lac for Software Loacalization

Benefits:

Energy Saving – **2.49 lakhs Kwh/Annum**

Cost Saving - **₹ 19.95 Lakhs/Annum**

CO2 Reduction – **176 Tons/Annum**



Energy saved 2.49 Lakh Kwh/Annum resulting 9.35% Energy Consumption reduction in Bigfoot System

Project: Energy Consumption Reduction of Paint shop through TPM Implementation

To reduce Setup and adjustment loss, Quality defect & rework loss and Minor stoppage and Idling loss in Paint Shop.

Quality defect and Rework loss Elimination:

Heavy Paint deposition on wagon sprocket and hammerlock plate led to wagon rotation not ok phenomenon leading to defect

Deep cleaning of the complete wagon led to a reduction in indexing Not OK phenomenon elimination

Setup & Adjustment loss:

Changeover loss is more during the Program change

50% Reduction in Changeover frequency

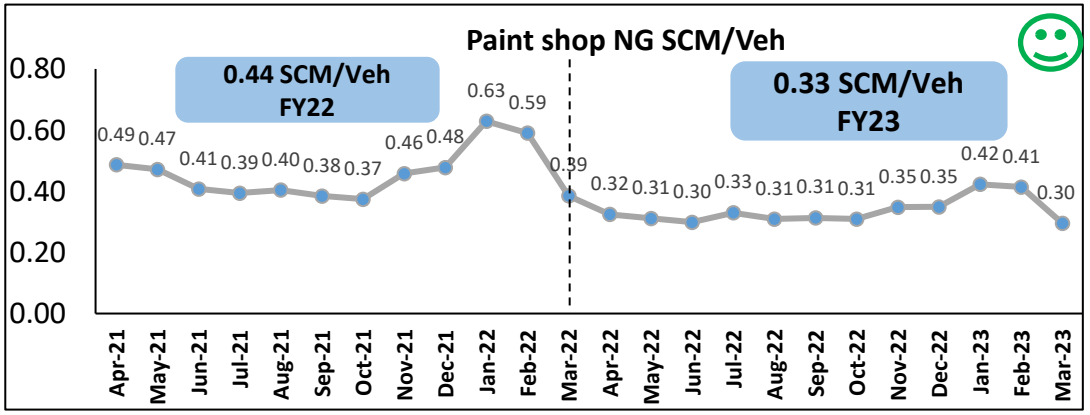
Minor stoppage and Idling loss:

Frequent Cleaning of CO2 Pipe and Nozzle by stopping line (4-5 times/day) and Deep cleaning once/week

Deep Cleaning frequency increased to twice/week

Cleaning frequency increased from once/week to twice/week led to reduce the paint drop issue

Results



Energy saved 0.79 Lakh SCM/Annum resulting 25% Fuel Consumption reduction in Paint shop

Project: Plant Lighting Energy Consumption reduction through technological improvements

Background:

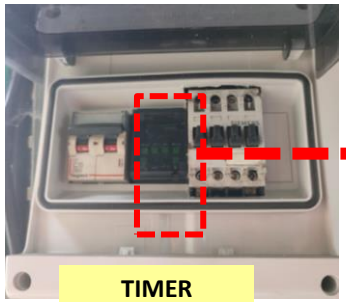
Lighting Power was 1.76 kWh/Veh in FY22 and in overall power consumption, lighting load contribution is 7.4%. Non-Production Area Lighting load contribution is More than 60%

Project Concept :

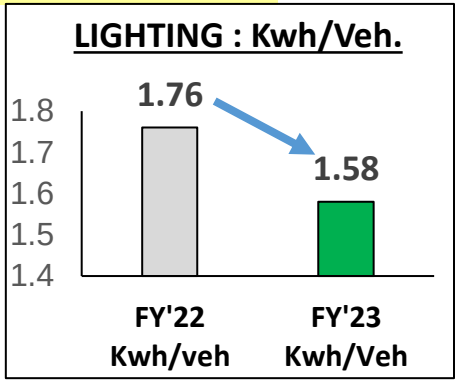
Optimization of Lighting load by technological Improvement

- Timer base Control in All Street lights and high mast light
- Motion sensor with CLIPSAL Controler to Control Office lighting power
- Introduce GOC in Non-Production Area (Dispatch)

GOC fixed at dispatch area lighting load control



TIMER



Investments: ₹ 0.05 lakh

Motion Sensor

CLIPSAL OFFICE LIGTING CONTROLLAR

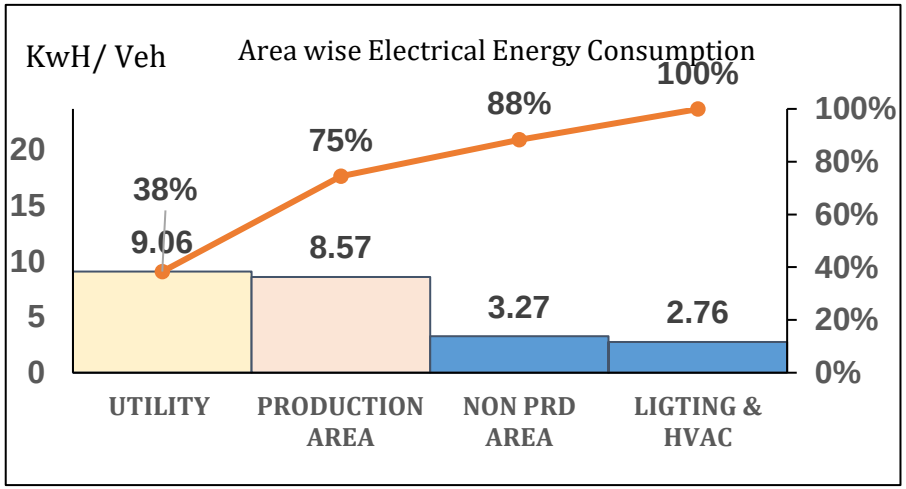
Benefits:

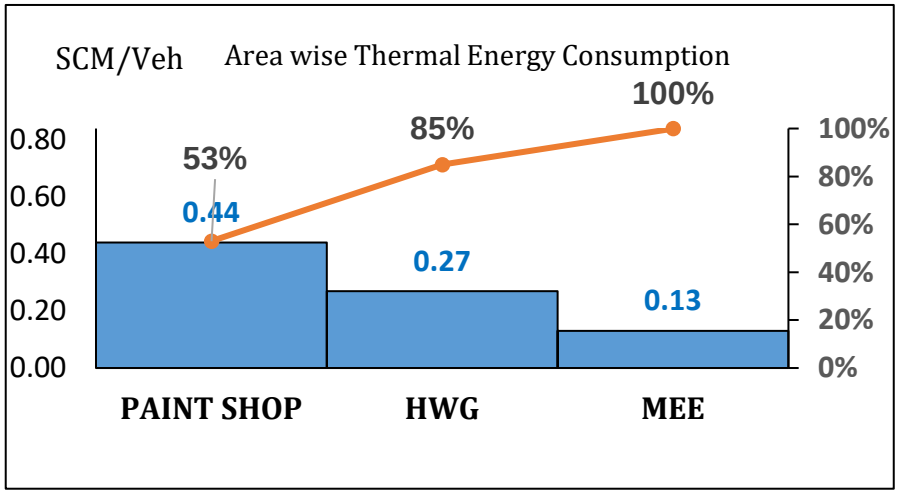
Energy Saving – **1.28 lakhs Kwh/Annum**
Cost Saving - **₹ 10.27 Lakhs/Annum**
CO2 Reduction – **90 Tons/Annum**

