

Honda Motorcycle and Scooter India Pvt Ltd, Narsapura



CII National Award for Environmental Best Practices - 2023



BLUE SKIES FOR
OUR CHILDREN

Presented by

1. A Joseph Selvaraj
2. Sriram Karikkat
3. Kishore N

- Div. Head - Plant Engineering
- Sect. Head – Environment
- Team Leader - Environment

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03	Use Carbon Free Energy (Renewable Energy) – Scope 01 Waste Heat Recovery from Compressors, Installation of Solar Dishes, Specific Scope 01 Emissions	11-12	1 min
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05	Use Carbon Free Energy (Renewable Energy) – Scope 02 RE Introduction – 37 MW, 2.5 MW Solar Roof Top Panels 2022, 2.7 MW Wind Turbine Installation 2022, 5.4 MW Wind Turbine Installation 2023, BESSOM Green power purchase, Specific Scope 2 Emissions	16-21	2 min
06	Offset Residual Emissions (Carbon Sequestration) Harit Udaan for cleaner and better tomorrow, Tree Plantation, Birthday Tree Plantation, Miyawaki Tree Plantation, Seedball activity, Gap Plantation, Tree Plantation at Kolar Railway Station	22-25	2 min
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HONDA MOTOR COMPANY, GLOBAL OPERATIONS



Mr. Soichiro Honda
(1906 – 1992)

Honda Motor Co
Was Founded In
1948



Honda operates in 150 countries
Total 406 group companies globally

PRODUCTS AND PORTFOLIO



Automobiles



Motorcycles



Power Products



Marine Engines



Robotics



Honda jet

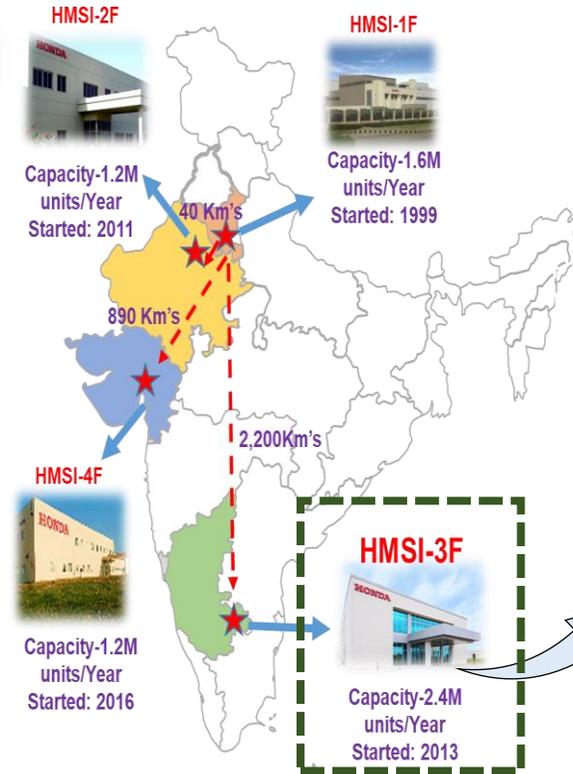


Aero Engine

HONDA MOTORCYCLE AND SCOOTER INDIA



Total 4 Factories in India
Capacity 5.5 mil units/year
Associates 24,000 people
Activa Sales 1.7 mil Units/year



Land Area : 4,81,757 m²
Built up Area : 2,65,706 m²
Manpower : 7041
Capacity : **2.4 Million**
Models : Activa, SP125, Shine SP, Livo, Dio



- Won GreenCo Platinum Plus Rating in 2021
- Won National Water Award from Ministry of Jal Shakti 2019
- Won CII National Award for Environmental Best Practices in 2018, 2019, 2020 and 2021.

**Honda Narsapura is located in Kolar, Karnataka.
It is Honda's largest factory globally with a capacity of 2.4 Million vehicles per year**

Paris Agreement

Reduce Global Greenhouse Gas emissions to limit the **global temperature increase in this century to 2 degree Celsius** while pursuing efforts to limit the increase even further to 1.5 degrees

Sustainable Development Goals



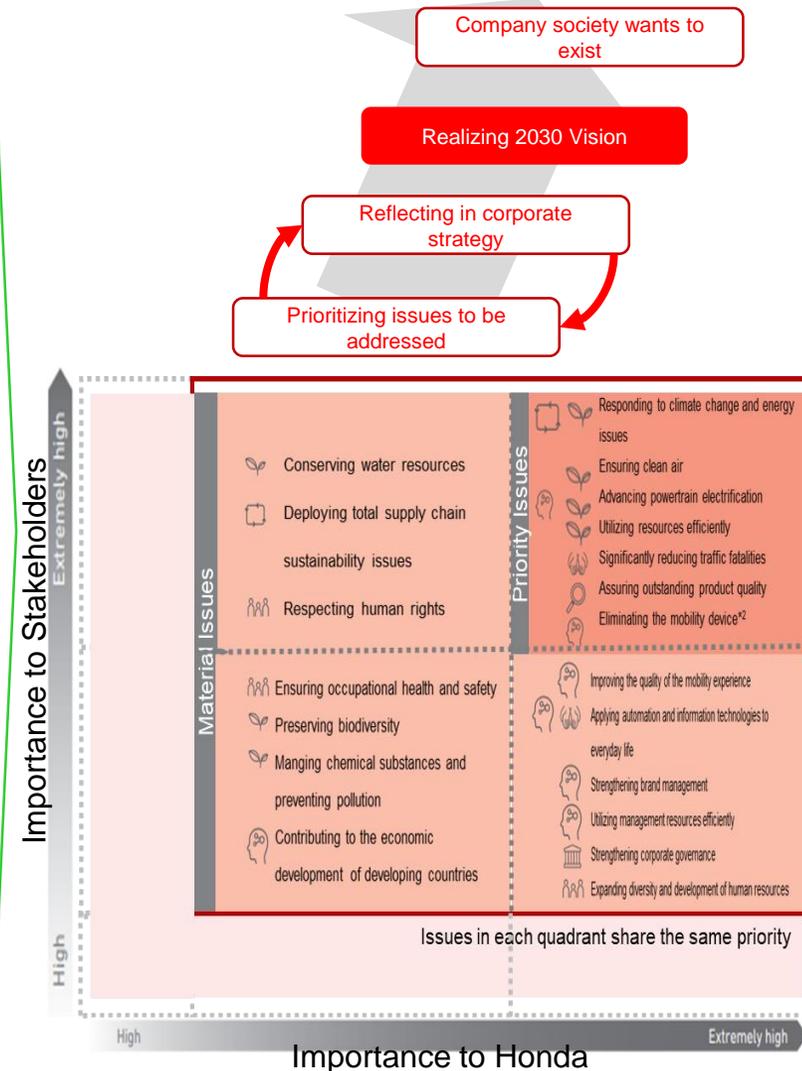
Stakeholders



Global & Value Chain Perspective



Materiality Matrix



Priority Issues

Responding to climate change



Ensuring clean air



Powertrain electrification



Utilizing resources efficiently



Reducing traffic fatalities



Outstanding product quality

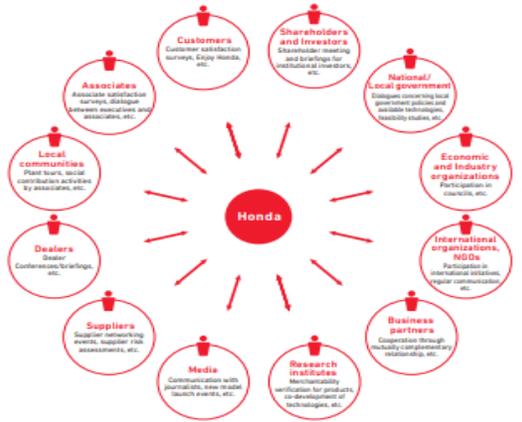


Eliminating the mobility divide

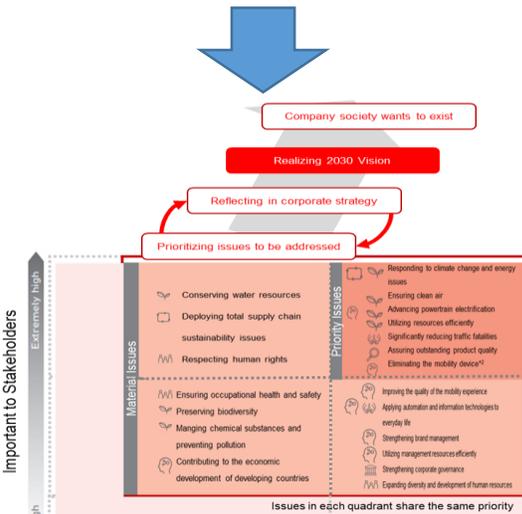


In alignment with major Global Environmental challenges, Honda has globally derived its Priority Issues from the Materiality Matrix

Global Vision - Sustainability



Stakeholder Engagement



Materiality Matrix

Direction for the 21st Century

Striving to be a company society wants to exist

[Guidelines]

Creating the Joys

Expanding the Joys

Ensuring the Joys for the Next Generation

2030 Vision

Serve people worldwide with the "joy of expanding their life's potential"

-Lead the advancement of mobility and enable people everywhere in the world to improve their daily lives-

Medium-and long-term strategies

Fiscal Year Plan

Honda Philosophy

Global Vision - Environment

Honda Environmental and Safety Vision

Realizing the joy and freedom of mobility and a sustainable society where people can enjoy life

Honda's Environment Statement

As a responsible member of society whose task lies in the preservation of the global environment, the Company will make every effort to contribute to human health and the preservation of the global environment in each phase of its corporate activities. Only in this way will we be able to count on a successful future not only for our company, but for the world.

- We should pursue our daily business under the following principles:
1. We will make efforts to recycle materials and conserve resources and energy at every stage of our products' life cycle—from research, design, production and sales, to services and disposal.
 2. We will make every effort to minimize and find appropriate methods to dispose of waste and contaminants that are produced through the use of our products, and in every stage of the life cycle of these products.
 3. As both a member of the company and of society, each associate will focus on the importance of making efforts to preserve human health and the global environment, and will do his or her part to ensure that the company as a whole acts responsibly.
 4. We will consider the influence that our corporate activities have on the regional environment and society, and endeavor to improve the social standing of the company.

Triple Action to Zero

Carbon Neutrality –

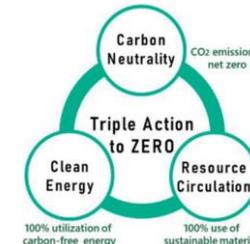
CO₂ emissions, net zero by 2050

Clean Energy –

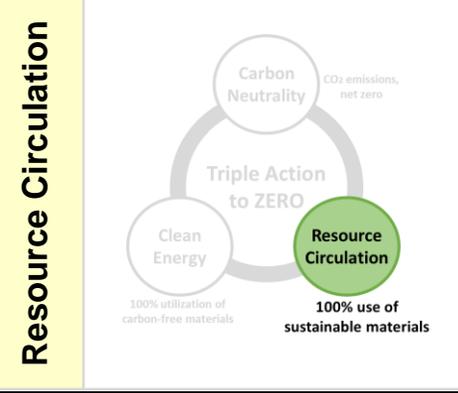
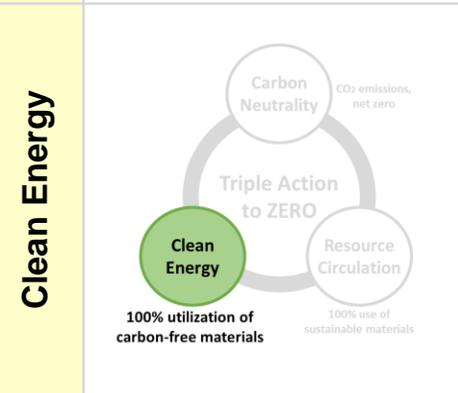
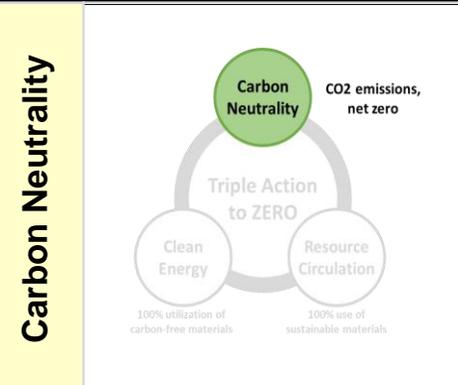
100% utilization of carbon-free energy by 2050

Resource Circulation –

100% use of Sustainable materials by 2050



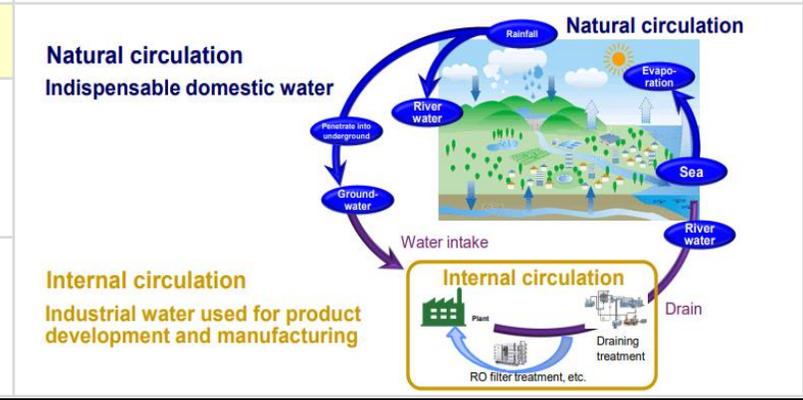
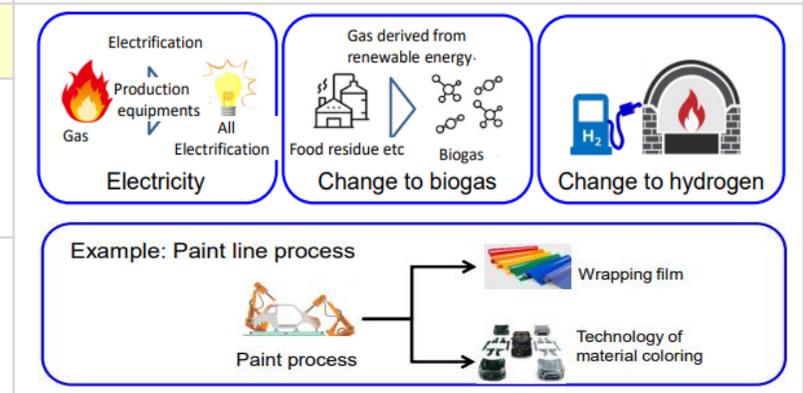
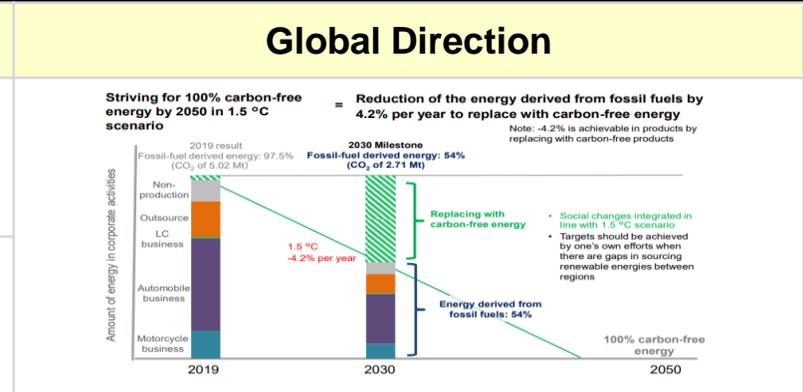
The Global Vision of Sustainability and Environment have resulted in conceptualization of our Approach based on "Triple Action to Zero"



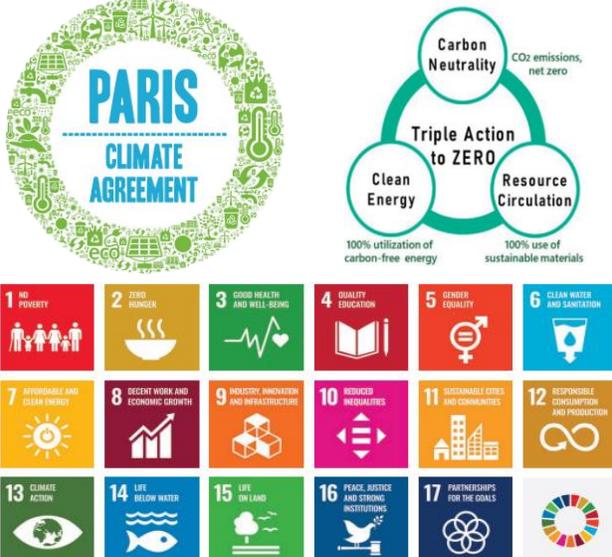
Year	Old Target		Revised Target	
2030	Product	Corporate Activities	Product	Corporate Activities
	Intensity 2°C level	Total 2°C level	Total amount 1.5°C level	--
2050	Product	Corporate Activities	Product	Corporate Activities
	Total 50% reduction	Total management 50% reduction	Total amount Net zero	--

Year	Old Target		Revised Target	
2030	Product	Corporate Activities	Product	Corporate Activities
	--	Renewable Energy Ration 20%	--	Use of fossil fuel energy: 54%
2050	Product	Corporate Activities	Product	Corporate Activities
	--	N/A	--	Carbon Free Energy 100%

Year	Old Target		Revised Target	
2030	Product	Corporate Activities	Product	Corporate Activities
	--	Water withdrawal reduction by 1.8% per annum	Continue to study and investigate	Water withdrawal reduction by 1.8% per annum
2050	Product	Corporate Activities	Product	Corporate Activities
	--	N/A	Sustainable Materials 100% CF products	Zero Water withdrawal



