

PRESENTATION ON NATIONAL ENERGY AWARD FOR
EXCELLENCE IN ENERGY MANAGEMENT

Panasonic

PANASONIC LIFE SOLUTIONS INDIA PVT LTD.

Unit-01, Haridwar

Mr. Ashish Singh

Head- Facility Management & EHS

CII Certified Energy Professional

Mr. Chandrashekhar Singh
AGM -Facility Management



Mr. Susanta Dwivedi
AM -Facility Management



Presenters
Susanta Dwivedi-AM Facility
Management

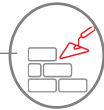
- Company profile and Factory information.
- Energy Policy
- Factory Energy flow diagram
- Production and Energy Data
- SEC and % improvement data
- Major E-Con project planned for Fy'22-23
- Last three year Energy Saving projects
- Innovative projects
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- Team work and Employee Engagement
- Monitoring
- Kaizen by associates
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- Achievements.

Panasonic

A global mega brand that has been a force in the appliances & electrical goods space



Established 1918



Revenues Billion USD 72.04



Organization Strength 274,000



Panasonic

Life Solutions India Pvt. Ltd.

A global enterprise that manufactures cutting edge electrical products

ANCHOR

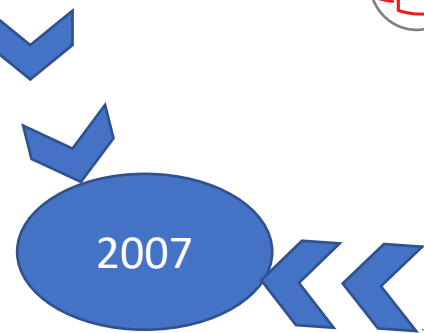
Established 1963



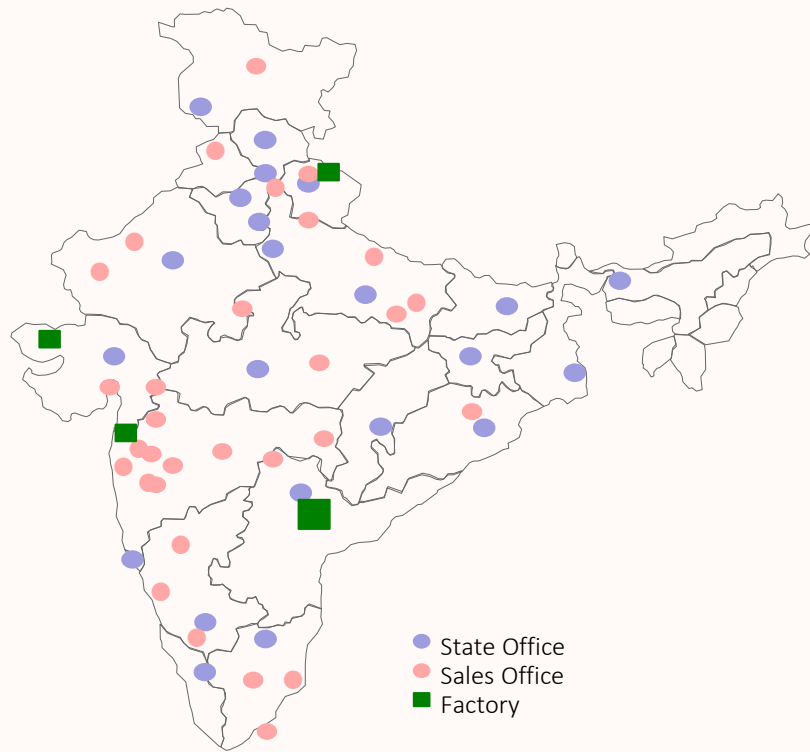
Revenues Million USD 501+



Organization Strength 9000+



MANUFACTURING FACILITIES



SALES OFFICES

4 Regions & 27 Offices



MANUFACTURING

4 Areas & 8 Factories



HARIDWAR FACTORY

- Wiring Device
- Switchgear



DAMAN FACTORY

- Wiring Device
- Ceiling Fan
- Wires & Cables & Tapes



KUTCH FACTORY

- Wires & Cables & Tapes
- Lighting



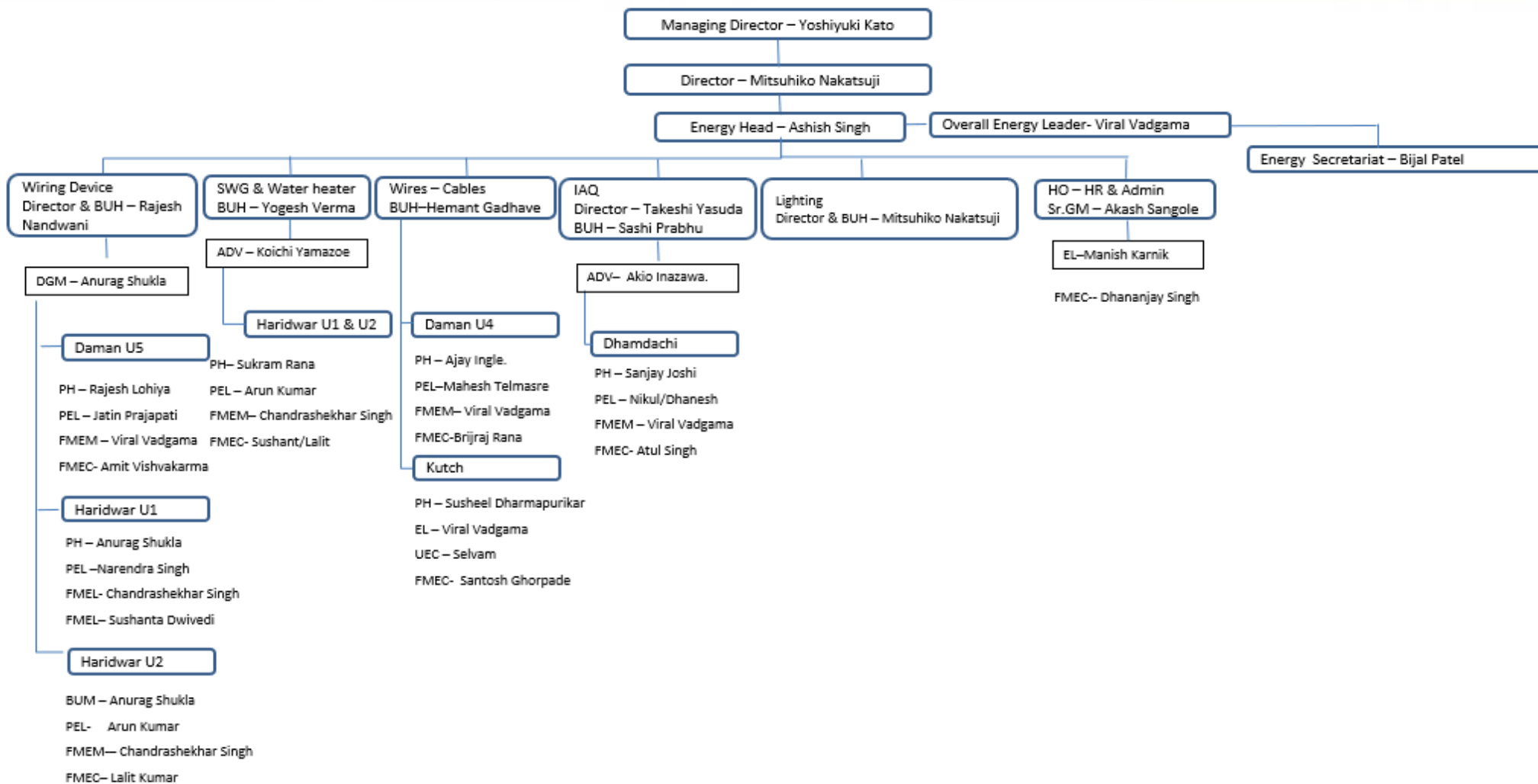
SRIRANGAPATNA FACTORY

- Wiring Device

• **NABL accredited laboratory**

• **ISO 50001: 2018 certified for energy Management** • **RoHS Compliant products, QMS ,EMS and OHSAS Certified Units**

ORGANOGRAM FOR THE ENERGY CELL



PH –Plant head
 PEL – Plant Energy leader
 ADV – Advisor
 HOEL- HO Energy leader
 FMEM-FM Energy manager
 BUH – BU Head.
 FMEC- FM Energy Coordinator

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Continuous monitoring and controlling energy consumption.

