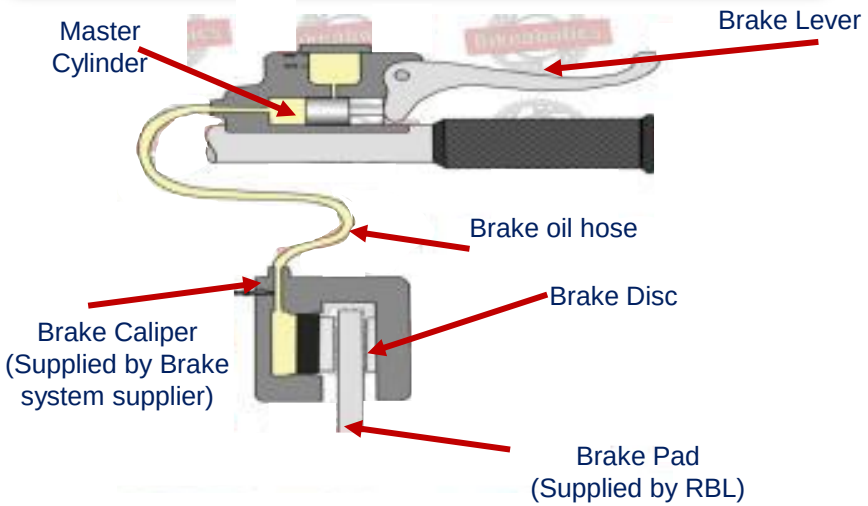
Contents :

1.2 Products and Applications

Products

		
Two Wheeler disc pad	**Passenger Car disc pad**	**Commercial Vehicle disc pad**

TW Brake Pad application-Brake Assembly



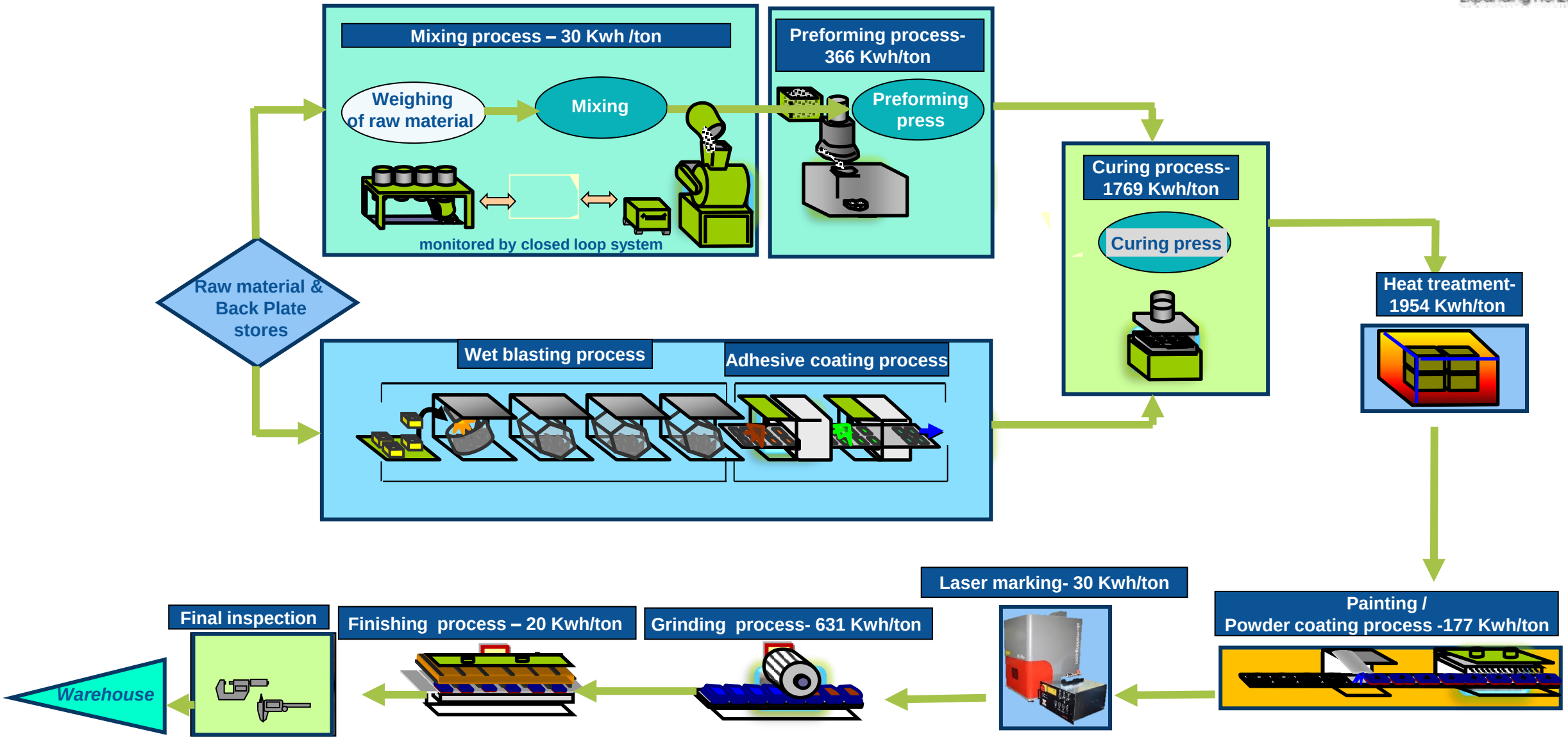
Customers

Brembo brakes	**Endurance**	**JJUAN**	**TVS Motors**	**Hitachi Astemo**	**BIPL**	**MSIL**	**Mahindra**	**Juratek**

Vehicle models

												
KTM	**Bajaj**	**Piaggio**	**Yamaha**	**Suzuki**	**Royal Enfield**	**Aprilia**	**BMW**	**TVS apache**	**Maruti Alto**	**Tata Micro**	**Trucks**	**Trucks**

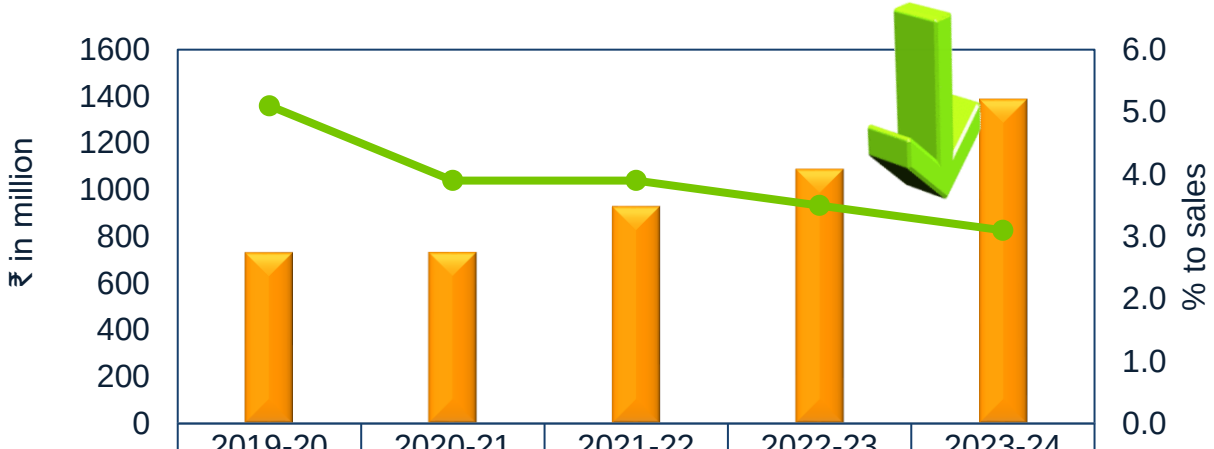
2.1. Disc pad manufacturing process flow



Disc pad manufacturing process are high energy intensive

3.2 Major Equipment's
3.1.Specific Energy Consumption in last 3 years

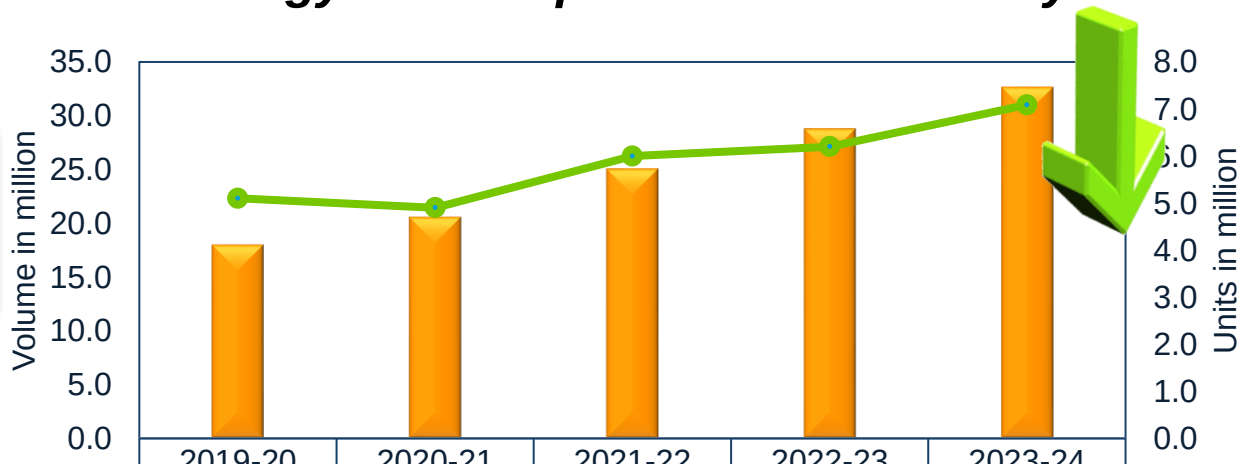
Turnover vs power cost data for last 3 years



	2019-20	2020-21	2021-22	2022-23	2023-24
Turn over	730	731	927	1086	1384
Power cost % to sales	5.1	3.9	3.9	3.5	3.1

Turnover increased 90% and Power cost reduced 39%

Production vs energy consumption data for last 3 years

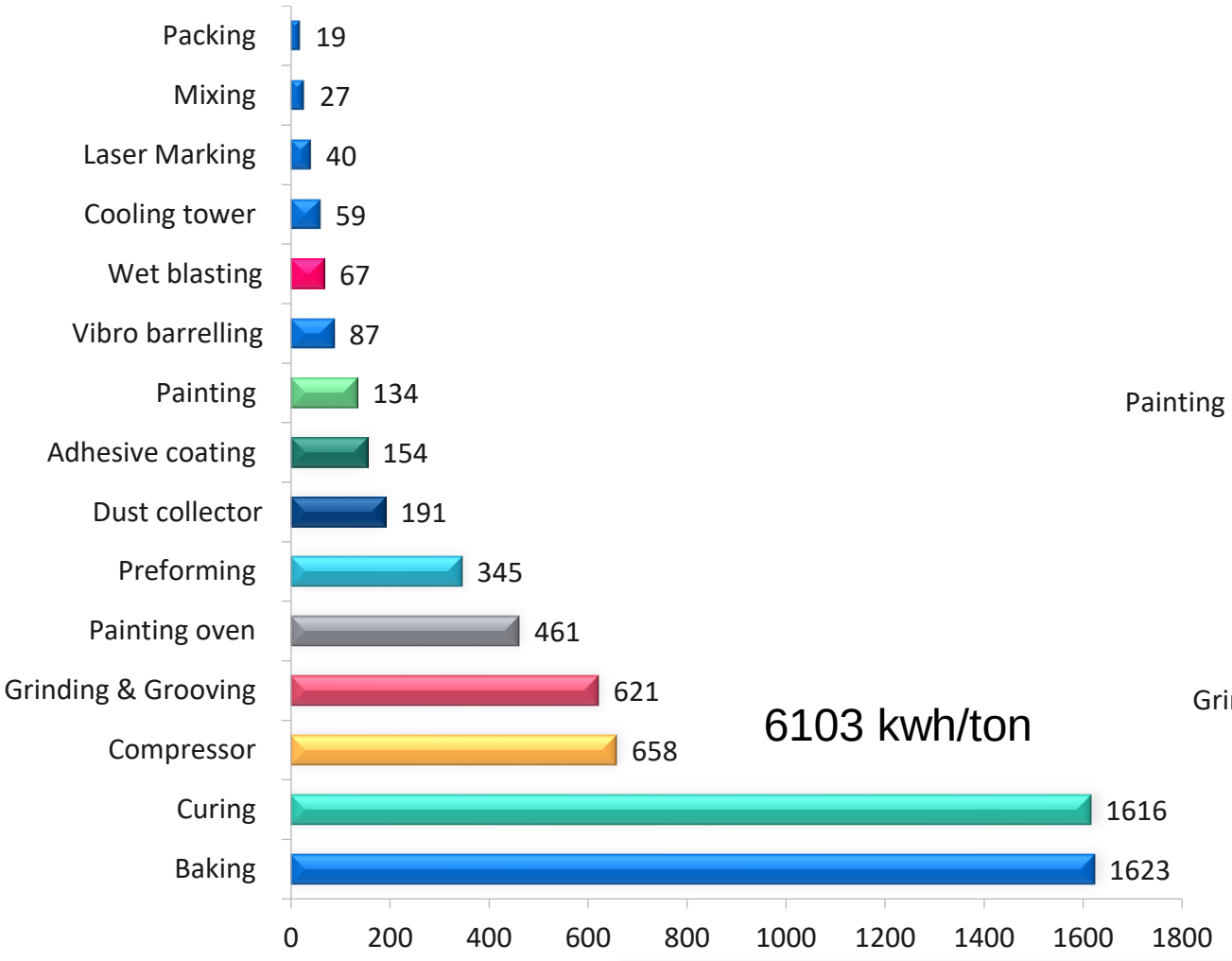


	2019-20	2020-21	2021-22	2022-23	2023-24
Production volume	18.0	20.6	25.1	28.8	32.7
Energy consumption	5.1	4.9	6.0	6.2	7.1