The Triple Action to Zero has set Directions for a more dedicated approach to achieve Carbon Neutrality, Clean Energy Usage and Resource Circulation

Global Direction	HMSI Policies	ISO 14001 Requirements	Green factory requirements
 <p>PARIS CLIMATE AGREEMENT</p> <p>Triple Action to ZERO</p> <ul style="list-style-type: none"> Carbon Neutrality: CO2 emissions, net zero Clean Energy: 100% utilization of carbon-free energy Resource Circulation: 100% use of sustainable materials <p>17 Sustainable Development Goals (SDGs) icons.</p>	<p>HMSI ENVIRONMENT POLICY</p> <p>As responsible members of society and industry, we Honda Motorcycle and Scooter India Pvt. Ltd. (HMSI), manufacturer of two-wheelers, recognize that well-being of human and conservation of earth's environment is important. By adopting Environment Management System, HMSI is fast moving towards realization of Honda's Green Factory Concept.</p> <p>We shall endeavour to continually monitor, improve and conserve the environment in which we operate. HMSI is committed to achieve, environmental excellence in all its activities related to products & services in the following ways:</p> <ul style="list-style-type: none"> Conserving and protecting the environment by preventing pollution at its source of generation and strengthening our existing pollution control system. Promote activities for reduction of water consumption, CO2 emission and usage of renewable energy for conservation of resources such as electricity, water and fuels. Adopting 3 R principle – Reduce, Reuse & Recycle in all processes thus minimizing waste generation. Fullfill all applicable legal / regulatory requirements and compliance obligations and strive to go beyond wherever possible. Regular monitoring and reviewing of environmental objectives and take actions to achieve the intended outcomes of Environment Management System. Encourage sustainable resource usage, climate change mitigation, adaptation and protection of ecosystems. Increasing environment awareness and competence amongst our employees and encourage vendors, suppliers, dealers and other stake holders to adopt Environment Management System. <p>HMSI will continually improve its environmental management system following PDCA cycle to make it more effective. The policy will be well communicated to our employees as well as persons working on our behalf and to the general public.</p> <p>Date: 27-07-2020 Place: Guwahati Atsuhiko Ogata President & CEO</p> <hr/> <p>HMSI-3F ENERGY POLICY</p> <p>As responsible members of society we at Honda Motorcycle & Scooter India Pvt. Ltd. (HMSI) plant, will take every possible measure to conserve energy & conserve energy. Our goal is centered in each phase of our manufacturing activity to:</p> <ul style="list-style-type: none"> Maximize and promote the utilization of renewable and clean energy. Adopt energy efficient technologies, products and services. Implement effective energy monitoring systems, production audits & review systems. Review periodically & conserve our Specific Energy Consumption with National / International level benchmarks to further drive the efforts for energy conservation. Continuously improve energy efficiency through PDCA cycle by setting short term & long term targets. Ensure sufficient information & resources are available to review the targets for energy conservation. Able to find and use practices exceed the applicable legal & other requirements related to energy conservation. Promote awareness on the Energy Management System & propagate the energy policy amongst our employees, as well as persons working on our behalf & to the general public. <p>Date: 10/11/2020 Place: Noida Prakash Chandra Plant Head 3F</p> <hr/> <p>HMSI-3F WATER POLICY</p> <p>As responsible members of society we at Honda Motorcycle and Scooter India Pvt. Ltd. (HMSI) plant will take every possible measure to conserve water & conserve water. Our goal is centered in each phase of our manufacturing activity to:</p> <ul style="list-style-type: none"> Minimize the impact from our operation by reducing the use of fresh water. Ensure waste water is fully treated and recycled back into process to bring state of the art treatment processes. Provide clean and hygienic drinking water to all our associates inside the plant. Be the leader and best-in-class in the collection and reuse of rain water for domestic and process use. Continuously track our water consumption with the global standards and challenge ourselves with higher goals and targets. Reduce comprehensively and transparently our water usage as and when required by government, local or agencies. Show and promote water conservation practices with other Groups and suppliers to further drive the state of water conservation. Engage the staff/ local communities to increase the awareness about the use and conservation of water. <p>Date: 10/11/2020 Place: Noida Prakash Chandra Plant Head 3F</p>	<p>ISO 14001 Requirements (clauses 4-10)</p>  <ul style="list-style-type: none"> 6) Planning 7) Support 8) Operation 9) Performance evaluation 10) Improvement 5) Leadership 4) Context of the organization 	<p>Greenco</p>  <ul style="list-style-type: none"> SM (Sustainable Management) CO2 Recycling symbols Green building icons Lightbulb icons Water drop icons Wind turbine icons Leaf icons

HMSI 3F Key Performance Areas

 <p>Energy Efficiency</p>	 <p>Water Conservation</p>	 <p>Renewable Energy</p>	 <p>GHG Emissions</p>	 <p>Waste Management</p>	 <p>Material Conservation</p>	 <p>Green Supply Chain</p>	 <p>Product Stewardship & LCA</p>	 <p>Green Infrastructure</p>
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HMSI-3F has aligned all of its activities based on the Global Directions and HMSI Policies aimed at addressing all of our Environmental Concerns through a Life Cycle Perspective

Journey towards Net Zero CO₂ Emissions from Manufacturing



Energy Hierarchy

Scope 1

Scope 2

Reduce Emissions at Source

(Energy Efficiency and Energy Saving)

- Diesel Emission reduction from DG
- VAM for Paint Shop
- Propane to LNG
- Propane to Induction cooking
- Waste Heat Evaporator in Effluent Treatment Plant

- Compressor to Blower replacement in Paint Shop
- Auto booth air balancing in paint shop
- VFD installation in Line 04 sludge pit
- EC Fans installation in Paint shop ASU
- Direct coupled motor installation in paint shop exhaust fans
- Replacement of electric heaters with hot water

Use Carbon Free Energy

(Renewable Energy and Clean Energy)

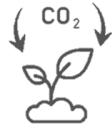
- Waste Heat Recovery from Air Compressors
- Installation of Solar Dishes for hot water generation

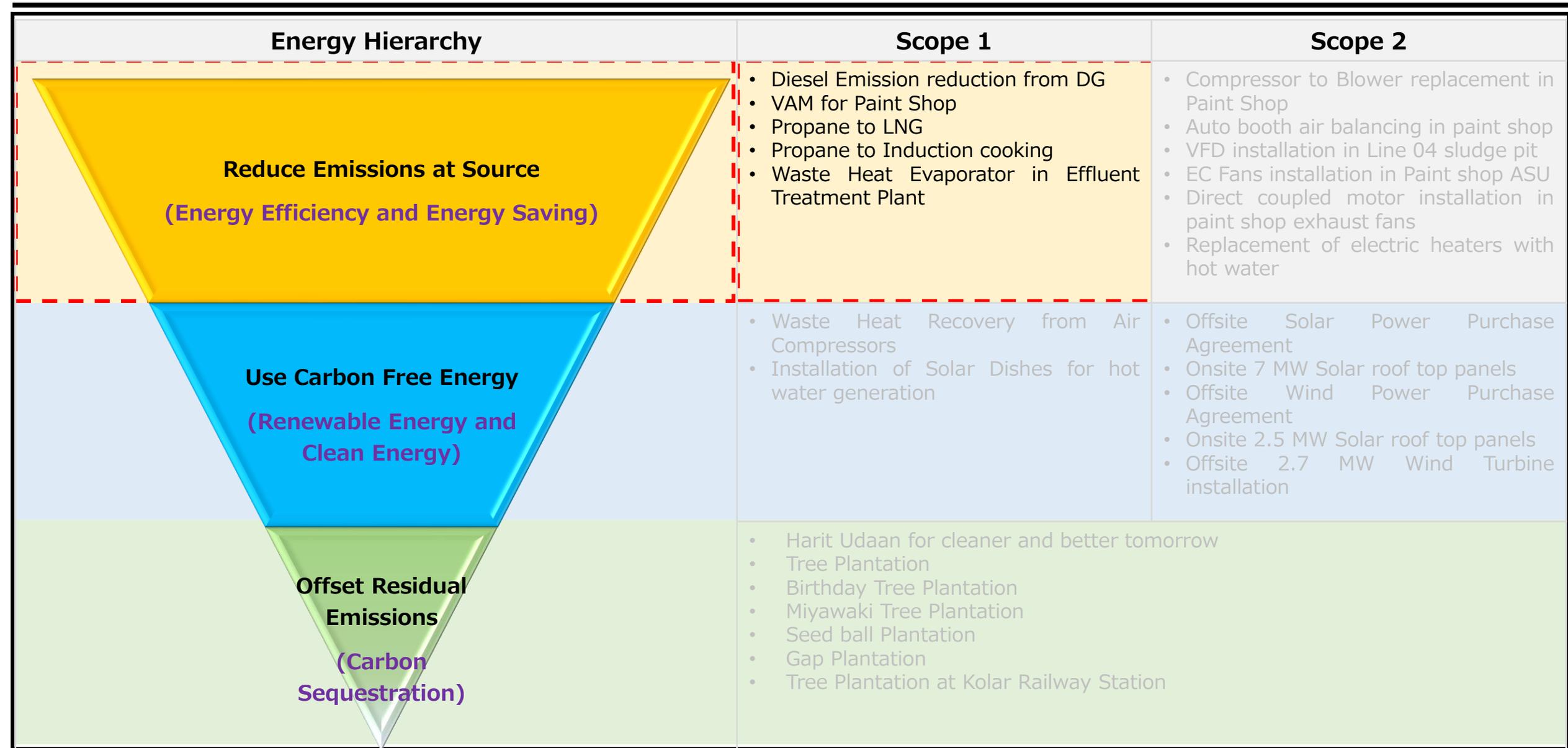
- Offsite Solar Power Purchase Agreement
- Onsite 7 MW Solar roof top panels
- Offsite Wind Power Purchase Agreement
- Onsite 2.5 MW Solar roof top panels
- Offsite 2.7 MW Wind Turbine installation

Offset Residual Emissions

(Carbon Sequestration)

- Harit Udaan for cleaner and better tomorrow
- Tree Plantation
- Birthday Tree Plantation
- Miyawaki Tree Plantation
- Seed ball Plantation
- Gap Plantation
- Tree Plantation at Kolar Railway Station

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CHALLENGE

#1

- HMSI and supplier companies of HMSI are the 1st factories to setup in Narsapura Industrial Area
- **No government power supply in Narsapura Industrial Area for industries as per land allotment**
- Factory designed to run with Diesel powered Generator



- **Upgradation required at Govt Substation for Industrial consumers**
- **Power can be sourced from Kolar District HQ (30 kms away)-Power line passing through Reserved Forest Area**
- Required approvals from Government to setup 66KV substation
- Laying of cable from the nearest substation till HMSI approx. (5 KM) was evaluated as a better option than overhead lines

66KV Substation need to be setup to eliminate the usage of Diesel Generator usage

EFFORTS



Technical liasing for Power supply to entire Industrial Area-Approval taken



Segregation & digging of Trench in Industrial Area and Underground Cable Laying



Upgradation in Ind. Area S/S & 66KV Substation installation

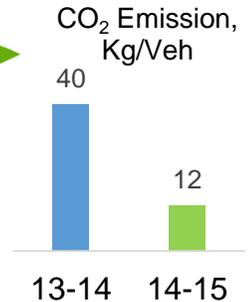


Elimination of DG power usage

RESULTS



19113 MT of CO2 Emissions Reductions



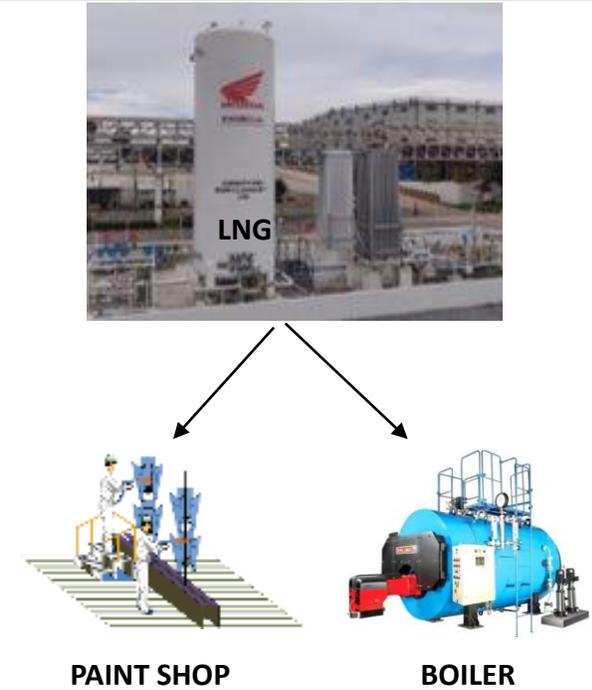
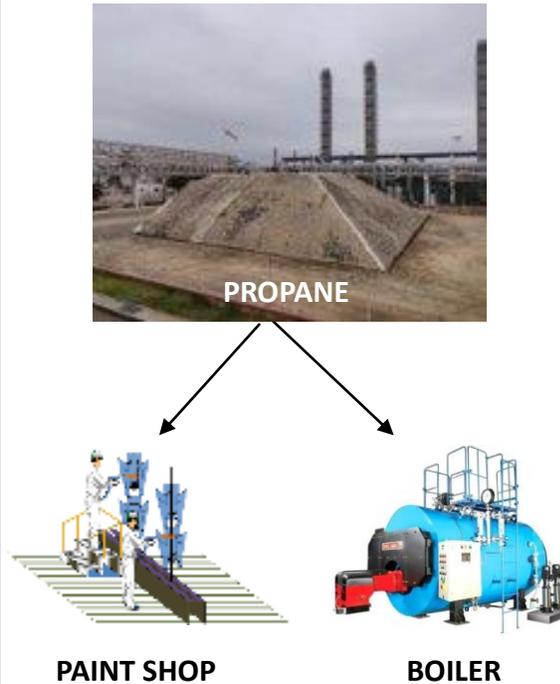
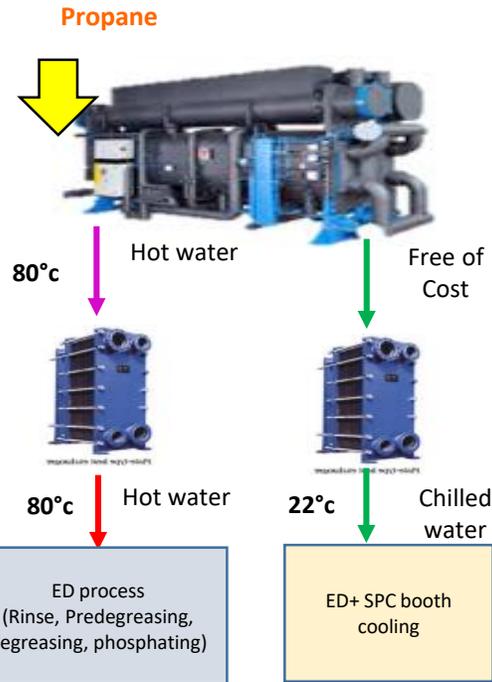
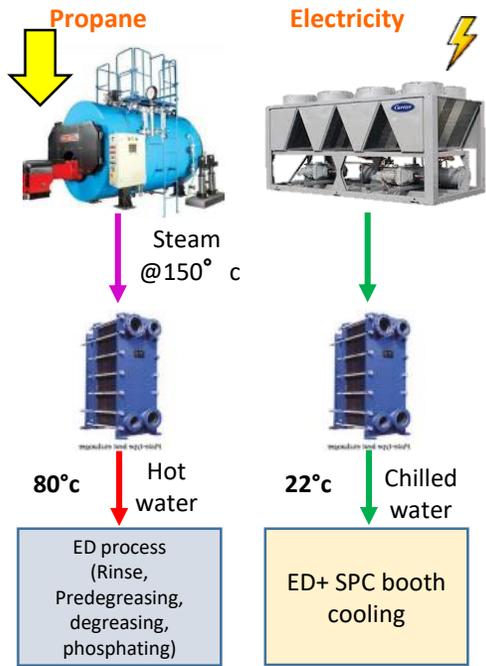
Fossil fuel required for utilization in Diesel generator was replaced with Government grid power

Before: Steam for Paint Shop

After: VAM for Paint Shop

Before: Propane in Boiler

After: LNG in Boiler



2409 Ton / Annum



1190 Lakh Rs



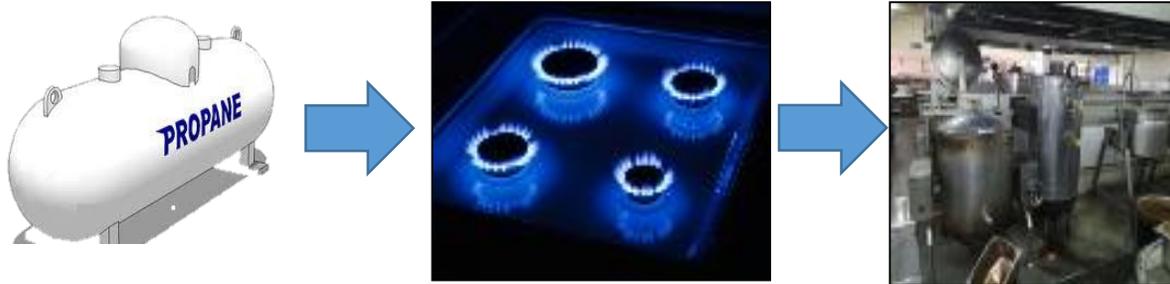
443 Lakh / Annum



31 Months

Fossil fuel required for generation of hot water is replaced with Energy Recovery and Renewable Energy

