



GreenCo Journey

HMCL Neemrana

Date: 22nd May 2018

Inspiration and Vision....

Chairman Emeritus's Message



Late Dr. Brijmohan Lall Munjal
(1st July 1923 to 1st November 2015)

“ We must give back to the society from whose resources we generate wealth.”



The Happy Earth initiative aims to focus on environmental sustainability and making the world a happier place to live in.

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PRODUCTS | MY HERO | GENUINE PARTS | GENUINE ACCESSORIES | FIND A DEALER | ENQUIRY / TEST RIDE | PARTNER WITH US

Home > About Us > We Care > Green Manufacturing

GREEN MANUFACTURING

A MISSION TO MAINTAIN HIGH ECOLOGICAL STANDARDS

At Hero MotoCorp we believe in sound and sustainable environmental practices.

Since inception we have cared for the environment by launching four stroke motorcycles in the era when two stroke two wheelers were popular.

In this endeavor we have always been blessed and guided by our Chairman Emeritus Brijmohan Lall Munjal that 'We must give back to the society from whom we generate our wealth'.

As leaders in the automotive industry we are committed to understanding our role in Sustaining a healthy industrial environment and

Hero MotoCorp has introduced several initiatives in the organisation in Product Development, Manufacturing, Supply Chain and all the functions. At Hero we have taken several initiatives to reduce Carbon, Water & Waste footprint.

Company's Website

We care for the environment

- > GREEN MANUFACTURING
- > SUPPLY CHAIN

Sustainability Road-Map at HMCL

Road Map – Sustainability



Self Sustainable, Climate Neutral and Surplusing the Cradle

Sustainable Impact : Transforming the Entire Energy Ecosystem

Transformation

INCLUSIVENESS

IMPLEMENTATION

DISCREET / PILOT

Technology Advancement & Climate Neutral across the Entire Value Chain

Solar Powered / Renewable Driven Scooters and Trikes	Open Visitor Factory to promote Green & Clean Practices and for accelerating their adoption	Social+ - Public Domain drives to adapt Technologies without any barrier : Extension of Green Directory
Green Vendor and Dealer Development : 100%	Assistance in 'Experience Production' of Green Technologies (Solar / Big Foot / Hydroponics / Extended Tri-Generation : Pinch Maximum)	Technology Fusion : Physical, Digital and Economic Spheres(Asset Performance, Energy mapping thru Analytics)
		Policy framework Changes promoting Employees Conscious of environmental concerns

In-House and Tier 1 Stakeholders Climate Neutral

Implementation of BS IV / BS VI across product line	End of life vehicle Regulation implementation	Tackling Pollution	Inclusion of All Tier 1 Vendors in GVDP	Deployment of carbon neutral processes for component production
Rare Earth Element Exclusion from Product / Process	Carbon and Water neutral / Abatement Strategy	ISO 500001 : Power / Water Efficient Plant	Happy Earth : Mega Plan Drive. 200,000+ Tree Plantation	Conceptualisation of Vehicles with Nano Energy Generators on TriboElectric Principles
Wheeling power from Solar / Wind Based Energy farms	Development of Electrical Vehicle with the objective to reduce CO2 Emission and Zero Tailpipe Emission	Digitized Power / Water / Air Accounting		Zero Energy Waste with World Class Recovery and Regenerating Technologies

In House Power, Air and Water Conserve

Tri-Generation : Power, Cooling & Heat from GG	Installation of Rooftop Solar Parks across HM4N, HP3N	Initiation of Review Process of CAC (Carbon Accounting of Corporates) as per policy	Thermal Energy Storage: Phase Change Material
LEED Certified Manufacturing Plant	Bigfoot / Hydroponics / Vegetable Farming / Lightpipe	Initiation of Discussion with NGT to improve Emission from mobility	Green Directory
Stopped using Asbestos & Hexavalent Chrome in product & greenhouse refrigerant in Air Conditioning		Green IT : Paperless transactions intra & inter Organisation	GDDP : Pilot
		Electrical Energy Storage H2 / Battery – Pilot Project	
		Geothermal Energy Source : Pilot Project	
		Piezoelectric Energy Floor & Solar Roads : Demo Project	
		Improved Process efficiency with usage of advance equipment like IE3 / IE4 / Future Generation.	

In House Power Conserve

VFD @ Compr. & FDV	Pilot: Solar 100 Kw @ HM2G	ZLD Commissioning
Bench marking	LED Light Pilot	CO2 Accounting
Planning & Project Identification		ETP, STP, Paint recycle, Incinerator
		GVDP Initiation

Horizontal deployment from the Success Stories of In-house Initiatives(Energy Storage, Wind, water neutral, Piezo-electric, Integrated Solar, Hybrids).
Pilots on Innovation, Technology, POCs, Implementation, Benchmarking and Standardisation in Manufacturing Arena.

2009 ~ 2010

2011 ~ 15

2016 ~ 20

Under Process

2021 ~ 25



Sustainability History at HMCL

Initiative Snapshot (Plant wise) ...

- Hero continuously strives for **synergy between environment & technologies**, by providing products and services that meet the quality, performance and price aspirations of our customers. This is clearly depicted across **all manufacturing plants, GPC and CIT**.
- Major Sustainable practices / products are highlighted.

HP3N

IGBC Platinum *Green Building*



Solar PV, Big Foot, Hydroponics, Green roof & Wall, Evaporator, Solar Thermal, ZLD, Light Pipe, LED

HGCIT

IGBC Platinum *Green Building*



Solar PV, Big Foot, Hydroponics, Green roof, LED

HM5V



Solar PV & BIPV, Big Foot, Hydroponics, Green roof & Wall, Evaporator, Solar Thermal, ZLD, Light Pipe, LED

HM1D



Solar PV, Evaporator, ZLD, Trigeneration : i. Electricity, ii. Hot Water & iii. VAM, Light Pipe, LED

HM3H

IGBC Gold
CII GreenCo



Solar PV, Evaporator, ZLD, Green Roof, Light Pipe, LED

HM4N

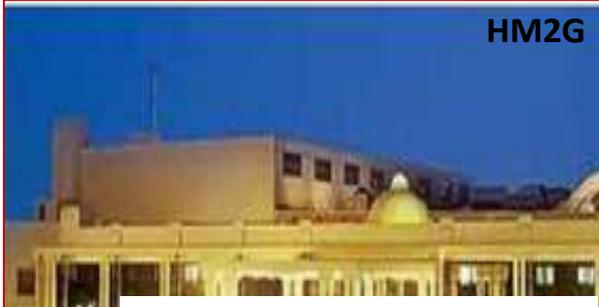
GreenCo : Platinum

IGBC Platinum *Green Building*



Solar PV, Big Foot, Hydroponics, Green roof & Wall, Evaporator, Solar Thermal, ZLD, Light Pipe, LED

HM2G

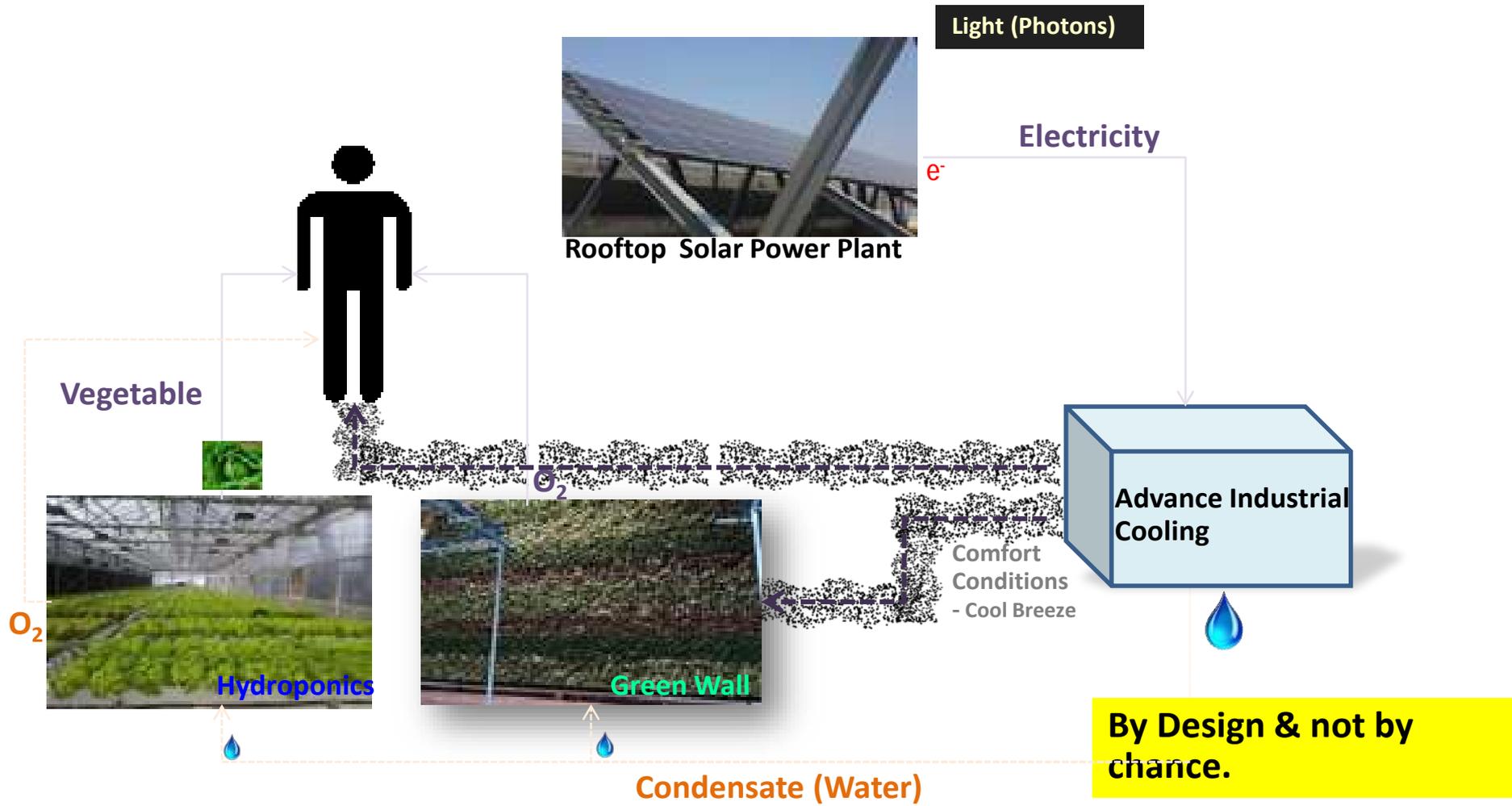


Solar PV, Evaporator, ZLD, Trigeneration : i. Electricity, ii. Hot Water & iii. VAM, Light Pipe, LED



Hero MotoCorp Neemrana - Cradle-to-cradle™

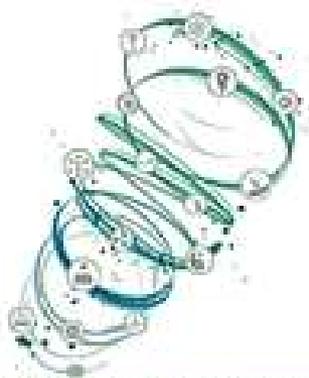
Main Product **By-Product**



Cradle-to-Cradle™ ensures, Waste from one process is input to next process.



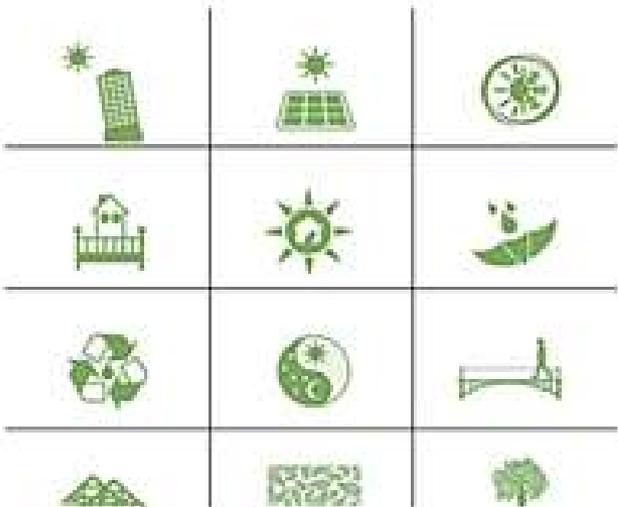
Hero's Green Approach for New Manufacturing Facilities



MANUFACTURING HAPPINESS

The Hero's vision is to create a sustainable future through green building technology and natural processes that promote health and well-being. This is achieved by using green building materials and energy efficient building systems. Efficiency, innovation, and sustainability are the key to success.

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- All Facilities to be **Green Building** housing efficient & resource-light equipment.
- **IGBC Certification** for self assurance & initiative consolidation.
- Thematic Facilities with Thrust on 'Green Initiatives'. Theme for HM4N is **Manufacturing Happiness**.
- Facilities to showcase **technical advancement with Social⁺**.
- **Minimum 5% Power Generation with Renewable Power Generation Source.**
- **Focused sustainability** with Maximum Water Conservation.



The GreenCo Rating System

GREENCO RATING SYSTEM : The Pillars

I. ENERGY EFFICIENCY

EFFICIENT ENERGY MANAGEMENT



II. WATER CONSERVATION

AIMING WATER POSITIVE



III. RENEWABLE ENERGY

RENEWABLE FOOTPRINT



IV. GHG EMISSION

GREENHOUSE GASES MITIGATION



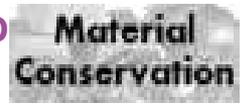
V. WASTE MANAGEMENT

ZERO WASTE



VI. MATERIAL CONSERVATION

CONSERVATION AND RECYCLABILITY



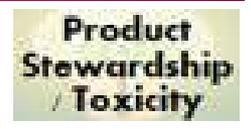
VII. GREEN SUPPLY CHAIN

GREEN BUSINESS PARTNERS



VIII. PRODUCT STEWARDSHIP

DESIGN FOR ENVIRONMENT



IX. LIFE CYCLE ANALYSIS

ENVIRONMENTAL IMPACT



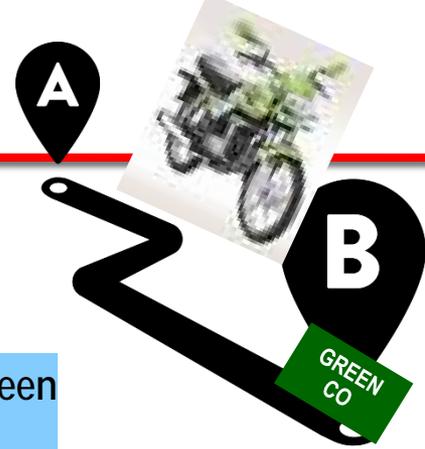
X. INNOVATION

INNOVATION & TRANSFORMATION



Our GreenCo Journey....