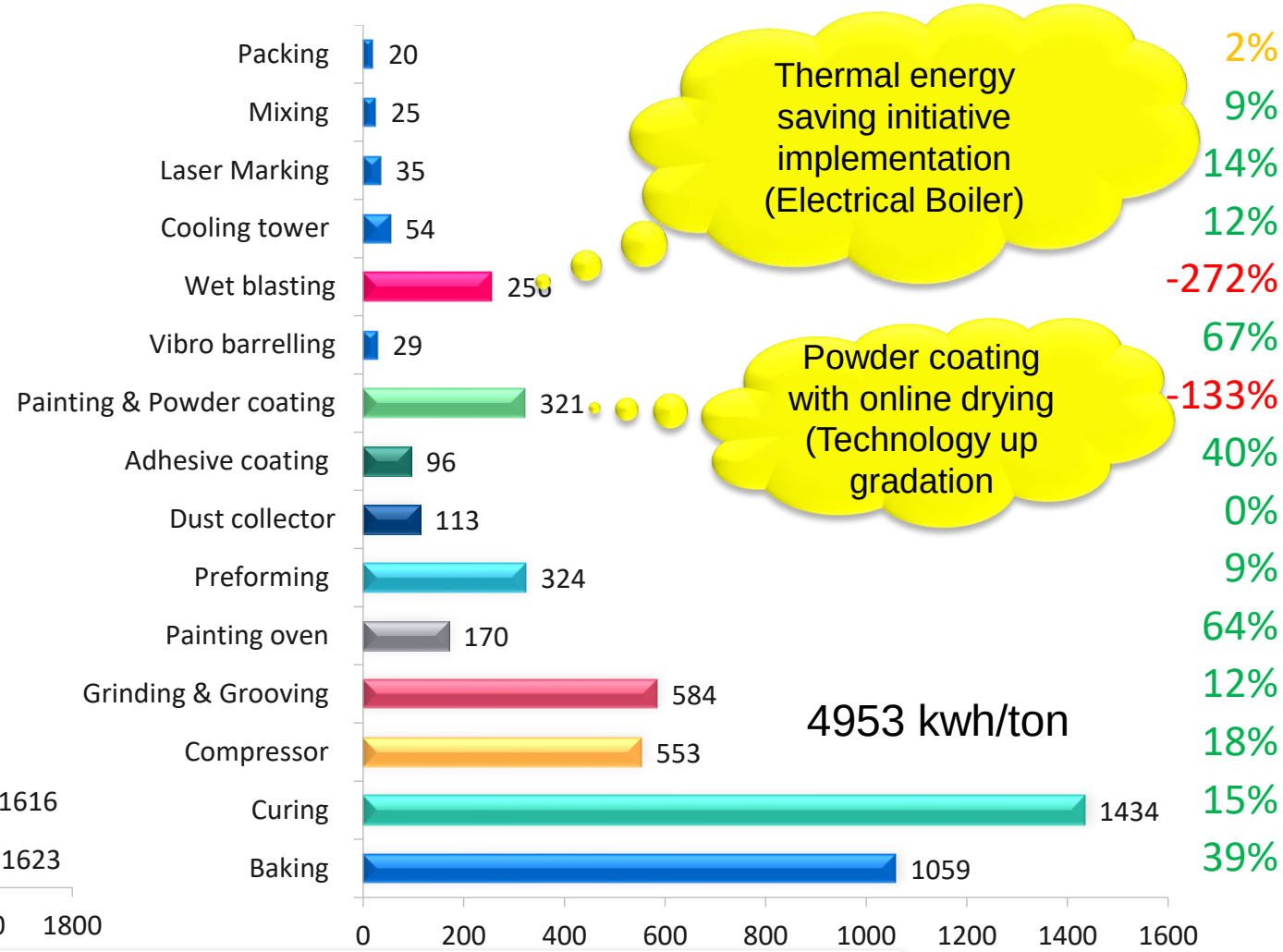
Production volume increased 82% and Energy consumption increased only 39%

3.2.Specific Energy consumption Process wise 2022-2024

Process wise Specific energy consumption 2020-21



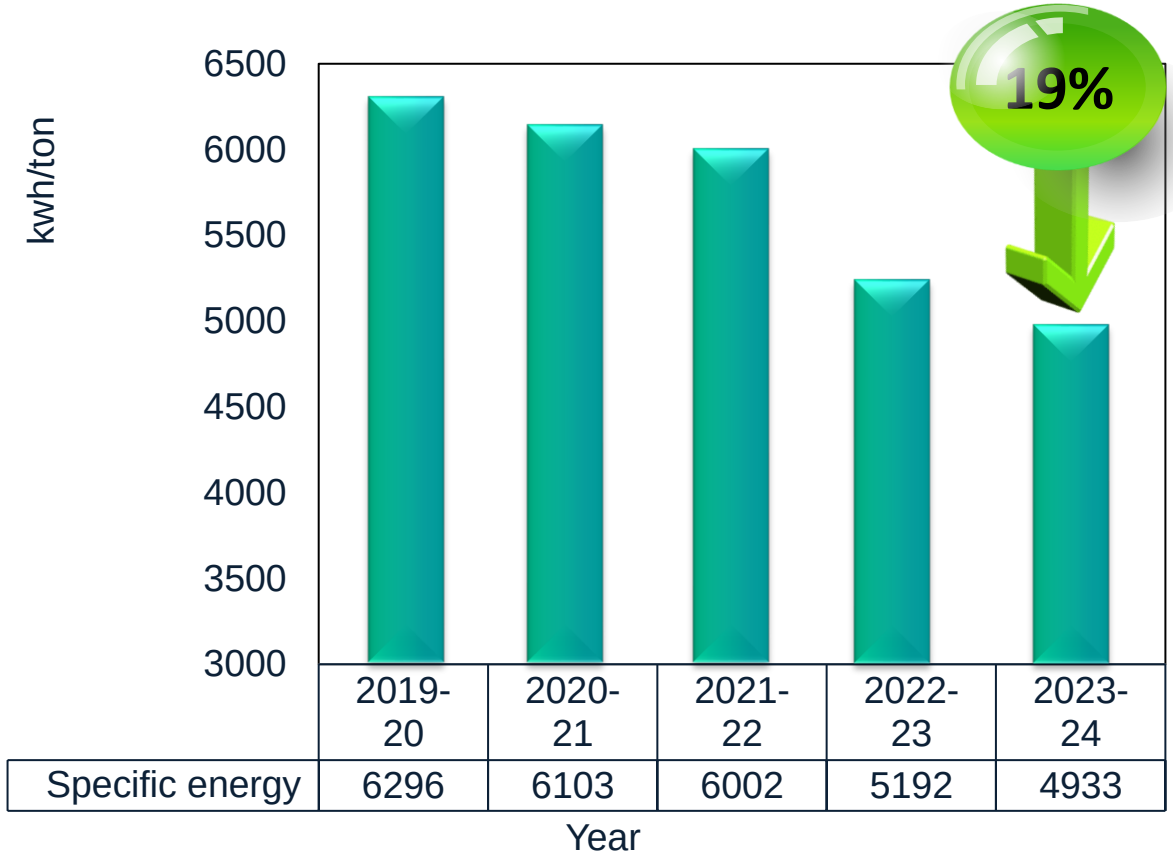
Process wise Specific energy consumption 2023-24



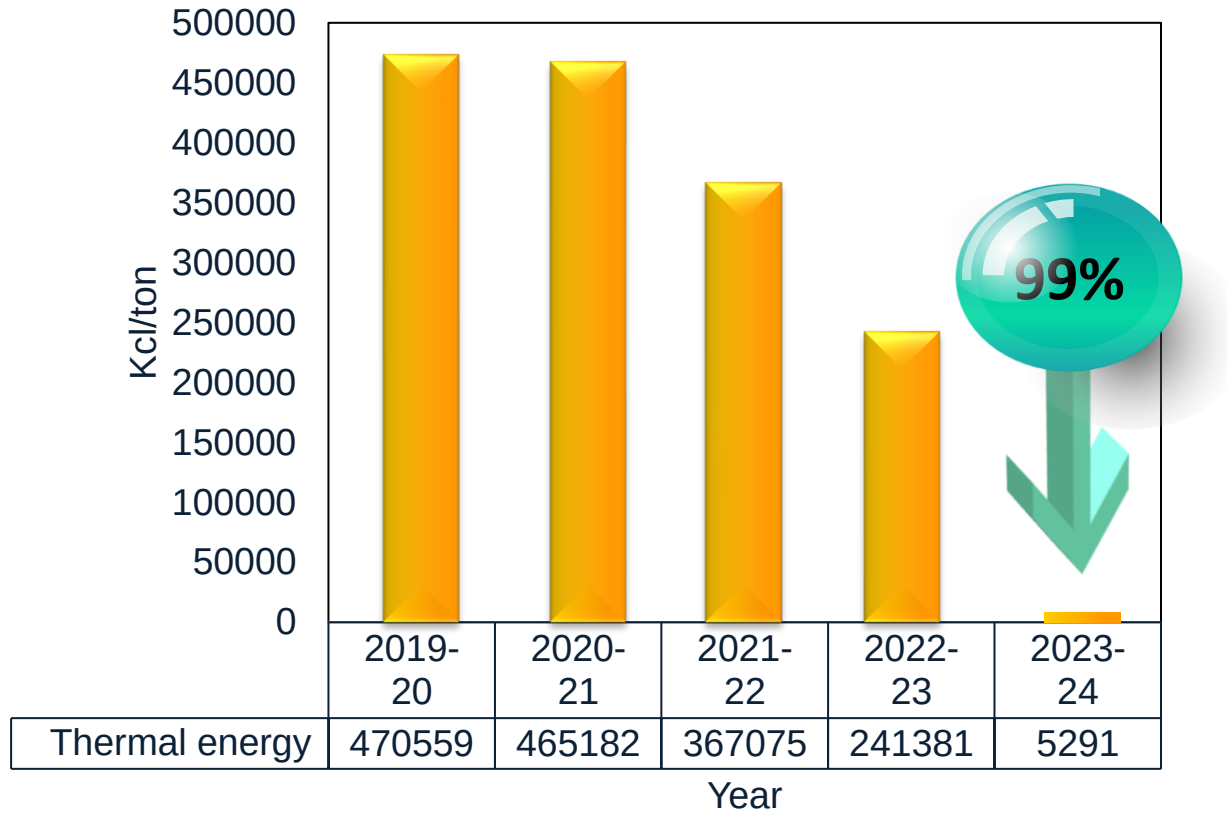
17 % Specific energy consumption reduction (6103 – 4933 kwh/ton)