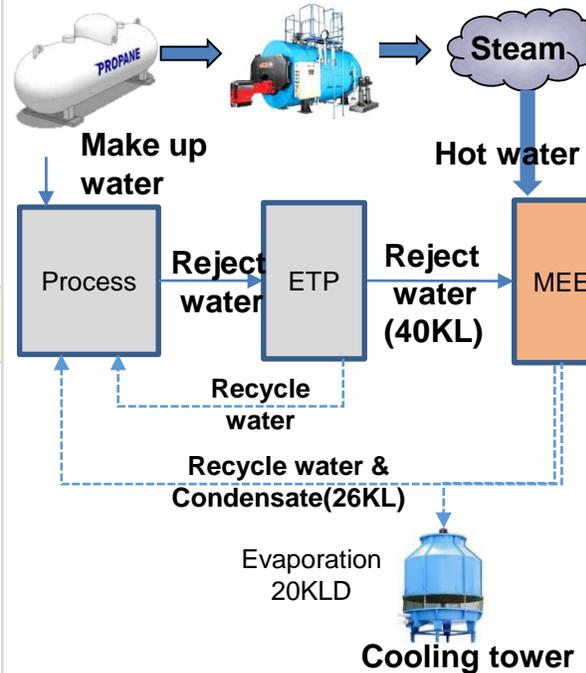
Before: Conventional Cooking with Propane Gas



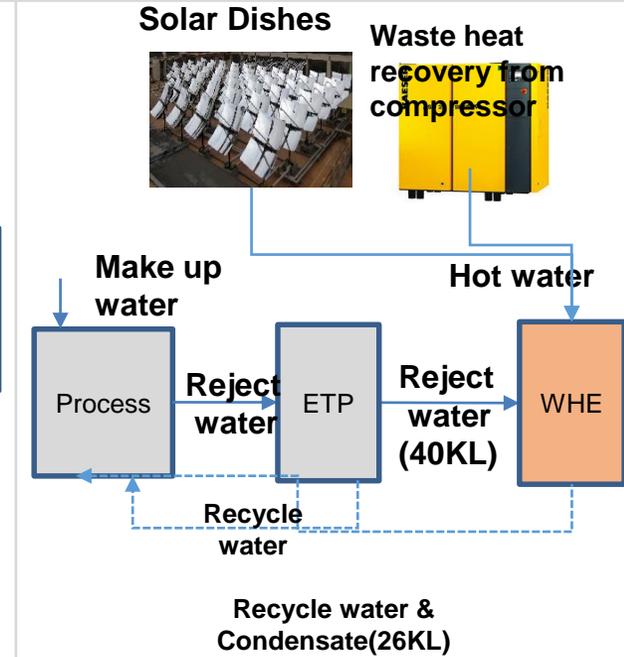
After: Elimination of Propane with Induction Cooking



Before: Usage of Fossil Fuel in Wastewater Treatment



After: Waste Heat Evaporator for Wastewater Treatment



903 Ton / Annum



310 Lakh Rs

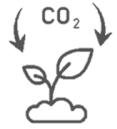


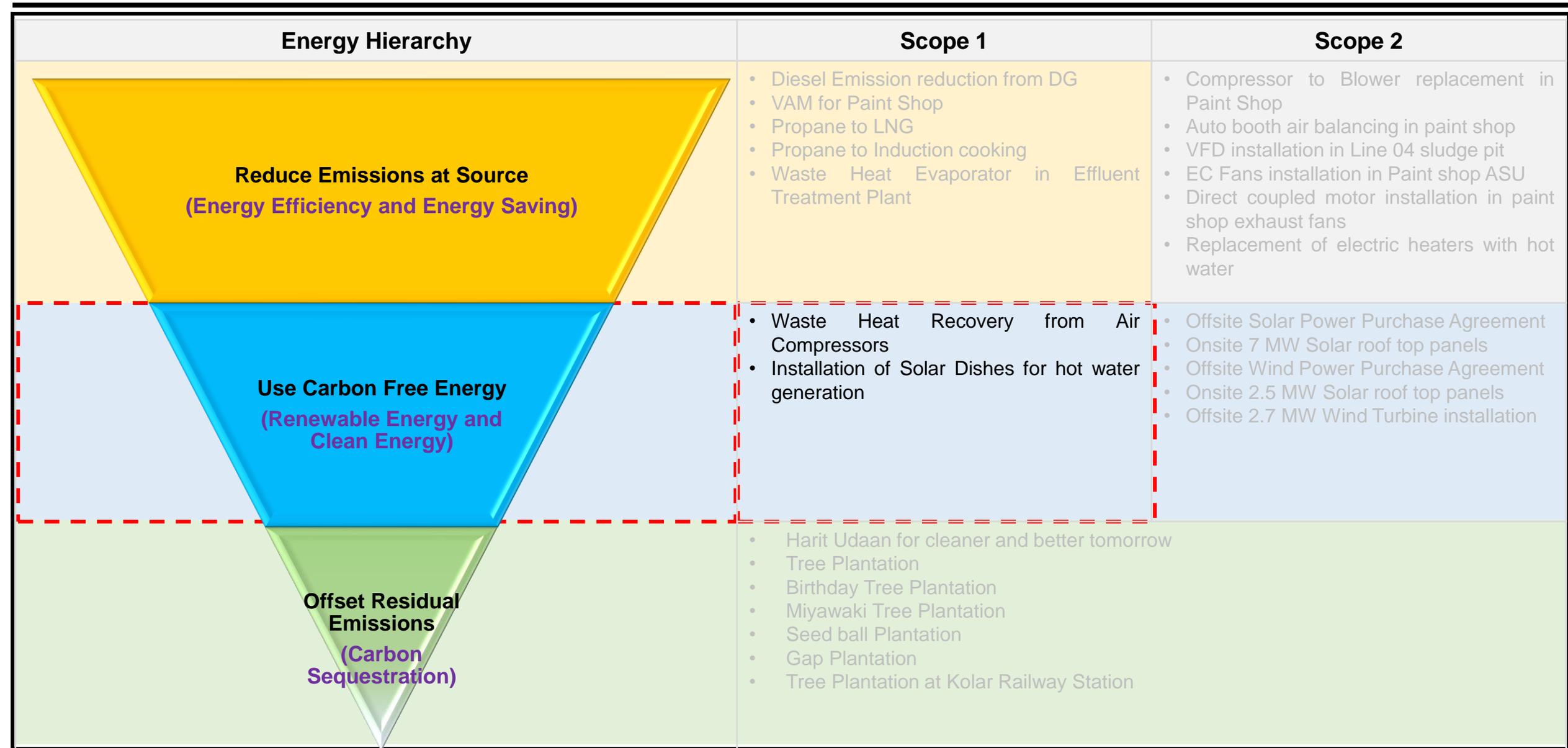
147.5 Lakh / Annum



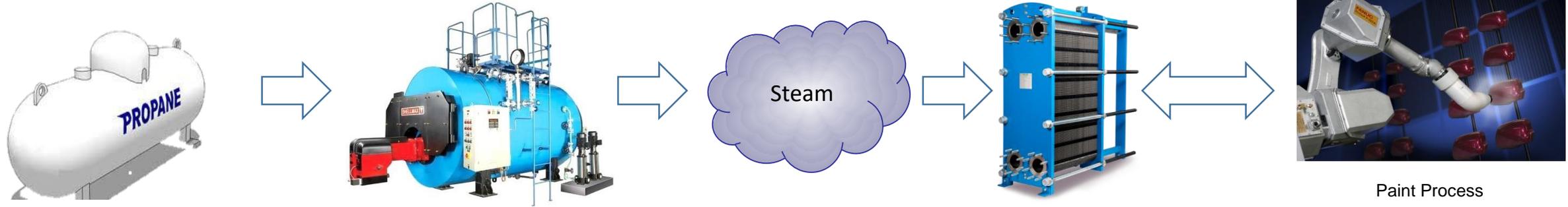
25 Months

Fossil fuel required in cooking and Wastewater Treatment is eliminated with the help of implementation of Technological Advancements

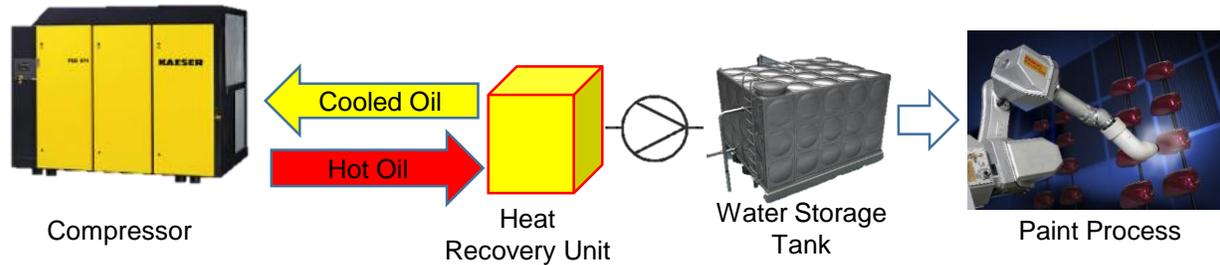
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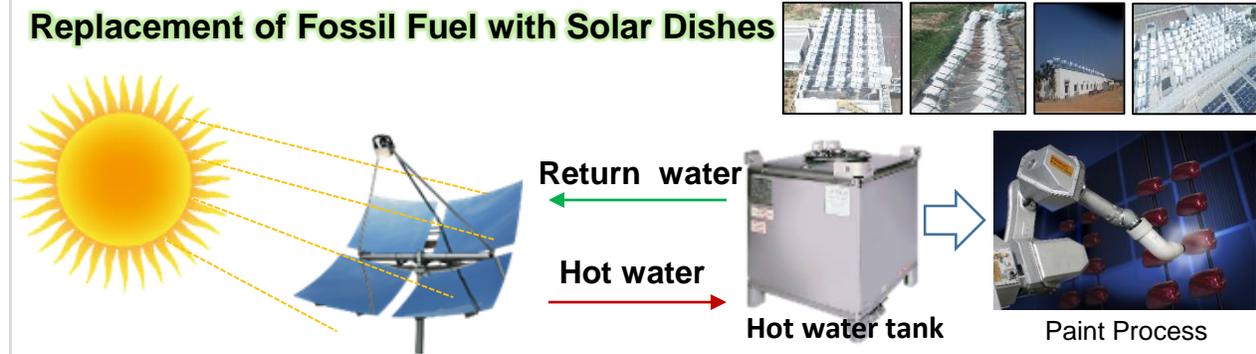
Before: Utilization of Fossil Fuel to generate Hot Water for Paint Shop



Replacement of Fossil Fuel with Compressor Waste Heat Recovery



Replacement of Fossil Fuel with Solar Dishes



3321 Ton / Annum



955 Lakh Rs



574 Lakh / Annum



19 Months

Fossil fuel required for generation of hot water is being replaced with Energy Recovery and Renewable Energy

13

No. of projects implemented



29296 MT

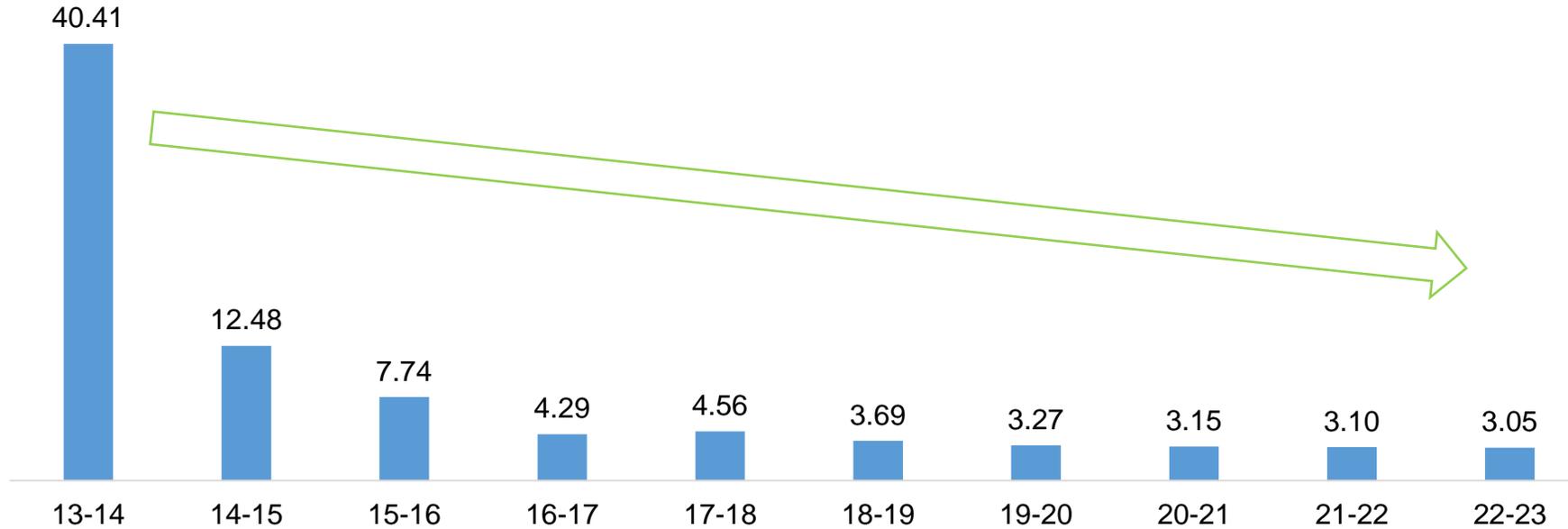


2543.60 Lakh Rs



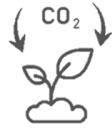
1579.60 Lakh Rs

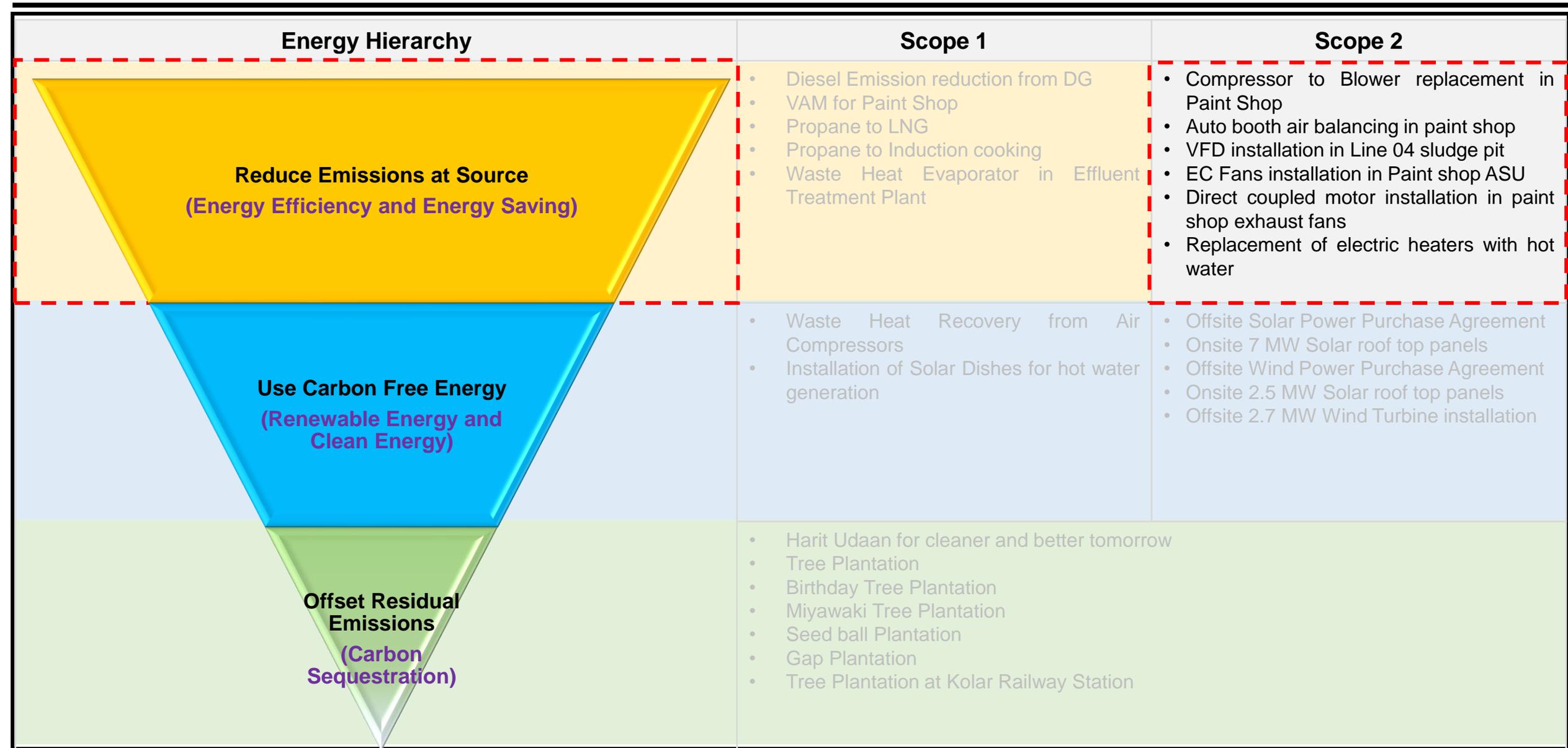
Scope 1 CO₂ Emission in Kg/Veh



61%
Reduction
from base year

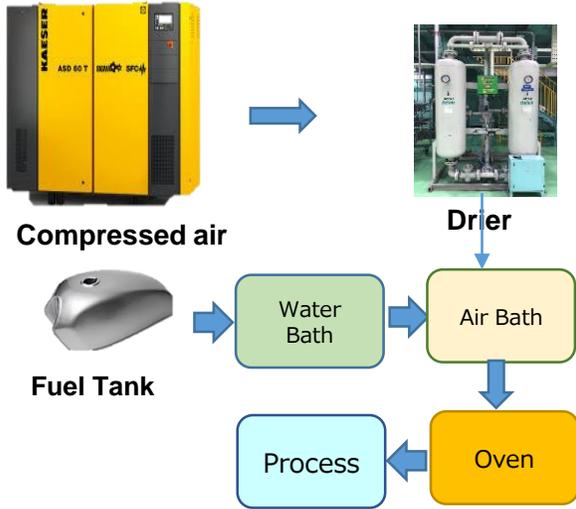
With the implementation of projects to reduce fossil fuel consumption, Scope 1 Emissions have reduced