Management commitment for adopting energy efficient technology, product and design

Panasonic

ॐर्ज नीति

अमारा व्यवसायिक दर्शन अने मूळ मूल्योना अभिन्न अंग तरिके, अमे पेनासोनिक लाइफ सोल्युशन्स इन्डिया प्रा. लि. ॐर्ज संरक्षणमा श्रेष्ठता प्राप्त करवा माटे प्रतिबद्ध छीमे.

आ प्रतिबद्धताने परिपूर्य करवा माटे, अमे अमारी न्धो प्रवृत्तिओमां श्रेष्ठ ॐर्ज संरक्षण प्रथाओओने संकबित करवा माळित अने संसाधनो प्रदान करीछुं. अमाठ विशेष ध्यान आना पर रवेछे:

- सतत हेमरेष अने ॐर्ज वपराश नो नियंत्रण करवुं.
- उत्पादन प्रक्रियांमां ॐर्ज नो वपराश घटाडवा माटे, सतत सुधारी करवो.
- ॐर्ज ना उपयोग, वपराश, अने कार्यक्षमता पर लागू घटा तमाम संबंधित वैधानिक अने अन्य आवश्यकताओनुं पाबन करवुं.
- ॐर्ज प्रभावथी संबंधित सतत सुधाराओ माटे उद्देश्यो अने बक्ष्योने नळी करी तेमनी समीक्षा करवो.
- ॐर्ज कार्यक्षम उत्पादन अने सेवाओनी पुरीदा द्वारा ॐर्ज कार्यक्षमता माटे श्रेष्ठ शक्य तऽनीकी डिजाइन, उत्पादन अने सेवाओ अपनाववो.
- तमाम कर्मचारीओमां ॐर्ज ब्याव अंनेनी ताचीम द्वारा जागृतिने प्रोत्साहन आपवुं.

ऊर्जा नीति

हमारे व्यापार दर्शन और मूल मूल्यों के एक अभिन्न अंग के रूप में, हम पेनासोनिक लाइफ सोल्यूशन्स इंडिया प्राइवेट लिमिटेड ऊर्जा संरक्षण में उत्कृष्टता प्राप्त करने के लिए प्रतिबद्ध हैं।

इस प्रतिबद्धता को पूरा करने के लिए, हम अपनी सभी गतिविधियों में सर्वोत्तम ऊर्जा संरक्षण प्रथाओं को एकीकृत करने के लिए सूचना और संसाधन प्रदान करेंगे। हमारा विशेष ध्यान इस पर रहेगा :

- ऊर्जा की खपत की निरंतर निगरानी और नियंत्रण।
- ऊर्जा की खपत को कम करने के लिए निर्माण प्रक्रिया में निरंतर सुधार।
- ऊर्जा उपयोग, उपभोग और दक्षता के लिए लागू सभी प्रासंगिक वैधानिक और अन्य आवश्यकताओं का अनुपालन।
- ऊर्जा प्रदर्शन से संबंधित निरंतर सुधार के लिए उद्देश्यों और लक्ष्यों को निर्धारित करना और उनकी समीक्षा करना।
- ऊर्जा कुशल उत्पाद और सेवाओं की खरीद द्वारा ऊर्जा दक्षता के लिए सर्वोत्तम व्यवहार्य प्रौद्योगिकी डिजाइन, उत्पाद और सेवाओं को अपनाना।
- सभी कर्मचारियों के बीच ऊर्जा संरक्षण पर प्रशिक्षण के माध्यम से जागरूकता को बढ़ावा देना।

ENERGY POLICY

As an integral part of our business philosophy and core values, we at Panasonic Life Solutions India Pvt. Ltd., are committed to achieve excellence in energy conservation.