3.3.Specific Energy Consumption in last 3 years

Specific electrical energy consumption



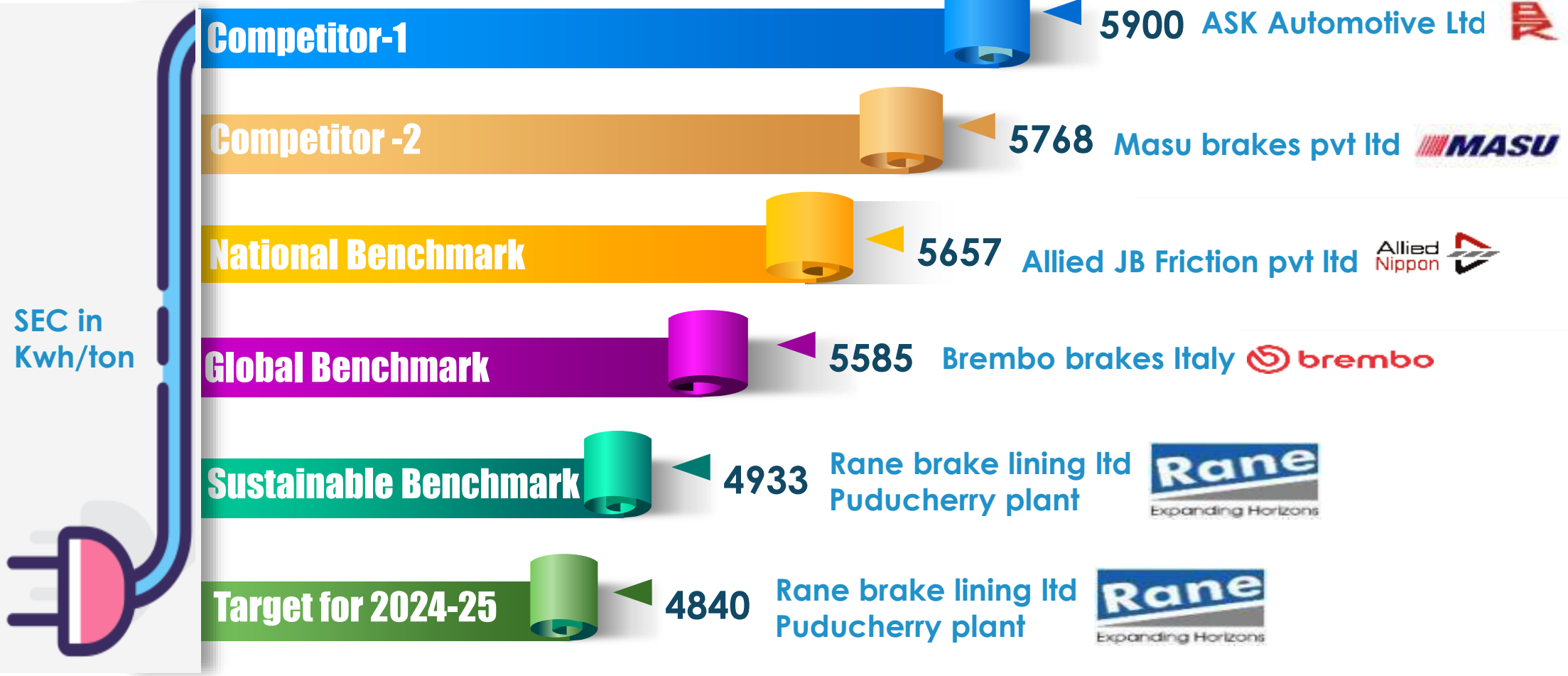
Specific thermal energy consumption



68 energy conservation projects implemented

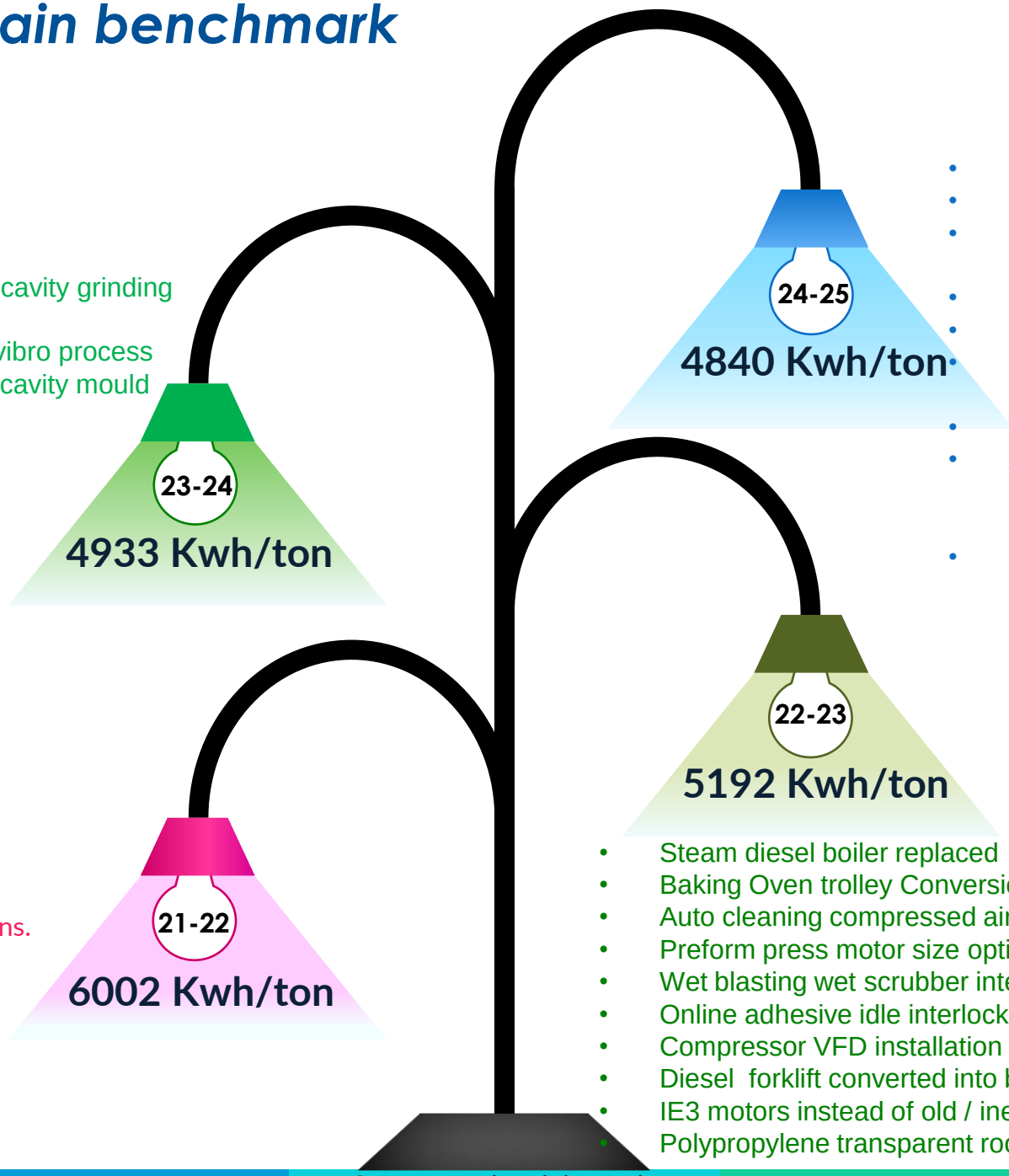
6 Thermal energy conservation projects implemented

4.1.Information on Competitors, National & Global benchmark



- *Vision on Energy management system to Continuously improve and efficient use of energy and commitment to environment*
- *Energy cost focus on conserve energy, waste reduction, alternate technology, Fixed cost reduction & renewable energy usage*
- *YOY target setting done based on best of best in previous year*
- *Energy Sustenance Tracking done using IOT based Energy Management system*

4.2 Road map to sustain benchmark



- 0.4 MW Solar plant expansion
- IE4 Motor conversion
- Solar Diesel Hybrid System
- VFD for DDL Curing & baking process
- Compressor heat recovery system
- Curing machine tonnage optimization
- Productivity improvement through LHB 2 cavity grinding and feed optimization
- Elimination of second Vibro oven by Dry vibro process
- Productivity improvement through LHB 4 cavity mould

- BBQ - TWDP Baking trolley modification
- Oven Exhaust heat recovery
- Curing machine heater on/off through thyristor
- IE3 motor installation (20 nos)
- LHB Baking trolley design modification
- Dust collector2 Interlock with grinding machines
- VFD implementation in 300T DDL machine
- Auto cleaning and mould cleaning bath consumption reduction through compressor heat recovery system
- Paranol gun air on/off solenoid valve with PLC interlock

- Induction heating for Adhesive coating
- LED lighting system for high bay applications.
- VFD for curing machine main motor in Preforming machine
- Smart energy meter implemented
- Wet blasting Boiler Diesel consumption reduction through Waste heat recovery

- Steam diesel boiler replaced with electrical boiler
- Baking Oven trolley Conversion A to D (49 nos)
- Auto cleaning compressed air dryer replaced with electrical blower
- Preform press motor size optimization trough hydraulic circuit modification
- Wet blasting wet scrubber interlock
- Online adhesive idle interlock (Heater off)
- Compressor VFD installation
- Diesel forklift converted into batteries operated
- IE3 motors instead of old / inefficient motors
- Polypropylene transparent roof sheet

4.3 List of Major Encon project planned in FY 2024-25

S.No	Project Description	Kwh saving million kwh	Saving million INR
1	Elimination of second Vibro oven by Dry vibro process	0.1	0.42
2	BBQ - TWDP Baking trolley modification	0.1	0.71
3	Curing machine heater on/off through thyristor	0.0	0.08
4	IE3 motor installation (20 nos)	0.0	0.29
5	LHB Baking trolly design modification	0.0	0.29
6	LHB Grinding motor on/off through VFD with PLC sequence modification	0.0	0.07
7	Grinding machine combained power pack for DPO712&711	0.1	0.89
8	Dust collector2 Interlock with grinding machines	0.0	0.04
9	VFD implementation in 300T DDL machines	0.0	0.07
10	Auto cleaning and mould cleaning bath consumption reduction through compressor heat recovery system	0.0	0.26
11	Solar water heater for canteen	0.0	0.05
12	VFD implementation in Baking oven blower	0.0	0.01
13	PCDP Curing machine motor sequence modification with PLC program	0.0	0.24
14	Conventional AC replaced with 5 star Energy saver Air conditioner (8 nos)	0.0	0.02

2024-25 : Energy saving projects identified and potential cost saving of ₹ 3.5 Million

5.1 List of Major Encon project implemented in FY 2023-24

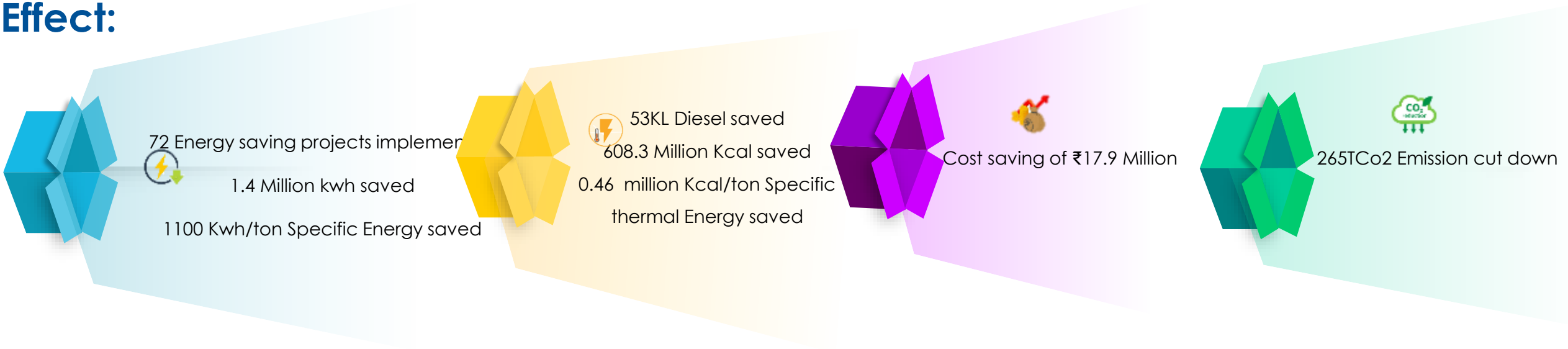
S.No	Name of energy saving projects	Investments (INR Million)	Electrical savings (Million kWh)	Thermal savings (Million Kcl)	Total Savings (INR Million)	Payback period (in months)
1	Elimination of Vibro oven by Dry vibro process	0.1	0.07		0.48	2.50
2	PCDP Baking trolley modification (18 tary to 20 tray)	0.8	0.06		0.43	22.09
3	Paint Drying trolley modification (single chamber to 4 chamber)	0.6	0.06		0.41	16.25
4	Stoppage of shot blasting & auto cleaning machine utilisation of wet blasting	0.0	0.07		0.50	0.00
5	IE3 motor installation (14nos)	0.7	0.03		0.21	38.76
6	Curing machine heater on/off through thyristor	0.1	0.01		0.08	15.39
7	Electrical Boiler saving heat optimisation Alternate project	0.6	0.05		0.37	18.23
8	Preforming machine motor HP optimization from 15 HP to 5 HP	0.1	0.01		0.04	28.86
9	Solar-Diesel Genset Hybrid System	2.0		83.2	1.10	21.82
10	VFD implementation in DDL,SDL,CVDP & LVCP machines	0.4	0.10		0.72	6.32
11	Compressor heat recovery system	0.8	0	404.8	4.40	2.18
12	Solar water heater for canteen	0.1	0.01		0.07	8.31
16	Productivity improvement through LHB 4 cavity mould	0.5	0.08		0.59	10.23
17	Productivity improvement through LHB 2 cavity grinding and feed optimisation	0.1	0.01		0.08	7.67
36	Power coating machine drying tunnel interlock	0	0.01		0.07	0
37	Paint drying oven trolley capacity increased through design change	0.02	0.011		0.07	2.9

2023-24 : 17 Energy saving projects implemented and cost saved ₹ 9.8 million with investment of ₹6.9 million

5.Energy Saving projects implemented in last three years

Year	No of Energy saving projects	Investments (₹ Million)	Electrical savings (Million kWh)	Thermal savings (Million Kcal)	Total Savings (₹ Million)	Payback period (in months)
2021-22	18	0.5	0.2	15.7	2.3	2.6
2022-23	37	1.9	0.6	104.7	5.8	3.9
2023-24	17	7.0	0.6	487.9	9.8	8.5

Effect:



6.1.Innovative Projects implemented

Wet blasting Process Energy consumption reduction through Compressor Heat recovery system

75 kw Compressor

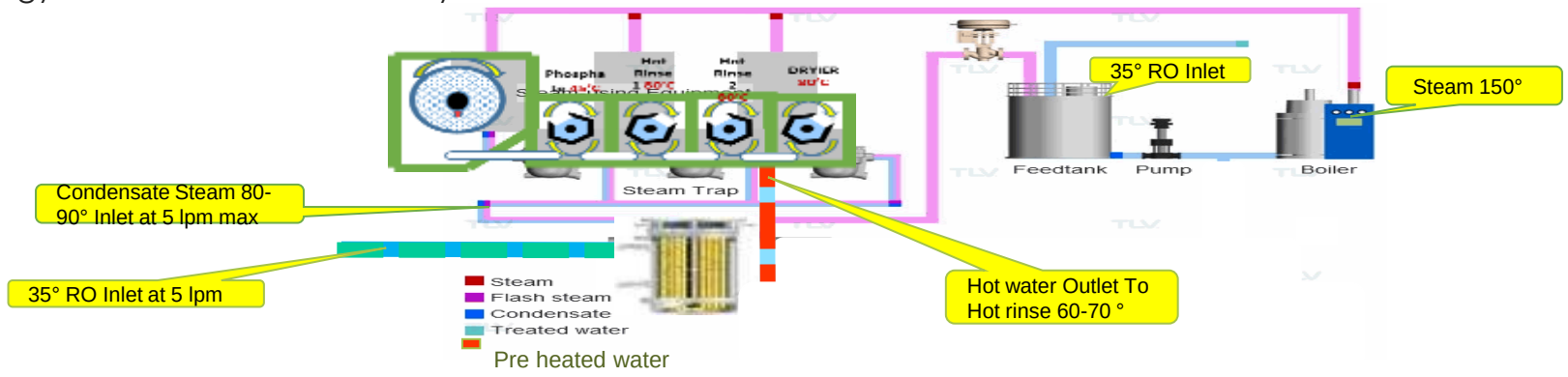
Electrical steam boiler

Background :

- A 75kw compressor is used for utility purposes and energy consumes an average of 50025 kwh per month
- 94% of the energy required to run the compressor is converted into heat. This Heat is dissipated directly into the atmosphere.
- The heat generated during compression is paid for as part of the process, then it creates additional costs as this heat needs to be removed by cooling fans.
- At the same time, our plant Electrical steam boiler is used for wet blasting process it consumes 22595 kwh of electricity per month to generate hot water for wet blasting process and preheat water for steam generation.