Energy saved 1.28 Lakh Kwh/Annum resulting 10% Power Consumption reduction in Lighting

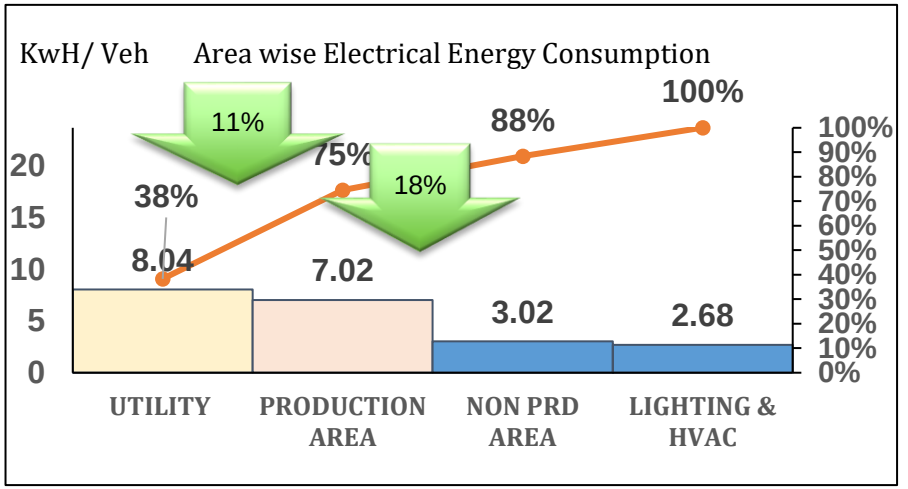
Energy Saving projects Results

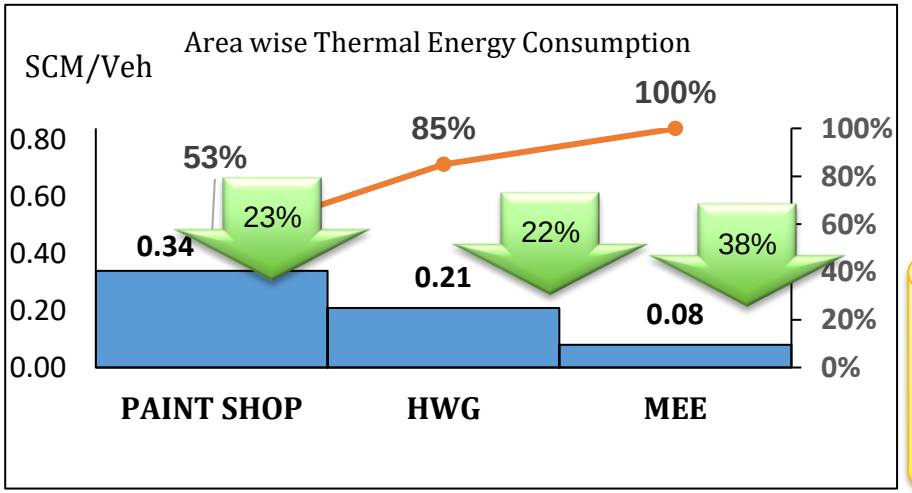
Energy consumption: FY22





Energy consumption: FY23





Major projects Identified based on Energy Consumption in FY24:

- Paintshop
- Weld shop
- Hot water generator
- MEE

More focus is on Renewable Hybrid Energy Sources Implementation

After Improvements in various section identified at the start of FY23 has impactful results at the end of FY23. This is not only an improvement glimpse but also a way forward for FY24 and similarly projects has been identified for FY24.

List of Major Encon project planned in FY 2023-24

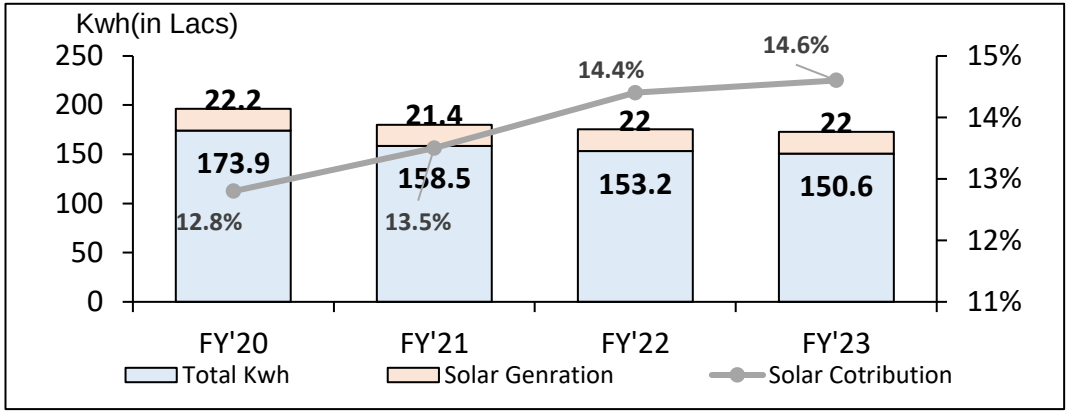
#	Category	Project Description	Annual Energy Saving (In Million)		Investment	Cost Saving	ROI
			Electricity kWh	Thermal Kcal	In Million	In Million	In Month
1	Renewable Energy	Introduction of Renewable hybrid power (wind + solar) to increase the renewable energy utilization from 12 % to 63 %.	9.0	0.00	0	9	0
2	Renewable Energy	Renewable energy utilisation enhancement through installation of 100 KWP Solar system by 400 kWh	0.07		2	0.58	3.5
3	Energy Efficiency	Energy Efficiency Improvement by batch wise production of Lacquer and sheet metal parts in the paint shop	0.04	330	0	2.35	0.0
4	Energy Efficiency	Washing machine Energy efficiency Improvement by Cold Cleaning Chemical usage in place of Heaters in remaining shops machines	0.01		0.05	0.10	0.5
5	Energy Consumption	Bigfoot(HVAC) energy consumption reduction by Shift Optimization(A+B to A+G)	0.07		0	0.53	0.0
6	Energy Consumption	Energy Consumption reduction in Weld Shop Area FDV through Running Hours Optimization by Installing Damper	0.01	0.00	0.35	0.05	7.3
7	Energy Efficiency	AC Energy Efficiency Improvement by Introduction of Air tron Device working on Room Temperature feedback and reduction of AC running Hours	0.09	0.00	0.1	0.72	0.1
8	Renewble Energy	VRV AC(Engine Assembly) 25-30% Energy Consumption Reduction by Utilisation of Renewable Energy through the Solar Thermal panel	0.01		0.5	0.07	5.0
9	Energy Reduction	Energy consumption reduction in Chemical Room Exhaust Fans through Running Hours(24hrs to 6hrs) reduction by timer Base Operation	0.00		0.005	0.01	0.4
10	Energy Optimaization	Hot water generator 5% Fuel Consumption optimzaiztion by Installtion of magnetic Resonator at Fuel supply line		33.40	0.34	0.21	1.4
11	Energy Optimization	MEE Fuel 5% Fuel Consumption optimzaiztion by Installtion of magnetic Resonator at Fuel supply line		16.70	0.35	0.21	1.9
Total Saving			**9.29**	**0.05**	**3.695**	**13.82**	