To fulfil this commitment, we shall provide information & resources to integrate best energy conservation practices in all our activities.

We will have special focus on:

- Continuous monitoring and controlling energy consumption.
- Continual improvement in manufacturing process, to reduce energy consumption.
- Comply with all relevant statutory and other requirements applicable to energy use, consumption and efficiency.
- Set and review objectives and targets for continual improvements related to energy performance.
- Adopt best feasible technology design, product and services for energy efficiency by purchase of energy efficient product & services.
- Promoting awareness through training on energy conservation among all employees.

For Panasonic Life Solutions India Pvt. Ltd.

K. Y.

Kazuki Yao
Managing Director (Occupier)
Date: 01.05.2021

Continual improvement is process to reduce energy consumption

Energy conservation awareness to all employees

Energy Distribution Plant

Existing : 1000 KWP
Roof Top Solar Plant

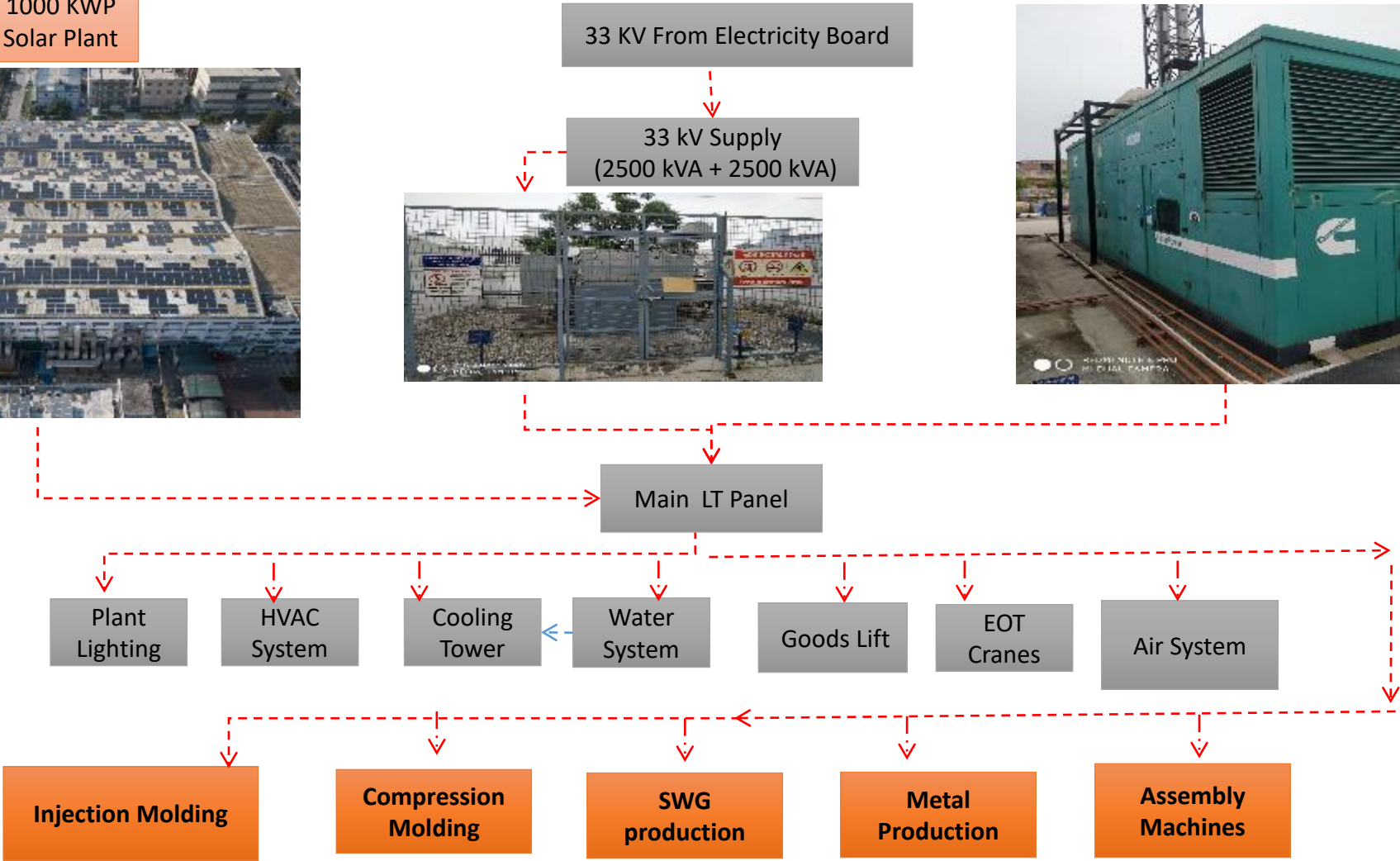


33 KV From Electricity Board

33 kV Supply
(2500 kVA + 2500 kVA)



5520 kVA Capacity DG Sets
(Backup Power Source)