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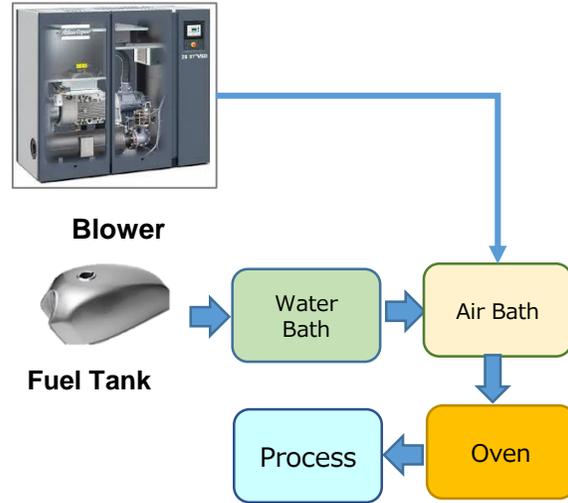


Compressor to Blower replacement in Paint Shop

Before:

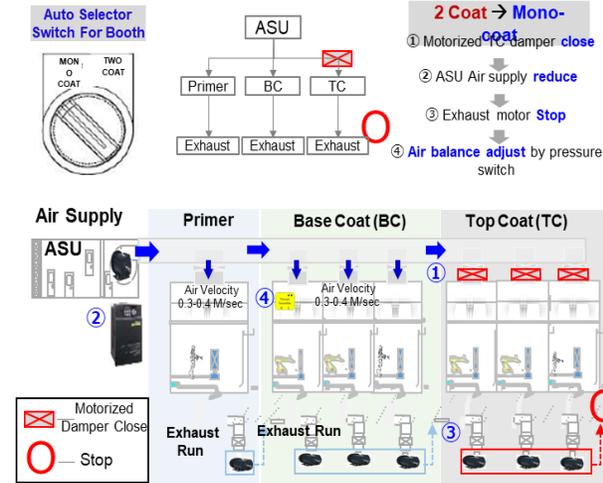


After:

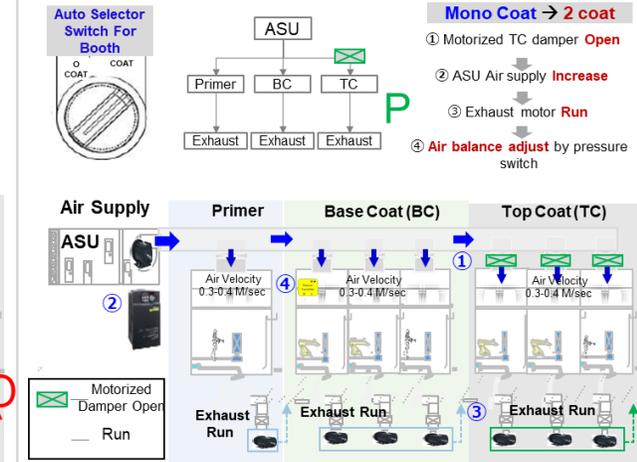


Auto Booth Air Balancing in Paint Shop

Before:



After:



Key project highlights



183.0 Lakh kWh/Annum



122.3 lakh Rs/year



1321.6 ton/ annum



268.4 Lakh Rs



25 Months

Implementation of Decentralized Blower & Auto booth Air balancing in Paint shop to reduce Energy consumption

VFD Installation in 219 motors

Before:

Main Power Supply

Contractor Control Circuit-PLC

Fan Motors



After:

Main Power Supply

Contactor PLC Control

VFD

Fan Motors



EC Fans installation at Paint Shop ASU

Before:

SPC 2 ASU



Clear Coat ASU



After:



Key project highlights



137.5 Lakh kWh/Annum



139.43 lakh Rs/year



1468.87 ton/ annum



168 Lakh Rs

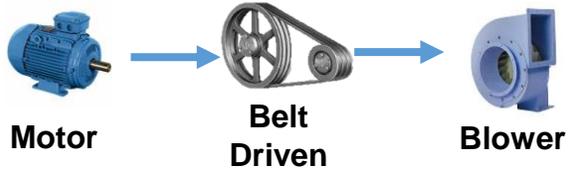


14 Months

VFD and EC fans installation has led to reduction in Plant Energy consumption

Energy Efficient Direct Coupled Motor

Before:

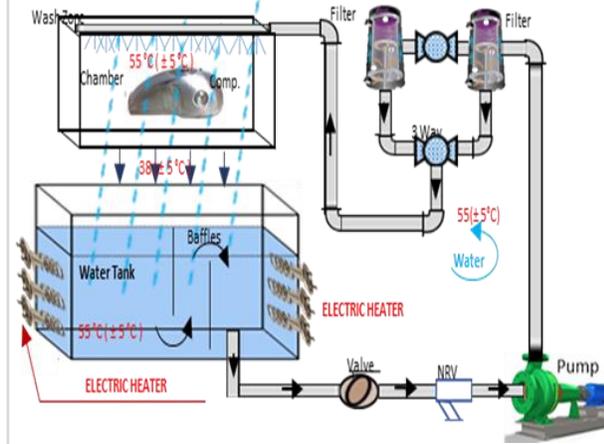


After:

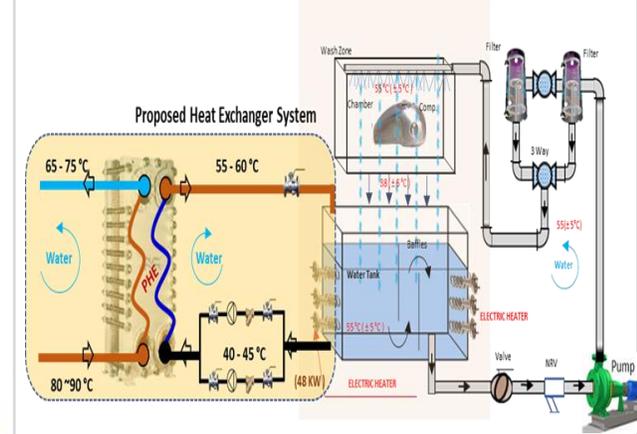


Replacement of Electric Heaters with hot water

Before:



After:



Key project highlights



59.7 Lakh kWh/Annum



30.70 lakh Rs/year



432 ton/ annum

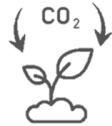


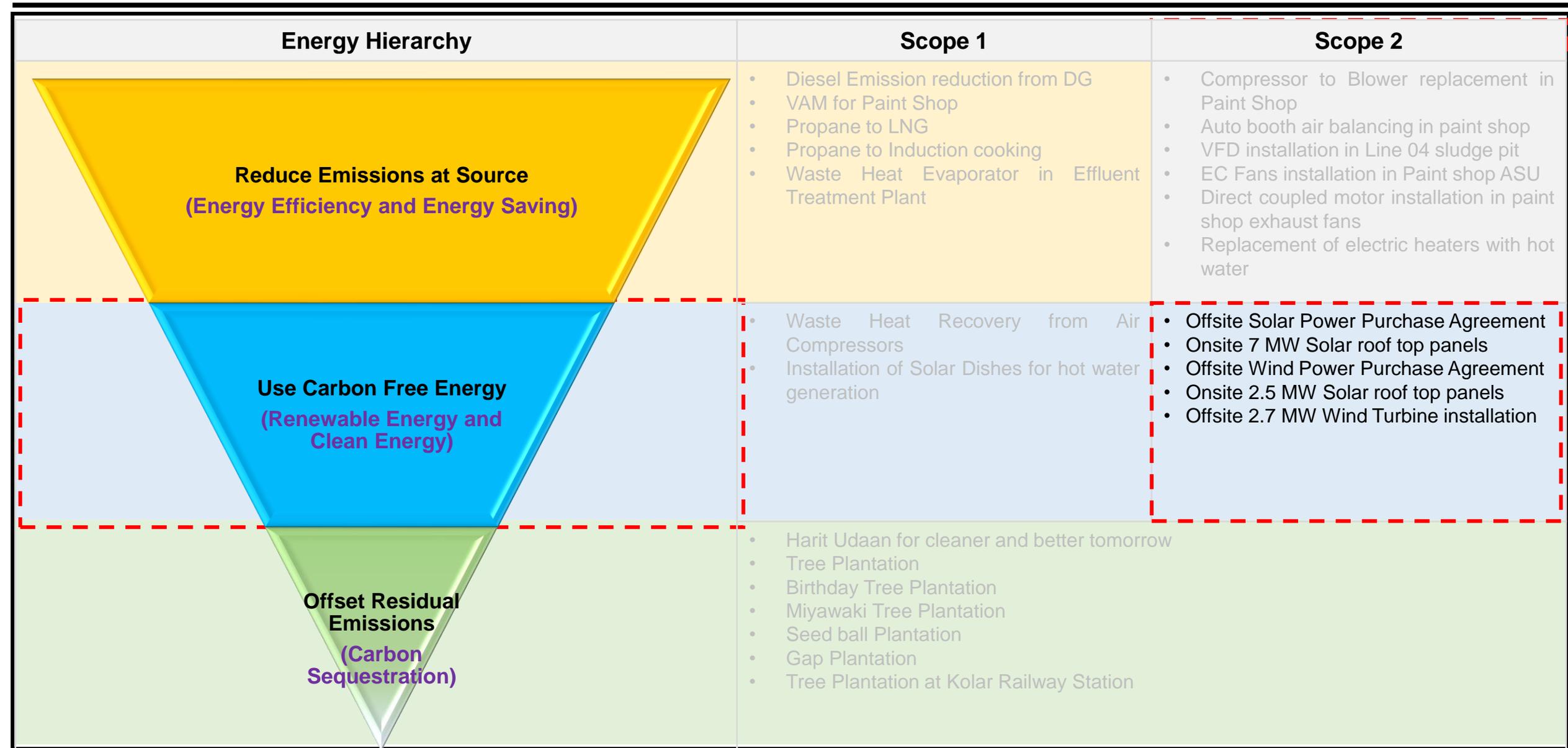
105.23 Lakh Rs



36 Months

Implementation of Direct coupled motor and replacement of electric heaters with hot water has resulted in Energy consumption reduction

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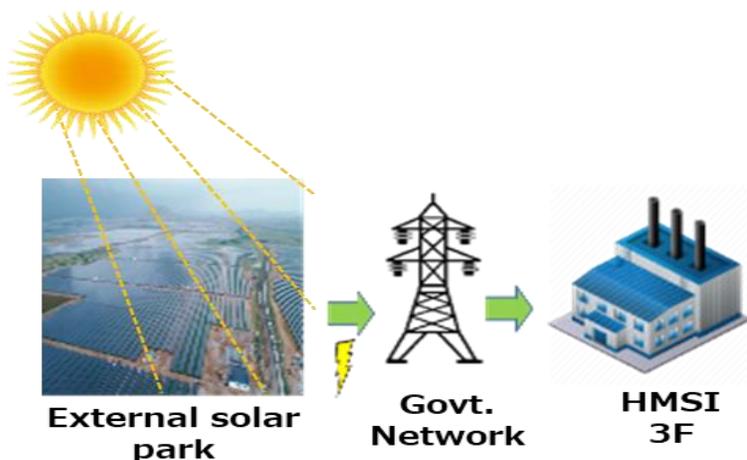




Electrical Energy & Thermal Energy are two main Energy Sources in HMSI
For Scope 2 Emission Reduction → Focus on use of renewal energy
One of the Lowest CO2 Emitting Factory among Asian Genpos



Offsite solar: 17-18



- ❑ Total contract capacity – 44 Mill KWH/annum
- ❑ Contract validity-10 years



1080 Lakh



37,000 tons



ZERO INVESTMENT

Onsite solar 7MW:18-19



- ❑ Total installed capacity – 7 MW
- ❑ Total units generated – 88 Lakh kWh/annum



580 Lakh

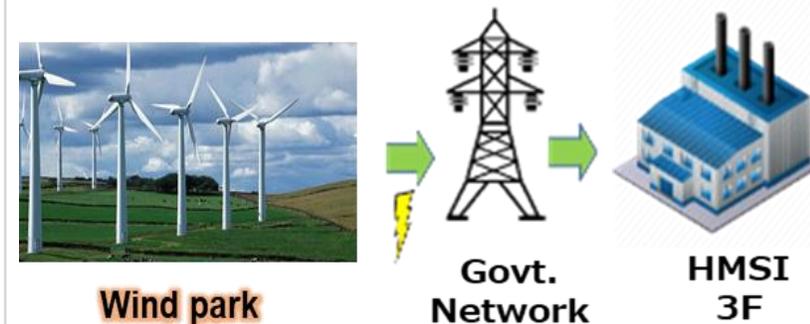


8330 tons



3130 Lakh

Offsite Wind Power: 21-22



- ❑ Total Contract capacity – 30 Lakh kWh / Annum
- ❑ Total Units generated – 6.5 Lakh kWh



49.50 Lakh



681 tons



Zero Investment

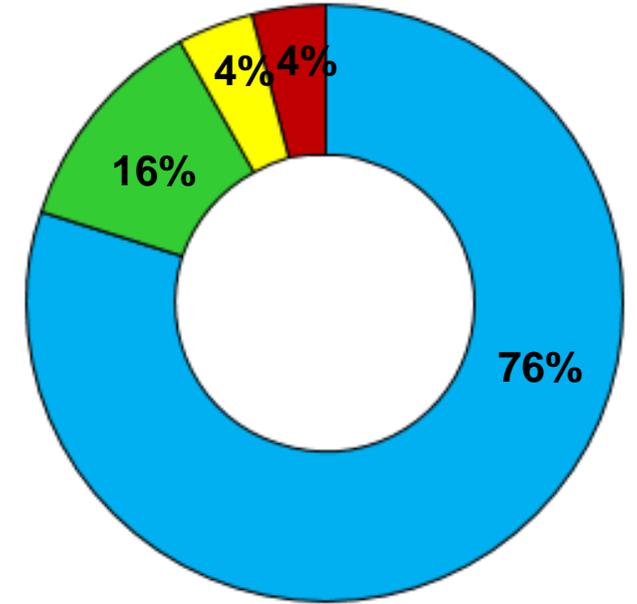
Renewable Energy Utilization started to reduce dependency on Fossil fuel for Electrical Energy and to reduce Scope 2 Emissions



0.9 MW Solar Rooftop on Logistics Warehouse



1.6 MW Solar Rooftop on MS Roof



■ Private
 ■ Generator
 ■ Public
 ■ Solar roof top

- 2.5 MW Solar Roof Top Installation done on Factory Roof Top.
- The installation of On-site Rooftop solar power plant is completed on Apr 2022

Key project highlights



29.40 lakh KWH



269 lakh Rs/year



2123 ton/ annum



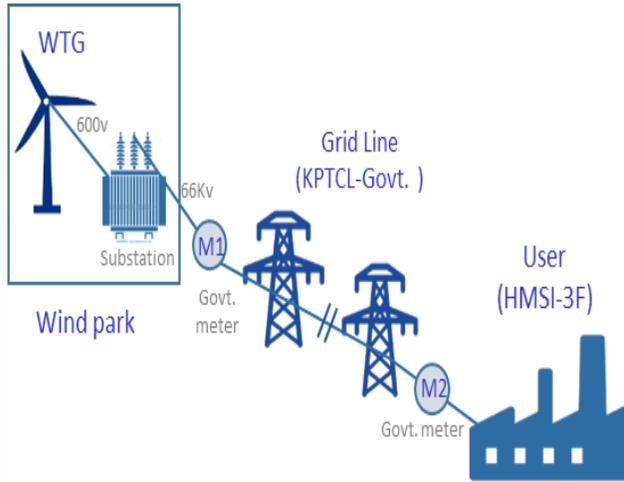
110.8 Mill Rs



50 Months

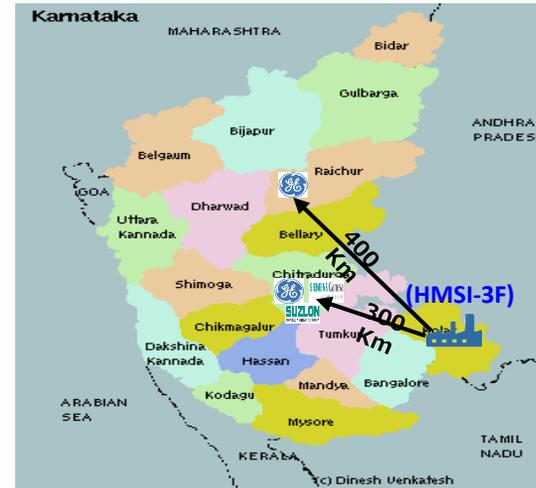
2.5 MW Solar Roof Top Expansion done to reduce fossil fuel based Electrical energy consumption by 95% through utilization of Solar energy

Power Transmission and Utilization



Parameter	Unit	Value (2.7MW)	Value (2MW)
Wind Speed	m/s	7.0 - 7.1	
Turbine Output	kW	1050	728
Plant Availability	%	95	95
System Loss	%	5	5
Wind Probability (P50 / P75 / P90)	%	90	90
Generation Days /Yr	Days	365	365
Total Generation / Annum	Mil kWh	7.5	5.2