Planned Project With Expected Saving 1398 kWh/day In FY24

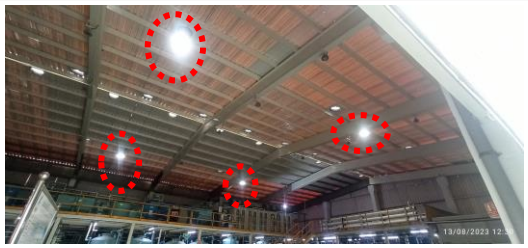
Utilization of Renewable Energy sources

Installed Renewable Energy

Renewable energy (In Lacs)



On Site Renewable Energy				
Year	**Technology**	**Installed capacity (Mw)**	**Solar generation (In million kwh)**	**% of overall electrical energy consumption**
FY 2020-21	SOLAR	1.782	2.144	13.52
FY 2021-22	SOLAR	1.782	2.202	14.37
FY 2022-23	SOLAR	1.782	2.197	14.59



10 Nos. Sky Light Installed in WTP,ETP & Air Compressor Area 4000 kWh Saving/Annually

HTS Panel For the VRV 3000 kWh Saving/Annually

64 nos. Natural Air Ventilator in WTP,ETP,HWG & Air Compressor Area

50 Nos. Solar Light Installed 5800 kWh Saving/Annually

With an Installed solar generation capacity of 1.782 MW, We are enhancing solar contribution in utilization and also improvements have been made for efficiency improvement/.

Utilization of Renewable Energy sources

Offsite Renewable Energy installed in FY24

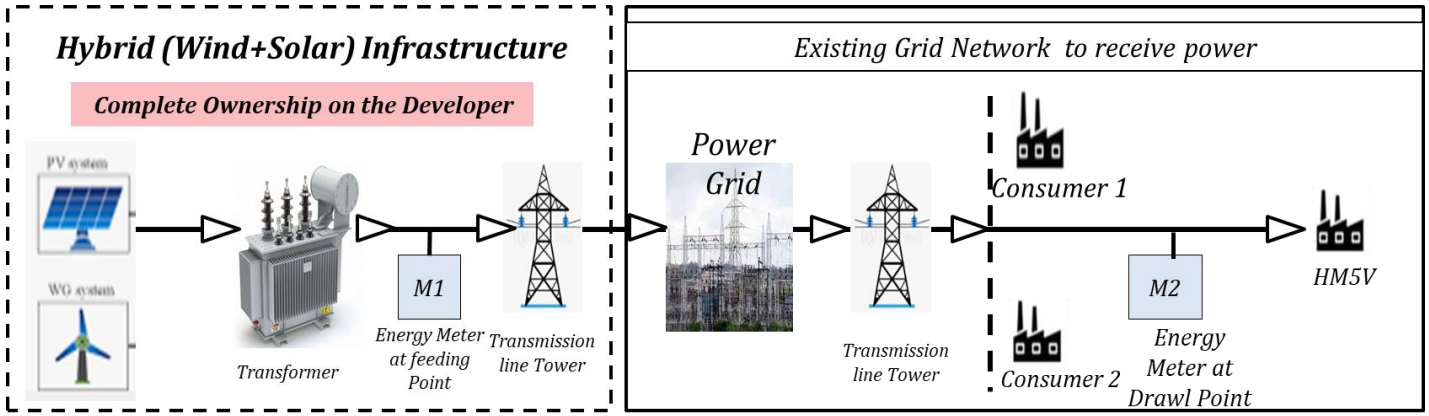
Roadmap for 2MW power wheeling at HM5V

- Analysis of Government Policy and documentation — **Feb'22 – July'22**
- Project approval and LOI Issuing to Developer — **Aug'22**
- PPA Signing Term & Condition acceptance by HMCL Legal Team — **Dec'22**
- Internet Sim Activation & Meter registration — **(Dect'22)**
- Application Filing with MGVCL,SCDL,GETCO — **(Jan'23)**
- NOC/Approval from MGVCL,SLDC,GETCO — **(Mac'23)**
- NOC approval from GEDA and start Power Delivery — **(April '23)**

Benefits

- Achieve renewable energy power generation from the **current 8%** to **17% in HMCL.**
- The project increased renewable energy % contribution from **12% to 63%** at **HM5V** by Clean Max
- This project led CO2 offset by **7110 Ton annually.**
- **Cost Saving of 1.13 Cr/Year**