GreenCo Journey



I. Initiation

Kickoff Meeting and Training Program on Green Sensitization

AUG 2017

II. Handholding

Handholding Visit Conducted to facilitate understanding and the decide the way ahead.

SEP 2017

IV. Final Assessment

Deep Dive into each of the Pillars showcased by HMCL followed by question and answers and micro level suggestions provided by the assessors

DEC 2017

III. Pre Assessment

Comprehensive and Structured Exposure to the GreenCo Pillars and their significance. Preparation of Reports and consistent review.

NOV 2017

V. Award

Felicitation with feedbacks and potential recommendations for immediate adoption.

JAN 2018



Energy Efficiency

Energy Efficiency

Environment Policy

We at Hero MotoCorp are committed to demonstrate excellence in our environmental performance on a continual basis, as an intrinsic element of our Corporate philosophy .

To achieve this we commit ourselves to:

- Integrate environmental attributes and cleaner production in all our business processes and practices with specific consideration to substitution of hazardous chemicals, where viable and strengthen the greening of supply chain.
- Continue product innovations to improve environmental compatibility.
- Comply with all applicable environmental legislation and also controlling our environmental discharges through the principles of "ALARA" (As Low As Reasonably Achievable).
- Institutionalize resource conservation in the areas of oil, water, electrical energy, paints and chemicals.
- Enhance environmental awareness of our employees and dealers and Vendors, while promoting their involvement in ensuring sound environmental management.
- We shall communicate this policy to all our employees and would make it available to the interested party.

Safety Policy

Hero MotoCorp is committed to Safety and Health of its employees and other persons who may be affected by its operations. We believe that the safe work practices lead to better Business Performance, Motivated Workforce and Higher Productivity.

We organization shall create a safety culture in the by:

We are committed towards prevention of injury and ill health by;

- Integrating safety and health matters in all our activities.
 - Ensuring compliance with all applicable legislative requirements.
- Empowering employees to ensure safety in their respective work places.
- Promoting safety and health awareness amongst employees, suppliers and contractors.
 - Continuous improvements in safety performance through precautions besides participation and training of employees.

The policy shall be applied equally, fairly & without exception.

Quality Policy

Excellence in Quality is the core value of Hero MotoCorp philosophy.

We are committed at all levels to achieve high quality in whatever we do, particularly in our products and services which will meet and exceed customer's growing aspirations through:

- Innovation in products, processes and services..
- Continuous improvement in our Total Quality Management systems.
- Teamwork and responsibility.

PLACE : NEW DELHI



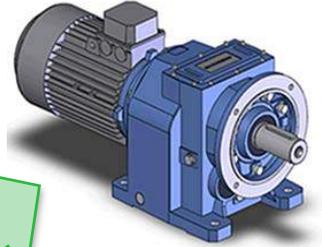
PAWAN MUNJAL
(Chairman, CEO & Managing Director)

Energy Efficiency



Energy Consumers

HVAC & Lighting Loads



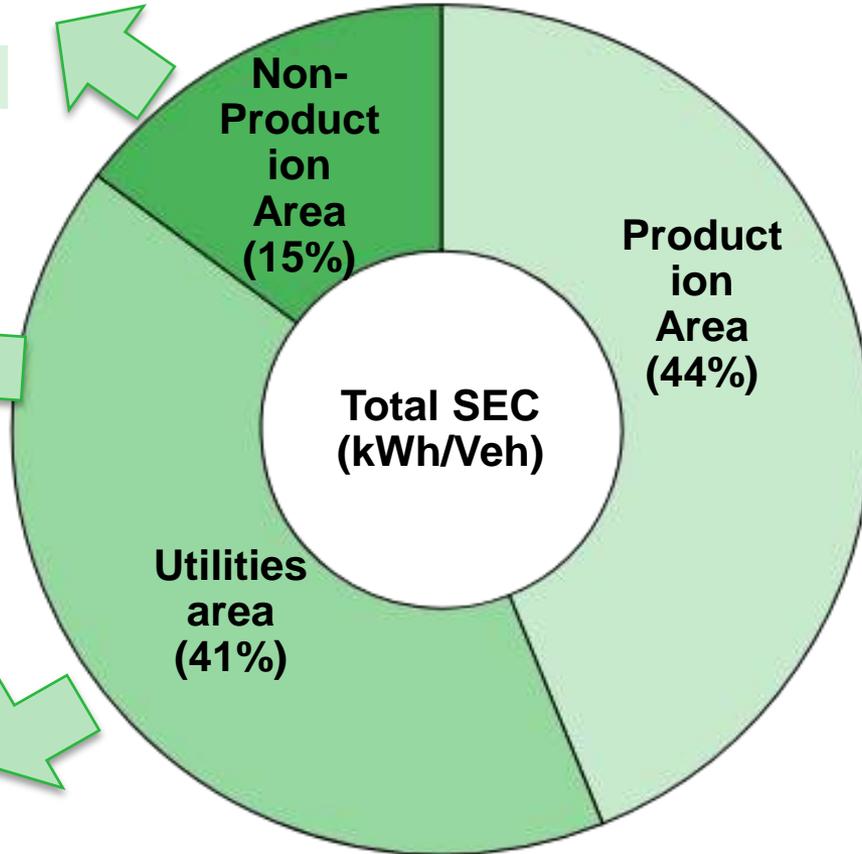
Paint Shop Heavy Motors



BigFoot units



Air Compressors



RoboDrill & SPMs

Understanding the Energy consumers helped in framing the strategies of High Energy equipment

Energy Efficiency

	2015-16	2016-17	2017-18	2018-19	2019-20
Loss Elimination	<ul style="list-style-type: none"> •Power Factor improvement •Optimisation of plant working hours •OEE improvement of plant 	<ul style="list-style-type: none"> •Optimisation of equipment running hours •Waste or leakages elimination 	<ul style="list-style-type: none"> •Power factor improvement at high •Lighting load optimisation •OEE improvement of new model line 	<ul style="list-style-type: none"> •Equipment energy efficiency improvement •Development of Central control system for HVAC 	<ul style="list-style-type: none"> •Equipment wise PF improvement •Air Losses optimization
Technological Improvement	<ul style="list-style-type: none"> •Loss elimination through automations •Alternate development of Water heating 	<ul style="list-style-type: none"> •Improvement in Compressed air management •Establish of Heat recovery system 	<ul style="list-style-type: none"> •Elimination of Idle running equipment •Bigfoot cooling system optimization 	<ul style="list-style-type: none"> •Automation of Lighting control in Non-Production areas •Central cockpit system •Solar Sky pipe lighting system 	<ul style="list-style-type: none"> •Energy efficient motors IE4 •Solar panels for bore well •Off-grid purchase of renewable energy
Operation Control	<ul style="list-style-type: none"> •Establishment of Energy Management system •Development of Energy Saving culture 	<ul style="list-style-type: none"> •Automation of HVAC control •Process Standardisation of High energy equipment 	<ul style="list-style-type: none"> •Development of Idea generation culture •Development of Energy Managers 	<ul style="list-style-type: none"> •Strengthening of Energy Auditing system •Establishment of ISO 50001 	<ul style="list-style-type: none"> •ISO 50001 system sustenance and improvement

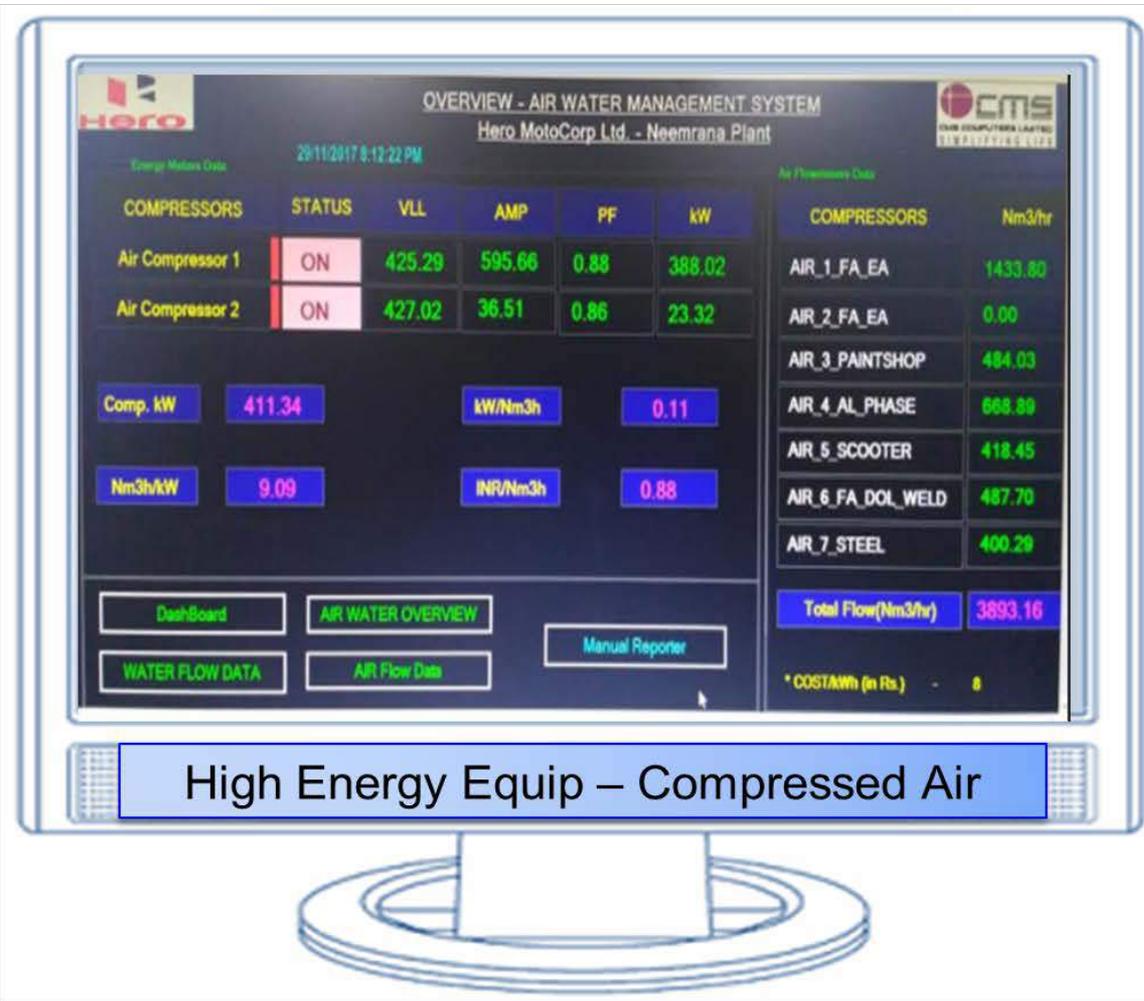
Capex Improvement Themes

PDCA Improvement Themes

Long term Roadmap with important themes made towards our journey of excellence in Energy Efficiency

Energy Efficiency

Compressed Air Online Monitoring



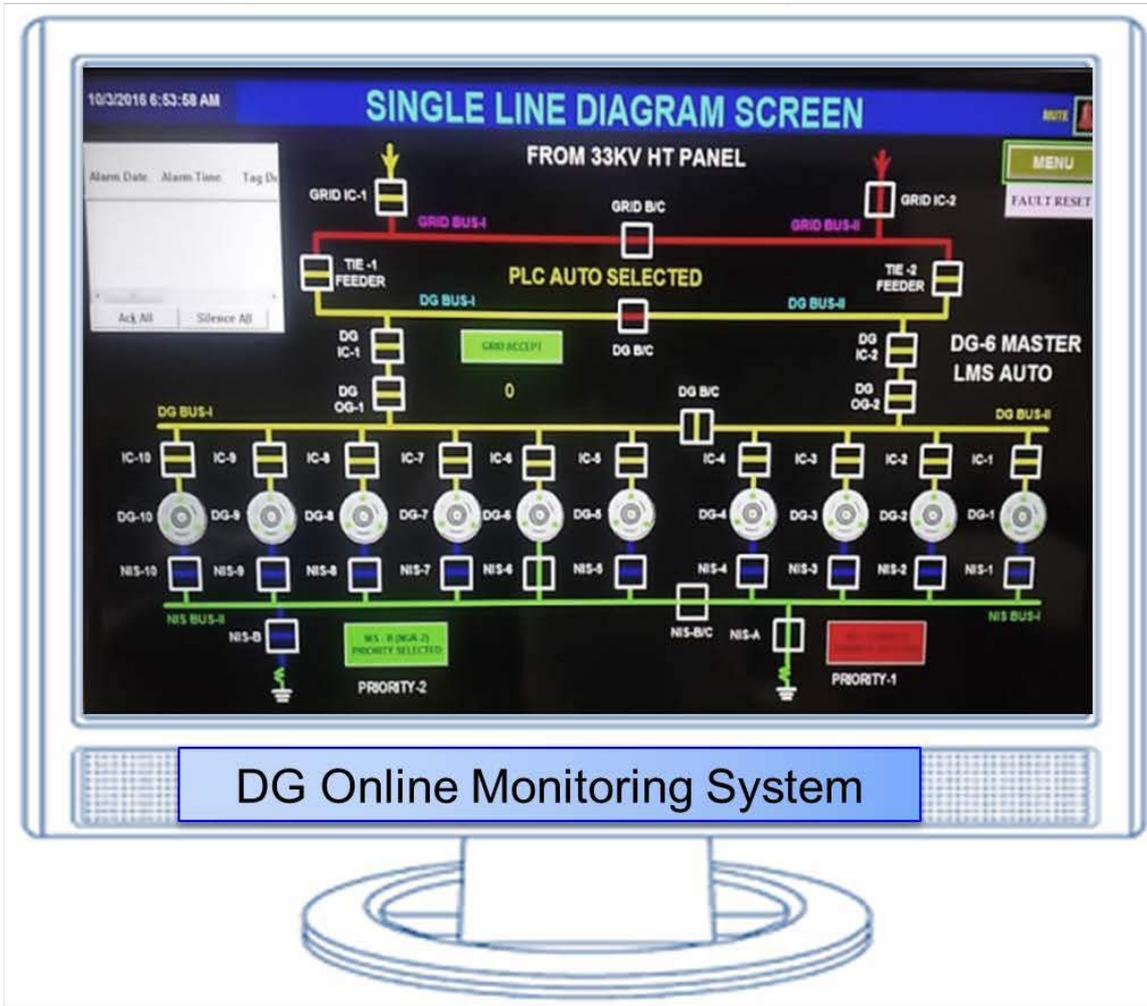
Key features

1. Reports generation, Events/alarms and key performance indicators that communicate ongoing performance.
2. Compressed air & water consumption trend monitoring and recording.
3. Online data linkup with SAP.
4. Measurement and verification
5. Areawise Air consumption tracking & monitoring.
6. All data recorded & saved in drive for future reference.