Observation :

- Electrical steam boiler is used for wet blasting operations
- Electrical steam boiler is used to raise RO water temperature for generate steam @ 35 ° to 150°
- Electrical steam boiler is used to raise RO water temperature @ ΔT 50° (35 ° to 85°)
- Heat exchanger is used to raise hot rinse RO water temperature @ ΔT 30° (35 ° to 65°)
- Energy Consumed – 869 kwh/day



Energy consumption reduction through Compressor heat recovery system

Benefits :

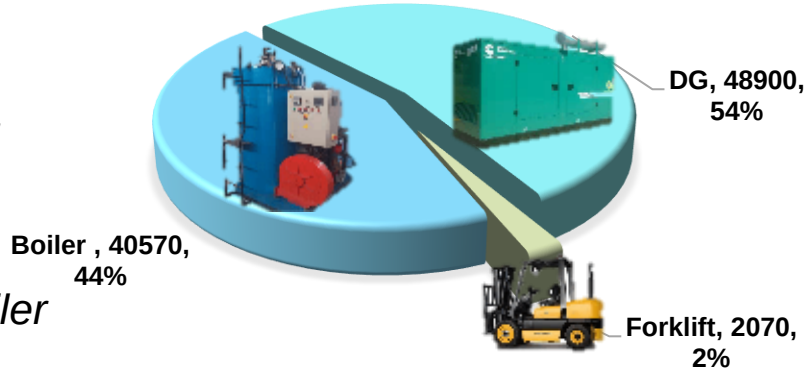
- Steam generation cost per pad reduced ₹ 6 paisa to ₹ 3 paisa
- Energy recovered in kwh – 9715 kwh/month
- Total cost to be saved ₹7.69 lacs/Annum
- Short payback time - low investment costs payback time typically less than 1 year
- 91 ton of equivalent CO2 emissions reduced per year
- Easy installation and operation
- Small ecological footprint
- High reliability
- No impact on the compressed air supply
- Environmentally friendly and pollution free.

ROI : Calculation

Electrical boiler daily average consumption kwh	Monthly average consumption kwh	Monthly Potential unit saving (43%)	Annual Potential units saving	Unit cost	Potential cost saving	Heat recovery sysytem for ELGI compressor Investment cost	Pay back period - months
869	22,594	9,715	1,16,585	6.6	7,69,461	5,85,480	9.13

6.2.Innovative Projects implemented - Diesel consumption reduction

Source wise diesel consumption in Its 2022-23



Approach:

- *Identified major contributors and matrix made to identify the opportunities in terms of consumption reduction*
- *We have opportunity in consumption reduction in all three areas of DG, Forklift & Boiler*

Utility	New technology	Waste recovery	Alternate source	Current situation
 Generator	✓	✗	✓	Scope for Improvement
 Boiler	✓	✓	✓	Diesel Boiler converted in to electric Steam Generator
 Forklift	✓	✗	✗	Diesel forklift replaced with battery operated forklift

Hence, we decided to take-up projects in Diesel generator

6.2 Diesel consumption reduction through DG –Solar synchronization

1010 + 500 kva DG set

1170 kw Solar power plant

Observation :

- Total plant load is 1200kw
- EB grid Maximum demand (MD) is 1300 kva
- Solar plant capacity is 1170 mw
- DG Set Rating (1010 kva + 500Kva) 1208kw
- Increase in un-scheduled power cut – Generator running for 58 hrs / month
- Steeply rising fuel price and thus additional costs for transportation and storage
- On-grid solar system will only work till grid power is present.
- In case of a power cut Solar system will automatically shut down.
- Power from diesel DG SET during power failure

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- Steeply rising fuel price and thus additional costs for transportation and storage
- On-grid solar system will only work till grid power is present.
- In case of a power cut Solar system will automatically shut down.
- Power from diesel DG SET during power failure

Analysis:

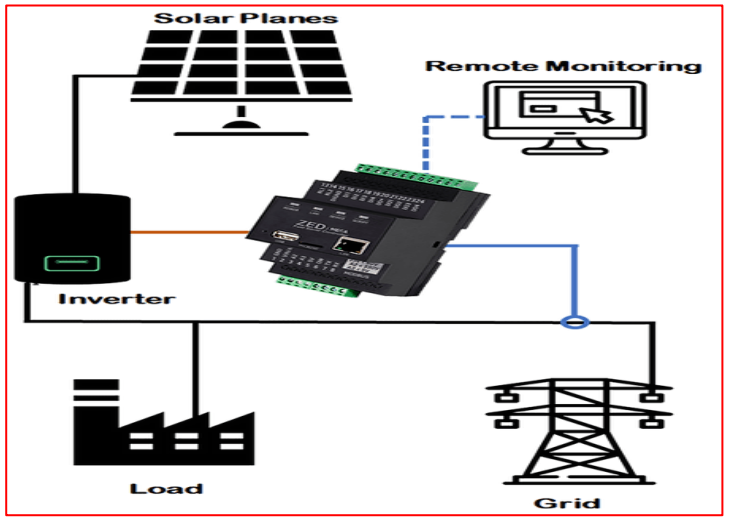
- Automatic Intelligent controller prioritize solar power to the loads,
- Excess solar power is sent to grid and is offset when consumed from the grid
- To protect diesel generator from surplus power of solar.
- To isolate diesel generator from the grid, when grid power is available.

Action :

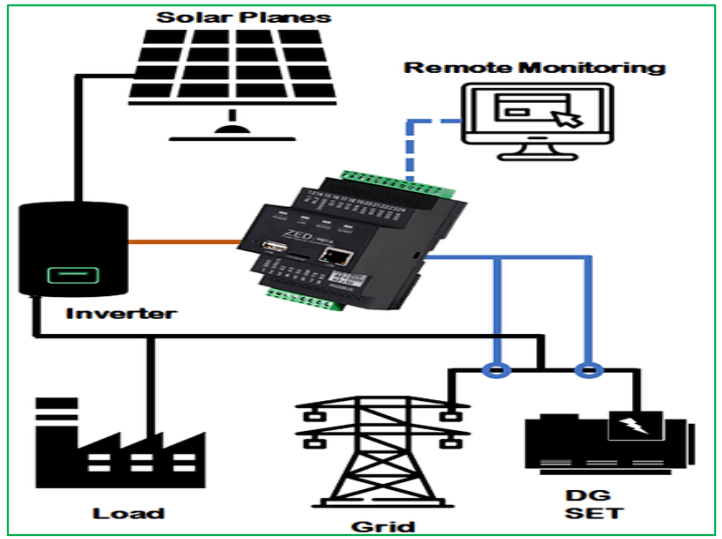
- Solar-Diesel Genset Hybrid System implemented with Zero Export Device to protect diesel generator from surplus power of solar

6.2 Diesel consumption reduction through DG –Solar synchronization

Before

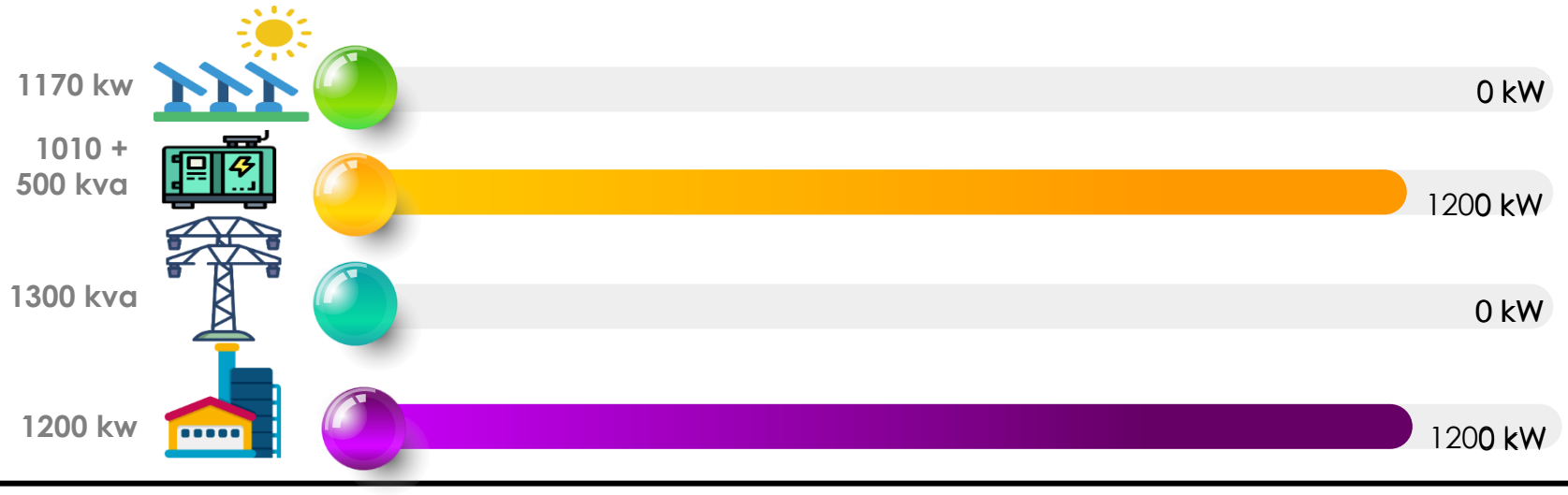


After



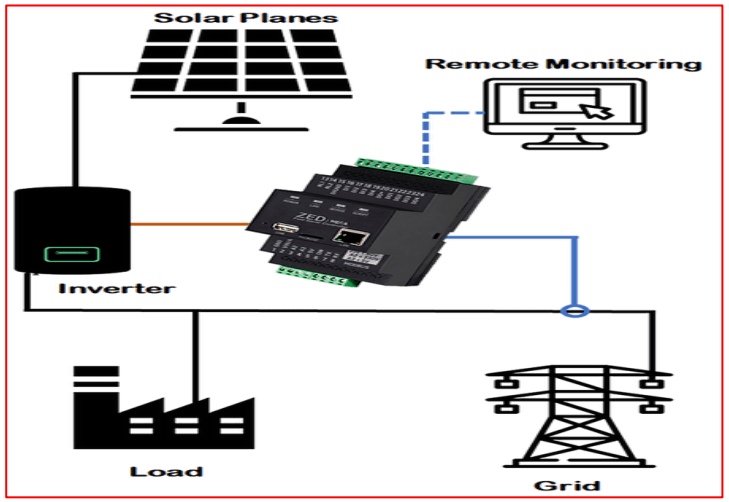
Action :

- For the first few minutes whole load is shifted on DG SET, because Solar inverter take few minutes to restart or start producing power
- During these few minutes, integrated power analyzer of ZED (Zero Export Device) monitor the load, and communicate with the solar inverter , so that during starting solar inverter produce power as per set point to keep DG set 30% loaded.
- So 1200 kW of load will be shared between DG SET and solar plant, i.e 250 kW on DG SET (30% of 808 kW or 1010 kVA) and solar plant will produce 950 kW instead of 1000 kW.
- In case of load varies, if the load goes below 30% of DG SET rating, ZED (Zero Export Device) will completely Shutoff the Solar plant .
- When the power comes back Solar plant will start running normally.