Concept of Hybrid (Wind + Solar) Power Wheeling



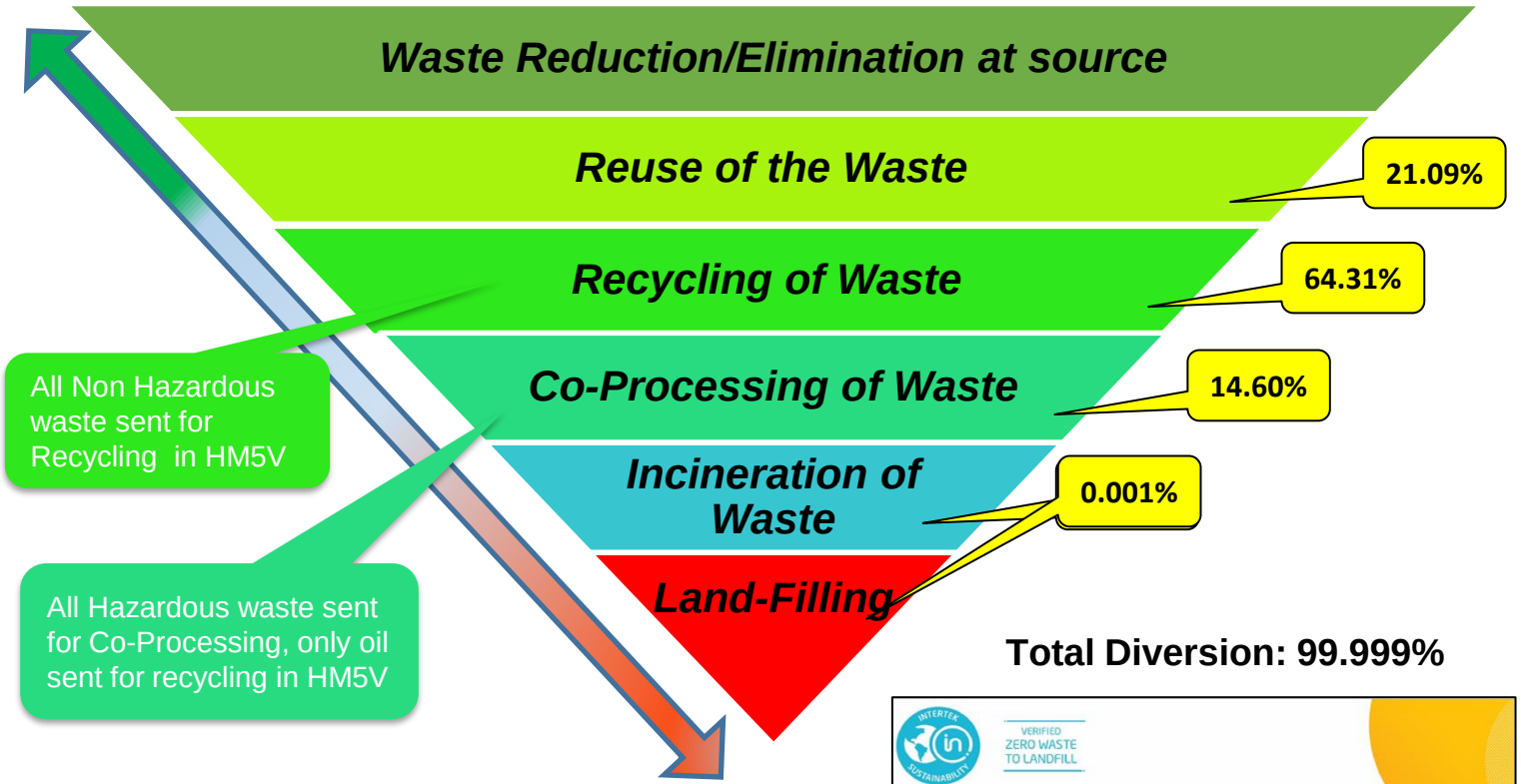
Offsite Renewable Energy

OFFSITE RENEWBALE ENERGY				
Year	**Tech.**	**Installed capacity (Mw)**	**Kwh generation (In million kwh)**	**% overall electrical energy consumption**
FY 24	Hybrid (Wind + Solar)	2	9.0	63%

With the implementation of Hybrid power in FY24, HM5V increased our renewable energy contribution from 12% to more than 60 %. This project led CO2 offset by 7110 Ton annually

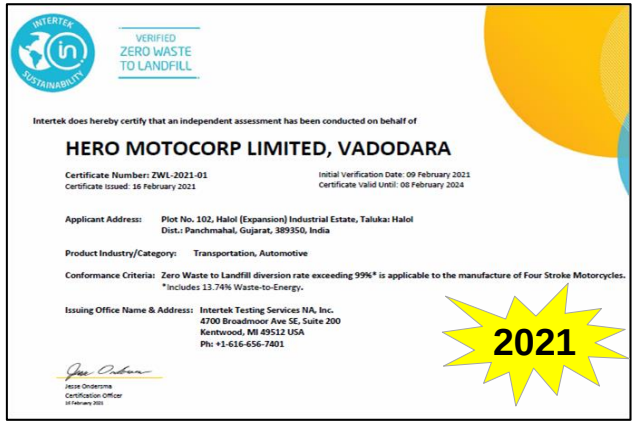
Waste utilization and management

Waste Management Approach



Total Diversion: 99.999%

5R Approach



VERIFIED ZERO WASTE TO LANDFILL

Intertek does hereby certify that an independent assessment has been conducted on behalf of

HERO MOTOCORP LIMITED, VADODARA

Certificate Number: ZWL-2021-01
Certificate Issued: 16 February 2021

Initial Verification Date: 09 February 2021
Certificate Valid Until: 08 February 2024

Applicant Address: Plot No. 102, Halol (Expansion) Industrial Estate, Taluka: Halol Dist.: Panchmahal, Gujarat, 389350, India

Product Industry/Category: Transportation, Automotive

Conformance Criteria: Zero Waste to Landfill diversion rate exceeding 99%* is applicable to the manufacture of Four Stroke Motorcycles. *Includes 13.74% Waste-to-Energy.

Issuing Office Name & Address: Intertek Testing Services NA, Inc. 4700 Broadmoor Ave SE, Suite 200 Kentwood, MI 49512 USA Ph: +1-616-656-7401

2021

Jesse Ondersma
Certification Officer

Plant Environment Management Facilities

Sewage Treatment Plant
Treatment Capacity: 200 KLD

Multi Effect Evaporator
Treatment Capacity: 30 KLD

Effluent Treatment Plant
Treatment Capacity: 400 KLD

Waste management process is well defined and plant is certified with Zero waste to landfill and plant is having well established facilities of STP, ETP and plant is Zero liquid discharge plant.

Waste utilization and management

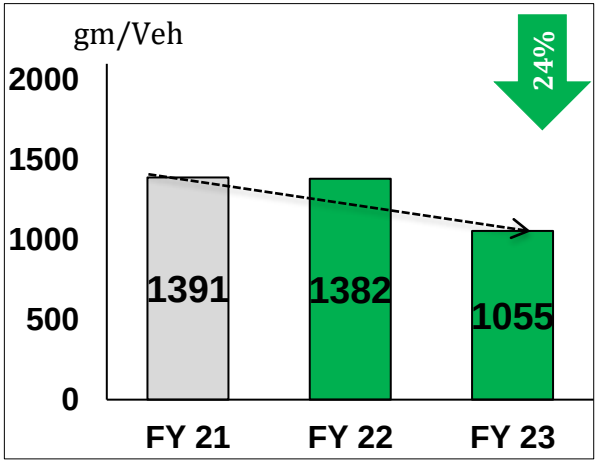
Different types of Waste generated in HM5V

Paint Sludge	Aluminum Scrap
ETP Sludge	Steel Scrap
MEE Sludge	Plastic/Packing Scrap
Phosphate Sludge	Empty Drums (MS & Plastic)
Grinding & Honing Sludge	Papers
Contaminated PPEs	Wooden scrap
Used Oil	Accidental Tyre& Tube Scrap
Horticulture Waste	Used Grinding Wheel Scrap
Food Waste	Used Cleaner Scarps in Drums
E-Waste	Buffing Wheel Scrap
Bio-Medical Waste	Copper Scrap
Battery Waste	Brass Scrap
Organic Sludge (STP)	

Hazardous | Non-Hazardous

Other

Non- Hazardous Waste Generation



Certificate from the Waste Collection agency about no landfilling of any waste

Kaizen for Waste Reduction

Material Saved by Packaging Improvement in Engine Storage

Before

Wooden box packing

After

Usable Metal Pallet packing

Wastage Saving 51138 Kg/Year

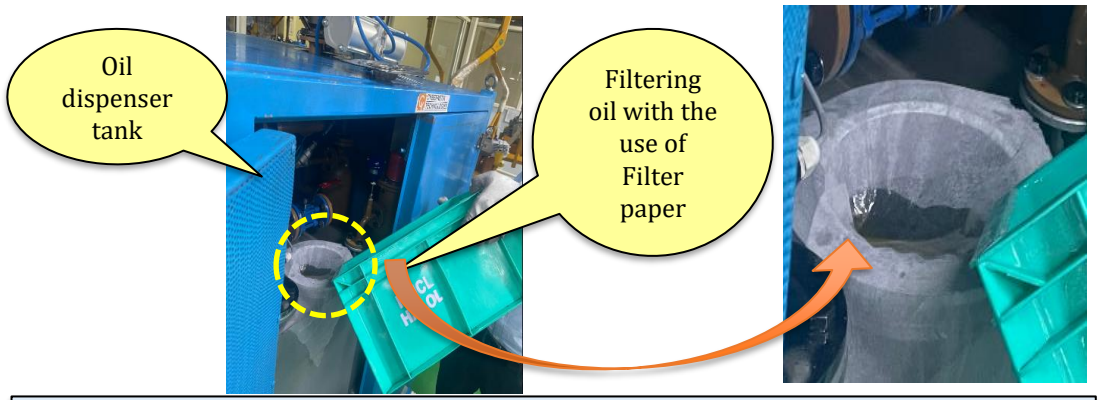
Awareness & Training Regarding Waste Reduction 3 R Concept

Waste generation is in reducing trend and various improvements and awareness session carried out to reduce waste in the plant.