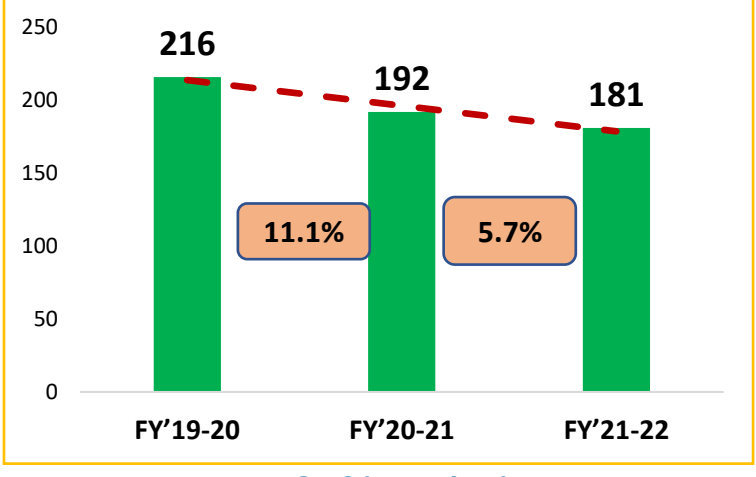
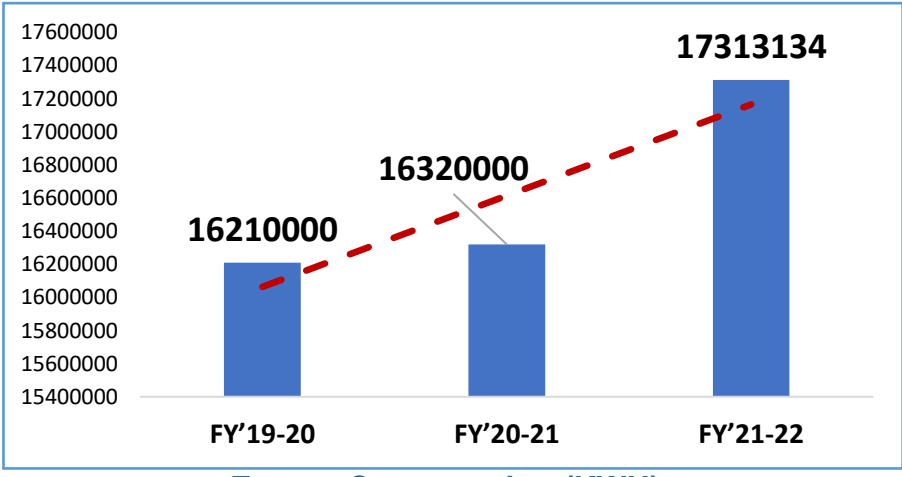
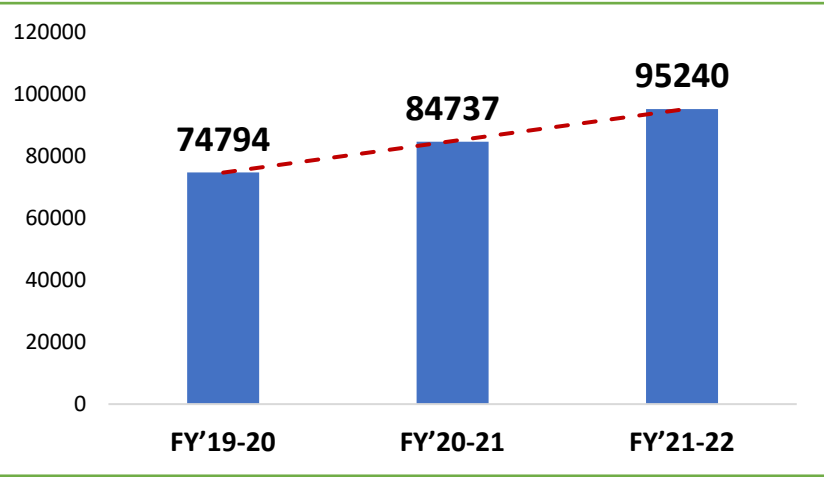
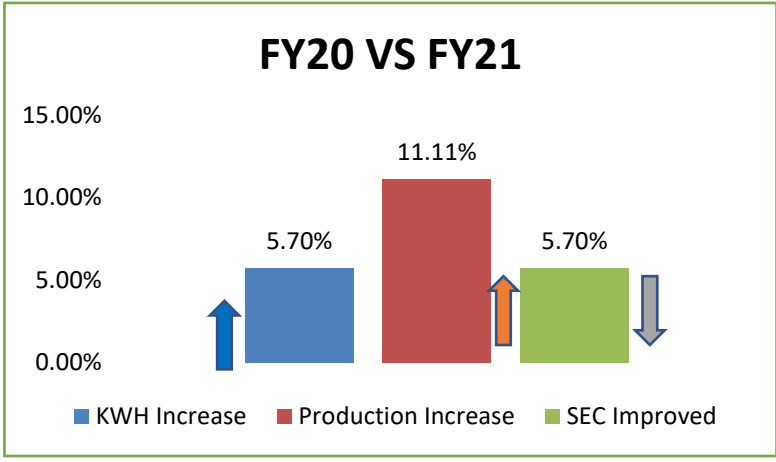
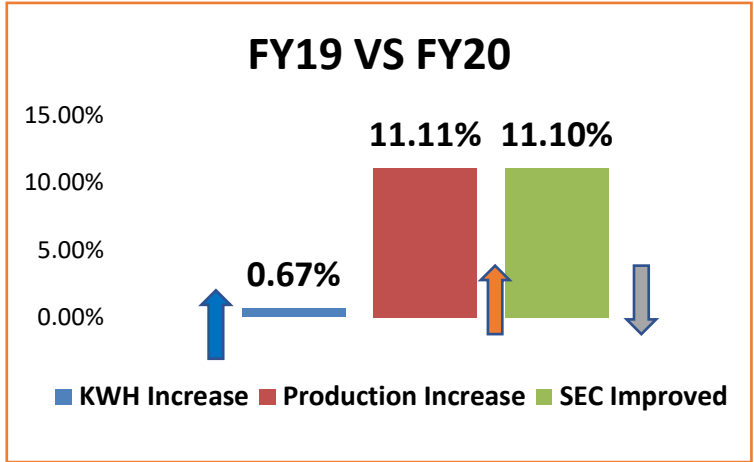