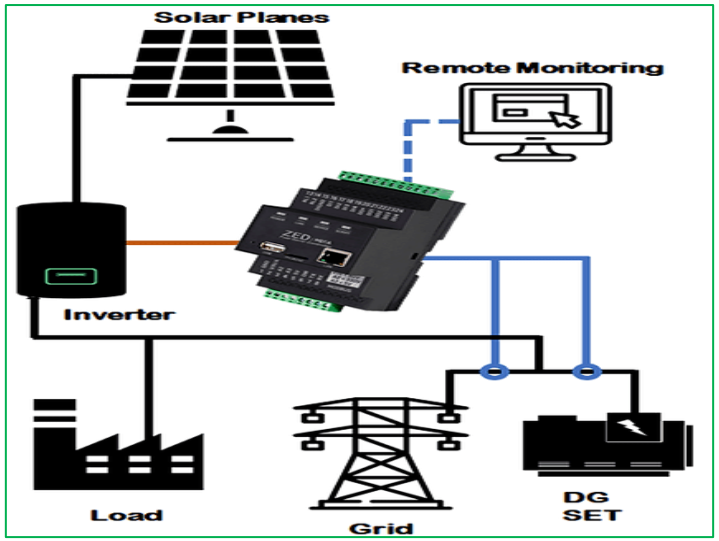


6.2 Diesel consumption reduction through DG –Solar synchronization

Before



After



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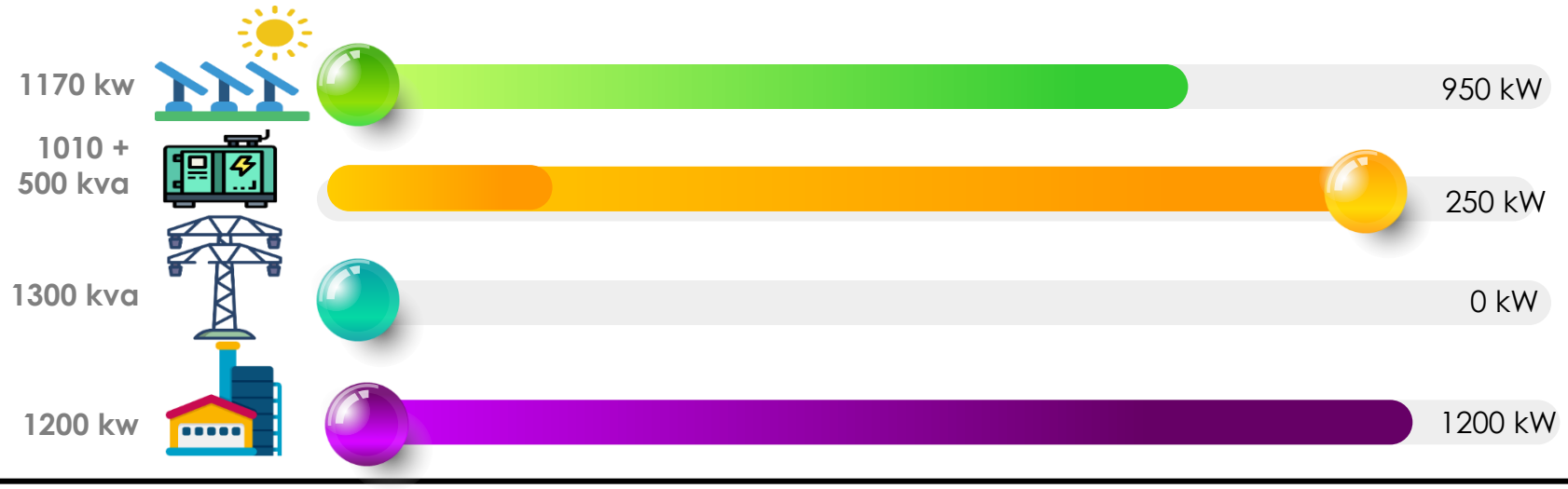
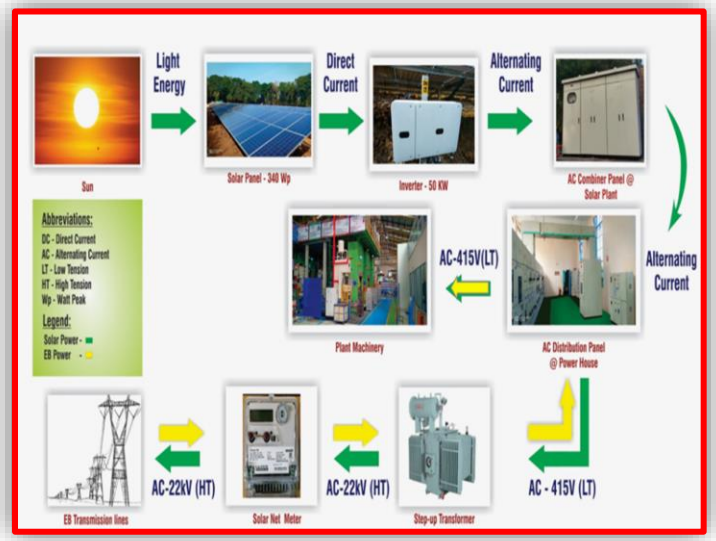


6.2 Diesel consumption reduction through DG –Solar synchronization

Before



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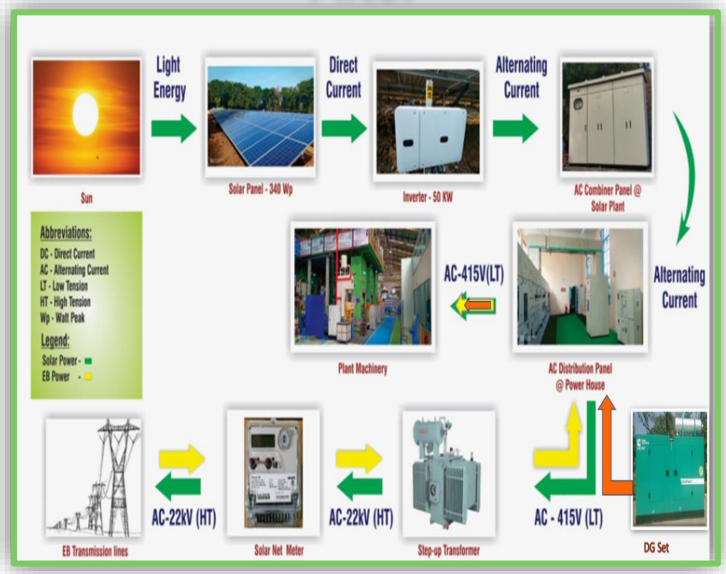

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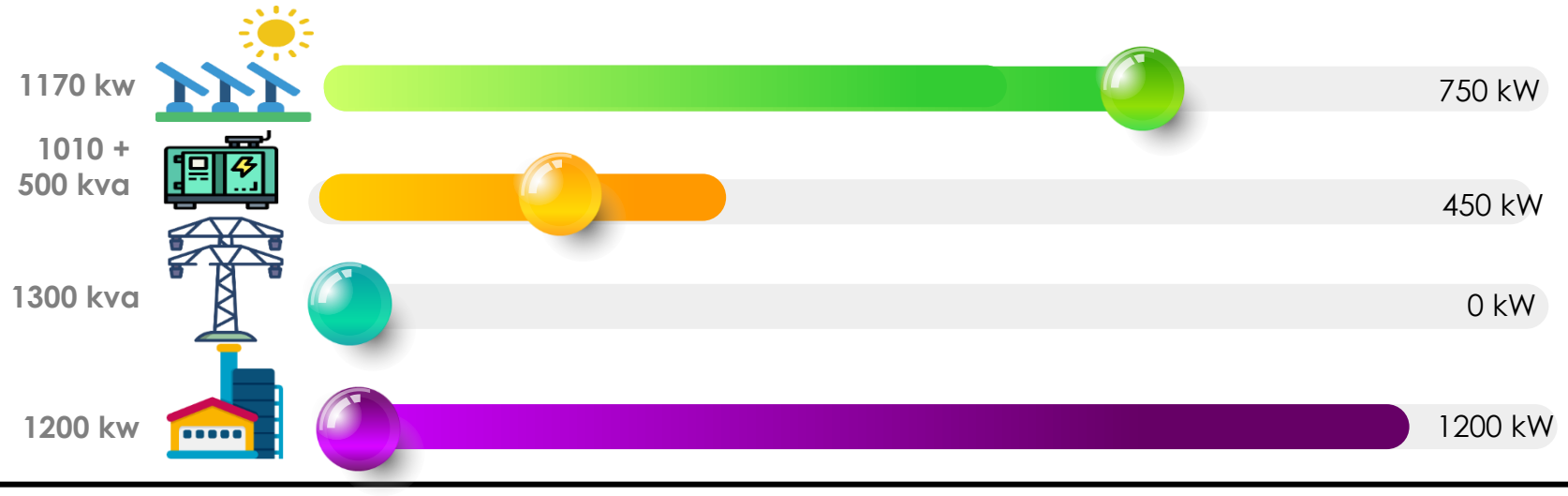
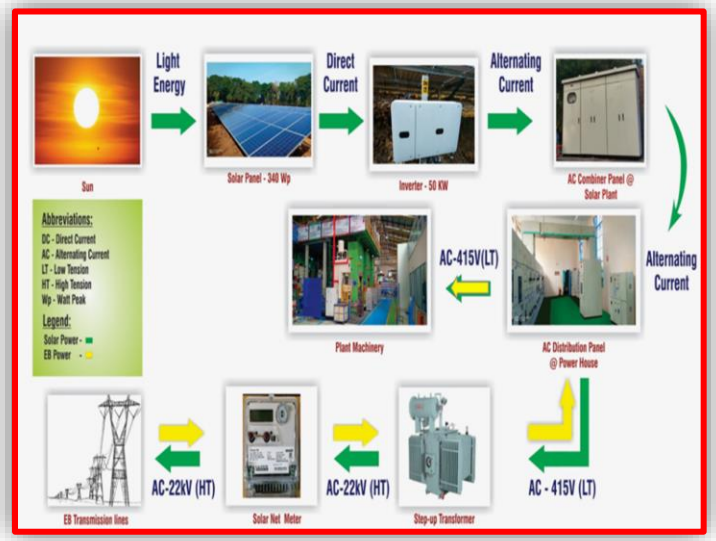


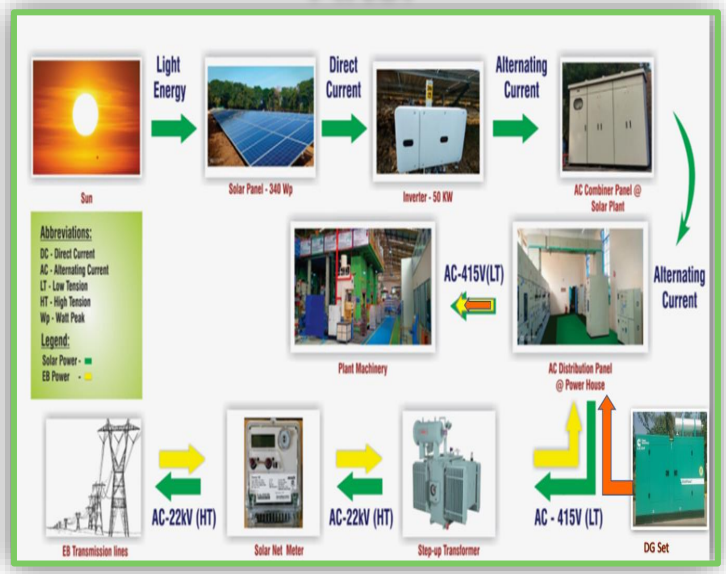
6.2 Diesel consumption reduction through DG –Solar synchronization

Rane
Expanding Horizons

Before



After



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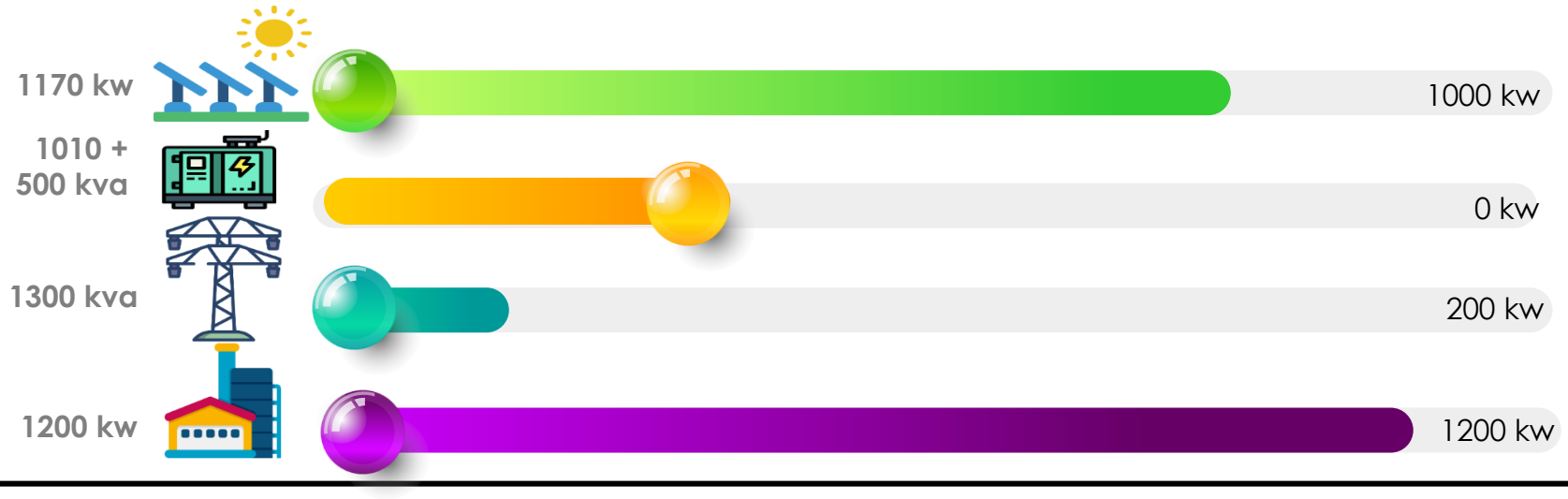
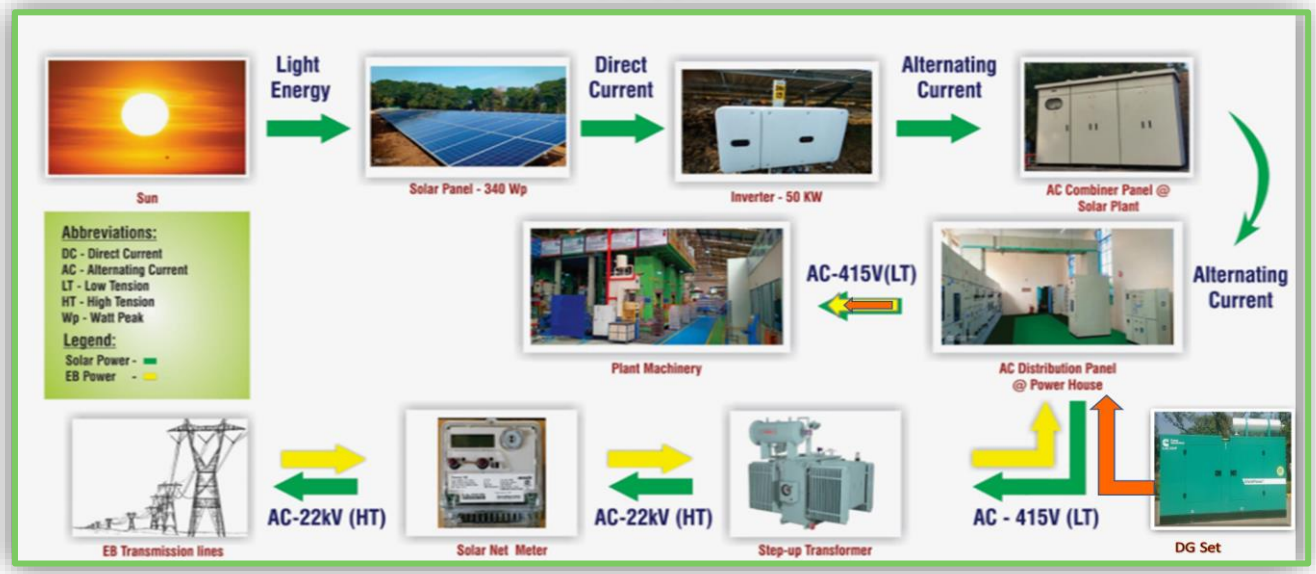