On time monitoring compressed air flow and water consumption.

Energy Efficiency

DG Online SCADA system

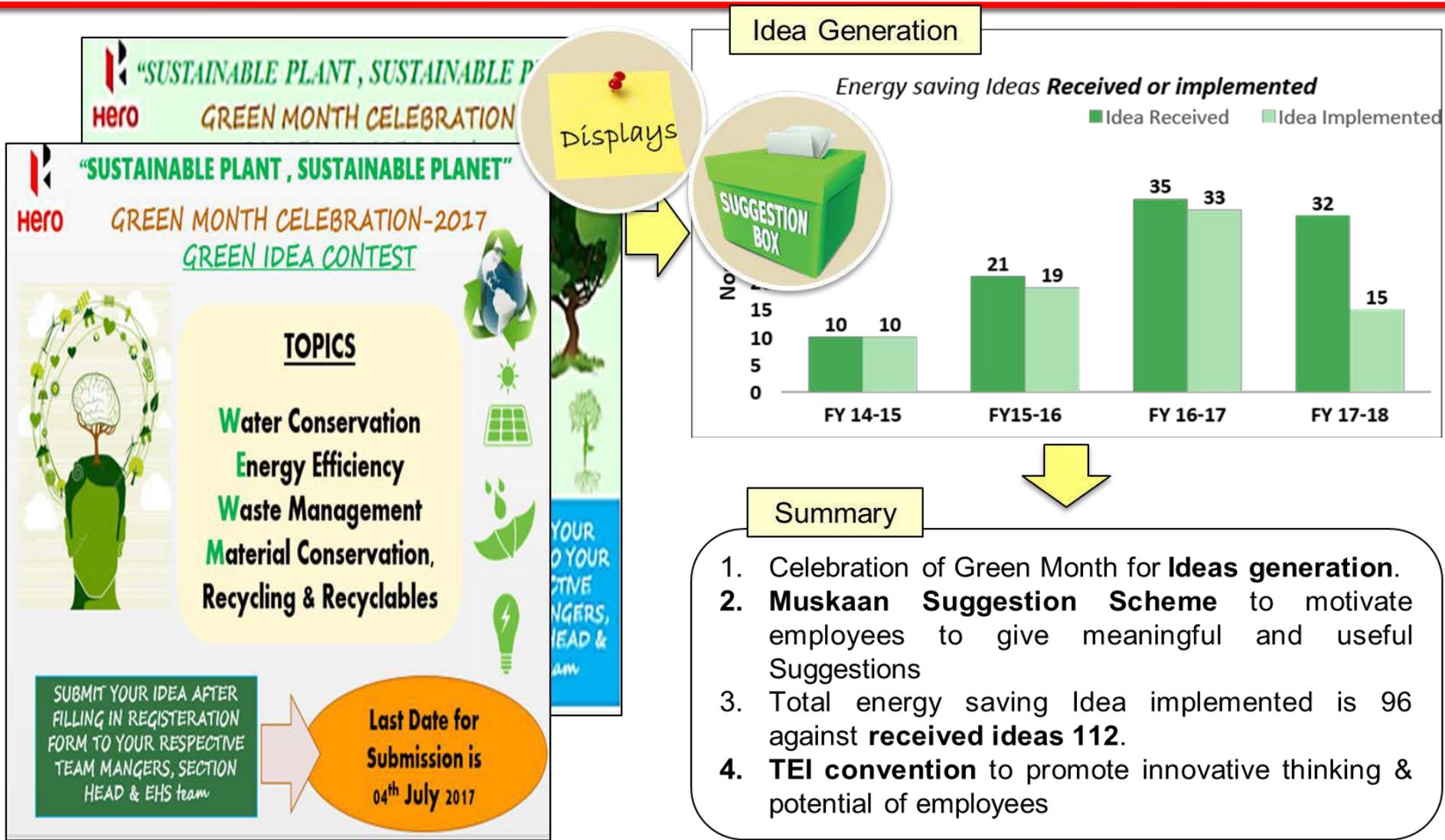


Key features

1. Automatically DG will start in case of Grid Power failure.
2. Reports generation, Events/alarms and key performance indicators that communicate ongoing energy performance.
3. There is 3 mode of operation & all load taken care automatically under LMS Auto.
4. Providing the information required to set and track energy performance goals.
5. Measurement and verification
6. Monitoring of Fuel consumption and energy consumption
7. All data recorded & saved in drive for future reference.

DG online SCADA automatically start during power failure & data recording system available.

Energy Efficiency



Overall employees involvement through different methods to promote energy efficient activities.

Water Management

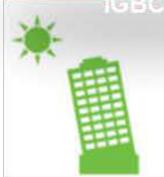
Water Conservation

Hero Garden Factory Designed to be Green



Sustainable Plant,
Sustainable Planet

Platinum Rating Plant-
IGBC



Diagonal
Structure



Glare free sky
light



Solar Power



Efficient LED
lighting



Rain Water
Harvesting



Water Recycling



Big foot
technology



Cradle to cradle



Green House
Production



Oxygen walls

Energy Efficient

Water Efficient

GHG & WM Efficient

Superior In-built design for water conservation to achieve reducing consumption target despite new plant

Water Conservation



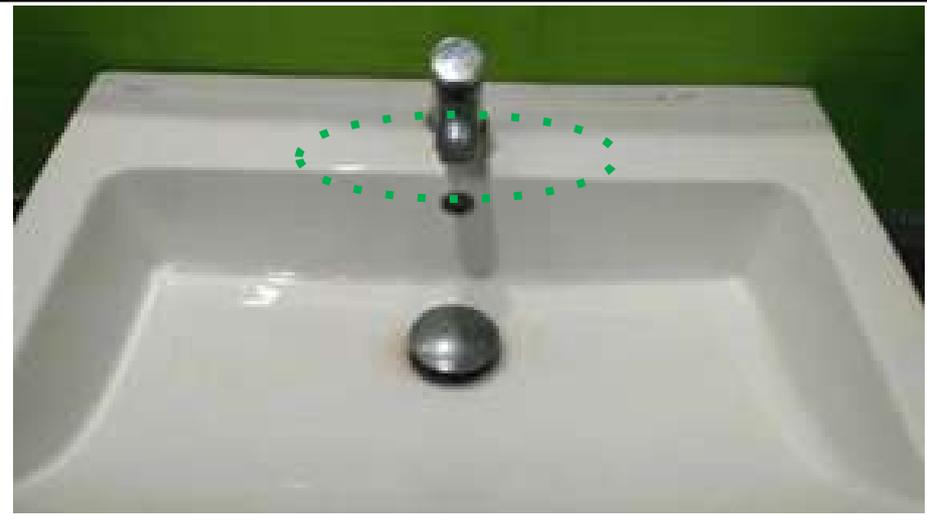
Project: Normal Taps replaced with press type taps in Canteen Area/washrooms.

Previous Scenario



Water pressure was very high & wastage of water if user forget to close the tap.

Green Initiative



Pressure adjustment done & tap automatically shutoff after 20 secs.



- Water wastage reduce.
- Auto shutoff of water taps.
- Pressure/flow adjustment



Investment

₹ 2.5 lacs



Savings

1284 KL
Annually

Normal taps replaced with push type timer taps & flow adjusted, 1284 kl water saved annually

Water Conservation

Theme : Reduction in Water Consumption

Project: Washing machines Overflow problem & drain frequency optimization.



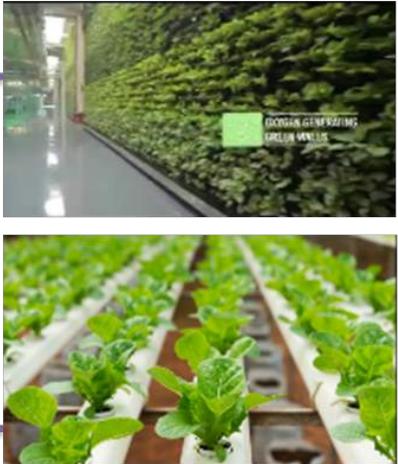
Previous Scenario		Green Initiative	
<p>Earlier washing machine discharge frequency was not defined & overflowing problem was existing.</p>		<p>Washing machine discharge frequency defined for all area & overflow problem optimized.</p>	
<p>Benefits</p> <ul style="list-style-type: none"> Water wastage reduce. Frequency defined. Level/temp based automation. 	<p>Investment</p> <p>₹ 0.35 lacs</p>	<p>Savings</p> <p>479 KL Annually</p>	

Washing machine discharge frequency defined for all area & overflow problem optimized resulting 479 KL saving annually

Water Conservation

Theme : Reduction in Water Consumption

Project: Usage of Bigfoot generated water in Hydroponics & Green areas

Previous Scenario	Green Initiative				
<div data-bbox="355 572 687 825" style="border: 1px solid black; padding: 10px; text-align: center;"> <p>Bigfoot condensate was wasted & going to drain</p> </div>	 <p style="text-align: center;">↓</p> <div data-bbox="987 761 1238 908" style="border: 1px solid black; border-radius: 15px; padding: 5px; text-align: center;"> <p>Condensate Water Tanks</p> </div>				
<p>Earlier Bigfoot condensate was wasted & no control.</p>	<p>Now all water used in Hydroponic & green areas.</p>				
 <p>Benefits</p>	<ul style="list-style-type: none"> ▪ Water wastage reduce. ▪ System prepared for best use. ▪ Ground water extraction reduce. 	 <p>Investment</p>	<p>₹ 2.5 lacs</p>	 <p>Savings</p>	<p>2400 KL Annually</p>

Water generated from Bigfoot is used in Hydroponics & Green areas

Water Conservation



Project: Multi-Effect Evaporator to convert RO Reject into Distilled water

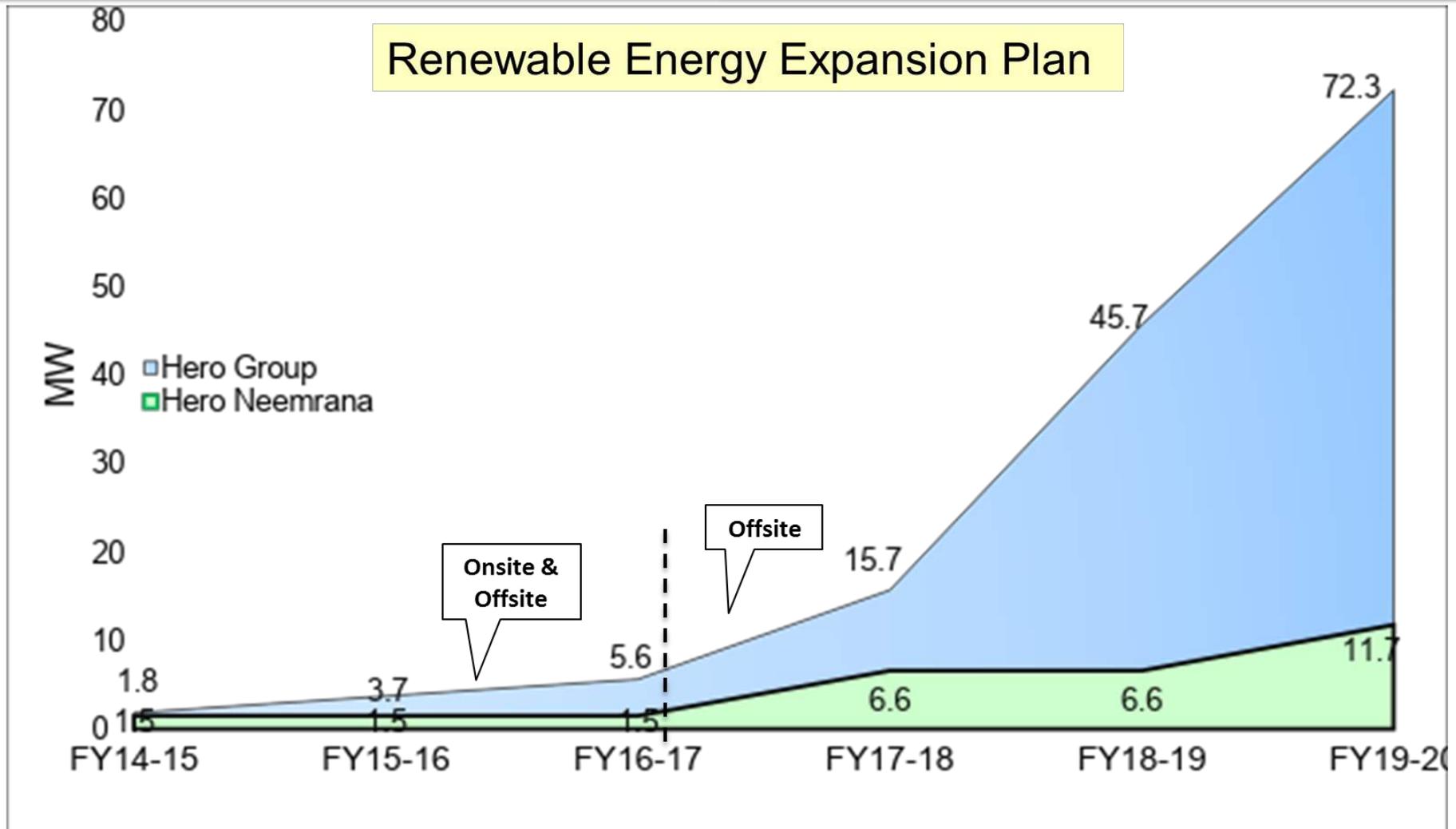
Previous Scenario	Green Initiative
<div data-bbox="289 471 656 842" style="border: 1px solid black; padding: 10px; text-align: center;"> <p>No provision of treatment of High TDS water</p> </div>	<pre> graph TD A[ETP Plant] --> B[ETP Treated Water] B --> C[ETP RO Recycle Plant] C --> D[DM Water Plant] D --> E[MEE Plant] E --> F[Hazardous Waste] </pre>
<p>RO recycle plant was stopped due to no treatment of high TDS water.</p>	<p>Now RO recycle high TDS reject treatment done via MEE plant.</p>