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Specific Energy Consumption Plant

Year	Total KWH consumption	Production in MT	SEC in KWH/MT
FY'19-20	16210000	74794	216
FY'20-21	16320000	84737	192
FY'21-22	17313134	95240	181

% Comparison Trend of Unit consumption/Production/SEC



Production (MT)

Energy Consumption (KWH)

SEC(KWH/MT)

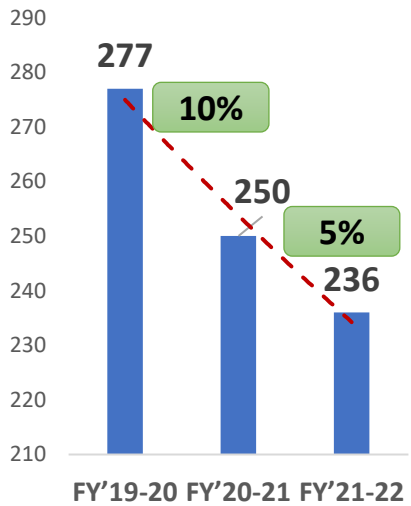
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Specific Energy Consumption :Section Wise

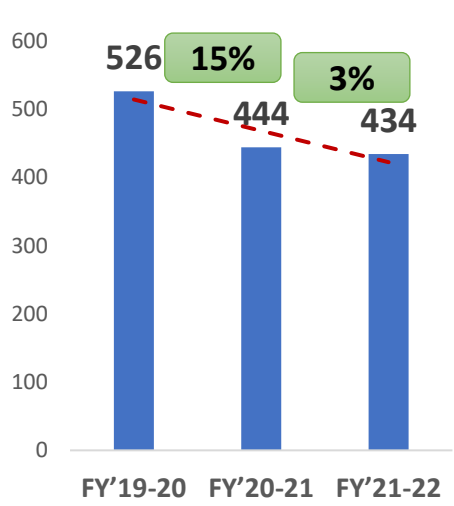
Year	Section wise SEC(KWH/MT)				
	I . Moulding	C.Moulding	Metal section	Assembly	SWG
FY'19-20	277	526	17	304	6110
FY'20-21	250	444	12	152	3451
FY'21-22	236	434	13	152	3676

Reason for Variations in SEC :

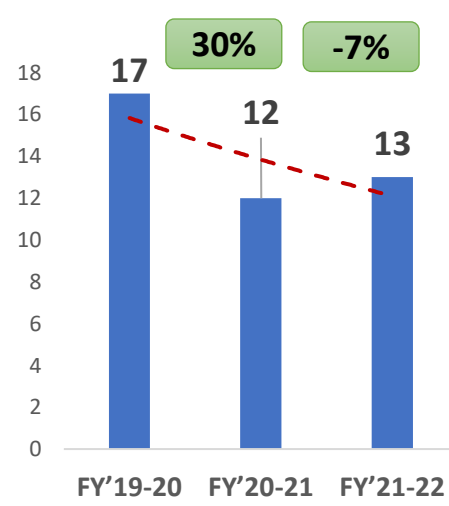
- **C-Moulding :Injection ,Compression & Assembly :** SEC Improving year by year considering energy saving activities even the production in increasing trend
- **SWG & Metal :**SEC Increase by 6.1 % in FY21-22 due to less production but basic facility run (EX: Air washer ,HVAC)