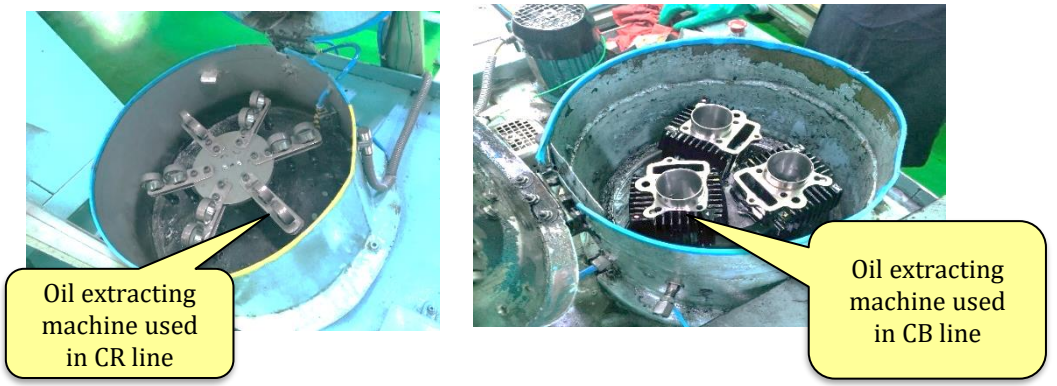
Waste utilization and management

Reuse of Oil (Engine Oil, cutting oil cut945 , Honing Oil)

Reuse of engine oil after filtration which is collected in rework area from dismantled engine.

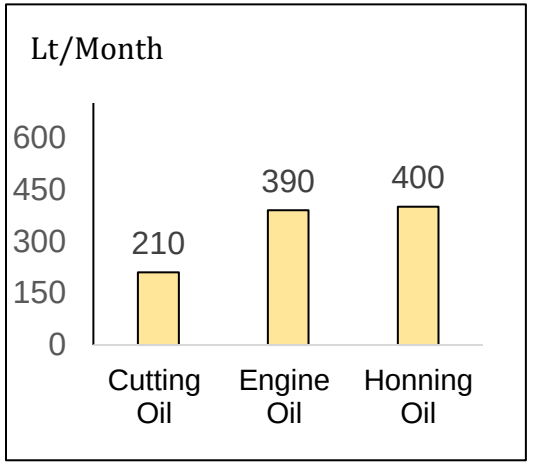


Oil extracting machine installed in Machine shop in order to extract and reuse oil from components after Honing

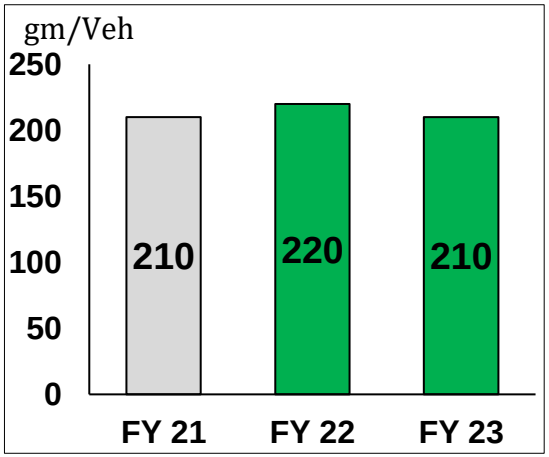


Gravitational oil extraction and chip centrifuge used to extract cutting oil from chips generated from gun drill Machine

Reuse of oil



Hazardous Waste Generation



Improvements done in reduction of Hazardous waste and utilization.

Waste utilization and management

In-House Fertilizer Preparation from Trimmed Grass of Garden and Leaves of Trees:

Step-1

Step-2

Step-4

Step-3

Co-Processing of Hazardous Waste

HM5V

Co-Processing

Transport to Cement Industry

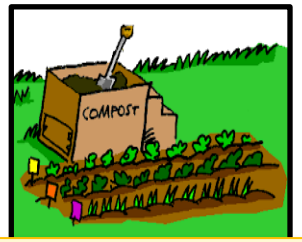
Used as ARF (Alternate Resource Fuel)

Food & Horticulture Waste Management

Food Waste

Trimmed Grass

Mixture of the trimmed grass & food waste feed into the **Organic Waste Converter**

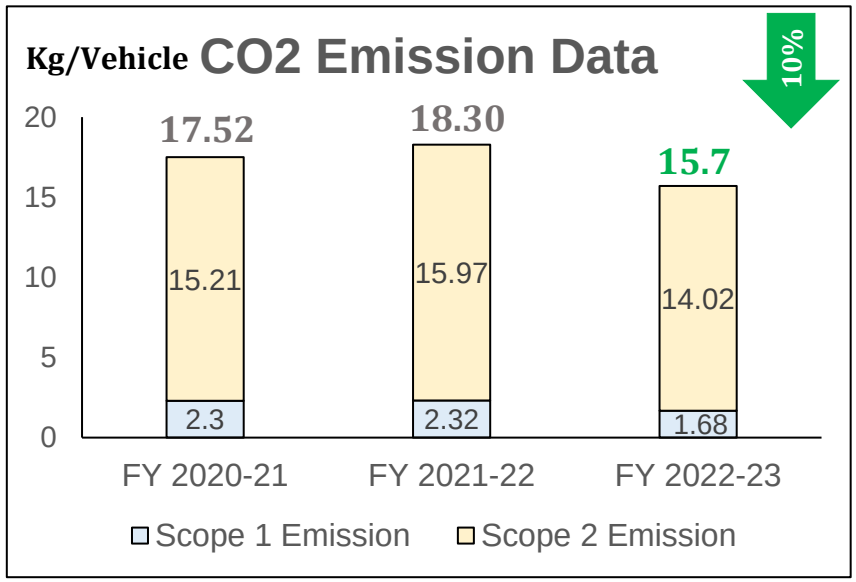


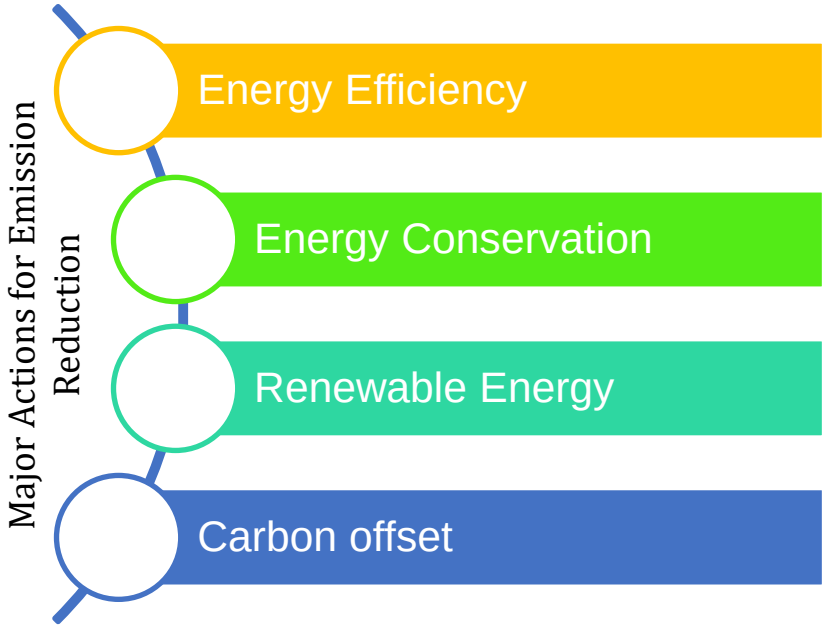
Compost Fertilizer ready for the gardening

Fertilizer Development by Sprinkling of Water over the product of OWC.