<p>Benefits</p> <ul style="list-style-type: none"> Manpower reduced. Water wastage eliminated. More work in less time. 	<p>Investment</p> <p>₹ 174 lacs</p>	<p>Savings</p> <p>3624 KL Annually</p>
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**Conversion of RO Reject into Distilled water by Multi-Effect Evaporator
3624 KL saving annually**

Renewable Strategies

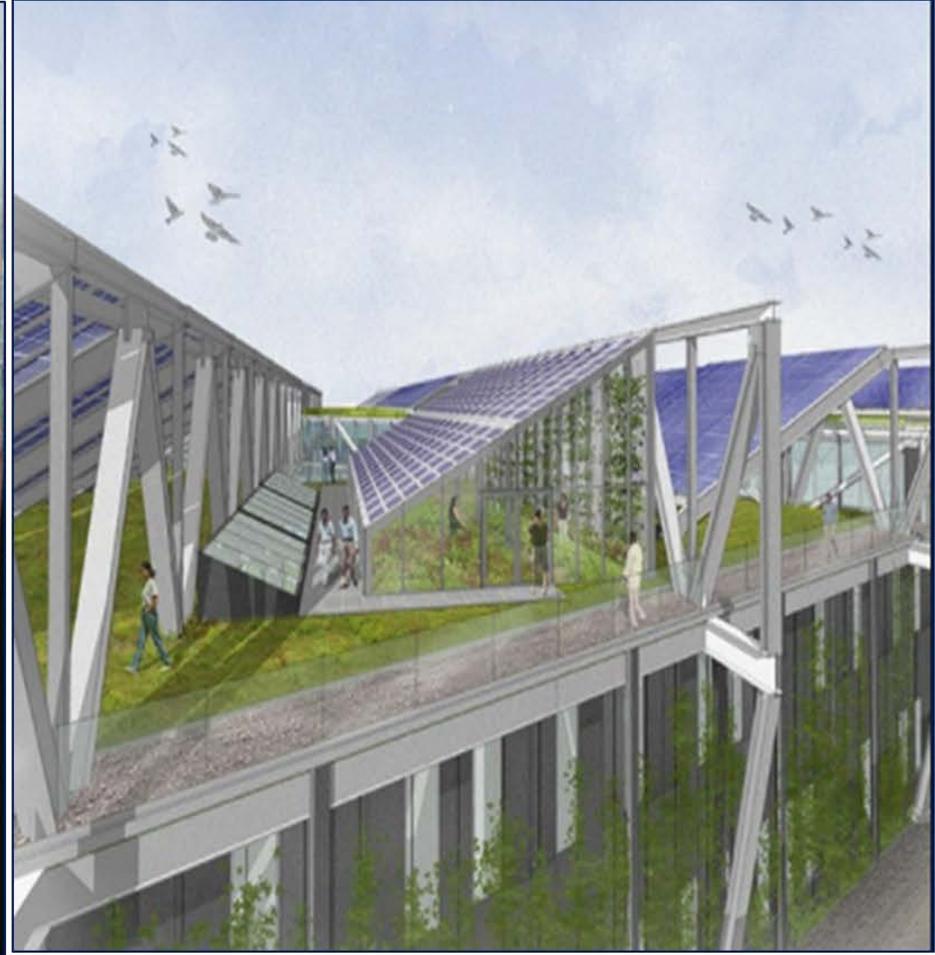
Renewable Energy



Renewable Energy Ratio will increase through OFF site projects for power supply.

Renewable Energy

Roof Top Solar Power Plant



On site 0.7MW roof top solar power plant for in-house use

Renewable Energy

Solar Parabolic Concentrator System



ARUN@100 dish is about 40 to 50 kWh for 8 to 9 hours a day 275000 or to 350000 kcal/day

Solar Lights



Street light are battery operated, Battery got Charged during day times & used in night

Solar Concentrator used for Canteen.

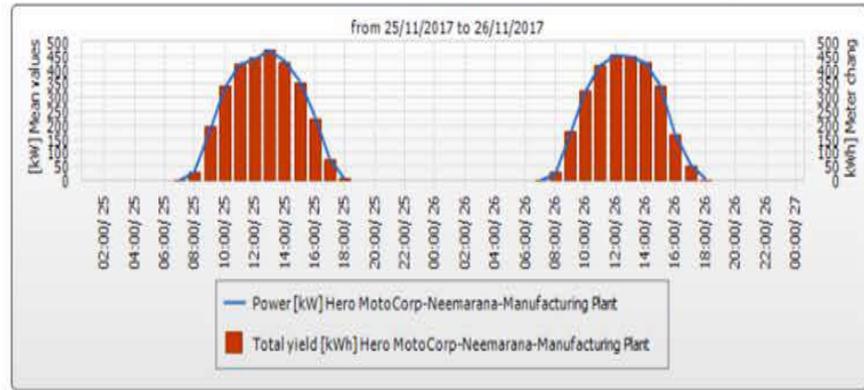
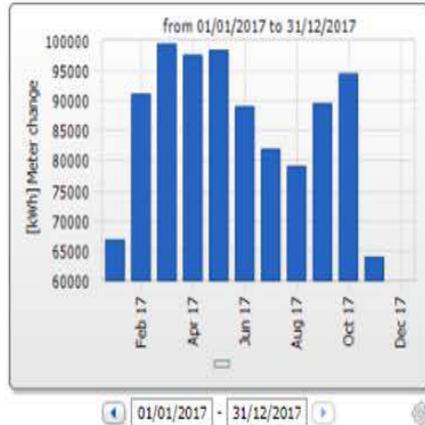
Renewable Energy

Online Monitoring & Reporting

Date: 26/11/2017
Energy: 3,525,363.06 kWh



CO2 avoided: 2,467,754.14 kg
Reimbursement: EUR 1,648,107.23



▼ PV System Data

<p>Current PV Power 2 hours ago</p> <p> 3762 w</p> <p>Energy and Power »</p>	<p>Communication Monitoring</p> <p> Last contact: just now</p> <p>PV System Monitoring »</p>	<p>Inverter comparison status</p> <p> Last comparison: 25 November 2017</p> <p>PV System Monitoring »</p>
<p>PV Energy</p> <p> 2831.99 kWh Today</p> <p>Total: 3525.363 MWh</p>	<p>Reimbursement</p> <p> 1,323.96 EUR Today</p> <p>Total: 1,648,107.23 EUR</p>	<p>CO2 avoided</p> <p> 2.0 t Today</p> <p>Total: 2.5 kt</p>
<p>PV system information</p> <p> PV system power: 856.00 kWp Commissioning: 30/06/2014</p> <p>PV system profile »</p>	<p>Irradiation</p> <p> Configure the irradiation sensor now »</p>	<p>Performance Ratio</p> <p> yesterday</p> <p> last 30 days</p>
<p>Weather for Neemarana</p> <p> 20 °C Cloudless</p> <p>Tomorrow »</p>	<p>Location</p> <p> Neemarana 301705 Neemarana India</p> <p>Enlarge map »</p>	

Solar Energy Generation & monitoring established system.

Green House Gas Mitigation

Green House Gas Mitigation



Scope I
Direct GHG Emissions

Scope II
Indirect GHG Emissions

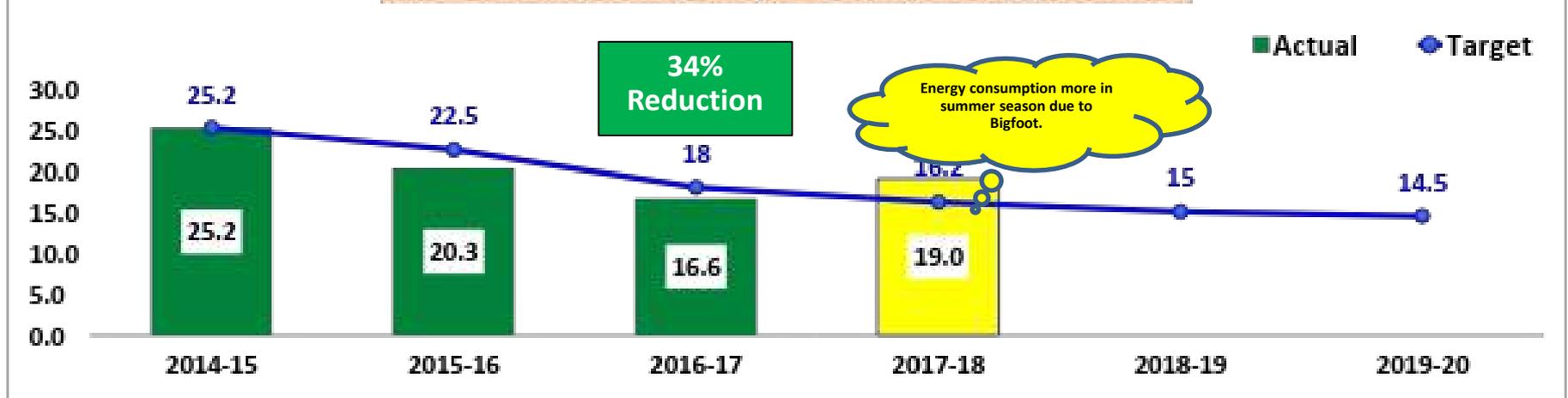
Scope III
Other indirect GHG Emissions

GHG Emission sources divided in three scope and having monitoring system in place

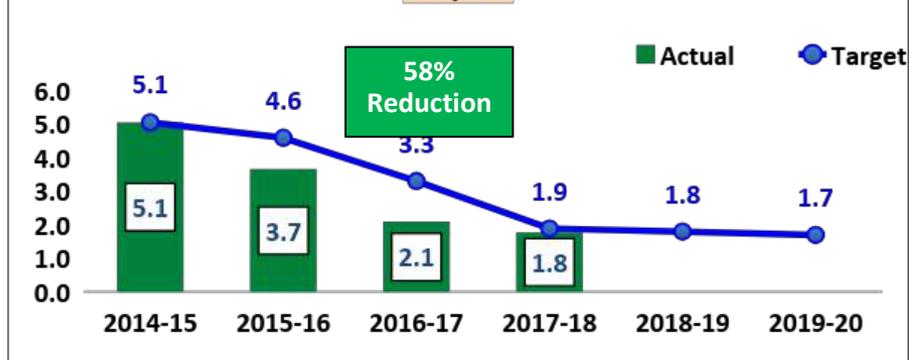
Green House Gas Mitigation

Scope wise CO2 Emission In kg/veh for 3 years 2014-15 to 2017-18 till oct'17

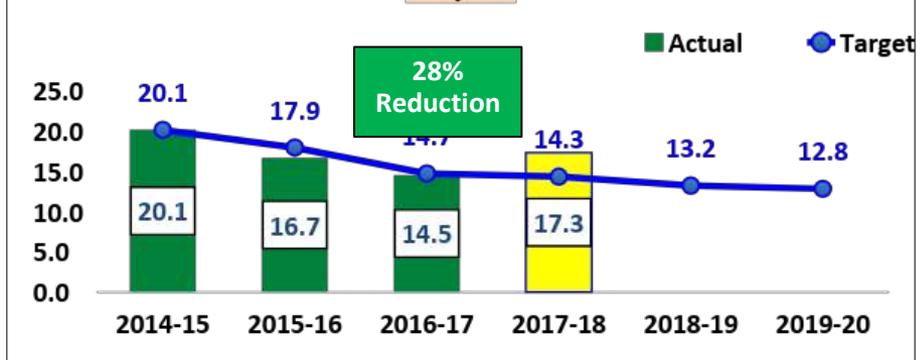
CO2 Emission (Scope-1&2) in kg/vehicle



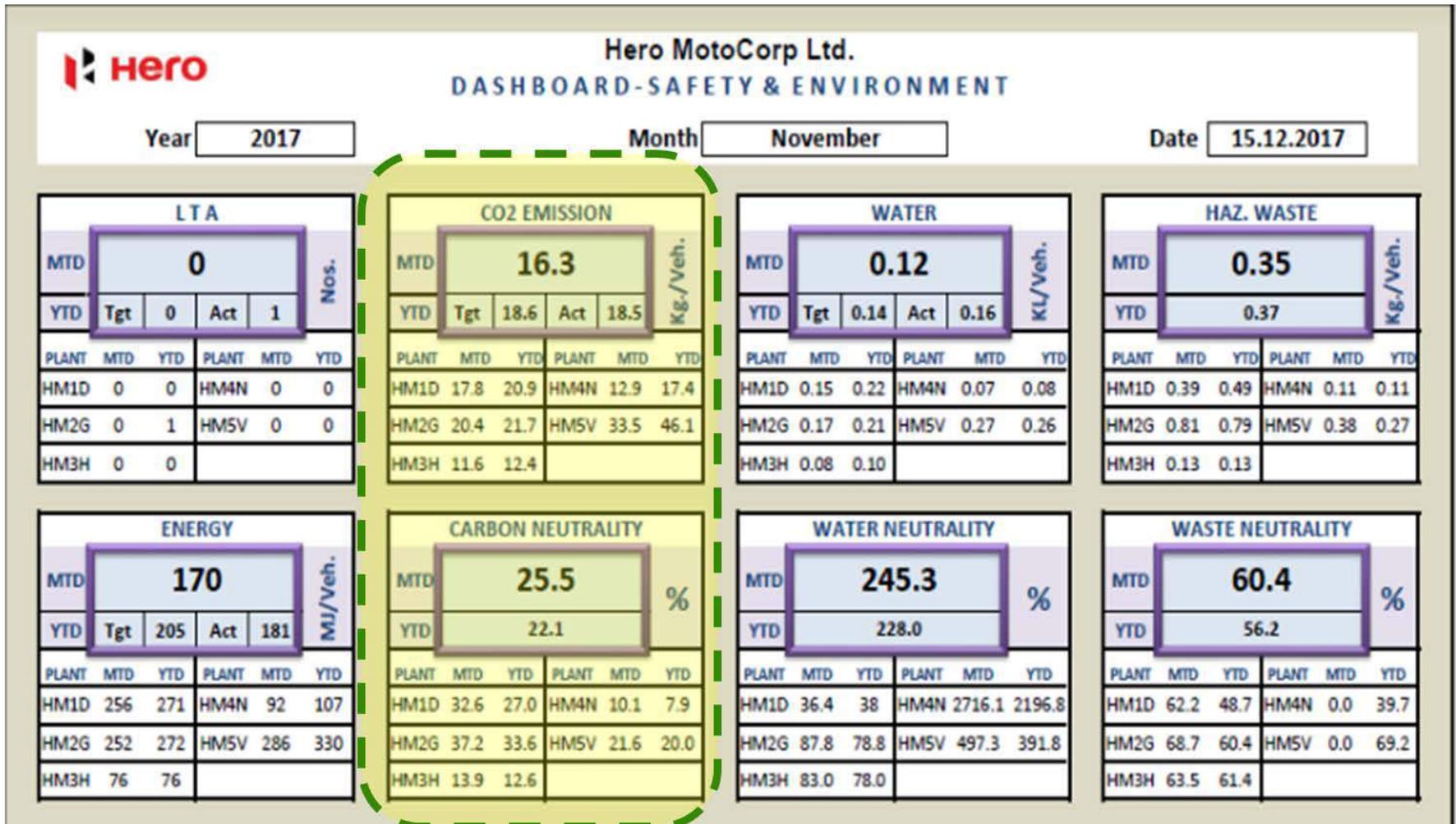
Scope-1



Scope-2



GHG Inventorization of Scope-1 & 2 done and 34% reduction achieved .