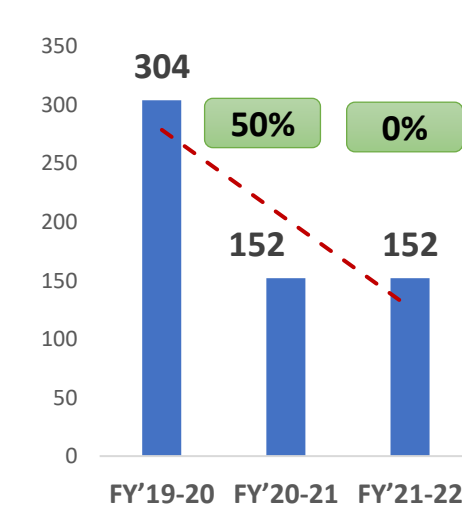
Injection Molding



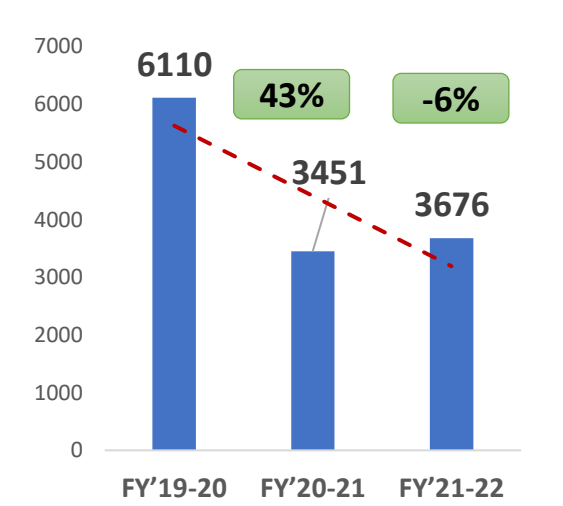
Compression Molding



Metal Section



Assembly

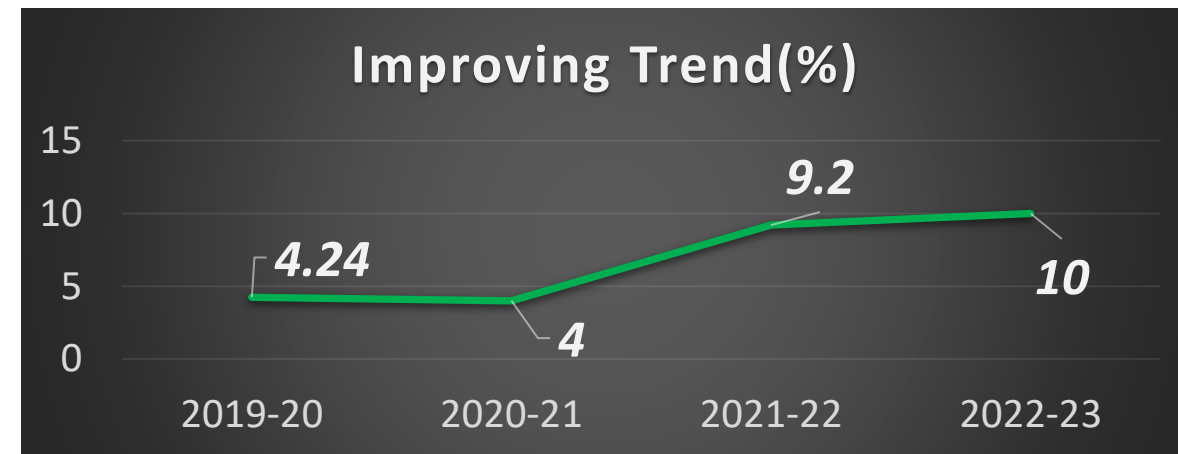


SWG

Improvements

Completed Projects in FY(21-22)	Annual Saving	Investment	Status
	(Million kWh)	(MINR)	
Utilization of Inclined conveyor ie 2 machines 2 conveyor's by 2 machines 1 conveyor	0.018	0	Ccompleted
Bin stocker pneumatic & electrical operation to minimize by gravity Bin stocker	0.119	0.219	Ccompleted
Reduce Heat loss by use Heat insulation jacket's on Fanuc machines	0.032	0.5	Ccompleted
Replacement of Cooling Tower Processing pump by energy efficient pumps in Cooling Tower.	0.037	0.075	Ccompleted
Implement 6 nos ALL Electric molding machine by replacement of Hydraulic machine	0.224	70	Ccompleted
Monitoring and controlled Compressed air leakage reduction	0.067	0	Ccompleted
Generation of 1MW Renewable energy	1.39	36	Installed.100% Generation started
Installation of Godrej IFC control system to minimise Compressed air leakage.	0.09	0.92	Ccompleted
Lighting ckt modification for use only require lights on shop floor	0.01	0.05	Ccompleted
Replacement of conventional light to LED Lighting in Admin building	0.65	0.11	Ccompleted
	2.637	107.8	

Year	KWH Per Annum	KWH_Saving	KWH_Saving(%)
2019-20	16210000	687975	4.24
2020-21	16320000	620672	4
2021-22	17313134	1600677	9.2