Location of Installation



Site Pic-2.7 MW Wind Turbine



- Installation has been done Outside the Factory at Jagalur, Davanagere (approx. 300kms). Power is being utilized through Wheeling and Banking arrangement with DISCOM.
- The installation of Wind Turbine Generator is completed in the month of Jul-22

Key project highlights



75 lakh KWH



480 lakh Rs/year



1618 ton/ annum

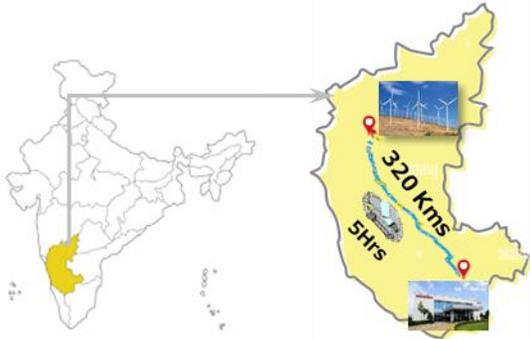


192 Mill Rs

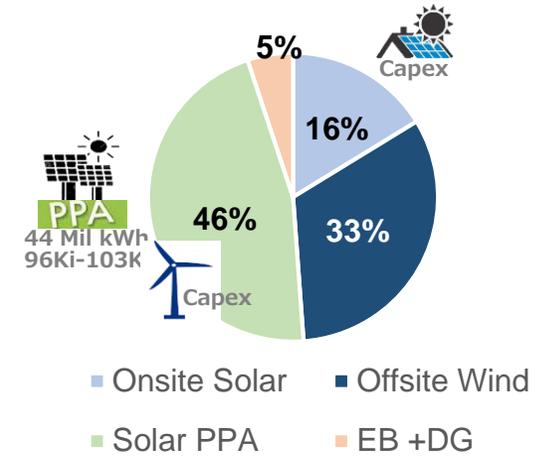


48 Months

Wind Turbine Installed to generate Energy through utilization of wind and increase utilization of Renewable Energy to 97% of overall electricity consumption



Town : Jagalur
Dist. : Davanagere
Turbine : GE-2.7MW X 2 Nos
kWh/Yr: 7.5 Mill kWh/turbine



- Installation will be done Outside the Factory
- The installation of Wind Turbine Generator will be completed in the month of Aug-23

Key project highlights



15 Mill KWH



92 Mill Rs/year



3236 ton/ annum

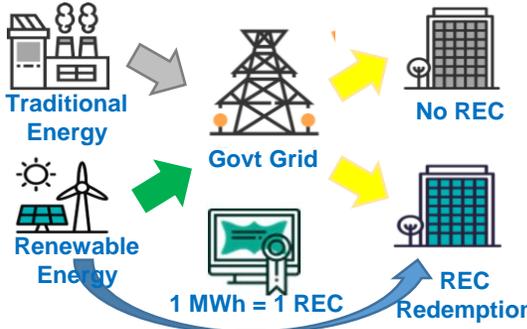
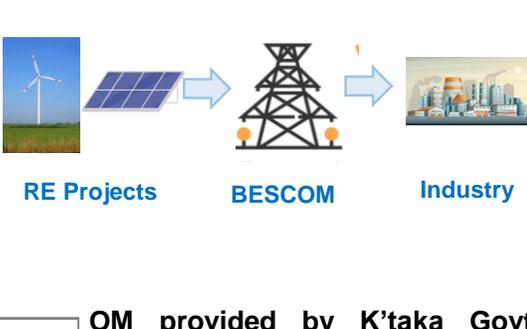


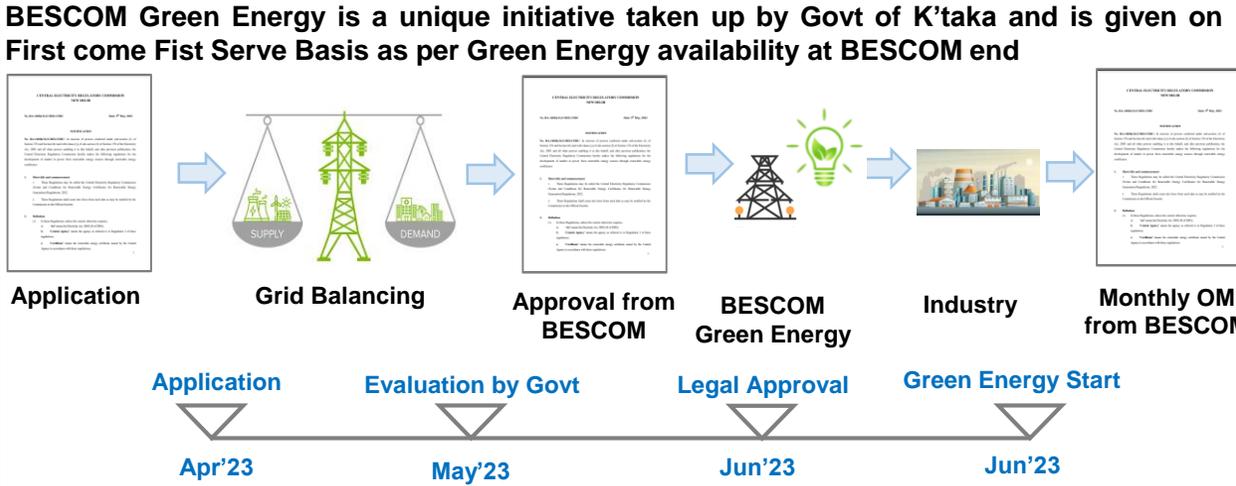
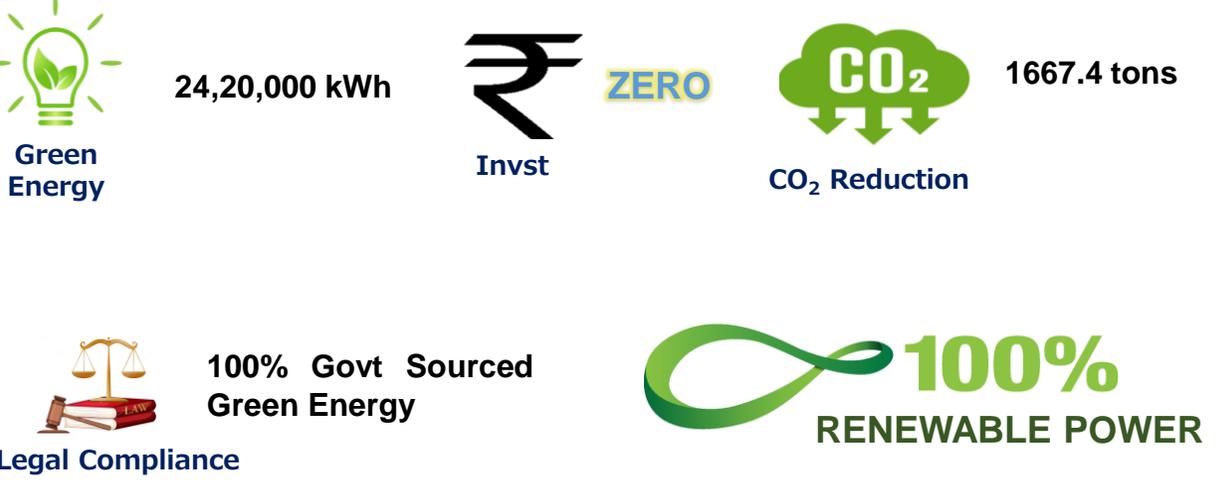
414 Mill Rs



53 Months

5.4 MW Wind turbine installation will further increase renewable energy generation

Methodologies to achieve 100% RE Usage	Renewable Energy Certificate	Carbon Credits	BESCOM Green Energy
<p>As per existing National and International frameworks such as SBTi and CDP and as per regulatory agencies such as Central Electricity Regulatory Commission and State Electricity Regulatory Commission</p> <ol style="list-style-type: none"> 1) Renewable Energy Certificate: Regulated by GoI through CERC. 2) Carbon Credits : Voluntary Carbon Markets. No regulatory mechanism 3) BESCOM Green Energy : Certified Green Electricity from Govt body 	 <p>Cost per REC = 1.5 Rs/ kWh</p>	 <p>Cost per Credit = 0.7-10 Rs/ kWh* * Credits are given based on tons of CO2, conversion done to</p>	 <p>Cost per kWh = 0.5 Rs/ kWh</p>

Methodology to procure BESCOM Green Energy	Benefits & Cost Feasibility
<p>BESCOM Green Energy is a unique initiative taken up by Govt of K'taka and is given on First come First Serve Basis as per Green Energy availability at BESCOM end</p> 	 <p>24,20,000 kWh ₹ ZERO Invst 1667.4 tons CO₂ Reduction 100% Govt Sourced Green Energy 100% RENEWABLE POWER</p>

BESCOM RE Usage is the most viable option for achieving RE in Power Usage. 3F will be the first in A&O region for 100% RE. Zero Investment Project.

25

No. of projects implemented



47.6 MW of RE Capacity



64191.18 MT

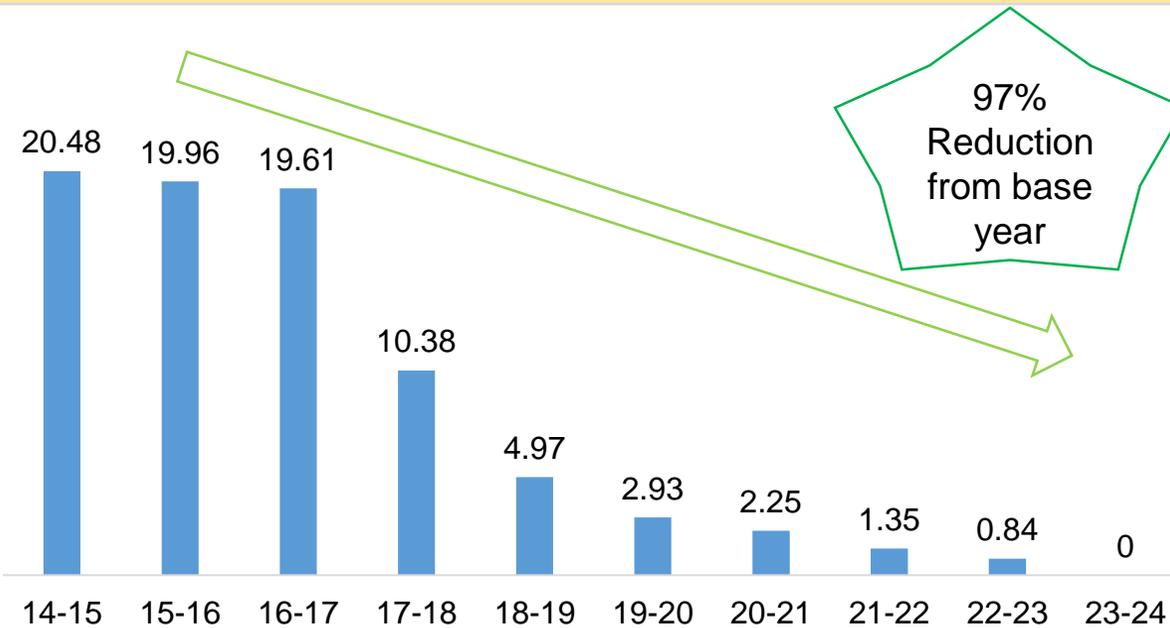


6933.03 Lakh Rs

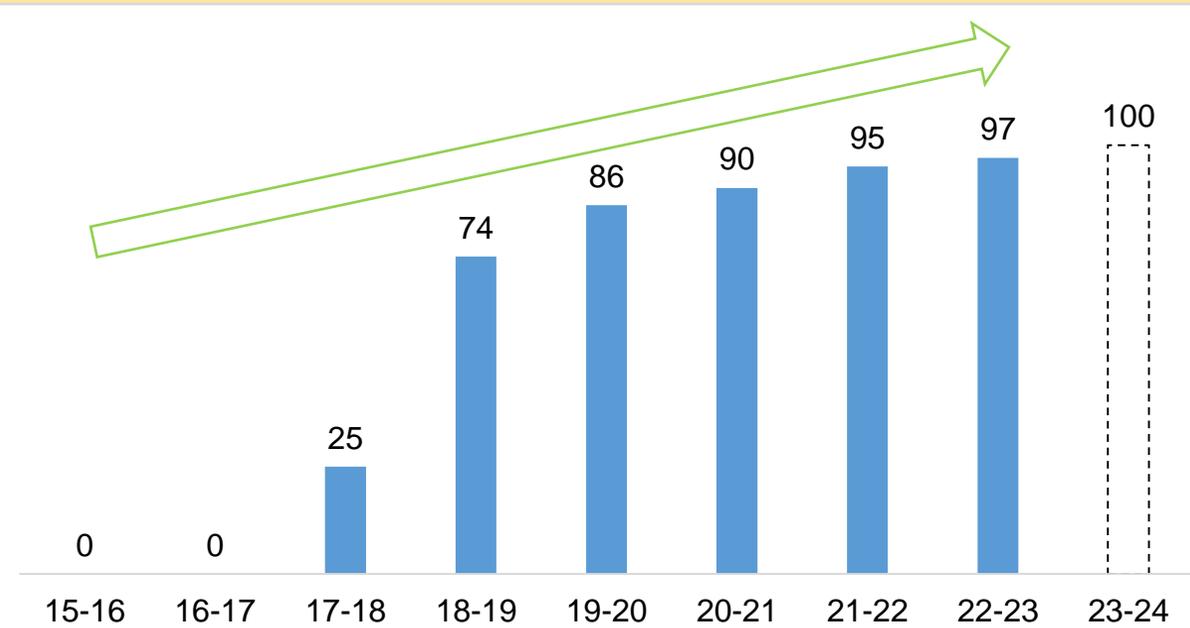


3560.52 Lakh Rs

Scope 2 CO₂ Emission in Kg/Veh

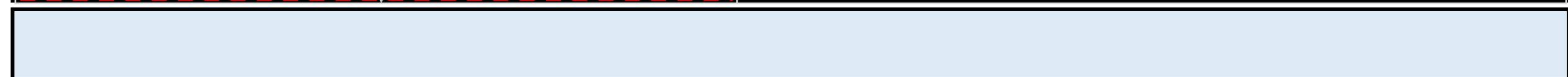
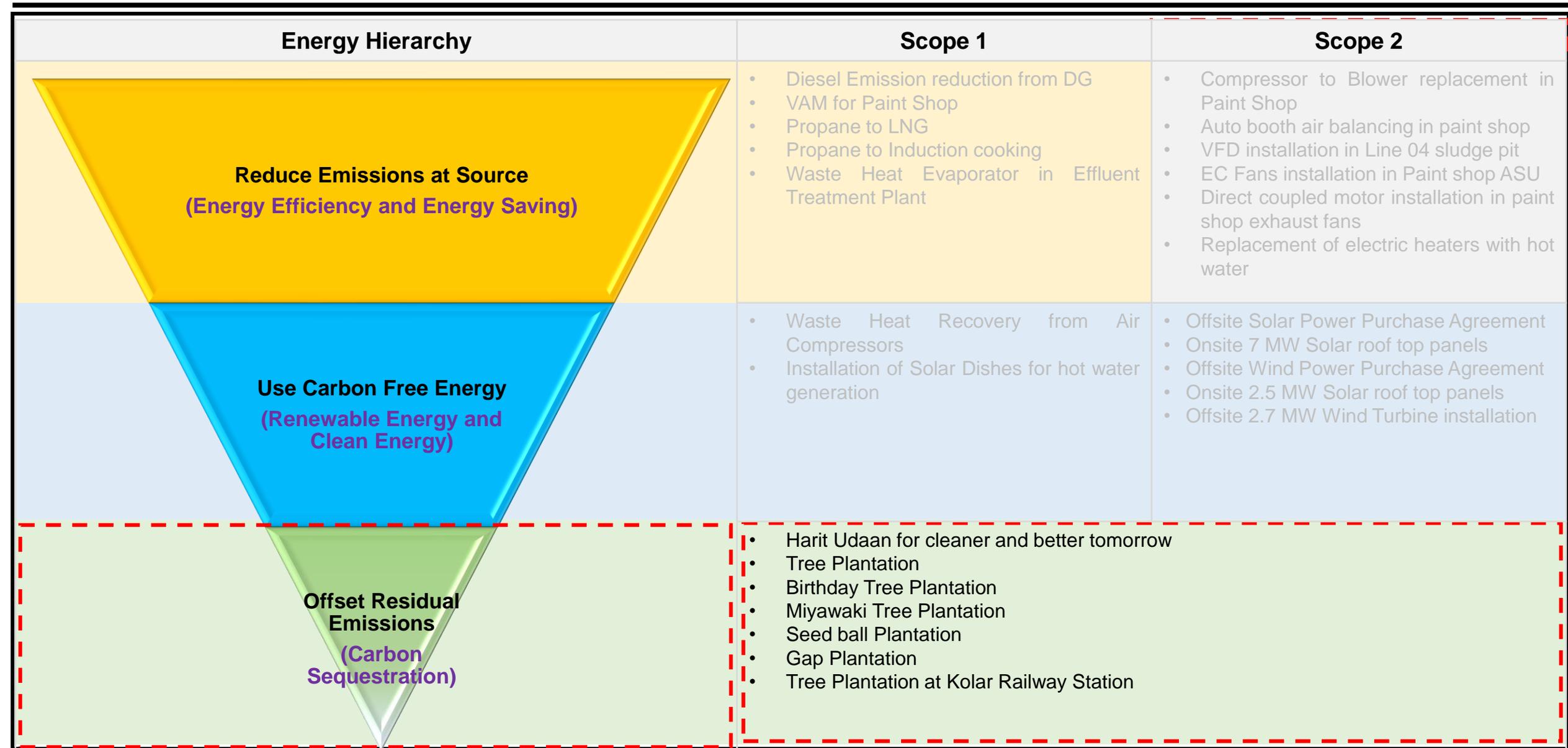


Renewable Energy Usage Trend in %



With the implementation of projects to reduce fossil fuel consumption, Scope 2 Emissions have reduced & is zero in 2023-24

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Background

HMSI launched project “Harit Udaan” an environmental sustainability and rural livelihood support community tree plantation program to plant native fruit bearing trees

Process flow of Harit Udaan:



Hundreds of farmers were identified and enrolled for the plantation program

Identification of farmers for the program



Farmer meetings were organized in various states to sensitize them about the program and also identify their problem areas

Meeting with farmers to sensitizing about the program



Training to farmers on new and modern techniques of farming



Farmers were provided with grafted and tissue cultured saplings

Farmers are provided with grafted, and tissue cultured saplings



To optimize water consumption, drip irrigation system was laid on farmers' fields

Implementation of Drip irrigation to conserve water



First Harvest

Salient features of Harit Udaan:

- Higher soil carbon accumulation resulting in larger carbon sink than the conventional plantation method.
- Higher economic and positive environmental impact.
- Farmers equipped with the latest organic farming and integrated farming techniques.
- Farmers are trained on the best practices for upkeep and nurturing of trees.
- Mobile application which captures the beneficiary details as well as geo tags the location of trees.
- Project aims to create a self-sustainable and empowered ecosystem



1,05,694 Trees Planted



2255.51 MT/Annum



102.6 Lakh Rs / Annum revenue



Ultra High-Density Farming



Drip irrigation to reduce water

With the implementation of projects to reduce fossil fuel consumption, Scope 2 Emissions have reduced

Background

HMSI has initiated tree plantation activities within the factory using native species that are local and drought resistant

Tree Plantation:

Purpose:

- To increase the greenbelt inside the premises and to create dense forest in limited space available.