Dash board covering Carbon neutrality & GHG Emission is shared with top Management Team for their inputs

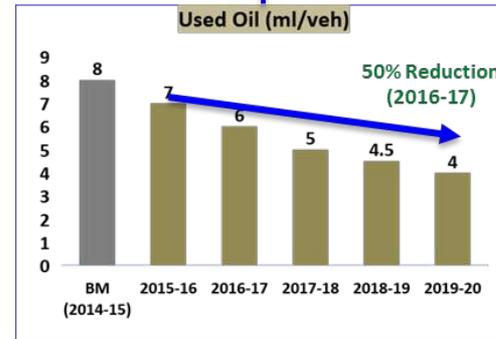
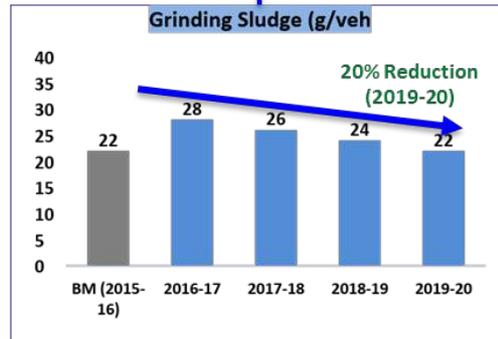
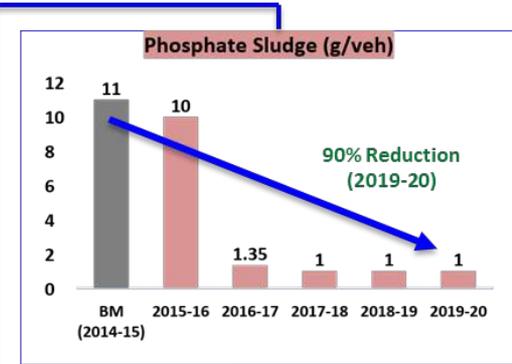
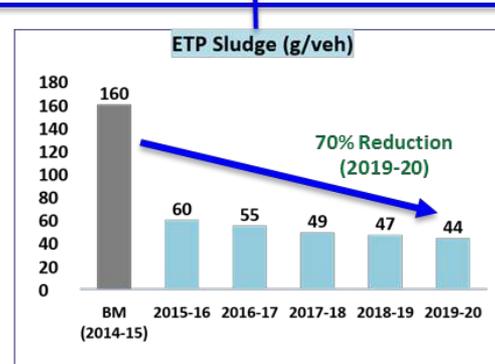
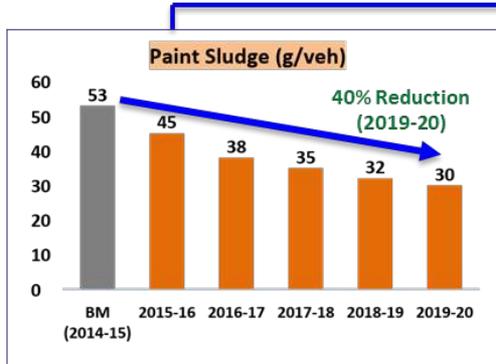
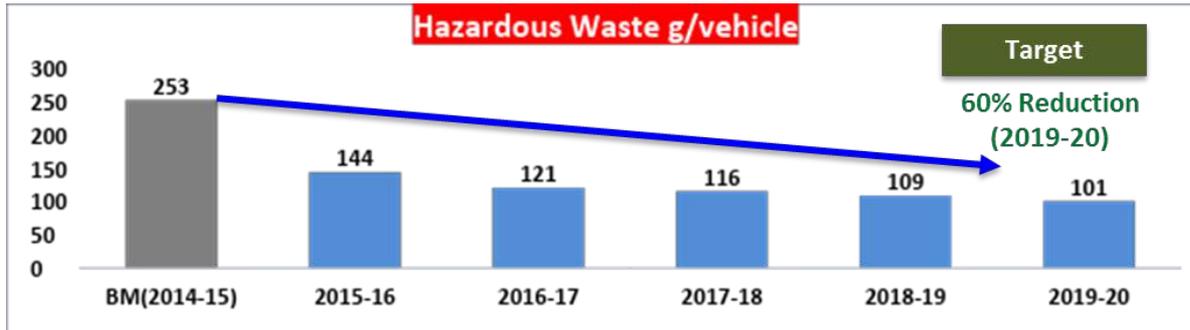
Waste Management

Waste Management



Human diligence, progressive technology and natural goodness complemented each other

Waste Management



Focus on 62 % Reduction in Hazardous Waste Generation by 2019-20

Material Conservation

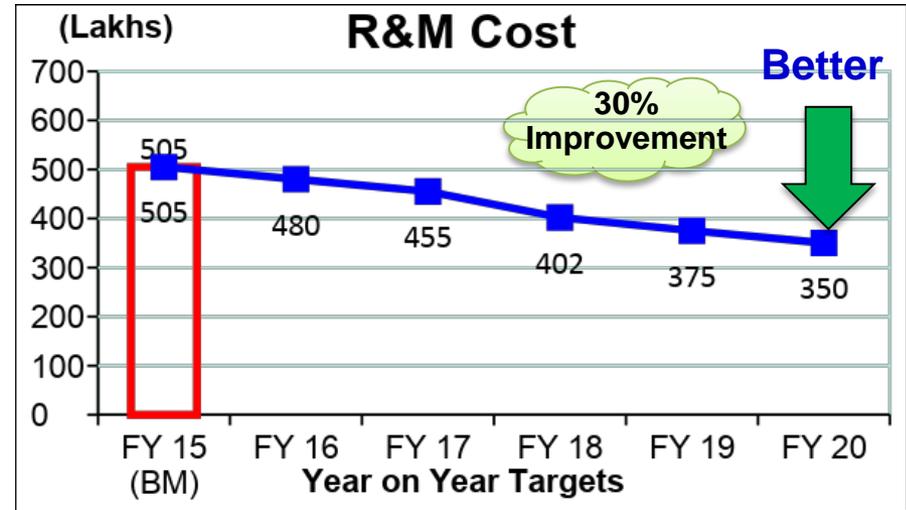
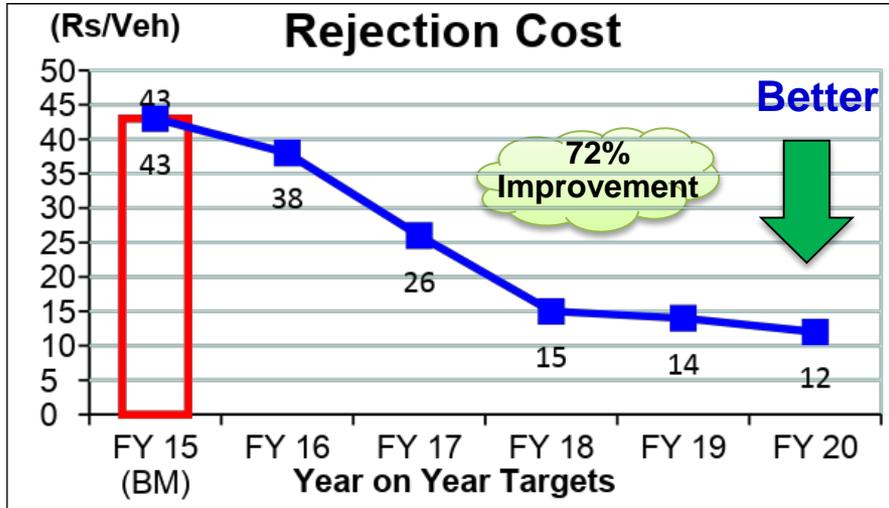
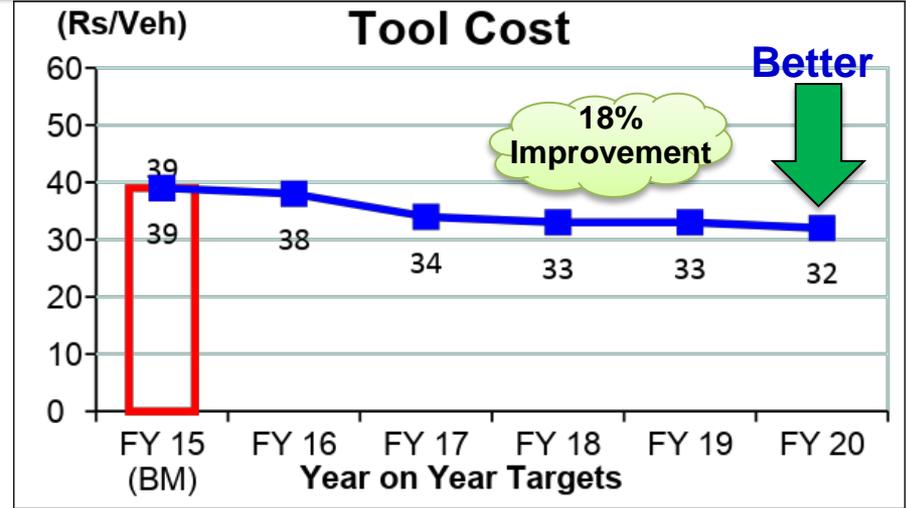
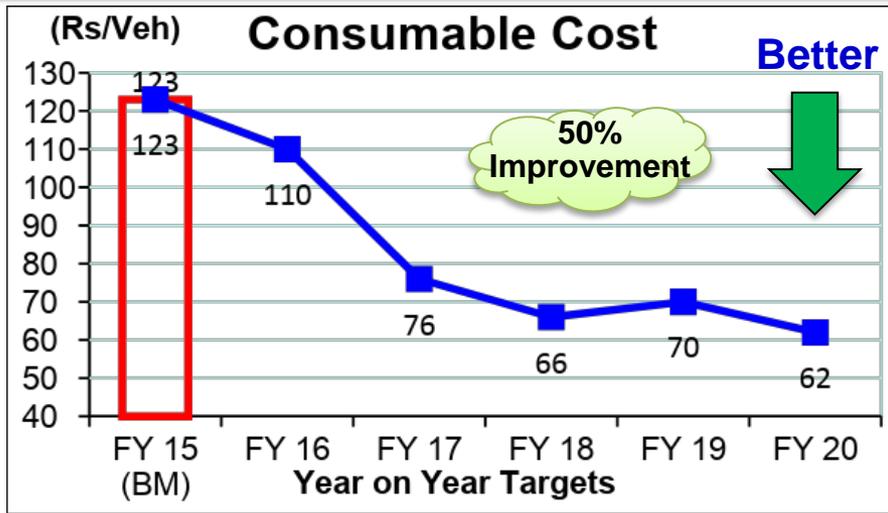
Material Conservation

End to End Scope of Material Conservation, Recycling & Recyclability



Scope of Material Conservation, Recycling & Recyclability

Material Conservation



Year on Year Targets with % Improvement under long term and short term targets

Green Supply Chain

Green Supply Chain



Why Green Supply Chain (GSC) ?

- International Standards requirement (ISO 14001)
- Commitment towards Environment Protection
- Reduction of Cost.
- Theme of this plant “Sustainable Plant Sustainable Planet”
- Manufacturing Happiness.
- Develop green management policies to promote conservation of natural resources.
- Set targets to reduce water, energy utilization and waste generation from the processes .
- Improve environmental performance by adopting pollution prevention strategies.

Green Supply Chain

Chairman's Message

Today, there is a need for businesses to take action on balancing their economic and environmental imperatives by embracing technological innovations, engaging and informing stakeholders to an extent and managing inherent risks of business.



Hero Moto Corp Limited, the largest motorcycle manufacturer in the world, identifies its Vendors and Dealers as the key stakeholders and partners to work towards the goal of sustainable development.

We believe in implementing business strategies not based on consumption but on operations, products and services that support the quality of life for all, today and for the next generation.

Through our Green Supply Chain Initiative, we shall jointly work with our vendors and dealers as responsible corporate citizens, adopting sustainable and environmental practices to achieve economic growth that contributes to the sustainable development of the nation.

Message By Worthy Chairman Building A Better Tomorrow By Balancing Economy & Environment

Green Supply Chain



Green Vendor Development Programme

An Initiative by Hero MotoCorp for protecting and preservation of Environment

Built for a sustainable future:



Let's ride into a greener future

At Hero MotoCorp, environmental protection and preservation is one of the core business values. Our manufacturing facilities have adopted the best environmental practices and are ISO 14001 (Environmental Management Systems) certified.

As a responsible corporate citizen, Hero Motocorp believe that we can improve environment management not only in our premises, but also by partnering with our vendors and dealers to ensure that sustainable development and environmental strategies are adopted by all.