6.2 Diesel consumption reduction through DG –Solar synchronization

Rane
Expanding Horizons

Before

After



Benefits :

- Use Solar Power When No Grid Available
- Minimum Fuel Consumption - 22,268 Lts saved per annum
- Maximum Solar Power Utilization from 1819692 to 1980611 kwh
- Potential cost saved per annum 19.15 Lacs
- 60 Metric ton of co2 emission reduced

6.3 Enhanced Baking Oven Trolley Capacity

Before

After

Problem :

- Energy consumption high in baking process

Observation :

- Automatic Intelligent controller prioritize solar power to the loads,
- No of trays in on trolley -20 nos
- One tray stacking –(37*6)= 222 nos
- Total trolley capacity = 4440 nos
- Energy consumption per batch 120 kwh
- Holes in our disc pad,

Barbecue Stainless Steel Skewers

Analysis : By incorporating holes in our disc pad, we've inspired by concept of hanging BBQ chicken on grilling sticks to our baking process

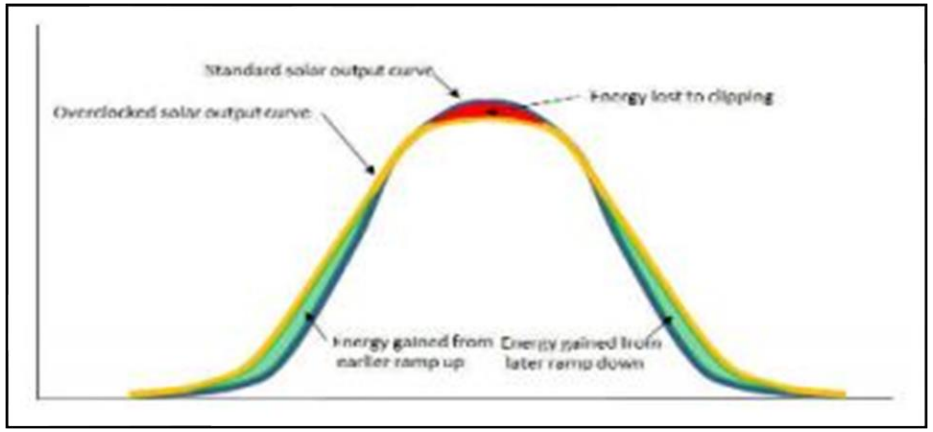
Action : "Introducing our innovative baking oven trolley design, inspired by the baking method of roadside BBQ chicken! (50 pads stacking in sing stick 12 rows and 15 column total capacity 9000 nos)

Benefits

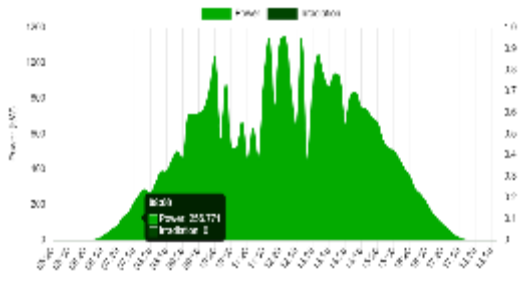
- Reduced specific energy consumption 1623 units/ton to 1059 units/ton
- Reduce environmental impact (356Ton co2 per year)
- Increased production capacity to meet growing demand
- Increased trolley stacking capacity from 4440 to 9000 nos, a 150% boost

7.Utilisation of Renewable Energy sources

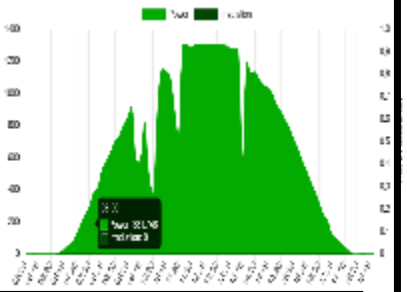
Enhancement 0.4MW Solar power plant



Before



After



Description	Existing capacity	Additional capacity
AC Capacity	1.17 MW	1.17 MW
DC Capacity	1.40 MW	1.80 MW
Solar panel specification	340 Watts	535 Watts
Module quantity	4114 no's	4854 (740)no's
50 kW Inverters	23 no's	24 (1) no's
Unit Generation per year	18,48,758 units	23,73,286 units

Existing:

- As per Puducherry Solar power policy 2015 and JERC Regulations 2019
- Clause 4.4 specifies that "The maximum Solar Power Generation capacity to be installed at any Eligible Consumer's Premises shall not exceed his Contract Demand (in kVA) or Sanctioned Load (in kW).

Action :

- Increase the panel capacity without increasing contract maximum demand (1.17mw) by Overclocking system
- As per the Clean Energy Council design rules for invertor overlocking, the solar panel capacity should not be more than 33% of inverter capacity
- Provide a Cap for electricity export of 1.17 MW – At any point of time, solar system can't export more than 1.17MW of energy to the Grid.

Result :

- More energy produced in the early morning and late afternoon.
- Additional energy yield -4,41,000 units per year
- Potential power cost saving 25 Lacs per annum
- Increased use of Renewable energy from 1.82 lacs units to 1.97 lacs units
- Co2 emissions reduced 372 ton per year

7.Utilisation of Renewable Energy sources

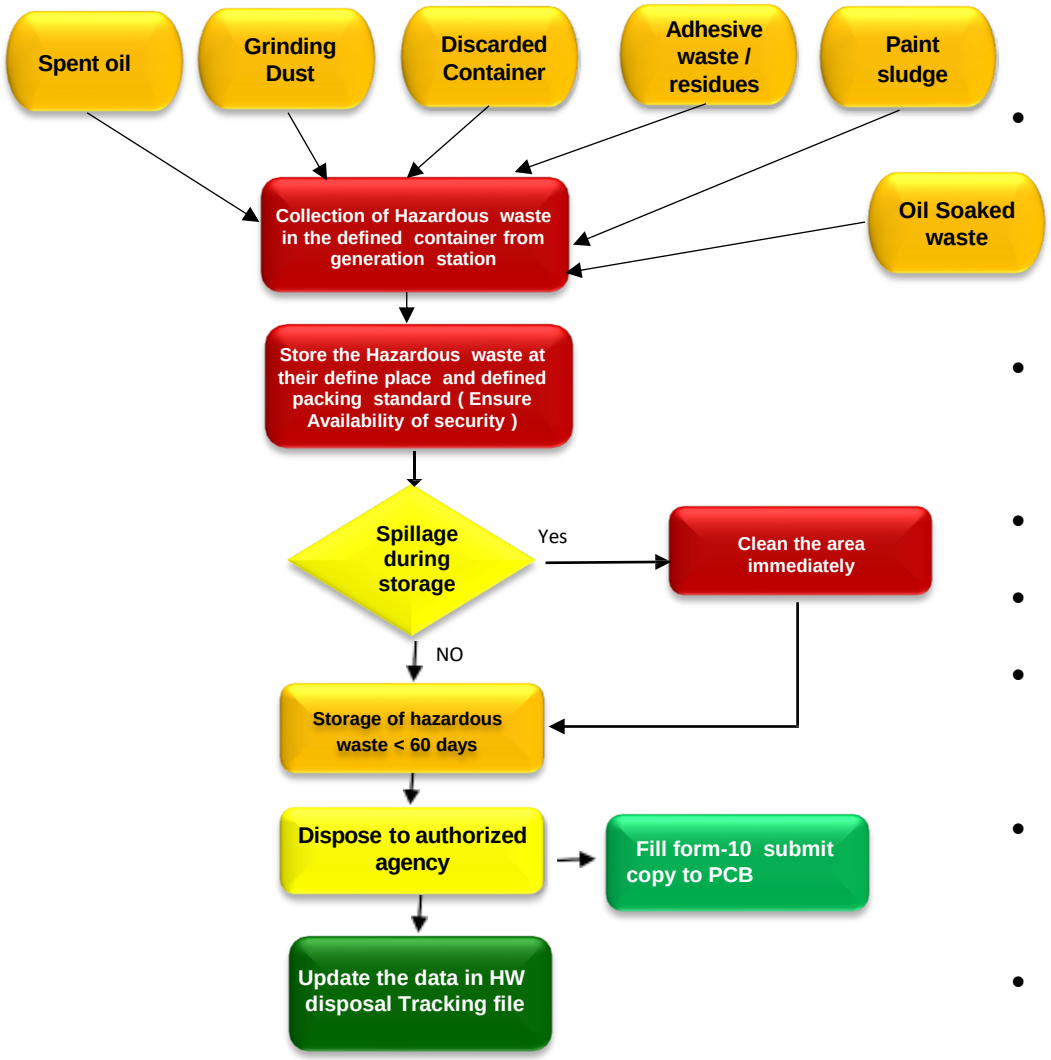
Renewable energy generation, utilisation and % of Overall Energy consumption – Onsite

Year	Technology	Installed Capacity (MW)	Consumption (Million KWh)	% of overall electrical consumption
FY 2020-21	Solar	1.17	1.82	37%
FY 2021-22	Solar	1.17	1.84	31%
FY 2022-23	Solar	1.17	1.82	29%
FY 2023-24	Solar	1.17 + 0.4	1.98	28%

- *28 % of power demand of RBL met by renewable energy*
- *Solar generation saving for the year 2020-24 77.92 Lacs Kwh (INR 4.25 Cr saving)*
- *This has resulted in reduction of 5789 MT of Eq. Co2 saving compared to power from traditional sources - which is equivalent to planting 93,511 trees*
- *Energy Savings equivalent to Co2 removed by No of Trees grown for 10 years*

8. Waste utilization system/Waste management system

Approach :



- *Rane group started focusing on the ESG, as a waste management sub committee we are working more on the reduction of waste generated and projects are identified in plants which are as follows,*
- *Projects are identified based on the three approach*
  - ***A) Scrap invoice details,***
  - ***B) Landfill reduction***
  - ***C) Black box techniques***
- *A)Collect scrap data and arrived at top 5 materials that have been scrapped in terms of quantity, Projects identified to reduce the Top 5 scrap quantities.*
- *B) Land fill reduction - Zero land fill past 4 years.*
- *C) Projects through black box technique :*
- *Black box technique involves, testing a process by providing an input, and observes the output generated by the process.*
- *This will identify how the process responds to expected and unexpected user actions, its response time, usability issues and reliability issues.*
- *Black box is a powerful testing technique because it exercises a process end-to-end.*

8. Waste utilization and management : Grinding process – Tool design

Purpose of the process

- **To achieve required thickness and groove as per customer requirement**

Existing:

- Usage of grinding dust in cement industry ash manufacturing process

Action :

- Moulded groove implementation in cure punch – LHB & CVDP Disc pads Mix saved 95 grams per pad (1965 grams to 1870 grams).
- Current grinding dust level being re-used are to a limited extent in formulation
- 10 part numbers – Horizontally deployed
- Cure pad stock rate reduced from 1mm to 0.7mm .