Different Waste utilization techniques for In-House compost making and co-processing of Hazardous waste with Cement Industries.

GHG Inventorisation





Scope 3 Emission

Most of Scope 3 Emission during the use phase of our vehicle at Customer

Life cycle assessment studies on major vehicle platforms.

30-35 g/km * of carbon emissions are generated in the use phase.

This is low due to our highly fuel-efficient vehicles.

* For this calculation, we assume that each vehicle travels 15,000 km per year and is used for 10 years.

Key Steps Undertaken

- **Successfully transition to BS VI**
  - 100% Domestic
- **Fuel Efficient Technologies**
- **Accelerating production of EVs**
  - Started in HM6T
- **Optimizing Manufacturing processes**
  - RCT Projects
- **Renewable energy**
  - Hybrid
- **Reducing waste & Improving efficiency**

CO2 emissions have been reduced through the years and major actions taken for Scope 1 & Scope 2 reduction. Scope 3 is carried out centrally and key steps undertaken for improvement.

Green Supply Chain Management

Sustainable Partner Development Program

Sensitisation (Short Term)
- Baseline Assessment
- Capacity Building
- Safety Culture Sensitivity
- Compliance Management Tool
- Sustainable Procurement

Transformation (Medium Term)
- Strategy on Carbon Offset
- Strategy on Diversity and Inclusion
- Water Conservation Measures
- Water Positive Certification
- Zero Liquid Discharge Certification
- Policies and Codes of Supply Chain Partners (SCPs)
- ISO 45001 Certification
- ISO 14001 Certification

Resilience (Long Term)
- Ethical Risk Assessment of Supply Chain Partners and Gap Analysis
- Human Risk Due Diligence and Risk Assessment of Supply Chain Partners
- Carbon Neutral Journey
- Disclosure in various ESG Rating Platforms

Hero NEXT Supply Chain Partners (SCP) Award

A. PERFORMANCE AWARDS (Supply Chain Partners' Plant Location Wise)

Excellence in Performance of: Quality, Cost, Delivery

SIX Clusters:
1. Mechanical Proprietary
2. Electrical Proprietary
3. Fabrication & Sheet Metal
4. Casting
5. Plastic & Rubber
6. Machining & Forging

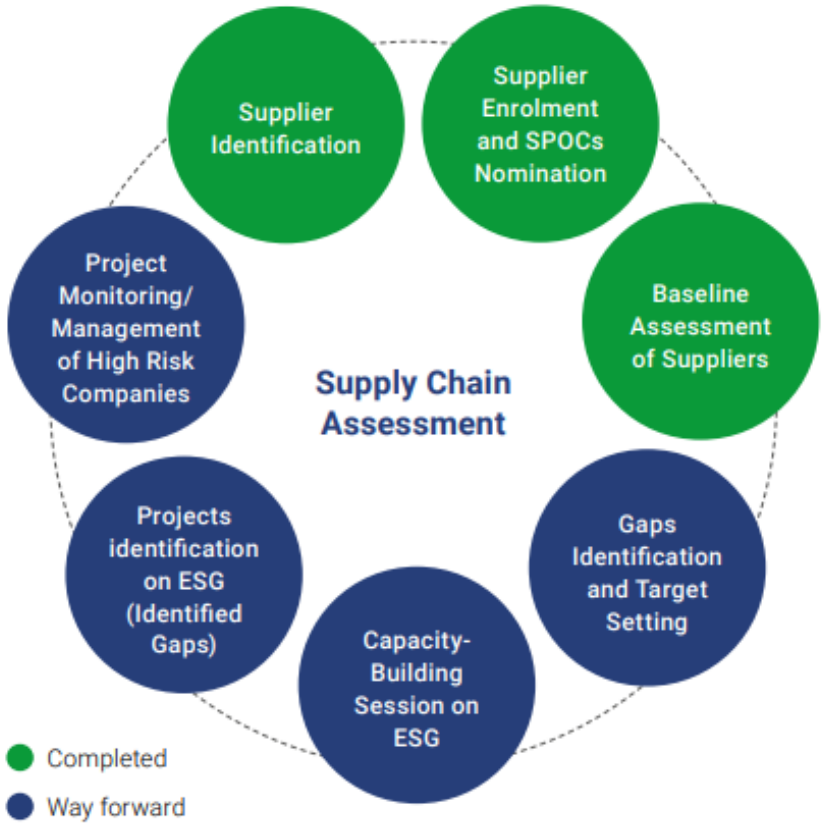
1.1 SHORTLISTING — Based on 8 Defined Criteria
1.2 EVALUATION — Of Shortlisted SCPs
2 TOP THREE WINNERS — In Each Cluster — Total 18 Awards
3 AWARDED — In Hero NEXT Conclave

B. LEADERSHIP & COLLABORATION AWARDS (At Supply Chain Partners Corporate Level)

FIVE Categories:
1. Inspirational Leader
2. Entrepreneur of the Year
3. Best in Innovation & Technology
4. Best in Cost Management
5. Significant Contribution in CSR

1.1 NOMINATION — By HMCL
1.2 EVALUATION — Of Nominated SCPs
2 5 WINNERS — Total 5 Awards
3 AWARDED — In Hero NEXT Conclave

Supply Chain Assessment Roadmap



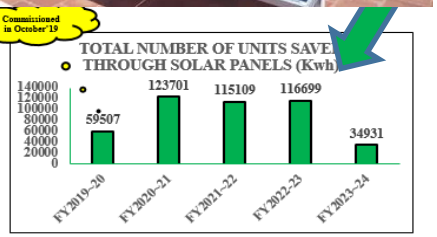
Sustainable Partner development program carried out with Supplier and Dealers for ESG assessment and improvement.

Green Supply Chain Management

Green Initiatives at Local Suppliers

Green Initiatives @ AGI, Halol

Solar Power Plant



Total Units Saved till Jun'23 – 449947 Kwh

Sustainable waste management

Stack height of DG set commissioned at 30 meters against std. requirement of minimum 22 meters for cleaner surrounding air.