The Green Supply Chain Management is an initiative in that direction. It targets 2 important ends of the supply chain:

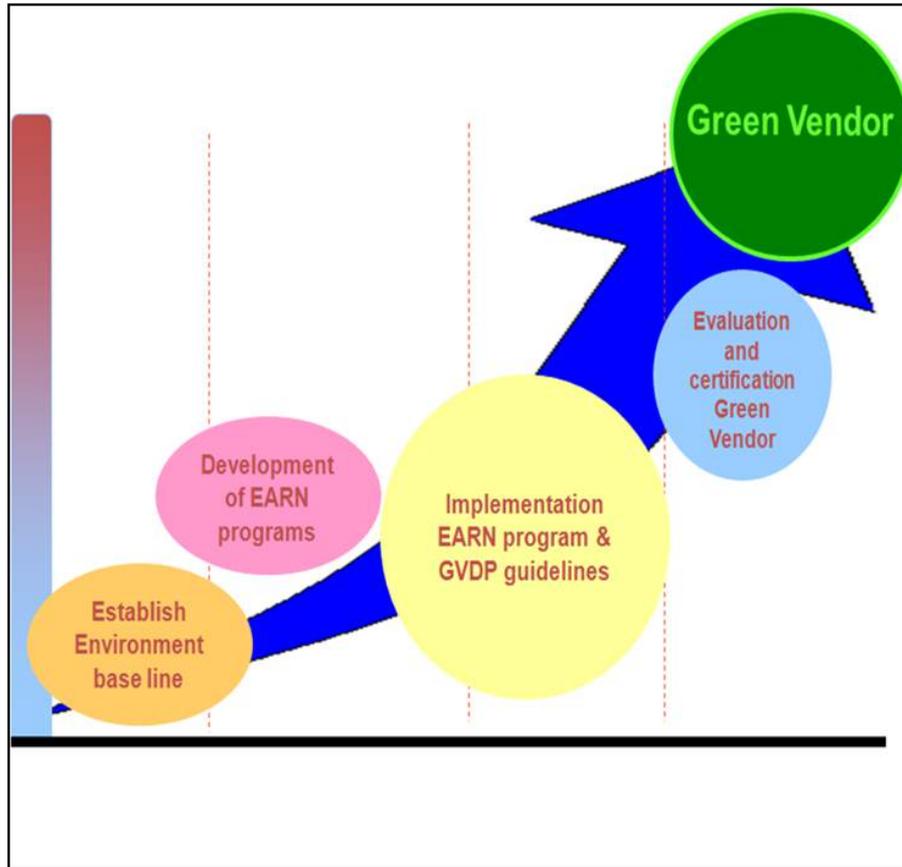
Vendors – Through the Green Vendor Development Program (GVDP)

Dealers – Through the Green Dealer Development Program (GDDP)

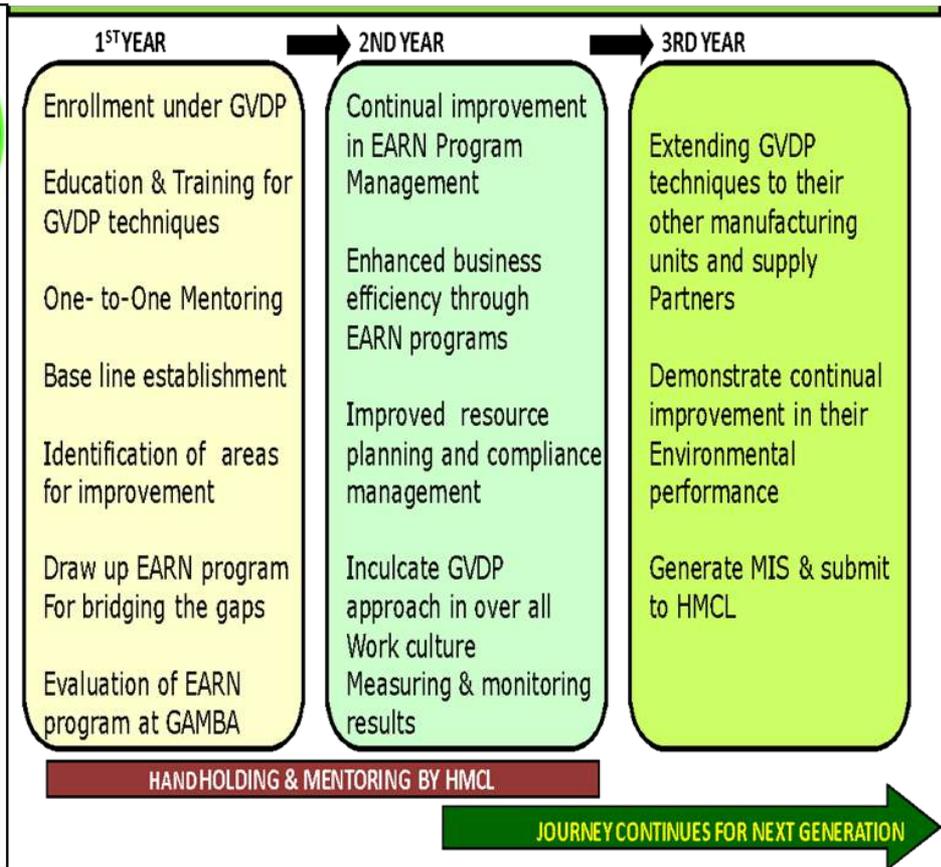
<http://www.heromotocorp.com/en-in/about-us/supply-chain.html>

Green Supply Chain

METHODOLOGY



APPROACH



Program Approach Had Been Knocked Down Into Year Wise Activities

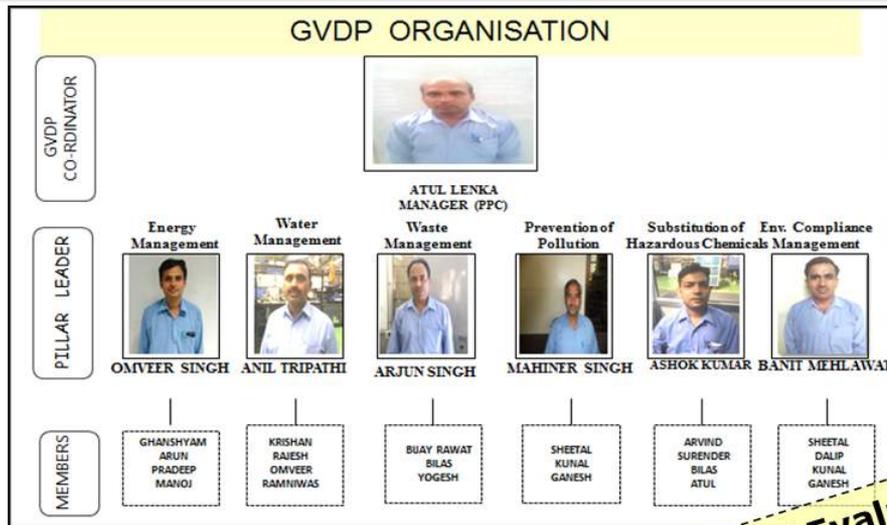
Green Supply Chain



Critical Suppliers	S.no.	SCPs	Shop Type	Category Of Product	Critical Parameter
	1	A G Industries Ltd	Plastic Moulding & Paint Shop	ABS (Plastic Parts)	Energy & Water Management
	2	FCC	Casting ,Moulding & Machining	Clutch	Energy Management
	3	Munjal Showa	Machining , Painting ,Plating & Assembly	Fork & Cushion	Waste & Pollution Management
	4	JNS	Assembly	Meter	Energy Management
	5	Minda Industries	Die Casting ,Moulding	Switches , Boot light	Waste Management
	6	Rockman Industries Ltd	Die Casting , Machining ,Painting & Assembly	Flange , Panel , Wheel	Water Management
	7	Satyam Auto Components Ltd	Press ,Welding	Frame , Fuel Tank	Water Management
	8	Keihin Fie	Die Casting	Carburettor	Energy Management
	9	Shri Ram Piston	Casting , Machining	Valves ,Rings & Piston	Energy & Water Management
10	Nipman Fasteners	Forging , Heat Treatment ,Plating	Fasteners	Energy & Water Management	

As A Part Of Leadership And Strategy GVDP Team Hand Holds Critical Supplier

Green Supply Chain



GVDP APPROACH

APPROACH ADOPTED AS PER GREEN CHARTER :

#	DESCRIPTION
1	LISTING OF PROCESSES / SUB-PROCESSES
2	EVALUATION THROUGH INPUT / OUTPUT / WASTE DIAGRAM ON PRESENT PRODUCTION
3	IDENTIFICATION OF INDICATORS (EG. MATERIAL INPUTS, ENERGY, EMISSIONS, LEGAL COMPLIANCES, HW / S WASTE ETC.
4	COMPARISATION OF ACTUAL VALUES AGAINST BASELINE (STANDARD VALUES DERIVED FROM SUGGESTED OPTIONS)
5	IDENTIFICATION OF LEGAL REQUIREMENTS V/S PRESENT STATUS
6	IDENTIFICATION OF GAPS
7	DEVELOPMENT OF EARN PROGRAMMES AGAINST FOLLOWING SIX GVDP PILLARS

A) WATER MANAGEMENT
 B) ENERGY MANAGEMENT
 C) WASTE MANAGEMENT
 D) PREVENTION OF POLLUTION
 E) HAZARDOUS CHEMICAL SUBSTITUTION
 F) ENVIRONMENTAL COMPLIANCE

Self Evaluated Sheet sent by Supplier (AG)

Road Map for GVDP Implementation

S.No	Activity Description	Plan Vs Actual	Time Schedule (June 14 - May 17)												
			Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	
1.	Awareness Training on GVDP	Plan	-->												
		Actual	→												
2.	Formation of GVDP Team	Plan	-->												
		Actual	→												
3.	Preparation of base line data	Plan	-->												
		Actual	→												
4.	Development of EARN Programme	Plan	-->												
		Actual	→												
5.	Implementation of EARN Program & Benefit Monitoring	Plan	-->												
		Actual	→												
6.	Evaluation of EARN Projects implemented	Plan	-->												
		Actual	→												
7.	Preparation of presentation	Plan	-->												
		Actual	→												

Details of Products/process/ Subprocesses & Utilities details

Utilities details

Transformer :- 2000 KVA
D.G.Sets :- 1010 KVA-1No.
 625 KVA,- 2 Nos.
 380 KVA-1 Nos.

Chiller :-2 Nos ,
Boiler :-2 Nos
Compressor :- 5 Nos
Cooling tower :-3 Nos ,
ETP :-1 Nos.

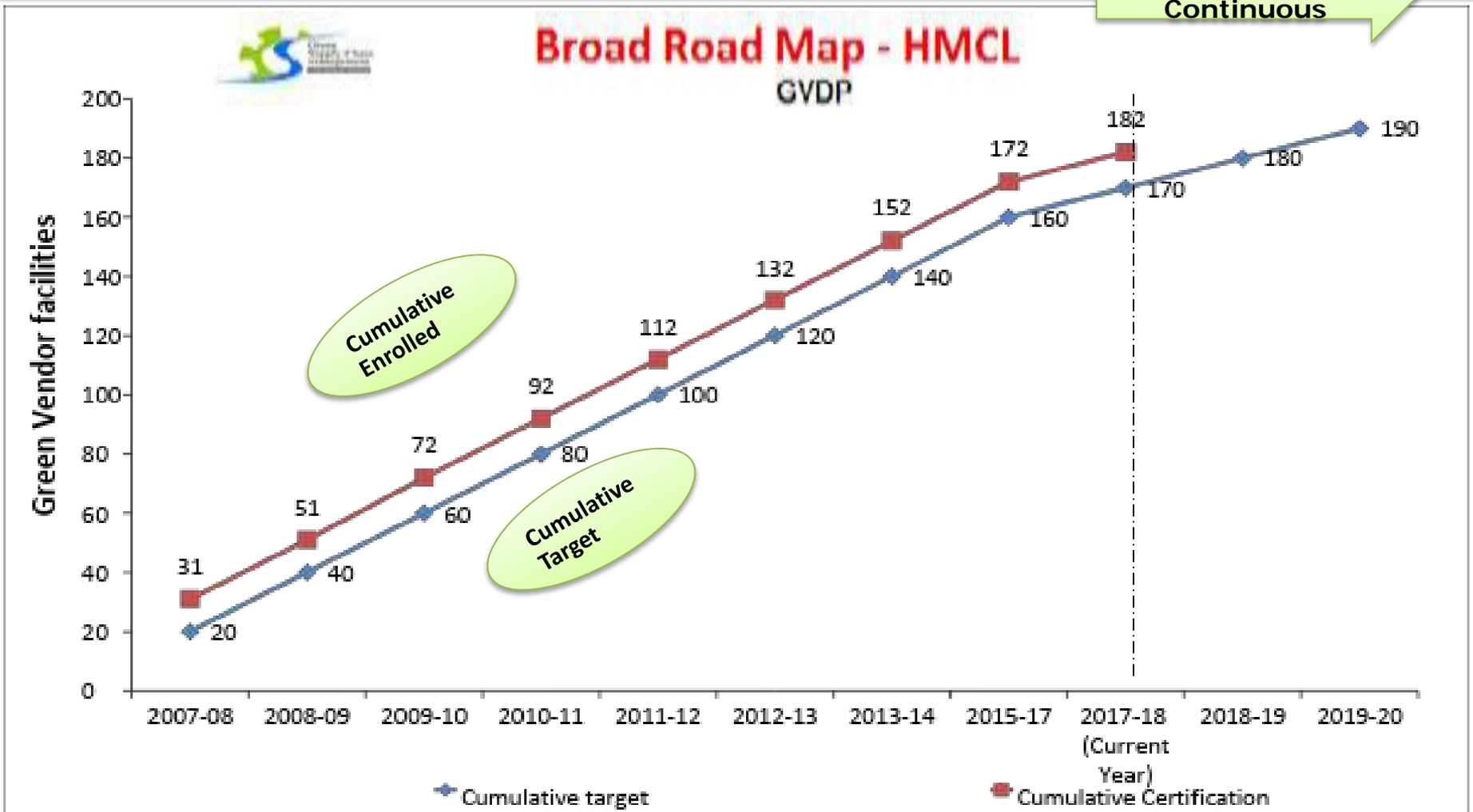
PRODUCTS
Two wheeler & four wheeler clutches

Major Processes
Press shop, Machining, Heat Treatment, Assembly, Bondrising

Sub Processes
Blanking, ID piercing , Slotslit, Turning, Dibering , Chamfering, Facing, Annealing, Hardening, Tempering, Normalizing

Method for detecting baseline and Target .