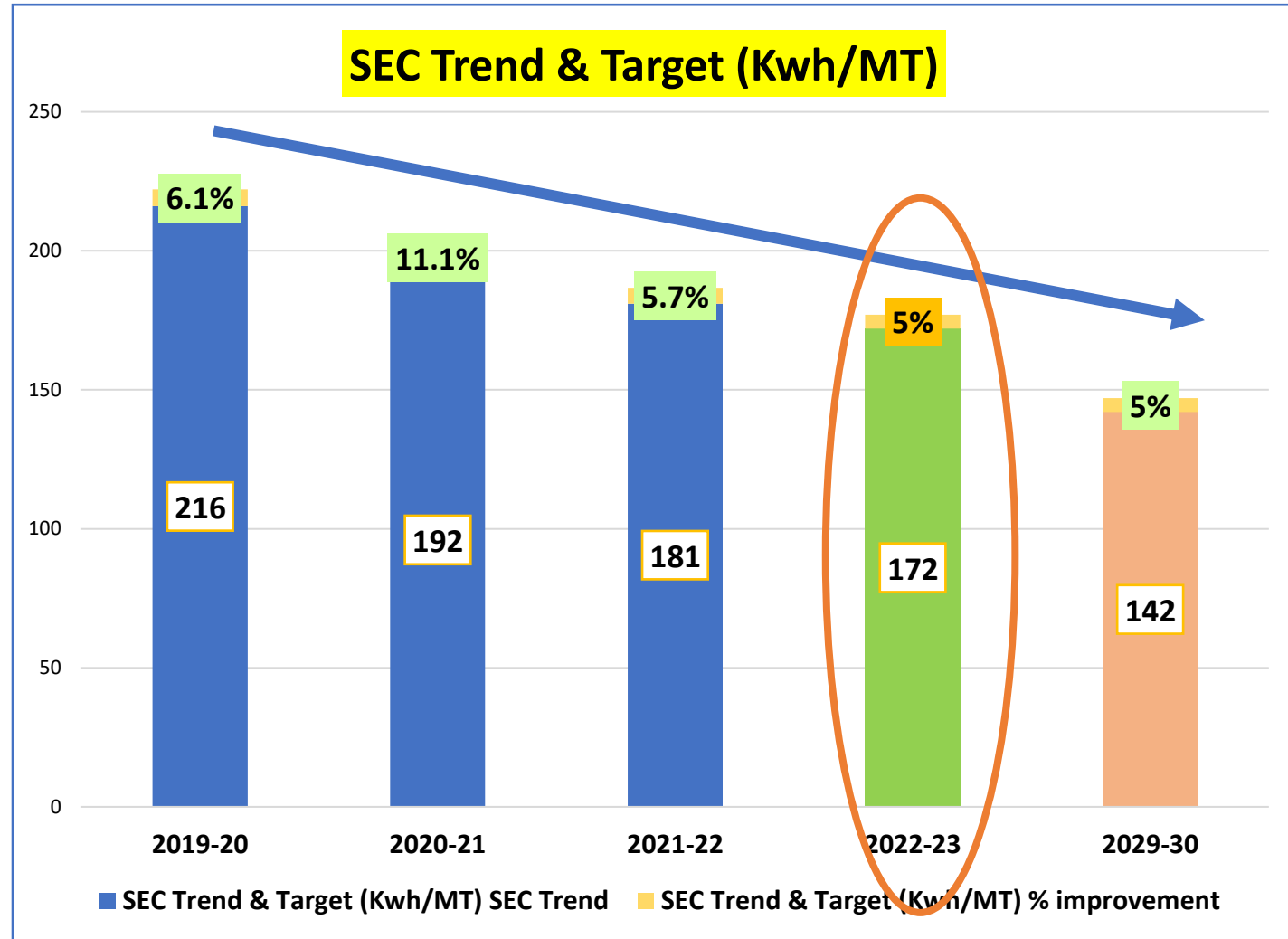
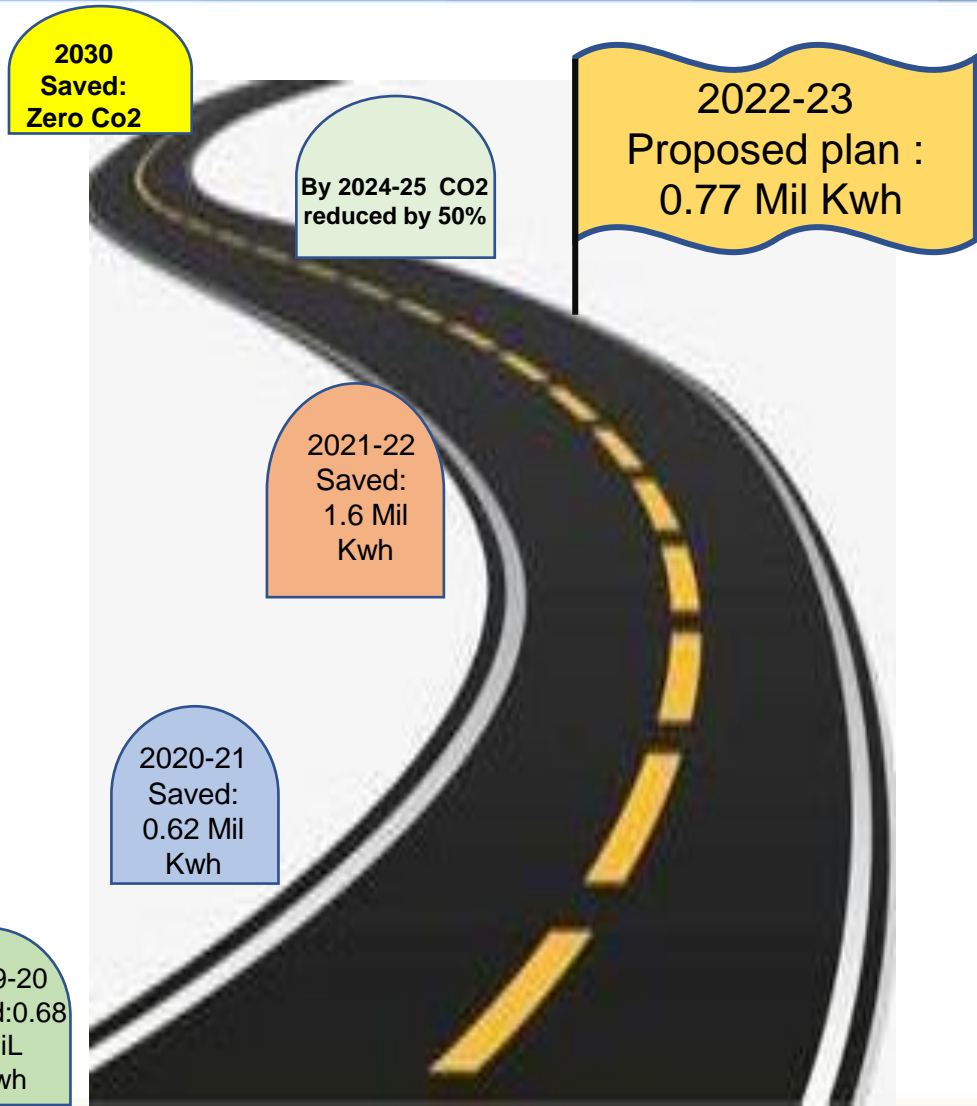