Green Initiatives @ Satyam, Halol

#	Energy Savings Project Implemented in FY23
1	Seal Flush motor controlled by VFD because its valve throttle.
2	AAHM Air washer motor controlled starter so manually on/off and lunch time sometimes wastage power due to delay switching.
3	Press shop toilet light and exhaust fan continuous on
4	IOCL pit Submersible frequently winding burn
5	At Pantry room Ceiling Fan & lights Mostly time ON because Manually ON/Off.
6	Drinking RO antiscalent Dosing pump running continuous so, energy and chemical wastage with frequently pump issue
7	STP blower motor run via starter so motor run full speed so current taken high and starting time belt damages chances available.
9	Paint shop PT line light & fan on/off by manually so after production completed operator do not off light and fan

Total 0.29 Lacs kWh Saving

Power Wheeling at Gujarat Suppliers

Power Wheeling : Sustainability initiative across supply chain partner of HM5V in Gujarat

Sr. No	Company Name	Voltage (kV)	CD (KVA)	Avg. monthly Consumption (kwh)	Solar Installed (KWp)	Avg. Solar Monthly (kwh)
1	SUNBEAM LIGHTWEIGHTING SOLUTIONS PVT LTD , Halol	11	3,000	7,19,895	NA	NA
2	ROCKMAN Industries ltd , Varodara	11	2,900	11,00,000	NA	NA
3	BANCO GASKETS (INDIA) LIMITED Gambusar Varodara	11	1,650	4,75,000	NA	NA
4	FCC CLUTCH INDIA PVT LTD Sanand ahemadabad	11	1,600	1,68,097	543	58,759
5	AG INDUSTRIES Halol	11	1,300	2,80,000	88	9,600
6	SATYAM AUTO COMPONENTS PVT LTD ,Halol	11	1,000	2,46,747	NA	NA
7	VARROC ENGINEERING LTD Halol	11	1,000	1,65,000	NA	NA
8	AUTOFIT PVT. LTD. Halol	11	200	44,000	NA	NA
9	NAPINO AUTO & ELECTRONICS LTD, HALOL	11	100	11,820	NA	NA
10	RICO AUTO IND . LTD. HALOL	11	100	4,864	NA	NA
11	BADVE ENG LTD HALOL	NA	NA	NA	NA	NA
11a	M/S SWAMI ASHIRWAD ENGIMECH P LTD (KWH)	11	500	1,38,991	NA	NA
11b	M/S EXIMIIUS AUTOCOMPS P LTD (KWH)	11	750	2,04,292	NA	NA
11c	M/S SWASTID ENGINEERING P LTD (KWH	11	1200	2,59,855	NA	NA

14 suppliers Certified by HMCL & Sustenance being monitored

- *AG Industry*
- *Autofit*
- *Badve Engineering*
- *SUD-CHEMIE*
- *FCC Clutch*
- *Rockman*
- *Polyrub*
- *Fag Bearings*
- *Bony Polymers*
- *Endurance*
- *Napino Auto*
- *Satyam Auto*
- *Sunbeam*
- *Varroc*

Improvements done in local suppliers with the collaboration of HM5V team and certification by HMCL Team.

EMS System and other requirements

Energy Management System

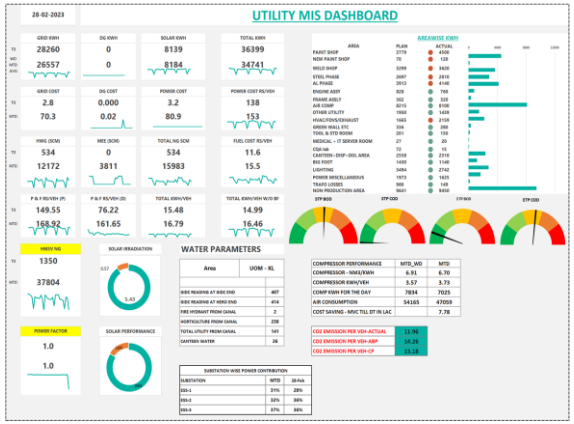
Internal Audit & Management Reviews System

Reviews & Audits	Frequency
Internal Reviews	Fortnightly
RCT Review	
HODs Review	Quarterly
Internal Audits External Audit Management Review	Half Yearly

Legal Compliance

No Findings in Chief Electricity Inspector Visit & Energy Audit from last 3 Years

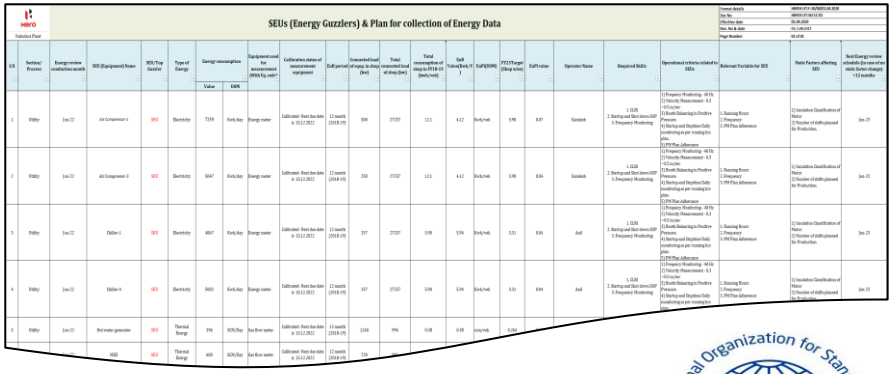
Utility Daily Dashboard



Energy Review Status

#	Section	Last Energy Review (Month)	Energy Review Due in (Month)	Energy review Status	Nos of equipment's covered	Nos of SEU (energy guzzlers) Before	Nos of SEU (energy guzzlers) After	Action Plan preparation status
1	Utility	Sep'22	Sep'23	●	114	24	21	●
2	Al phase	Sep'22	Sep'23	●	79	6	2	●
3	Steel Phase	Sep'22	Sep'23	●	65	5	0	●
4	Engine Assembly	Sep'22	Sep'23	●	36	0	0	●
5	Frame Assembly	Sep'22	Sep'23	●	25	0	0	●
6	Paint Shop-1	Sep'22	Sep'23	●	58	37	9	●
7	Paint shop-2	Sep'22	Sep'23	●	58	18	18	●
8	Weld Shop	Sep'22	Sep'23	●	85	0	0	●

Energy Guzzlers Action Planning



Robust Energy Management system and monitoring with base of improvement from energy review and SEUs action planning.

NET ZERO commitment

HMCL is committed to Sustainable business and a commitment to carbon neutral organization by 2030 and taken as HATS Targets.

HMCL Roadmap

2010
Baseline for Carbon Neutrality

Green Partner Development Programme

Accelerating On-site Solar Plant Installations

2017
Energy Efficiency Target Setting and Project Implementation

Accelerating Tri-generation Energy Portfolio

2019
Shift from Heavy to Cleaner Fuels

Energy Efficiency Projects

2021
Increasing Renewable Energy Portfolio

Accelerating Digitalisation of Utilities by Installing a Central Cockpit for Proper Monitoring of Plant Utilities

2022
11.2 MW Cumulative On-site Solar Capacity

Kicked off Sustainable Partner Development Programme

2023
Groundwork for Wheeling of Renewable Energy

Strengthening Carbon Neutral Operations Journey

2027
Enhance RE Wheeling Capacity

Scaling up New Technologies for Energy Efficiency

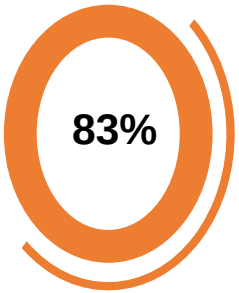
Adopting New Technologies for Digitalisation, Alternate Energy, Energy Storage, Afforestation, etc.