Green Supply Chain



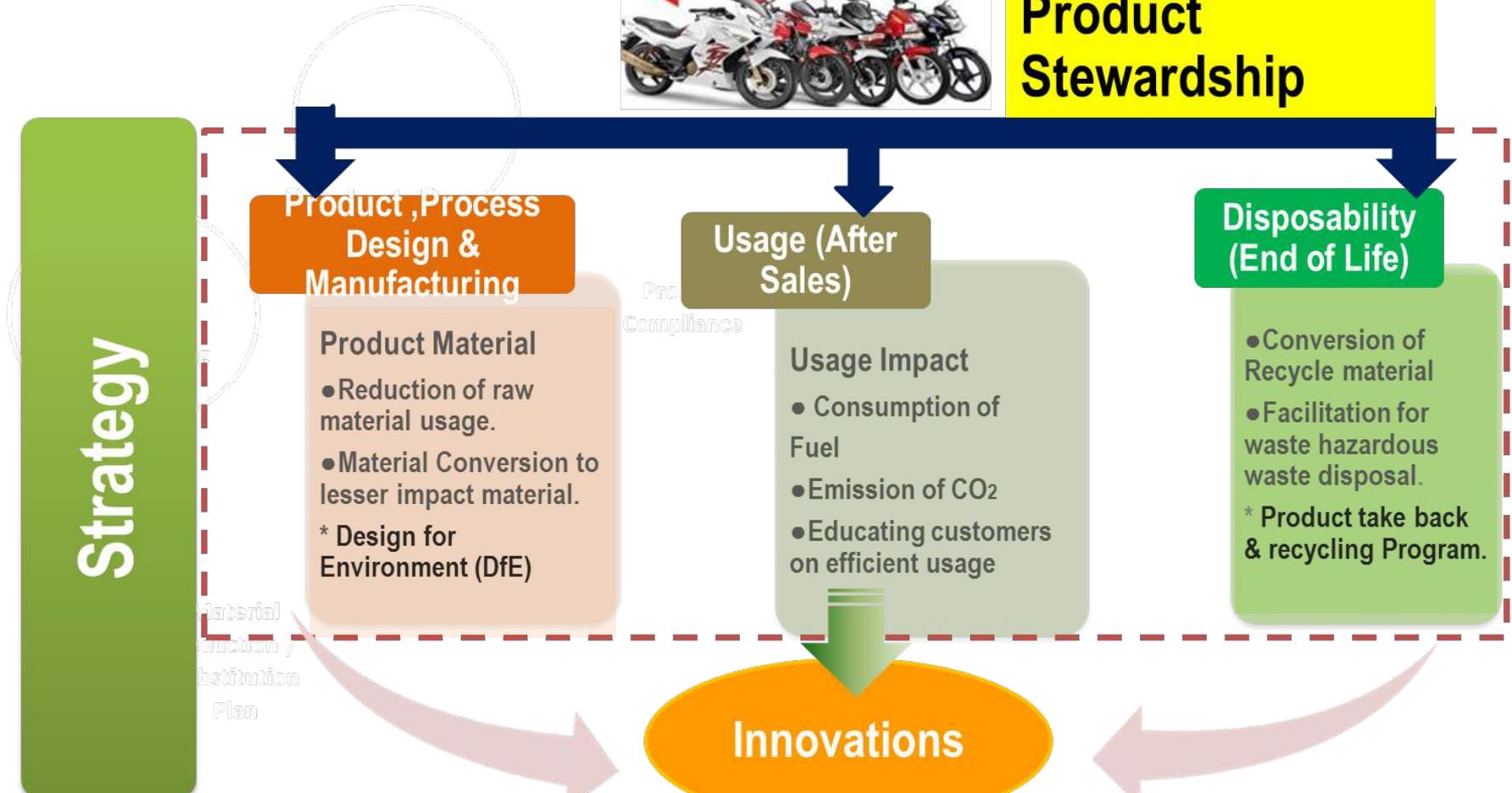
As a part of Leadership and Strategy Broad Road Map of Supplier Enrollment

Product Stewardship

Product Stewardship



Product Stewardship

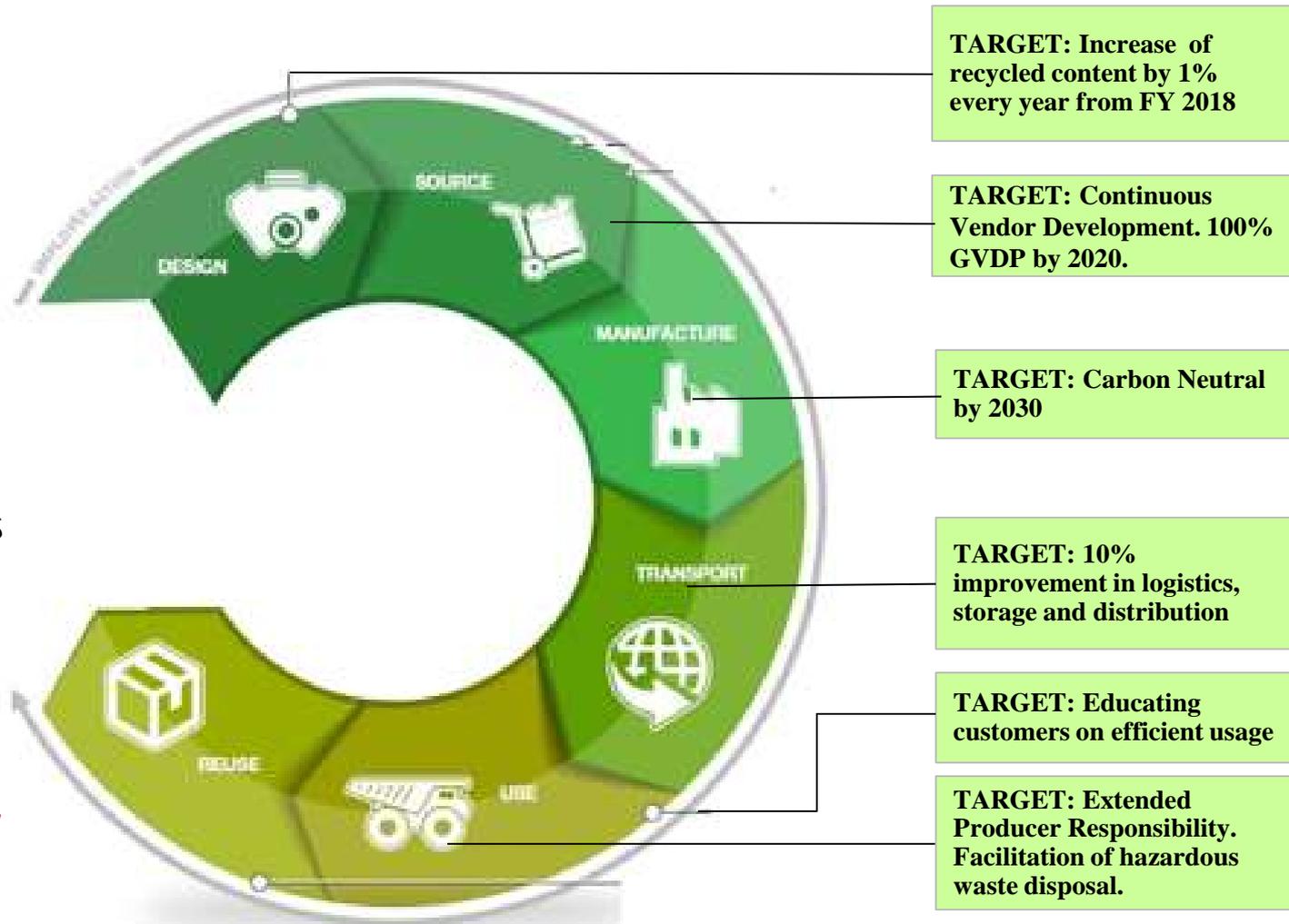


HMCL strategy on Product Stewardship covers Cradle to Cradle Approach majorly on Product and Process Design, Usage and Disposability.

Product Stewardship

Proposed

HMCL vision is to be a leader in the industry on product stewardship issues, thus reflecting its **commitment to sustainable development**, differentiating its products and commercial reputation, protecting its markets and thereby delivering **value to the business and to society at large**.

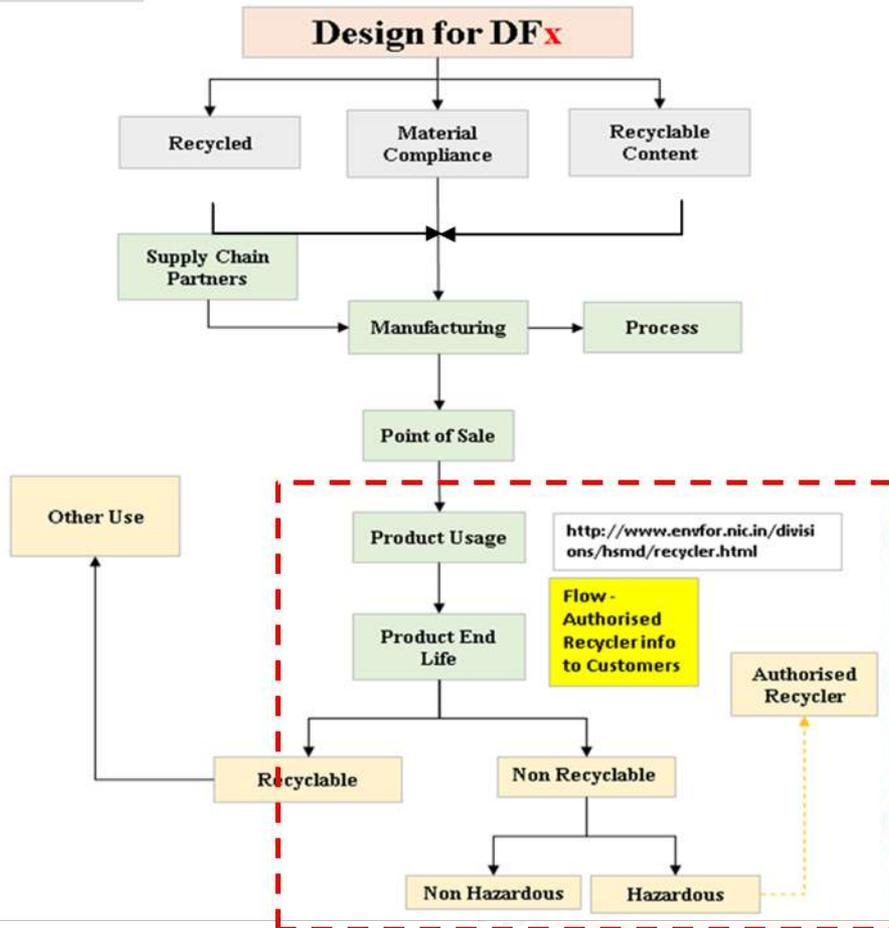


Targets are set across the product life cycle for material and waste reduction

Product Stewardship

Design for Environment Approach

X = Life, Assembly, Environment, Process, Separateability



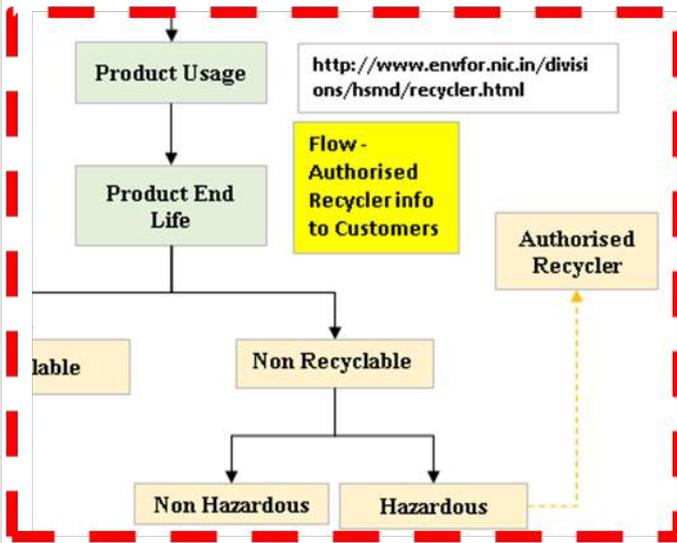
Responsibility

Design

Operations (Manufacturing & Supply Chain Partners)

Sale & Service

Safe Disposal Initiative



Recyclability content of every product is calculated. More than 94% content of our products is recyclable.



Life Cycle Assessment of HMCL Products

Life Cycle Analysis

Strategy

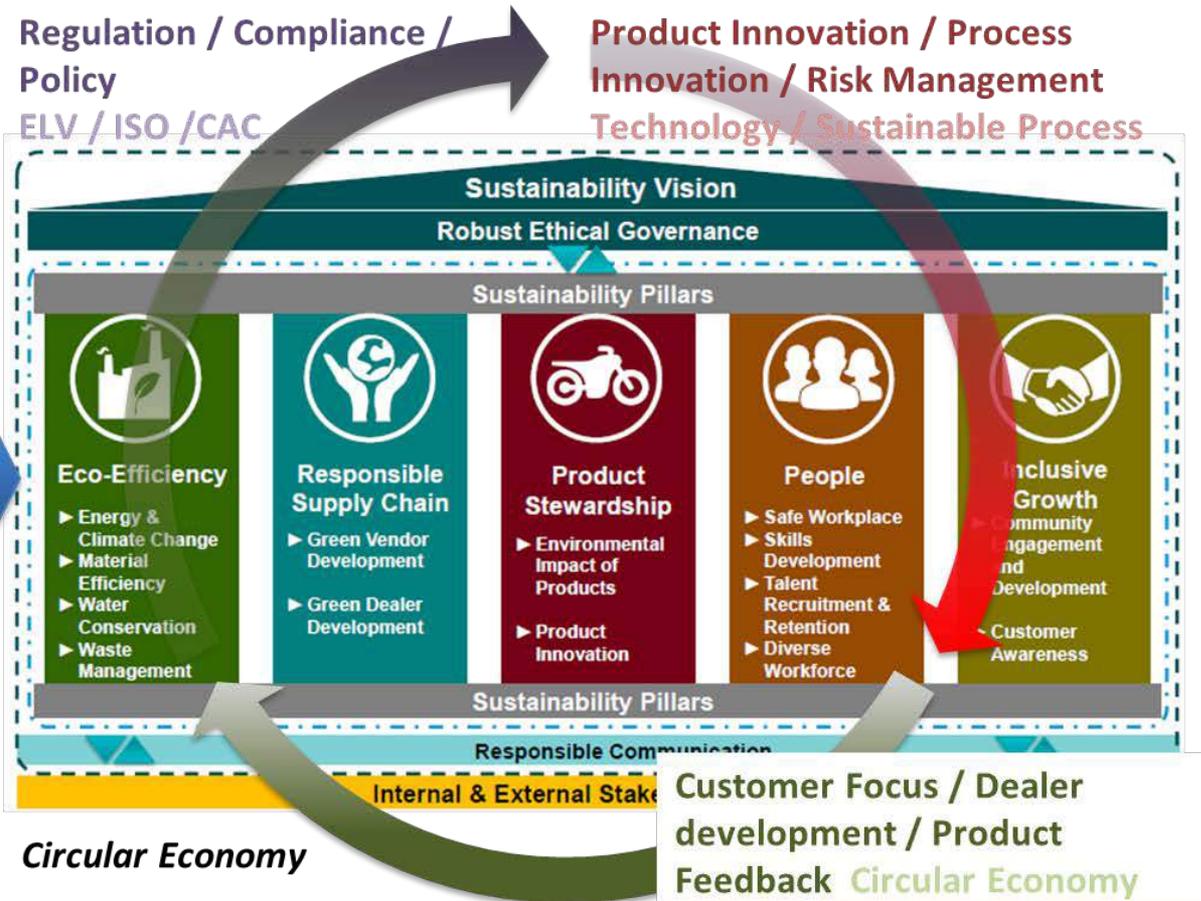
Environment Policy

We at Hero MotoCorp have been committed to demonstrate excellence in our Environmental performance on continual basis, as an intrinsic element of our Corporate philosophy.