Before:



After:



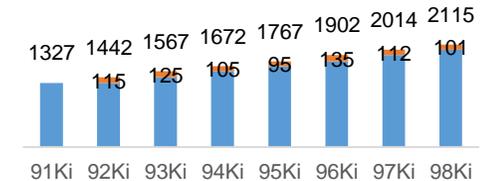
Birthday Tree Plantation:

Purpose:

1. To motivate associates and to increase awareness about environment.
2. Birthday brings a lot of joy & happiness and to make the joyous day a memorable one, tree plantation was planned.



Birthday Tree Plantation Trend YoY



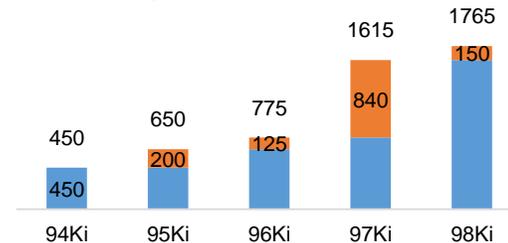
Miyawaki Tree Plantation:

Concept of Miyawaki Plantation:

- Miyawaki plantation is a technique pioneered by Japanese botanist Mr. Akira Miyawaki, that helps build dense, native forests.
- Method involves planting number of different species (4 species) in a pit of 1 Sq. mtr area and 2 ft depth.



Miyawaki Plantation Trend YoY



Cumulative No. of Trees Planted: 8071 No.s



Qty of CO2 Abated: 162 MT

Local and native tree species are planted to ensure more survival and optimal carbon sequestration

Background

New and innovative tree plantation techniques are utilized to ensure maximum survival and carbon sequestration

Seed Ball activity:

Concept:

- Seed ball concept was first initiated by Masanobu Fukuoka, a microbiologist from Japan.



Advantages of Using Seed ball

- Seed balls can be directly scattered on the ground.
- Can be used for seeding dry, thin or compacted soils.
- This method takes a fraction of the time
- Less Cost than other methods to cover large areas or small areas.



Gap Plantation:

To increase the greenery inside the plant and CO2 absorption capacity, green belt developments were done at New Logistic Warehouse and other possible locations inside the plant



List of species planted:

- Honge
- Agase
- Gulmohar
- Banyan Tree
- Pipal Tree
- Chigare Mara
- Huvarasi

Tree Plantation at Kolar Railway Station:

- Permission to plant trees in 10 Acres around Kolar Railway Station is obtained.
- 2565 local tree species are planted and being maintained.



List of species planted:

- Honge Tree
- Neem Tree
- Tabebuia Rosea Tree
- Rain Tree
- Scarlet cordia Tree
- Gulmohar Tree
- Arali Mara (Pipal Tree)



**Cumulative No. of Trees
Planted: 4860 No.s**

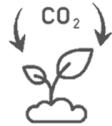


**Qty of CO2 Abated:
97.2 MT**

External green belt has been developed to enhance carbon capture and sequestration through trees

2014 - 17	2017 – 18	2018 – 19	2019 – 21	2021 - 22	2022 - 23
 <p data-bbox="38 921 420 1106">Tree Plantation and Birthday Tree Plantation</p>	 <p data-bbox="458 821 840 949">Miyawaki Plantation</p>	 <p data-bbox="866 664 1248 778">Seed Ball Activity and Gap Plantation</p> <p data-bbox="866 506 1248 621">Harit Udaan</p>	 <p data-bbox="1286 321 1668 435">Kolar Railway Station Plantation</p>	 <p data-bbox="1707 192 2076 307">Mass Tree Plantation</p>	 <p data-bbox="2127 192 2509 307">Mass Tree Plantation</p>
 <p data-bbox="152 1142 420 1285">Trees Planted: 6456 Nos CO2 abated: 130 MT</p>	<p data-bbox="471 1142 828 1256">Trees Planted: 1615 Nos CO2 abated: 32 MT</p>	<p data-bbox="879 1142 1235 1256">Trees Planted: 2295 Nos CO2 abated: 45.9 MT</p>	<p data-bbox="1286 1142 1668 1256">Trees Planted: 105694 Nos CO2 abated: 2255 MT</p>	<p data-bbox="1707 1142 2076 1256">Trees Planted: 2565 Nos CO2 abated: 51.3 MT</p>	<p data-bbox="2127 1142 2509 1256">Trees Planted: 225 Nos CO2 abated: 10 MT</p>

Total of 1,18,625 Trees have been planted cumulatively inside & outside the plant resulting in reduction of 2514 MT of CO₂ per Annum

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08	<p>Journey towards Net Zero, Scope 3 Emission Reduction and Way Forward</p> <p>Reduction in Emissions from downstream transportation, upstream transportation, Employee Commute, Waste Management, Route Optimization in downstream transportation, Emission reduction from product lifecycle, Specific Scope 3 Emissions and Way Forward</p> 	36-40	1 min

Scope 1 & 2 emissions reduction themes details

38

No. of projects implemented



93487.18 MT CO₂ per year

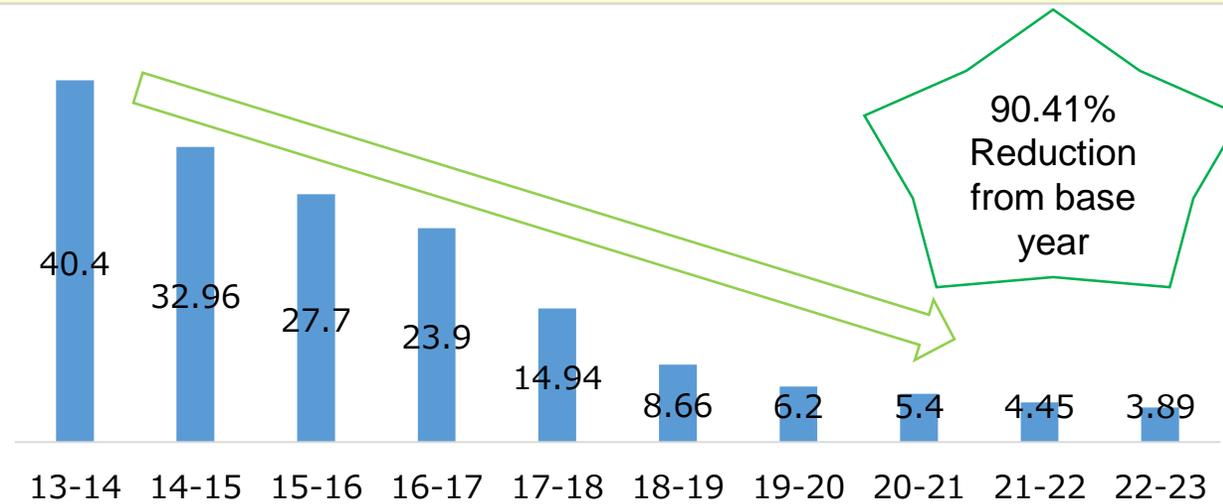


9476.63 Lakh Rs

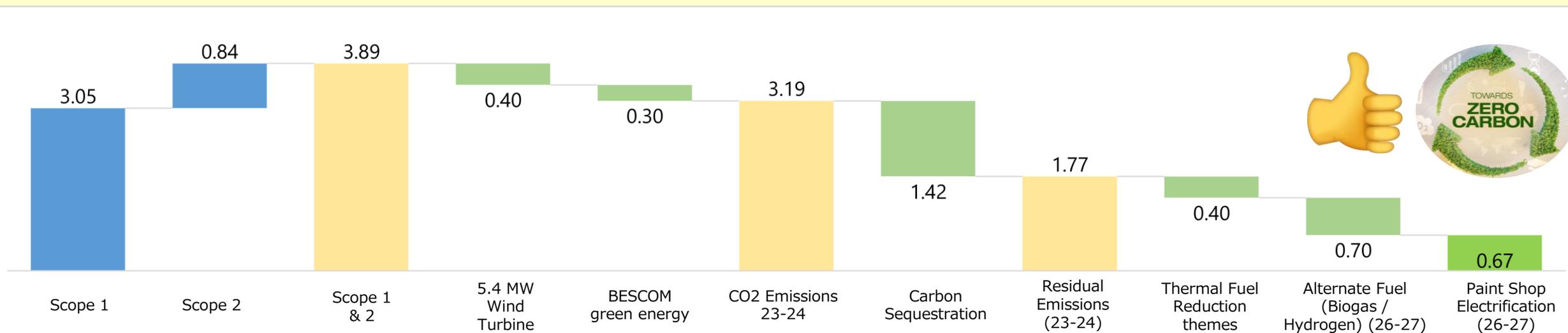


5140.12 Lakh Rs

Scope 1 & 2 emissions Reductions YoY trend in Kg/Veh



Scope 1 & Scope 2 Net Zero Emission Trend

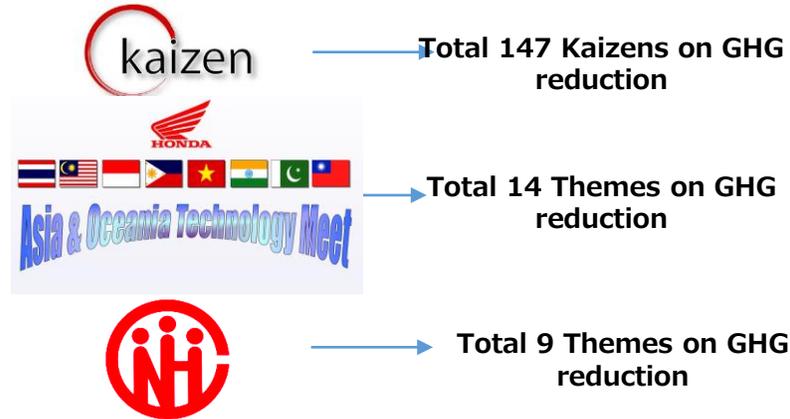


We have been able to reduce our overall carbon emissions and offset the residual emissions towards achieving net zero emissions from Scope 1 and Scope 2

Motivation-Associates



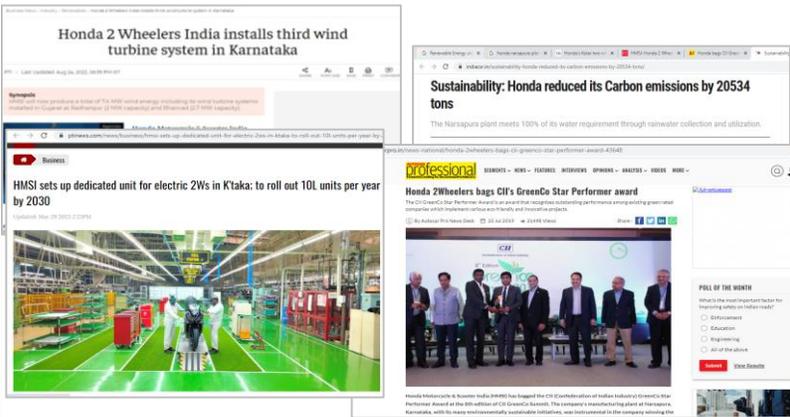
Attitude- GHG Emissions Redn.



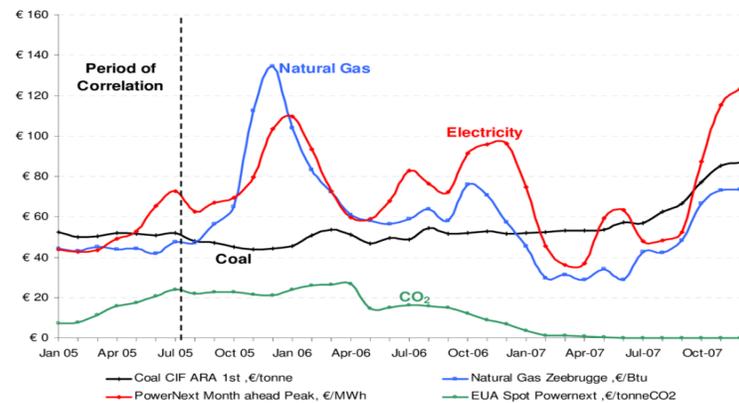
Pride-Greenest Factory Spirit



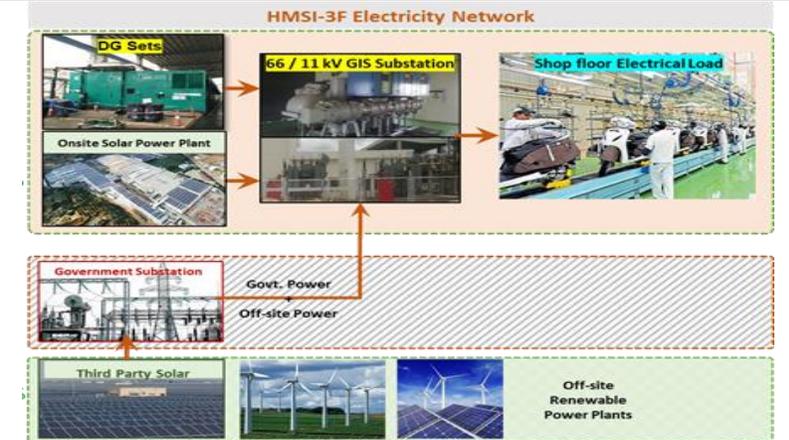
Brand Image-Green Company



Environment Factor-Insulation from fluctuating fuel prices

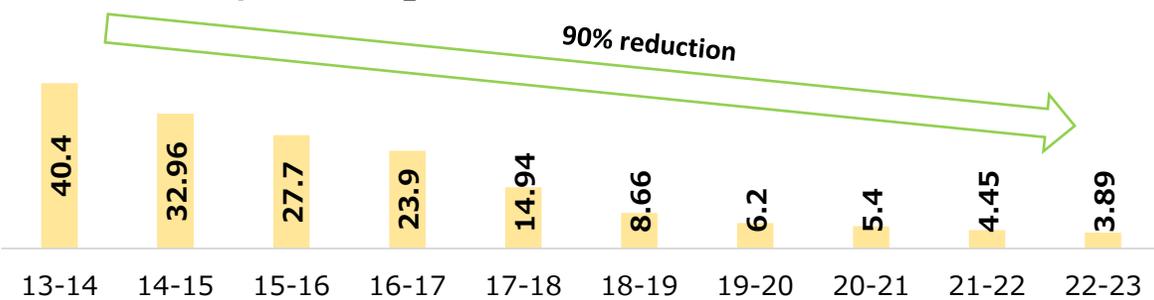


Flexibility-Grid and RE Power source for running factory

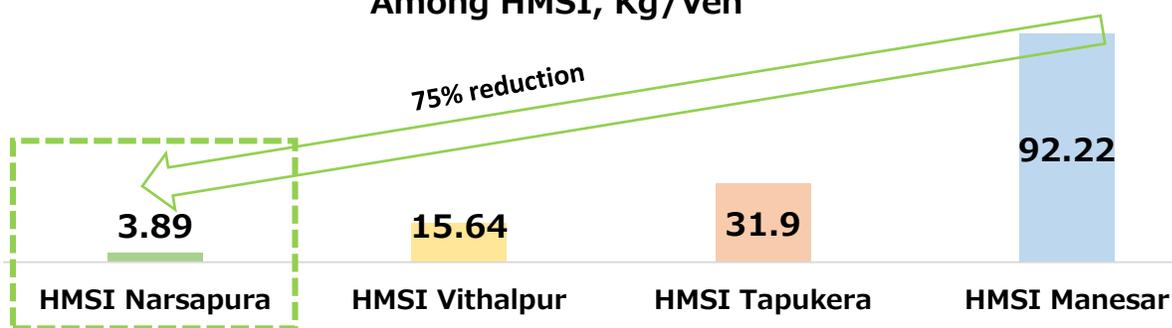


Associate engagement & attitude towards carbon emissions reduction has improved. Increased pride & motivation towards Environment. Due to Flexibility, Factory is now insulated from fluctuating external Environment factors