Result :

- Finishing operations reduced from 3 to 1
- Number of machines dependent reduced from 2 to 1 (Process combination)
- Total grinding waste reduced – 68 tons /annum

Raw material weight reduced	*Total no of part /Grade*	*No of Batch Produced / month*	*Total RM Saved in Tons / Month*	*Total RM Saved in Tons / Annul*
1 gms / pad	17	420	2.2	26.4
70,000 gms / Batch	3	32	2.24	20.0
90 gms /pad	10	196	1.8	21.6
Total saving			6.24	68.0

- Usage of Grinding dust in in co - process reduced from 319 to 251 Tons/Annum

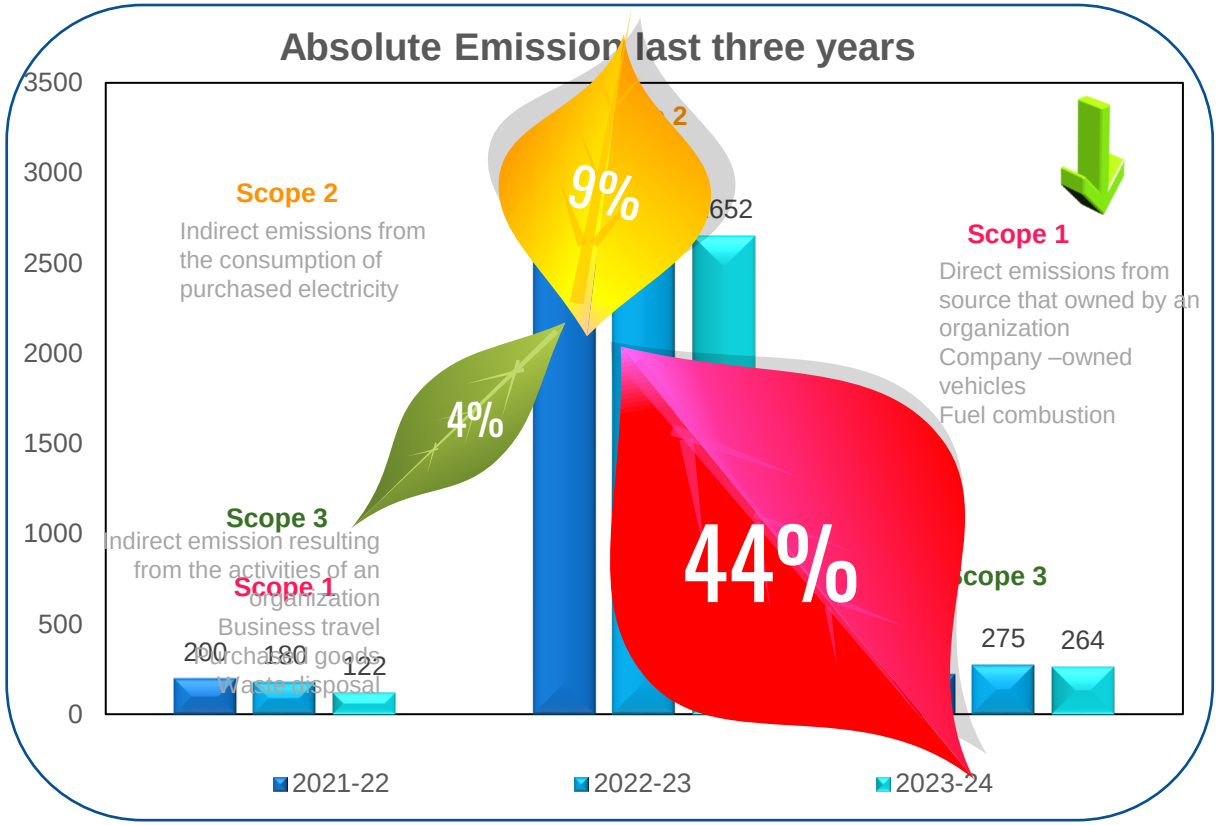
8.Waste utilization in last three years (FY 2021-24)

Sl.No	Type of waste generated	Quantity of waste generated (MT/year)			Disposal method
		FY (2021-22)	FY (2022-23)	FY (2023-24)	
1	Spent oil	0.4KL	2.75KL	0.4 KL	Re cycle
2	Paint sludge	6.21	9	7.7	Co. Process
3	ETP sludge /Adhesive	7.35	5.3	9.2	Co. Process
4	Oil Soaked	1.62	1.0	1.24	Co. Process
5	Discard containers	5.28	1.5	2.5	Re cycle
6	Grinding Dust	187	201	251	Co. Process/ Re use

- *Have valid authorization of hazardous waste for 5 category*
- *Continuous reduction of waste through yield improvement projects (Tooling improvement & input weight optimization) - Black box technique*
- *Zero Waste disposal Through 3R Concept - 620 tones of Grinding dust recycled and 42 tones re used*
- *Centrifugal / electrostatic filtration to improve the life of the hydraulic oil*
- *Process waste water reused through (ETP) Zero Liquid Discharge plant (ZLD)*
- *Sewage Treated Water is being used in Miyawaki Forrest Development*
- *Environment friendly powder coating process implemented with Automatic Online Powder Screening Machine 100% yield and Zero discharge*
- *Paint recovery system implemented to reduce the paint sludge generated during color changing process*
- *Using recycled water for flushing*

9. GHG Inventorisation
CO2 generation :

- *Public disclosure is done through Annual Sustainability Report at RBL*
- *Daily emission data updated to LED display for public view in front of the factory gate*

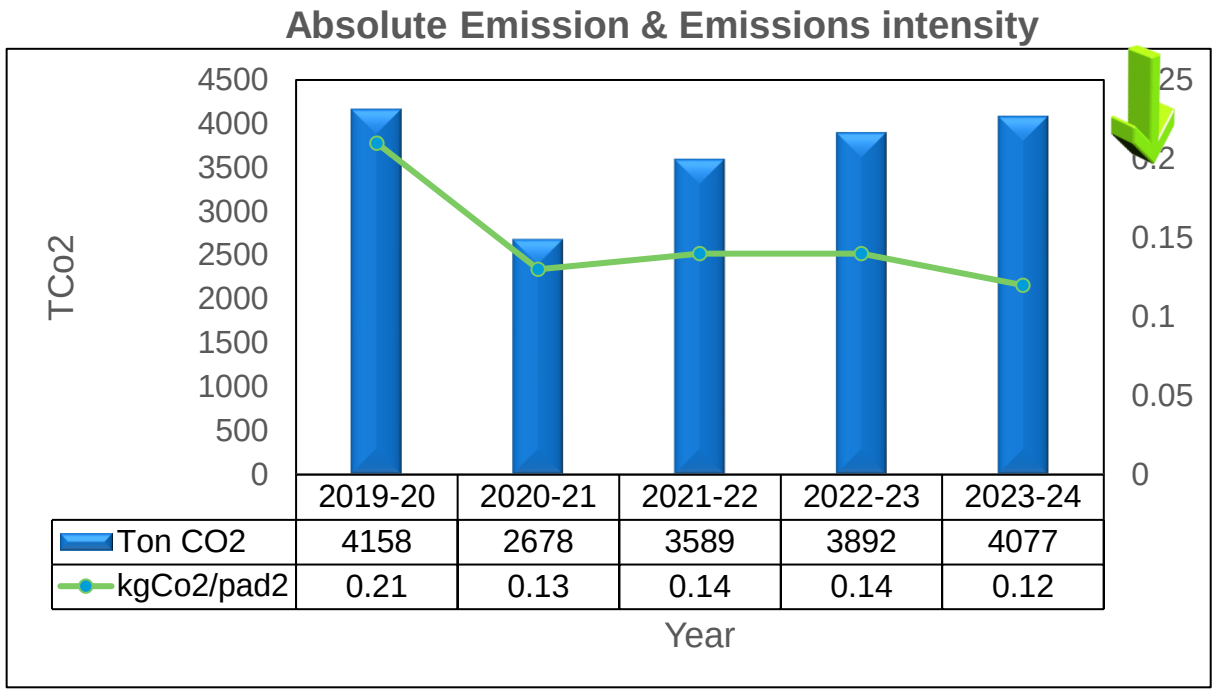


CO2 reduction projects :

- *Diesel consumption reduction Through*
  - *Replacement Electrical steam generator instead of Diesel*
  - *Diesel forklift replaced with battery operated forklift*
  - *DG - Solar synchronizing system*
- *RBL generates and use of 77.92 Lacs units (28 %) Renewable energy which does not contribute to CO2 emissions –Addition 0.4 mw solar plant implemented by Overclocking system*
- *1.4 million Kwh saved through 72 Energy saving projects*
- *Replacement of refrigerant (R22-R32)*
- *Replace unnecessary business trips with video calls (Google meet and Microsoft team)*
- *Milky van transport concept for material delivery & collection to reduce the number of vehicle trip*
- *1100 nos of Village Lighting Converted in Fully LED*
- *Miyawaki method to create urban forests 2000sq ft (600 sampling)*
- *Every customer visit means a new tree planted symbolizing our shared commitment to sustainability (98 samplings)*
- *Push/sensor taps with shower nozzle and*

2021-24: 83 Co2 reduction projects has been implemented

9. GHG Inventorisation



Reduction of GHG emission intensity 39%

Long term actions:

- *Replacement of BSIII vehicle to BS IV vehicle used for employee transportation*
- *100 % Usage of reusable plastic crates instead of carton for packing*
- *Planned to install additional 0.5 MW solar plant with MD enhancement*

Short term actions:

- *Projects implementation on energy conservation and process optimization*
- *Conversion of LPG to Electric Kitchen*
- *DG retrofitting implementation.*
- *Replacement of BSIII vehicle to BS IV vehicle used for employee transportation*
- *Replacement of all refrigerant (R22-R32)*
- *Usage of reusable plastic crates instead of carton for packing –Brembo part*
- *Diesel Generator running hours optimization through dedicated feeder from substation to Plant . Which minimizes the line disturbances and reduce the power cut duration*
- *Dual Fuel (Natural Gas and Diesel) and Retrofit Emission Control Devices*
- *Green belt development for carbon offset by Miyawaki concept*
- *Paint recovery system implemented to reduce the paint sludge generated during color changing process*
- *Water Cooling tower to Air Cooling tower and Water recovery from Water cooled tower.*

10. Green Supply Chain

Sustainable Green Supply Chain Management & Procurement Policy

Rane
Expanding Horizons

Sustainable Green Supply Chain Management & Procurement Policy

Rane Brake Lining Limited is committed to follow responsible business practices by contributing to environmental protection and enhancing people performance by green procurement & services while ensuring business growth for its supply chain.

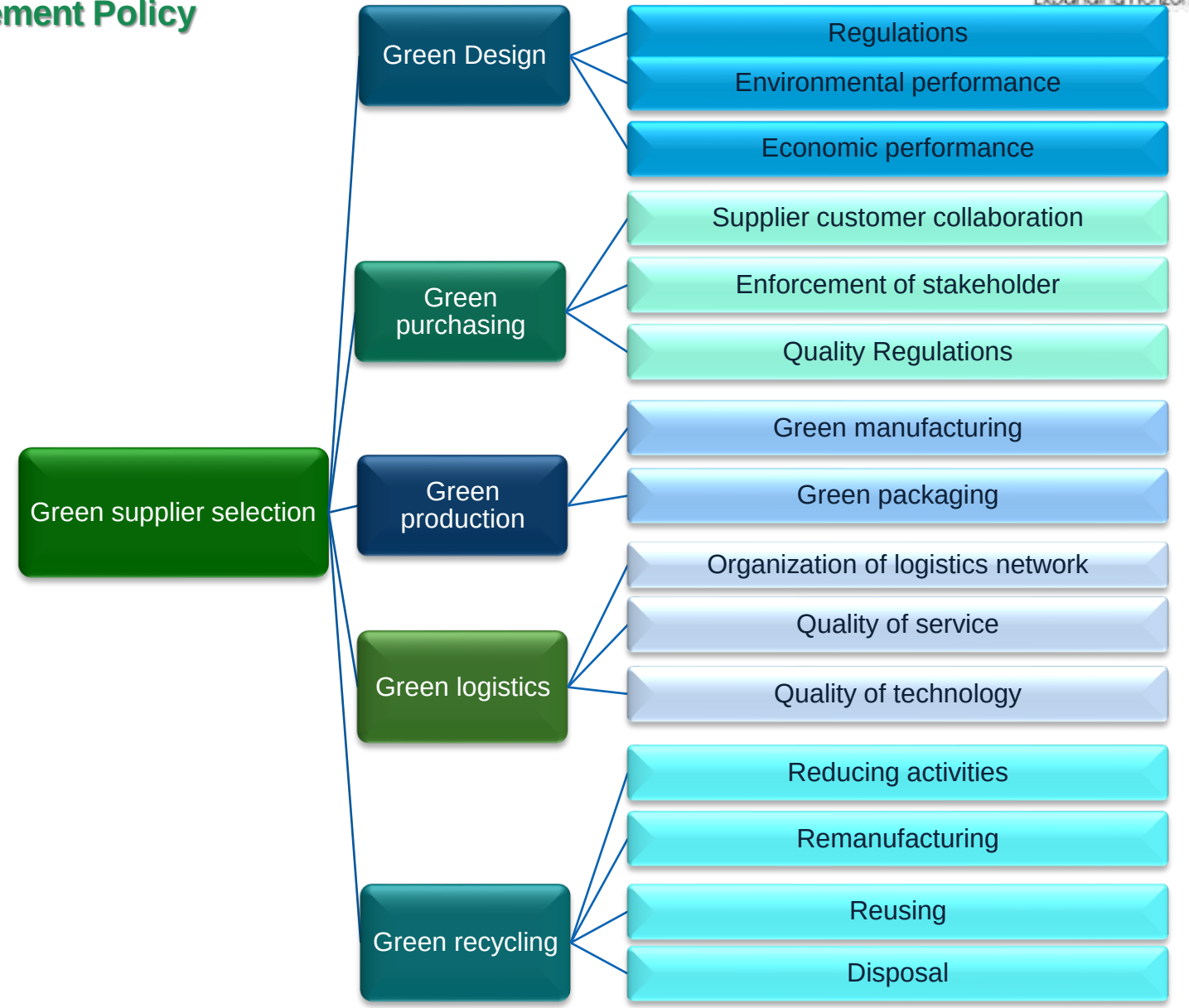
Objective
To enhance sustainability performance and minimize Environmental,Social & Financial risks within RBL's supply chain procurement & services.