To achieve this we commit ourselves to :

- Integrate Environmental attributes and cleaner production in all our business processes and practice with specific consideration to substitution of hazardous chemical & strengthening the Greening of Supply Chain.
- Continue product innovation to improve Environmental compatibility.
- Comply with all applicable Environmental legislation and also controlling our Environmental discharges through the principles of "ALARA" (as low as reasonably achievable);
- Institutionalise resource conservation in the areas of oils, water, electrical energy, paints and chemicals;
- Enhance Environmental awareness of our employees and dealers / vendors, while promoting their involvement in ensuring sound Environmental Management;

We shall communicate this Policy to all our employees and would make it available to interested parties.



HMCL Ensure Right Product & Right Process across Value Chain with focus on Circular Economy.

Life Cycle Analysis

Approach

Eco-Efficiency

- Sustainable Product Development – Product Efficiency / DfE
- Sustainable Manufacturing System – CO₂ / Water / Waste Management
- Material Efficiency

Responsible Value Chain

- Green Vendor Development Programme
- Green Dealer Development Plan

Product Stewardship

- Environment Impact of Products
- Product Innovation
- Raw Material / Process compliance
- REE Reduction

Customer

- Product Awareness : efficient usage / safe riding / safe disposal
- Voice of Customer Capturing with Action Plan
- Extended Product Warranty

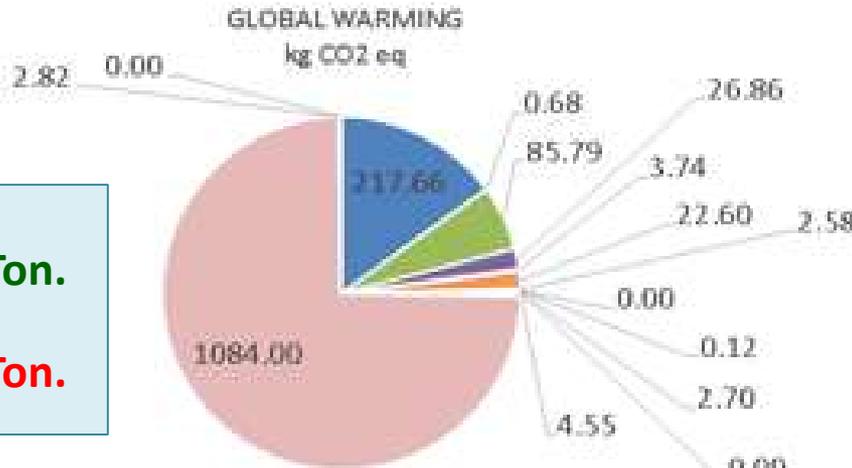
Life Cycle Analysis

Data being validated



Revised CO2 Footprint

Current Life Cycle Emission - 1462 Ton.
Earlier Life Cycle Emission - 2004 Ton.



- STEEL (Chassis) - 80.95 KG
- TYRE - 65.94 KG
- SEAT
- BATTERY (Lead Acid Battery) - 61.40 KG
- CONSUMABLES
- COPPER - 0.1 KG
- RUBBER (Airbag, O-ring, Liner, Bumper, Sealing)
- SEAT COVER
- AUTOMOTIVE BUMPER
- PAINTS (mg)
- ALUMINUM - 0.2 KG
- POLYMER - 07.38 KG
- GLASS - 0.1 KG
- DASHBOARD - 1.43 KG (ELASTOMERS)
- NON-CELLULOSE

- CO₂ footprint Reduction from 2004 Ton to 1462 Ton. Reduction of 27%. Technical up gradation is as per LCA methodology.
- i3s is Implemented across all Motorcycle model. Trials for scooter are under progress (Production trial in December planned). Implementation Target : December 2018.

Life Cycle Analysis

Hot Spots : Action Plan

CO2 Footprint : Product / Process

- Implementation of i3S Technology across product range.
- Improvement of fuel efficiency.
- Rider education Programme
- CO₂ Roadmap and mitigation plan for HMCL & Value Chain

Acidification : Steel & Aluminum

- Material Reduction
- Material Substitution
- Manufacturing Process Improvement (Tool life improvement)

Eutrophication : Steel & Aluminum

- Material Reduction
- Material Substitution
- Manufacturing Process Improvement (Tool life improvement)

Life Cycle Analysis

Based on Hot Spot Identification

CO2 Footprint

The image displays two Hero motorcycle advertisements. The top advertisement is for the HF Deluxe i3s, showing a black and red motorcycle with a man's face in the background. The text reads: "NAYI HF DELUXE AB i3s TECHNOLOGY KE SAATH BHI". The bottom advertisement is for the Splendor+, showing a red motorcycle with a family in the background. The text reads: "Splendor+ MILEAGE+ SAVINGS+ So, go ahead and add happiness to life. Now also available with i3S Technology." Both ads include the Hero logo and technical specifications.

External – Confidential Life Cycle Assessment

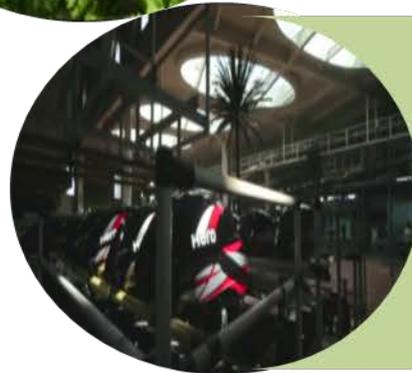
Innovation

Innovation

Environmental Care



- 1.Green House Food Production in Auto is done over roof.
- 2.No Water Wastage due to water circulation.
3. Four Green house, Area 482 m2 / Green house



- 1.Sky light for Glare free day light.
- 2.Plant building is made with inverted trusses which has solar panels above it and openings for glare free skylight.

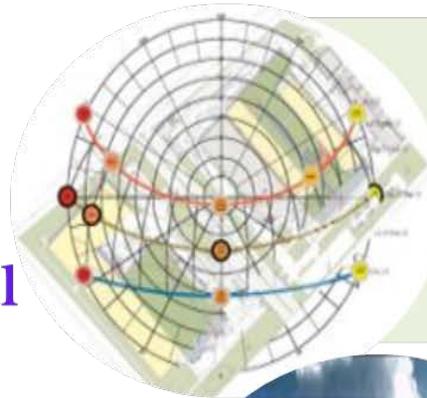
Automation



- 1.Bigfoot Units to control plant Environment Oxygen Level , Humidity , Temperature & Water Generation
- 2.Oxygen and clean filtered air

Environmental Care through automation

Environmental Care



1. Original Structure based on Sun Path
2. Solar Thermal for offsetting Natural Gas consumption at Canteen
3. Dual Axis Tracking to sun



Utilization Of Solar Power



1. Solar power plant with a capacity of 1.5 MW (Manufacturing Plant + GPC)
2. Photovoltaic Panels to Harness Solar Power



1. Solar Hot water Generator
2. Diagonal Structure based on sun path for ensuring maximum Exposure to the sun

Environmental care through solar power utilization

Innovation

Environmental Care



1. Sky Light for Oxygen Wall
2. 7 nos. of oxygen walls inside plant
3. Green oxygen walls for maintaining oxygen level inside plant.



Economic Light Sources



1. Digitally Controlled LED Lights
2. Inverted trusses helps in maintaining shadow free light.



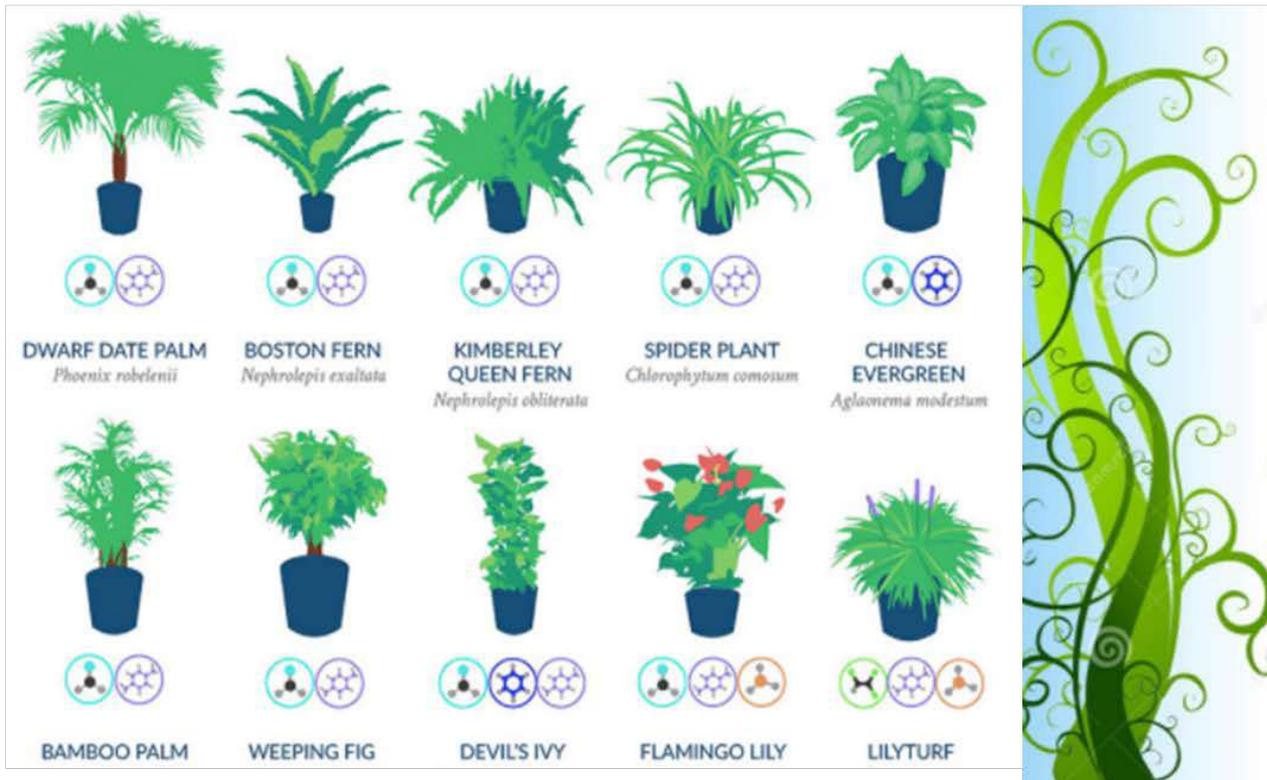
1. 100% Natural Light used in Canteen area (Day time)
2. Digitally controlled LEDs for night.

Environmental care through economics light sources

Innovation

Theme : Air Purification in Plant

Project: Oxygen rich plants in Office areas



Spider Plant



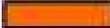
In one of research NASA has recommended the plants which are good for purifying the air, that plants are incorporated in our Office areas.

Conclusion and Way Forward

Final Assessment !!

GreenCo Scoreband - Hero MotoCorp , Neemrana Plant (HM4N)

PARAMETERS	POINTS AWARDED														
	0-30	31-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130-139	140-149	150-159	
Energy Efficiency															
Water Conservation															
Renewable Energy															
GHG Emission															
Waste Management															
Material															
Green Supply Chain															
Product Stewardship															
Life Cycle Assessment															
Others															

 Points scored by Hero MotoCorp , Neemrana Plant (HM4N)
 Maximum points scored by another GreenCo Rated company in the Industry

CERTIFICATION

LEVELS	POINTS AWARDED				
	350 - 449	450 - 549	550 - 649	650 - 749	≥ 750
Certified					
Bronze					
Silver					
Gold					
Platinum					X



Hero MotoCorp, Neemrana Plant was adjudged with Platinum GreenCo Rating award.



Way Forward

OFI : Opportunity for Improvement
Most Important Aspect of GreenCo Assessment.
Current Status : Roadmap for all OFI implementation established

01 – Energy Efficiency

Monitor fixed energy and variable energy consumption separately

Fluctuations in energy consumption of major processes can be analyzed for further potential opportunities

03 – Renewable Energy

Explore opportunities for RE in Supply chain as part of beyond the fence activities

05 – Waste Management

Set stretched targets to reduce waste generation

Recovery of VOC emission from the painting process



02 – Water Conservation

Measurement of losses of water within system shall be studied

Display water balance/conservation status.

04 – Green House Gas Mitigation

Set explicit targets for GHG reduction

Identification of GHG risks during activities / operations

Renewable energy roadmap should be used as a base to frame GHG emissions reduction target

Way Forward

06 – Material Conservation

Follow systematic mapping of waste generation

08 – Product Stewardship

End of life vehicle management plan to be explored

10 – Innovation

Collaborate with educational institutions and research institutions, this will help in knowledge acquiring and sharing, acquiring benchmarking details



07 – Green Supply Chain

Green Vendor Development Program can include environmental clearances & approval for capital, products & process on energy front by suppliers

09 – Life Cycle Assessment

Extend Life Cycle Assessment for existing & upcoming new products

Thank You !