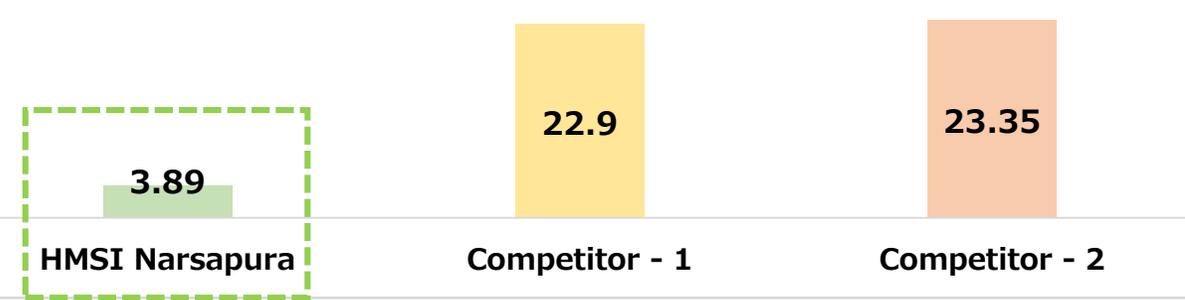
Specific CO₂ Emission reduction Trend YoY



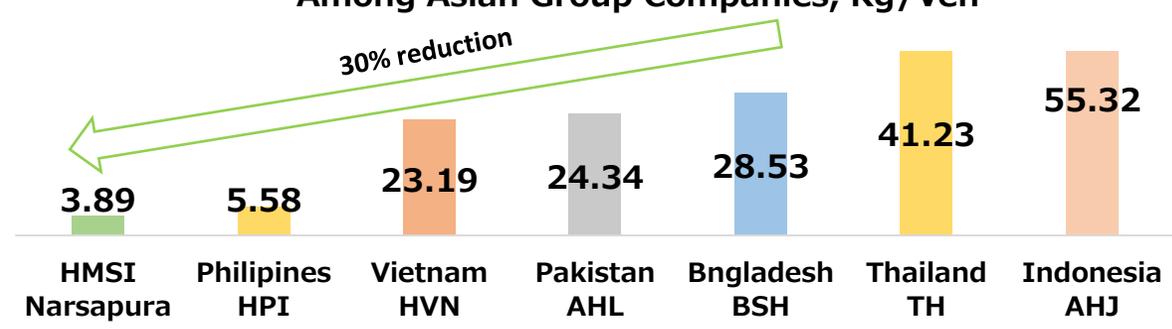
Among HMSI, Kg/Veh



Among Indian Companies, Kg/Veh



Among Asian Group Companies, Kg/Veh



Uniqueness

- HMSI Narsapura has set a unique example where an industry can transform from highest GHG emissions to lowest GHG emissions through PDCA.
- HMSI Narsapura is not only the lowest specific CO₂ emitting factory, but also one of the lowest in Specific Utility Costs in the country due to adoption of best practices.
- One of the first automobile industries in the country which has installed around 300 No's of Solar parabolic dishes.
- Complete elimination of MEE and ATFD Operation through sequential alternatives.
- Lowest specific propane consumption among group companies with similar configuration.

HMSI-Narsapura is the lowest CO₂ emission factory in India and Asia region

Replication potential of Solar PPA



Industry	Sharing of practices	Industry	Replication Potential	Actual
HMSI Group companies	●	HMSI Group companies	●	●
Other Honda Genpos	●	Asia & Oceania Honda Genpos	●	
Other industries	●	Other industries	●	●
Other forums	●			
HMSI suppliers	●			

Replication potential of Waste Heat Recovery



Industry	Sharing of practices	Industry	Replication Potential	Actual
HMSI Group companies	●	HMSI Group companies	●	●
Other Honda Genpos	●	Asia & Oceania Honda Genpos	●	
Other industries	●	Other industries	●	●
Other forums	●			
HMSI suppliers	●			

Replication potential of Induction cooking



Industry	Sharing of practices	Industry	Replication Potential	Actual
HMSI Group companies	●	HMSI Group companies	●	●
Other Honda Genpos	●	Asia & Oceania Honda Genpos	●	
Other industries	●	Other industries	●	●
Other forums	●			
HMSI suppliers	●			

Replication potential of compressor to blower



Industry	Sharing of practices	Industry	Replication Potential	Actual
HMSI Group companies	●	HMSI Group companies	●	●
Other Honda Genpos	●	Asia & Oceania Honda Genpos	●	
Other industries	●	Other industries	●	●
Other forums	●			
HMSI suppliers	●			

Replication Potential of Zero Waste to Landfill



Industry	Sharing of practices	Industry	Replication Potential	Actual
HMSI Group companies	●	HMSI Group companies	●	●
Other Honda Genpos	●	Asia & Oceania Honda Genpos	●	
Other industries	●	Other industries	●	●
Other forums	●			
HMSI suppliers	●			

Replication potential of Miyawaki Plantation



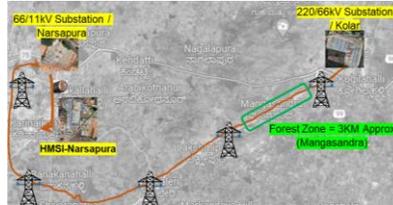
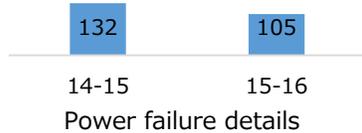
Industry	Sharing of practices	Industry	Replication Potential	Actual
HMSI Group companies	●	HMSI Group companies	●	●
Other Honda Genpos	●	Asia & Oceania Honda Genpos	●	
Other industries	●	Other industries	●	●
Other forums	●			
HMSI suppliers	●			

Our initiatives of Solar PPA, Waste Heat Recovery from compressors, Induction cooking, Compressor to blower, Zero Waste to Landfill and Miyawaki Plantation are well appreciated and replicated in several industries

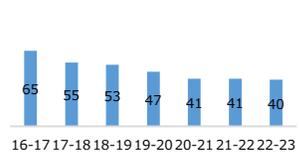
Frequent power failures

Challenge: Increase in DG running hours due to Frequent power failure fluctuation

Analysis:



- Power tripping due to tree branch
- Single circuit line from Kolar to Narsapura
- Govt Substation not upgraded for industrial load



Reduction in power failures

Tree trimming near Narsapura

Double circuit line from Kolar (20KM ~)

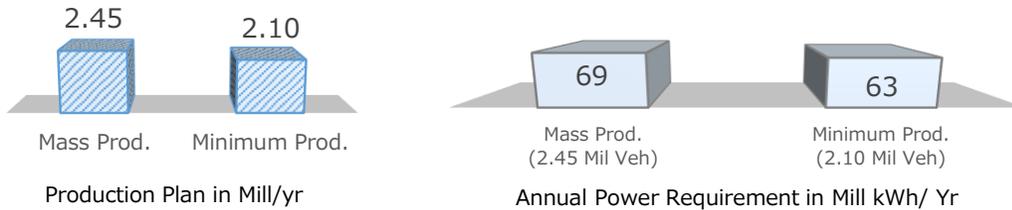
Addition of 100MVA transformer in Kolar

Upgradation of 66KV

Changes in Production

Challenge: Changes in Production due to fluctuating market demand

Analysis:



Renewable Energy Implementation Plan considering Changes in Production

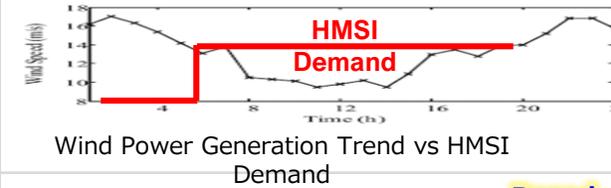


Parameter	2022-23	2023-24	2024-25	2025-26	2026-27
Production in Mill	2.13	2.08	2.10	2.18	2.18
RE Capacity	5.2 MW	5.4 MW	8 MW	7 MW	4 MW
Mill kWh	10.44	15.00	11.30	8.70	5.00

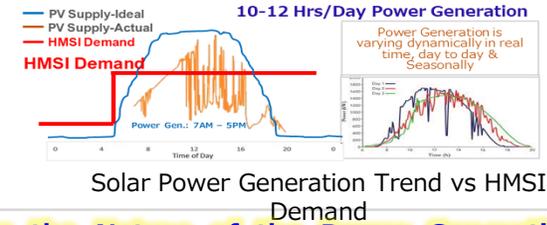
Identification of Optimal Renewable Energy Source

Challenge: Identification of Renewable Energy Source

Analysis:



Wind Power Generation Trend vs HMSI Demand



Solar Power Generation Trend vs HMSI Demand

Solution:



Based on the Nature of the Power Generation, Wind & Solar Capex Plants are opted in RE Road

A	M	J	J	A	S	O	N	D	J	F	M
2.2	2.3	2.4	2.3	2.2	2.1	2.0	2.1	0.9	1.8	1.8	2.4
55	57	59	57	55	53	51	53	29	47	47	58
9.5 MW Solar											8.1 MW Wind

Changes in Government Policy

Challenge: Changes in govt policy and regulatory requirements w.r.t Renewable Energy

Analysis:



TOD and Banking guidelines

Parameter	Before 22-23	2022-23	2023-24
TOD	Annual	Half Yearly	No TOD
Banking	Annual	Half Yearly	Monthly



Renewable Energy Implementation Plan considering Government policy changes

Parameter	2022-23	2023-24	2024-25	2025-26	2026-27
Production in Mill	2.13	2.08	2.10	2.18	2.18
RE Capacity	5.2 MW	5.4 MW			
Mill kWh	10.44	15.00			

The major challenges for reducing carbon emissions included high Diesel consumption due to grid failures, change in production and changes in government policies that impact renewable energy utilization

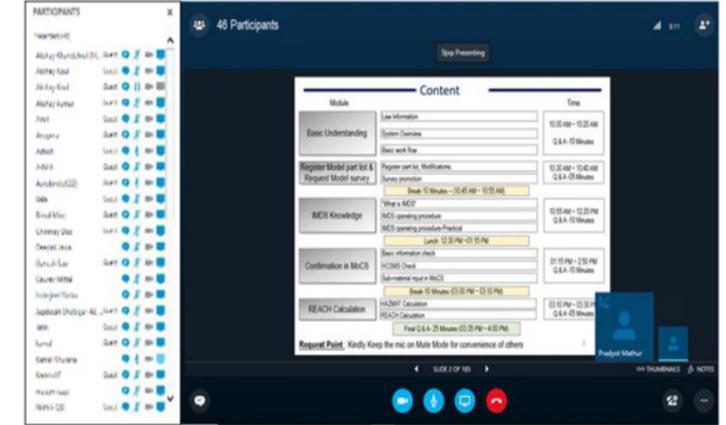
Green Supply Chain Meet



World Environment Day Training



Online training to suppliers



Supplier Environment Best Practices Award

Purpose of Supplier Award

To promote and encourage local suppliers of HMSI – 3F to enhance and improve their environmental performance.

To provide knowledge sharing platform on environment best practices among suppliers



Online GHG Training By Central Team

Greenco Training for suppliers & HMSI Associates



Greenco Mission



Our Supply Chain partners are continuously engaged to ensure sharing of relevant Environmental information for horizontal deployment

Information Sharing to Ministers and Government Officials



Information sharing to Member Secretary, KSPCB



Information sharing to senior scientists from CGWB



Information sharing to senior Environmental Officer, KSPCB

Information Sharing to external agencies and industries



Industrial delegates from M/s Titan, M/s Ashok Leyland, M/s Toyota Kirloskar and from IMTMA had visited HMSI for learning about the best practices



HMSI 3F best practices were shared to other industry experts through Greenco forum which was conducted in Bangalore



Our best practices are shared to our stakeholders, external agencies, industries and our associates for capacity building

Purpose of Energy Week Celebration

- To create Awareness among associates and suppliers about Energy conservation
- To create Awareness about switching to renewable energy from non renewable energy.

Glimpses of Energy Week Celebration



ENERGY WEEK ACTIVITY SCHEDULE - FEBRUARY - 2022

Sl. No	Activity	21-Feb	22-Feb	23-Feb	24-Feb	25-Feb
1	Energy week banner display at all gates	▼				
2	Poster competition - Associate	▼				▼
3	Poster competition - Family	▼				▼
4	Slogan Competition - Kannada	▼				▼
5	Slogan Competition - English	▼				▼
6	Energy Conservation Model	▼				▼
7	Energy conservation commitment by signing on banner			▼		
8	Quiz competition			▼		
9	Information sharing in canteen on Energy conservation				▼	
10	Associate Commitment towards Energy conservation	▼				▼

Activities conducted during Energy Conservation Week



RENEWABLE ENERGY WILL BE THE ONLY SOURCE FOR EXISTANCE OF LIFE ON EARTH IN THE FUTURE



Total 1350 Participants in Energy Week Awareness Programmes

Purpose of Energy Week Celebration

- To create awareness among associates and suppliers about water conservation.
- To create awareness about conserving water for future generation through water harvesting methods.

Glimpses of Water Week Celebration



WATER WEEK ACTIVITY SCHEDULE - MARCH - 2022

Sl. No	Activity	21-Mar	22-Mar	23-Mar	24-Mar	25-Mar	26-Mar
1	Water week banner display at all gates	▼					
2	Poster competition - Associate	▼					▼
3	Poster competition - Family	▼					▼
4	Slogan Competition - Kannada	▼					▼
5	Slogan Competition - English	▼					▼
6	Water conservation Model	▼					▼
7	Water conservation commitment by signing on banner				▼		
8	Quiz competition				▼		
9	Information sharing in canteen on Water conservation					▼	
10	Associate Commitment towards Water conservation	▼					▼

Activities conducted during Water Conservation Week



ONLY ONE BIRTH, FOR US
ON ONLY ONE EARTH,
THIS BIRTH IS WORTH
IF WE SAVE,
ONLY ONE EARTH



Total 1245 Participants in Water Week Awareness Programmes

Purpose of Energy Week Celebration

- To create awareness among associates and suppliers about Environment.
- To create awareness about protecting Environment for future generation.

Glimpses of Energy Week Celebration



Activity Schedule-World Environment Week Celebration-Jun'2022

Sl.No	Activity	31-May	01-Jun	02-Jun	03-Jun	04-Jun	05-Jun	06-Jun	07-Jun	08-Jun	09-Jun	10-Jun
1	Environment week schedule sharing to plant level	▼										
2	Environment Week Banner Display at all gates		▼									▼
3	Awareness Mail sharing to Plant level		▼									▼
4	Tree plantation (Operating Head and Executive Vice President)							▼				
5	Mass Tree Plantation			▼	▼							
6	Sharing of best practices with supplier				▼							
7	Environment pledge & Photo							▼				
8	Environment Video sharing Caravan								▼			
9	Environment Quiz Competition								▼			
10	Environment Awareness test by Gov. School									▼		
11	Environment Poster Competition, Associate & Their Family Member		▼									▼
12	Environment Slogan For all associates (Competition Kannada & English)		▼									▼
13	Environment day Soap Modelling		▼									▼
14	Environment awareness Standee Banner Display in Caravan		▼									▼
15	Environment day signoff banner							▼				
16	Awareness to supplier on Carbon free Environment											▼
17	Awareness session by KSPCB officer										▼	
18	Tree plantation by KSPCB Officer										▼	
19	"Only One Earth" Drive - Electrical energy audit in shop floor		▼									▼
20	"Only One Earth" Drive- Water Leakage audit in shop floor		▼									▼
21	My Special Commitment to Environment		▼									▼

Prepared By: TL
Checked By: Section Head
Approved By: Division Head
Approved By: Operating Head

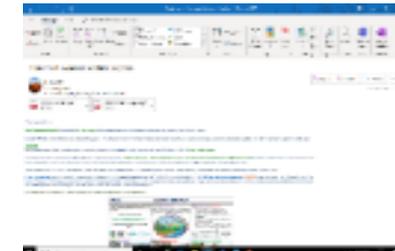
Activities conducted during Environment Awareness Campaign



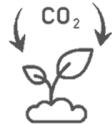
Awareness Session by KSPCB Officers

Mass Tree Plantation drive. Planted 225 no. of trees

Sharing of best practices of HMSI 3F with suppliers



Total 1523 Participants in Environment Week Awareness Programmes

Contents		Slides	Time
01	<p>Introduction</p> <p>Honda Global and HMSI presence, Global Direction, Global Vision, Triple Action to Zero, Derivation of HMSI 3F Goals and Targets</p> 	01-07	1 min
02	<p>Reduce Emissions at Source (Energy Efficiency) – Scope 01</p> <p>Diesel Emission Reduction from DG, Installation of VAM for Paint Shop, Replacement of LNG for Boiler, Induction cooking, Waste Heat Evaporator for Effluent Treatment Plant</p> 	08-10	2 min
03	<p>Use Carbon Free Energy (Renewable Energy) – Scope 01</p> <p>Waste Heat Recovery from Compressors, Installation of Solar Dishes, Specific Scope 01 Emissions</p> 	11-12	1 min
04	<p>Reduce Emissions at Source (Energy Efficiency) – Scope 02</p> <p>Compressor to Blower to replacement, Auto Air booth Balancing in Paint Shop, VFD installation in Line 04 Sludge Pit, EC Fans for Paint Shop ASU, Direct Coupled Motor for Paint Shop Exhaust Fans, Replacement of Electric heater with hot water</p> 	13-15	2 min
05	<p>Use Carbon Free Energy (Renewable Energy) – Scope 02</p> <p>RE Introduction – 37 MW, 2.5 MW Solar Roof Top Panels 2022, 2.7 MW Wind Turbine Installation 2022, 5.4 MW Wind Turbine Installation 2023, BESCO Green power purchase, Specific Scope 2 Emissions</p> 	16-21	2 min
06	<p>Offset Residual Emissions (Carbon Sequestration)</p> <p>Harit Udaan for cleaner and better tomorrow, Tree Plantation, Birthday Tree Plantation, Miyawaki Tree Plantation, Seedball activity, Gap Plantation, Tree Plantation at Kolar Railway Station</p> 	22-25	2 min
07	<p>Benefits, Benchmarking, Replication Potential, Challenge, Awareness and Capacity Building,</p> <p>Tangible benefits, Intangible benefits, Benchmarking – CO2, Awareness and Capacity Building</p> 	26-35	1 min
08	<p>Journey towards Net Zero, Scope 3 Emission Reduction and Way Forward</p> <p>Reduction in Emissions from downstream transportation, upstream transportation, Employee Commute, Waste Management, Route Optimization in downstream transportation, Emission reduction from product lifecycle, Specific Scope 3 Emissions and Way Forward</p> 	36-40	1 min