2030
100% Carbon Neutral Operation

Net Zero Commitment as per Hero HATS targets and roadmap to achieve that.

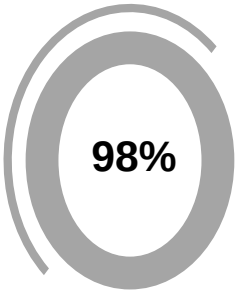
NET ZERO commitment

FY 23-24



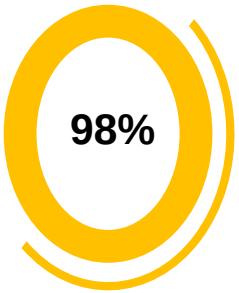
- Benefits of Hybrid power (wind) to increased the renewable energy used from 12 % to 63 %
- Energy conservation projects in order to reduce power cons. By 450000 KWH/year.
- 1000 - Tree plantation
- Solar water heater for kitchen.

FY 24-25



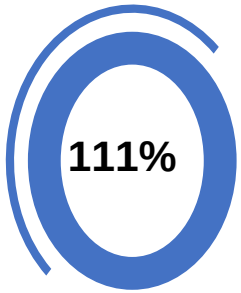
- Propane to Natural gas conversion for Kitchen
- Energy conservation projects in order to reduce power cons. By 450000 KWH/year.
- 1000 - Tree plantation

FY 25-26



- Electrical Audit – External
- Amendment of renewable energy to 60%
- Energy conservation projects in order to reduce power cons. By 450000 KWH/year.
- 1500 - Tree plantation

FY 26-27



- Energy conservation projects in order to reduce power cons. By 450000 KWH/year.
- Benefits from amendment of renewable energy to 60%
- Vacuum distillation tech in stead of MEE.

FY 29-30

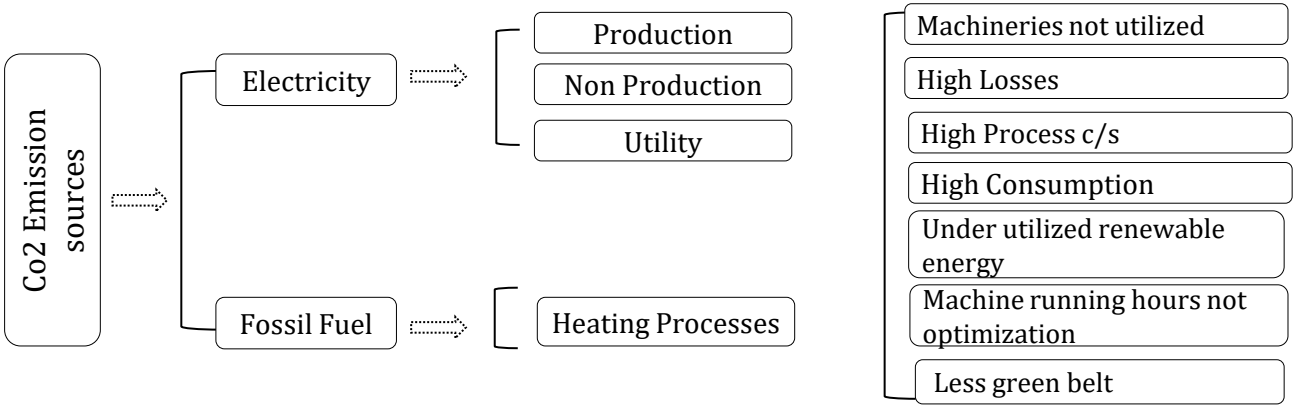
- Energy conservation projects in order to reduce power cons. By 450000 KWH/year.
- DG to gas conversion
- 2500 - Tree plantation

In line with Corporate roadmap, Plant roadmap to achieve Net zero commitment.

NET ZERO commitment

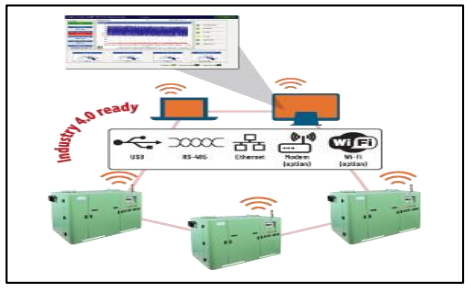
HM5V Carbon Emission Analysis, Roadmap & Actions Implemented

CO2 Emission Analysis

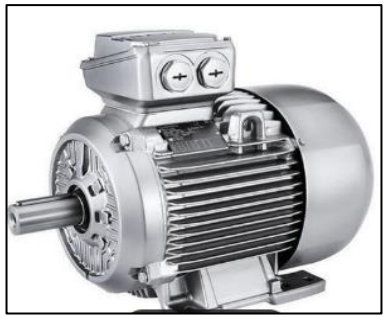


Major ENCON Highlights

100% LED Light usage in plant



Intelligent Flow Control for Air Consumption Reduction



100% IE-3 & 4 Motor

Central HVAC System with Automatic Control

Major Actions

Auto Drip Irrigation System

Dense Forest through Miyawaki Technique

Power Wheeling

Committed to fulfil SDG Goals

Emission analysis and Steps to achieve carbon-neutral operations

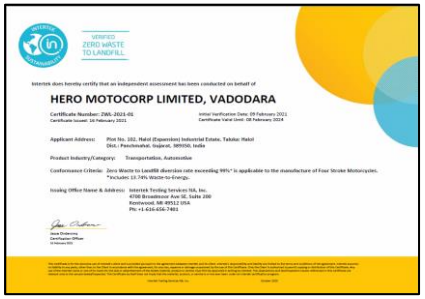
Awards & Recognition

Platinum Award in IGBC Green Factory Building

TPM Excellence Award

FY23

Zero Waste to Landfill Certification



Water Positive Certification

FY23

IMS Certification in 2017-18 (Recertification in Apr'21)

ISO 9001:2015

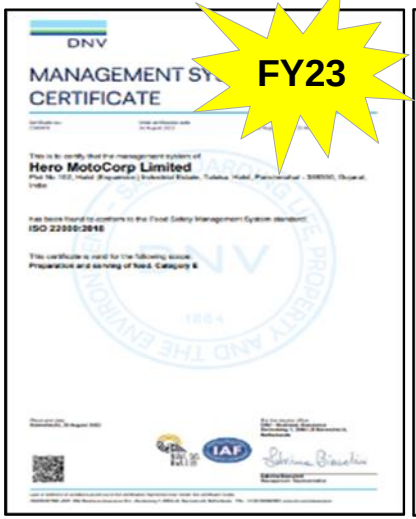
ISO 14001:2015

ISO 45001:2018

ISO 50001:2018

ISO 22000:2018

FY23



Eat Right Campus Award

FY23

Highlights of major awards and accolades plant is certified with.

CII Participations of HM5V in FY23 & FY24

18th CII Circle Competition

Platinum- JH Circle

Gold- KK Circle

Gold- Productivity Improvement

Gold- Delivery Improvement

46th CII National Kaizen Competition

Silver Award

8th CII National Competition on Low-Cost Automation

Certificate Awaited

Platinum Award

Journey Continues…

Highlights of major awards and participation by plant team in different CII events

Thank You

Q&A Session