Policy:
Green Supply Chain:
RBL shall engage with the supply chain partners including suppliers, logistics & service providers to:

- Strengthen compliance of all relevant statutory provisions and conform to RBL's Code of Conduct
- Identify & address business and ESG (Environmental,Social & Governance) risks
- Develop management systems related to Sustainability,Quality, Environment, Safety and Energy
- Monitor, evaluate sustainability performance and identify improvement opportunities
- Reduce environmental footprint by means of material, energy & water conservation
- Encourage logistics optimization and waste reduction using 3 R (Reduce, Recycle & Reuse)
- Move towards zero wood usage for packaging
- Promote a safe and healthy workplace for the employees
- Ensure eco-friendly product manufacturing in accordance with the RoHS (Restriction of Hazardous Substances) directive
- Promote sustainability awareness and assessments at supply chain through IT enabled processes
- Enhance sustainability within their own supply chain
- Encourage suppliers to develop and publish their own sustainability report
- Facilitate reward and recognition

Procurement:
- Comply with all relevant statutory provisions pertaining to procurement
- Establish sustainable performance indicators for equipment, products & services
- Open Door framework for all the existing and potential suppliers by maintaining highest level of ethical standards &transparency in dealing
- Minimize the environmental,social and costs impact associated with the life cycle of goods & services
- Procurement of recycled/part recycled products to optimize resource consumption
- Procure energy efficient equipment by defining specifications in tender & contracts
- Co create innovation to maximize value for both supplier and end user

We shall promote sustainable practices with all our stakeholders.

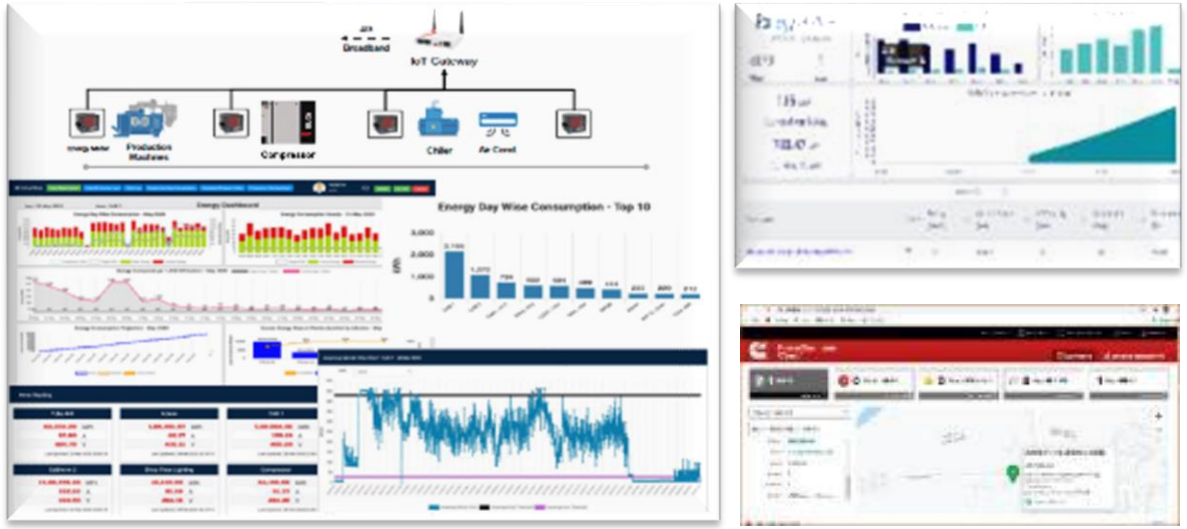


10.Suppliers end Encon project implemented in FY 2021-24

S.No	Supplier Name	Name of energy saving projects	Investments (INR Million)	Electrical savings (Million kWh)	Thermal savings (Million kWh)	Total Savings (INR Million)	Payback period (in months)
1	premier engineering works	HVLS fan implementation	0.03	0.005		0.035	23.00
2	Weldone technocrats	Motor off through Soft starter / VFD for hydraulic Pressing every cycle completion	0.2	0.03		0.18	13.33
3	Industrial turnings	IE3 motor installation	0.2	0.05		0.23	18.00
4	sun industries	PPC roof sheet in shop floor for daylight - lighting	0.04	0.007		0.035	19.00
5	Barani hydraulics	VFD based Cranes	0.08	0.014		0.07	14.00
6	Esterkote pvt limited	Cooling tower motor cutoff through temperature sensing	0.01	0.003		0.0015	12.00
7	Kumarasamy industries	Individual Solenoid valve in air line Zigma mixer	0.08	0.01		0.06	16.00
8	Kumarasamy industries	Real time clock for dust collector on/off during break time	0.05	0.01		0.06	10.00
9	premier engineering works	Automatic power factor controller	0.15	0.00		1.2	1.50
10	Kumarasamy industries	5 centrifugal Pump replace to energy efficient pump	0.2	0.00		1.2	2.00
11	sun industries	Motor off through Soft starter / VFD for hydraulic Pressing every cycle completion - 8 m/cs	0.2	0.05		0.3	8.00
12	sun industries	Cutting-edge Mc Motor Sequence modification	0.24	0.00		0.72	4.00
13	sun industries	Compressor cooling fan motor cut-off based on temperature	0.06	0.00		0.18	4.00
14	Kumarasamy industries	Boiler heat recovery system using heat exchanger	0.03	0.01	42	0.06	6.00
15	Weldone technocrats	Compressor optimization based on air demand using VFD	0.2	0.03		0.18	13.33
16	Admach auto india ltd	Conventional light to LED	0.05	0.02		0.12	5.00
17	Admach auto india ltd	Drilling m/c spindle motor to be switched off after cycle completion.	0.2	0.01		0.06	40.00
18	Industrial turnings	Compressor cooling fan motor cut-off based on temperature	0.01	0.01		0.06	2.00

11. EMS system and other requirements

Sustenance Tracking through Energy monitoring system use of ioT



Energy Data Collection

- EMS
- Total 16 Energy Meters for all modules SB and utility SB
- OEE & Energy online monitoring Iot system for High energy intensive Curing process all machines (11 machines)
- Section wise power capturing from IMCCs

Energy Reports

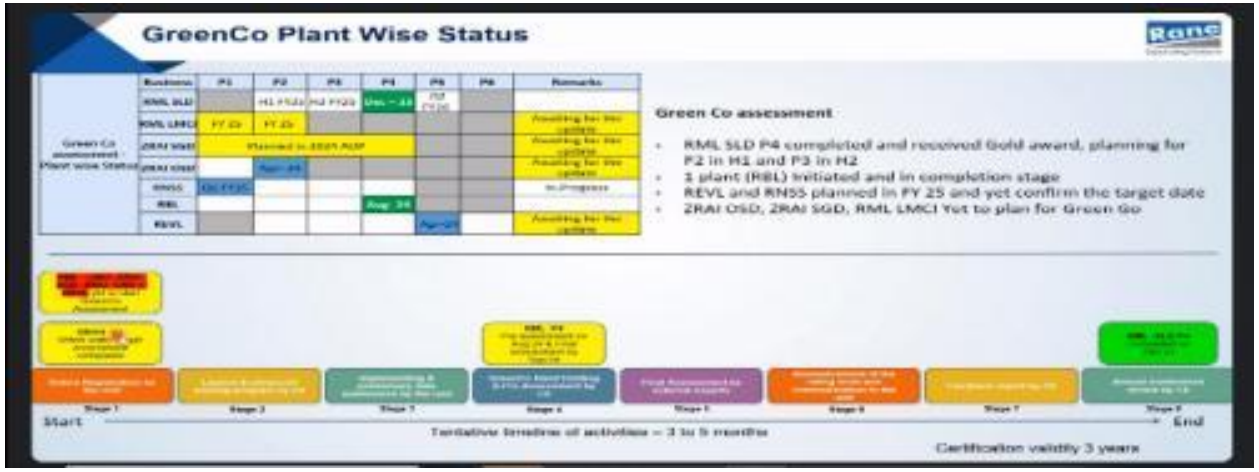
- Daily Power Report
- Real Time display of equipment's power
- Real time DG generation and running status
- Real Time Solar generation and performance data

Review System

11. EMS system and other requirements

- Monthly best suggestor award . Yearly Suggestion rocker award.
- Suggestions are reviewed by Top management through RPS
- As a part of energy conservation day celebration energy awareness pamphlets distributed in the nearby residential areas , schools & hospital
- Energy conservation awareness was imparted to the students of Tiruppuvanai and Sanniasikuppam government schools.
- Awareness video on energy saving in our home and company has been released.
- Quiz & Debate Competition

Implementation of ISO 50001/Green Co / IGBC rating



Learnings from CII Energy Award or Any Other Award Program

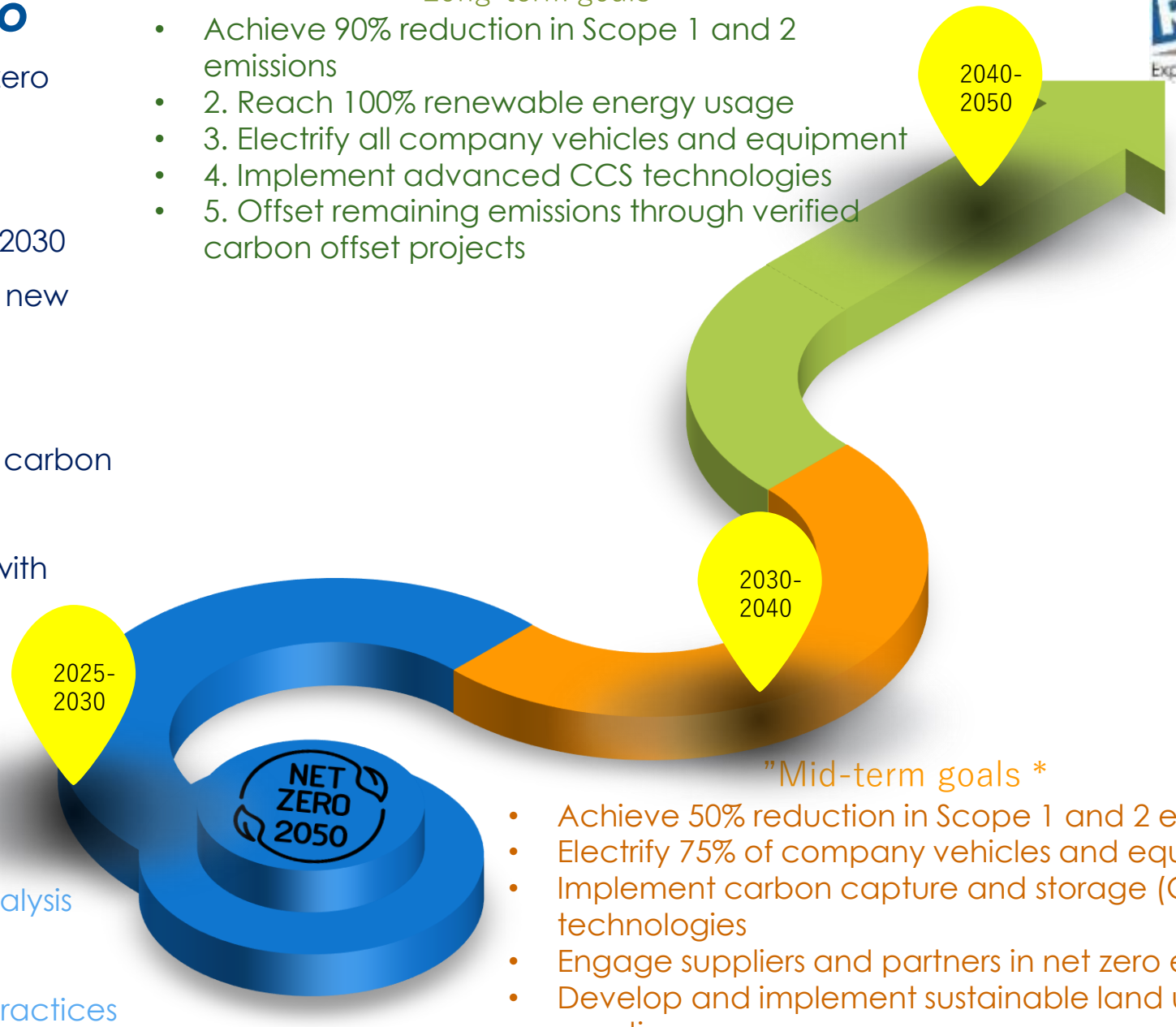
- *Learned about heat recovery system*
- *Venturi type duct for Air compressor*
- *Learned best practices from other automobile companies*

12.Road map towards Net Zero

- "Our company is dedicated to achieving net zero emissions by 2050,
- Covering all Scope 1, 2, and 3 emissions.
  - * Transition to 100% renewable electricity by 2030
  - * Increase energy efficiency by 30% through new technologies
  - * Electrify our entire vehicle fleet by 2035
  - * Offset remaining emissions through verified carbon offset projects
- We will report progress annually and engage with stakeholders to ensure transparency and accountability."

*Long-term goals *

- Achieve 90% reduction in Scope 1 and 2 emissions
- 2. Reach 100% renewable energy usage
- 3. Electrify all company vehicles and equipment
- 4. Implement advanced CCS technologies
- 5. Offset remaining emissions through verified carbon offset projects



"Mid-term goals *

- Achieve 50% reduction in Scope 1 and 2 emissions
- Electrify 75% of company vehicles and equipment
- Implement carbon capture and storage (CCS) technologies
- Engage suppliers and partners in net zero efforts
- Develop and implement sustainable land use practices

*Short-term goals"

- Conduct a comprehensive carbon footprint analysis
- Develop a net zero strategy and action plan
- 30% emission reduction by 2025)
- Implement energy-efficient technologies and practices
- Transition to 50% of total energy to renewable energy sources

13. Awards & acknowledgement

Won “Excellent Energy Efficient Unit” Award in 24th CII National Excellence in Energy Management – 2023

QCC 1st prize: ACMA National level - 2023

Won Gold award for Excellence in sustainable business 2023

Won Gold award for Excellence in Manufacturing 2022

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Thank You