HMSI-NARSAPURA FACTORY'S NET ZERO JOURNEY SUMMARY



ENERGY
CRISIS



Compressor to Blower



VAM for Paint Shop

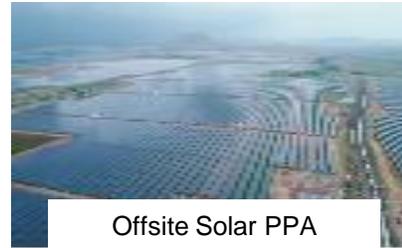


Government grid power

Energy
Efficiency



WHE for Effluent Treatment



Offsite Solar PPA



Onsite 9.5 MW Solar

Renewable
Energy



Onsite Solar dishes



Offsite 2.7 MW Wind Turbine



Tree Plantation

Carbon
Sequestration



Harit Udaan



Miyawaki Plantation



Offsite Plantation

Net Zero
Emissions



Offsite 5.4 MW Wind Turbine



BESCOM Green Energy



Alternate Fuel



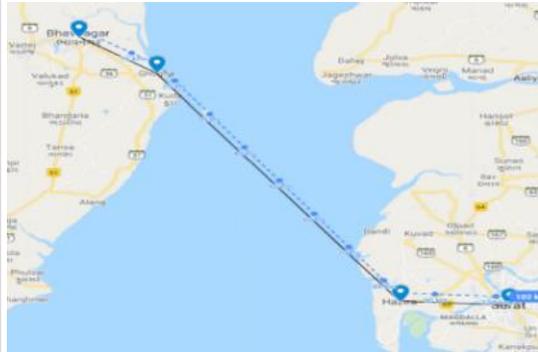
Paint shop electrification

HMSI Narsapura has evolved from the plant running with 100% DG initially to 100% Renewable Electrical Energy factory

SCOPE 03 EMISSIONS REDUCTION TARGET

Reduction in Emissions from Downstream transportation

Utilization of RORO Service



Destination : Veraval & Bhavnagar
 Distance : 1477 Kms & 1354 Kms
 Transit Time : 6 Days & 5 Days

Vehicle dispatch with Trailers



Trailers of capacity 120 vehicles are used for dispatch of two wheelers from HMSI

Reduction in Emissions from Upstream transportation

Logistics Efficiency Improvement



Qty / box increased to 05 No.s from 04
 Truck trip reduced from 106 to 85 No.s

Utilization of big container



Utilization of 53 feet truck in the place of 32 feet
 1365 no. of truck trips reduced per year

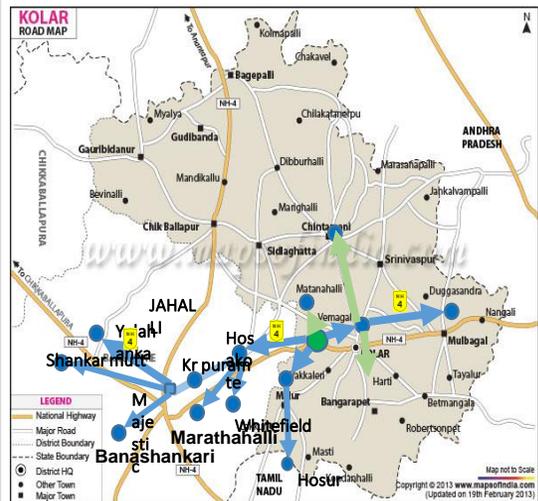


5227.3 Ton / Annum



1.41 Lakh Ltr of Diesel Consumption

Reduction in Emissions from Employee Commute



Associates Mode of Transport

	93	505	4871	45
	Car	Two Wheeler	Company Bus	Cycle
Associates	Total	User	(%)	
JE+	800	718	90%	
Casuals	4025	3023	75%	
LA & Below	1603	1130	71%	

88% of overall associates are using Company Bus

Reduction in Emissions from Waste Management

Generation of Hazardous waste



Co-processing at cement industry



Collection at storage area



Transportation



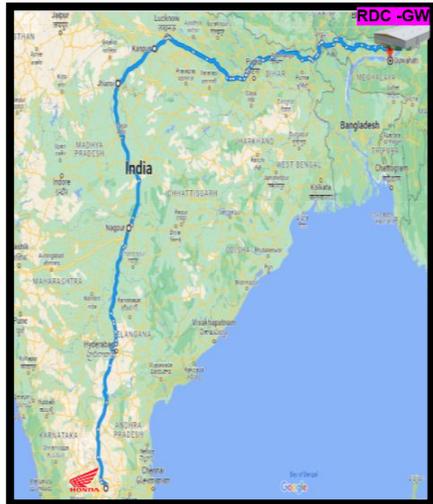
1386 no. of truck trip reduction



852.98 Lakh / Annum

Scope 3 Emissions reduction in six main categories through logistics optimization, waste management and Employee commuting

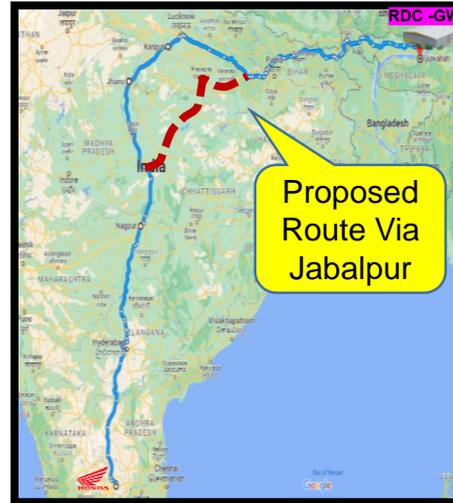
Route optimization in Downstream activities



HMSI to Guwahati RDC route finalized through Nagpur – Kanpur as West Bengal route was not feasible due to low height barrier

All the trucks are monitored continuously through GPS from GPS monitoring centre located at HMSI HO.

HMSI to Guwahati distance – 3380 KM.

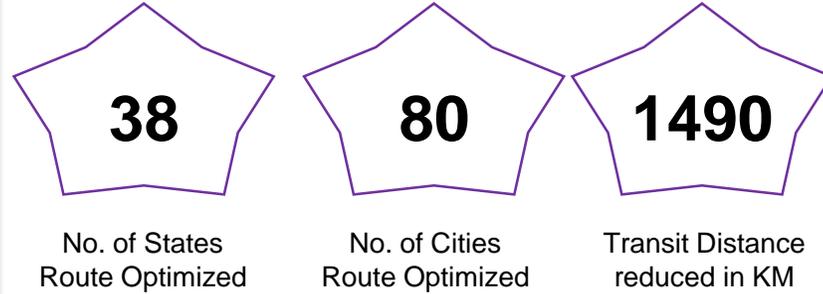


Proposed Route Via Jabalpur

During GPS monitoring of truck movement to Guwahati, observed a new route via Nagpur – Jabalpur.

HMSI to Guwahati via Nagpur – Jabalpur is 175 KM shorter.

Similar Route optimization activities across India details:



996.81 Ton / Annum



5960 Ltr of Diesel Consumption

Emission reduction from product Lifecycle



High Efficient Products

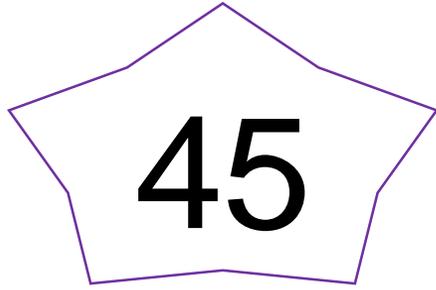
- Product Emit less Co2
- Improved Internal Combustion engine efficiency
- Improved fuel combustion and Transmission efficiency and reducing friction between engine parts.
- Reduced Co2 Emission compared to preceding Model



HMSI E Narsapura – EV Factory will be operational from May'24



211.60 Lakh / Annum



No. of projects implemented



78456 MT

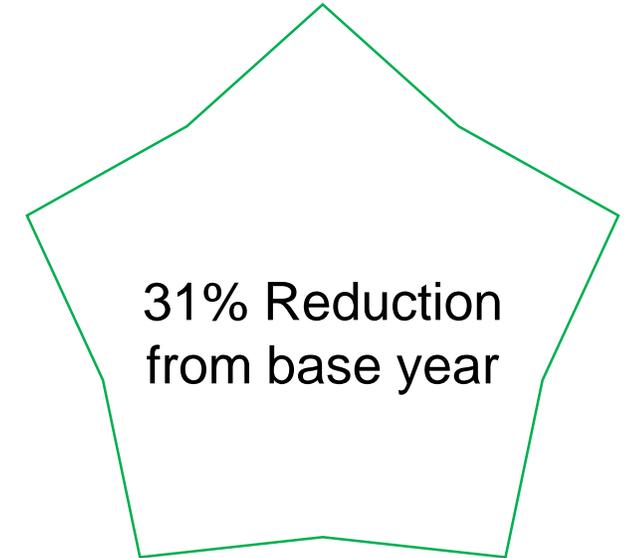
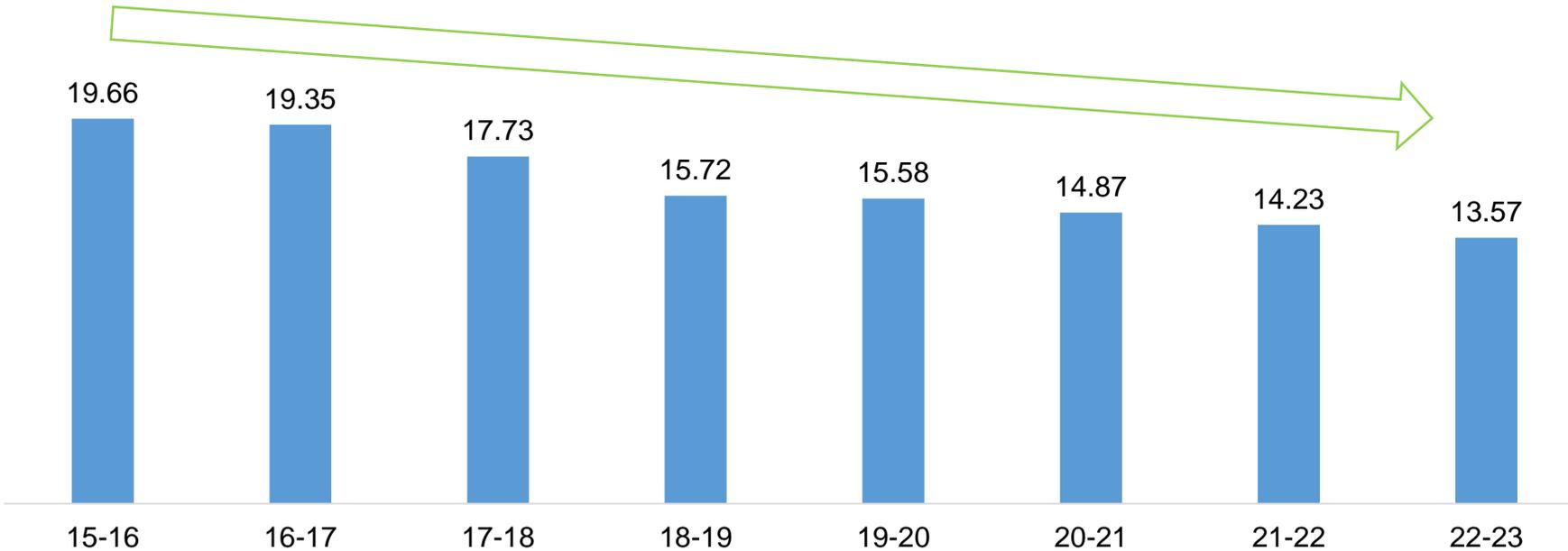


4532.56 Lakh Rs

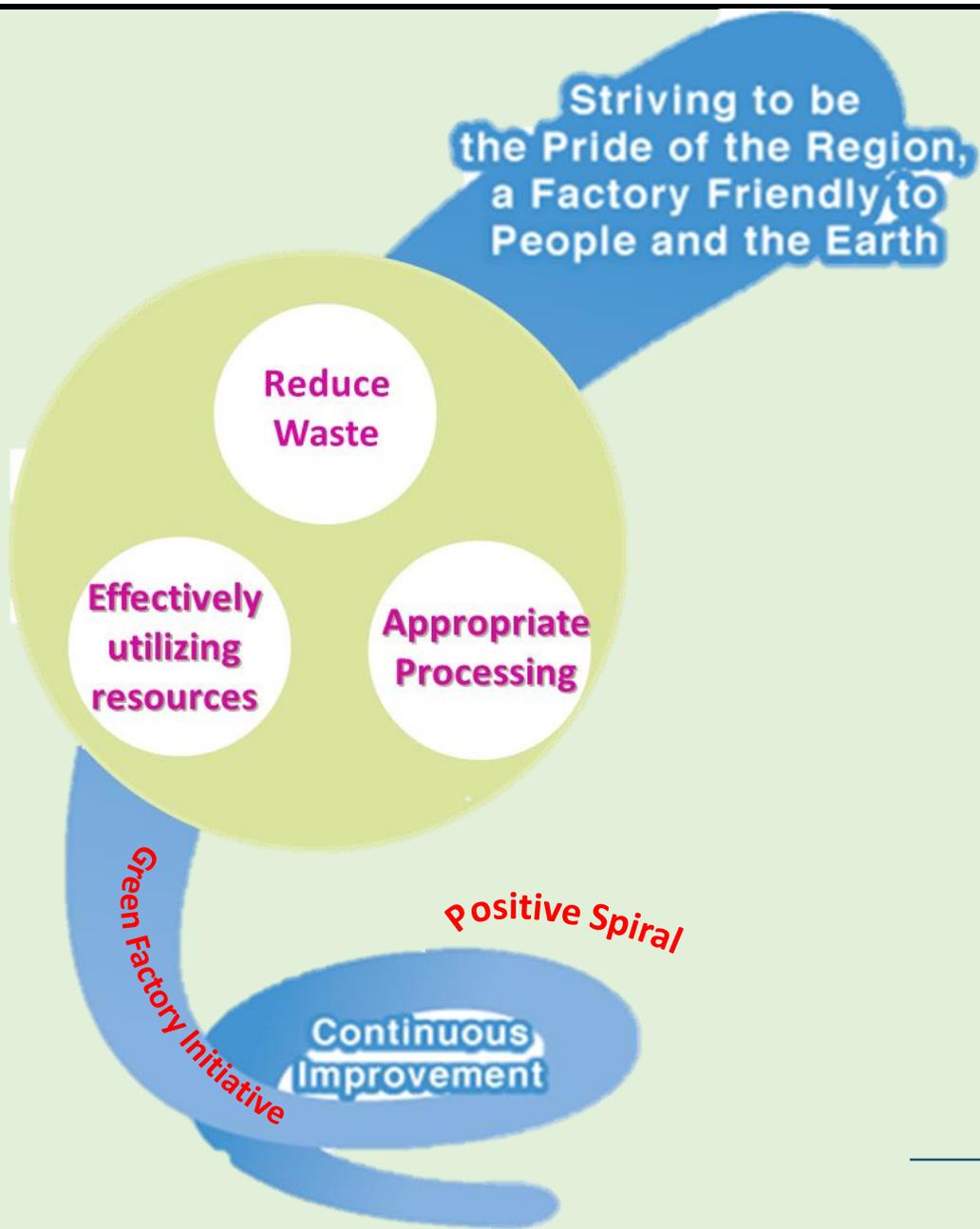


3589 Lakh Rs

Scope 3 CO₂ Emission in Kg/Veh



Introduction of Electric Vehicle is planned in 2024. Upstream and downstream activities planned. Green Supplier targets set and roadmap prepared for Supplier GHG reduction



Scope 1 & 2 Emission Reduction

- Thermal Energy Elimination**
- Electrical Induction oven at paint shop -Sep'25
- Renewable Energy**
- 5.4 MW Wind Turbine -Aug'23
 - 15 MW offsite solar -Oct'26

Scope 3 Emission Reduction

Supplier Emissions reduction

- Supplier RE Utilization -Nov'25
- Supplier CO2 benchmarking -Dec'24

Upstream activities

- CNG based trucks -Jan'26

Products

- Introduction of EV -May'24

Employee Commute

- CNG buses for employee commute -Dec'24
- EV buses for employee commute -Jan'26

Let's make a better tomorrow for our Future Generation.....



THANK YOU

It is in our hand to protect our beautiful earth

Contact Details : Sriram Karikkat

Ph. No: 9606011715, E Mail: sriram.karikkat@honda2wheelersindia.com