Achieved
Plan

1000 KWp Roof Top
 Solar Renewable Energy
 Generation started
 from Apr-2021

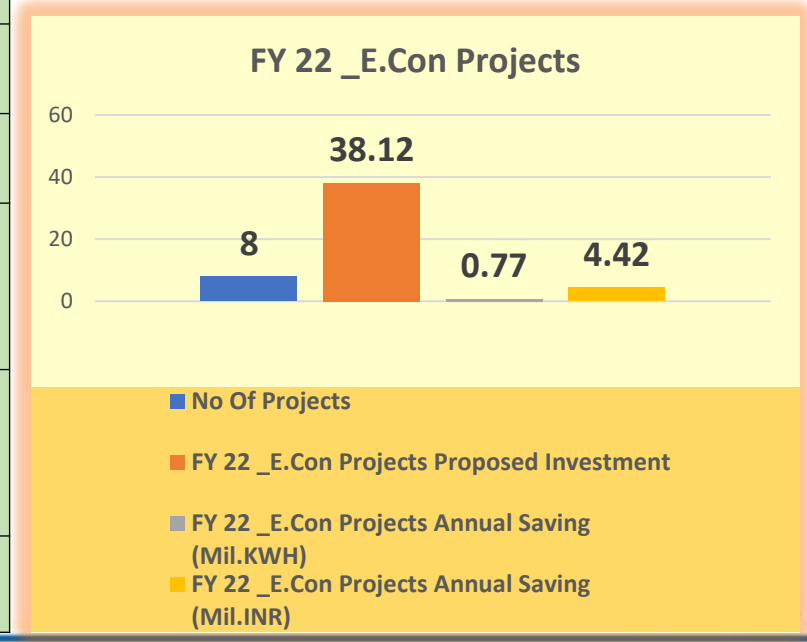


Road Map for Further Improvement of SEC



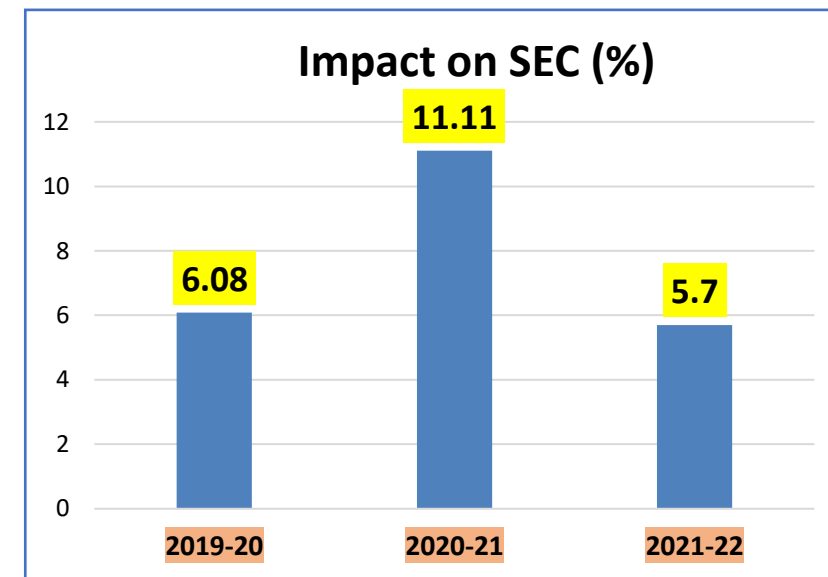
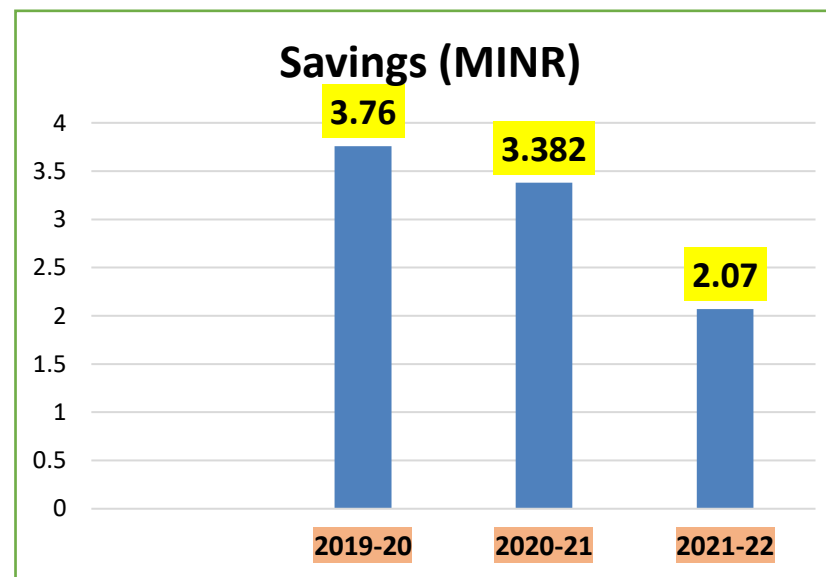
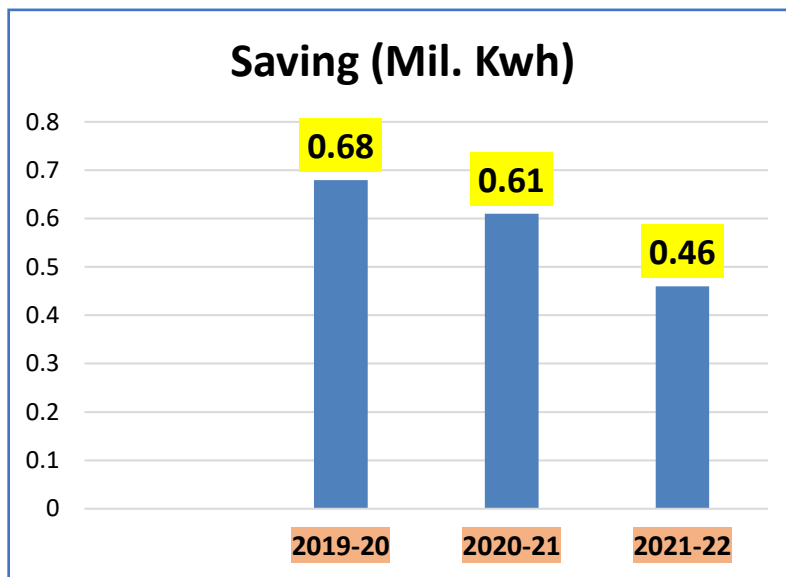
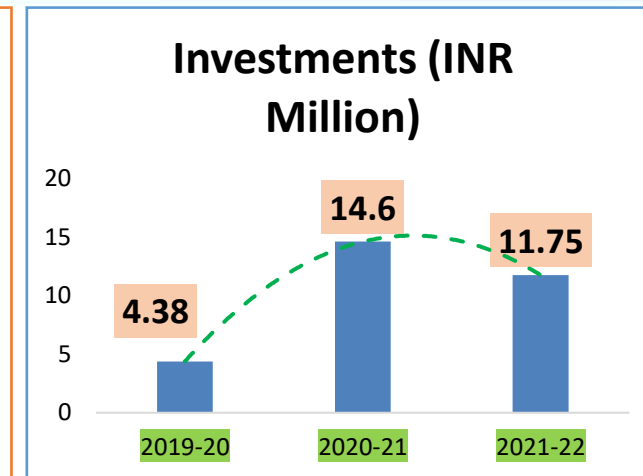
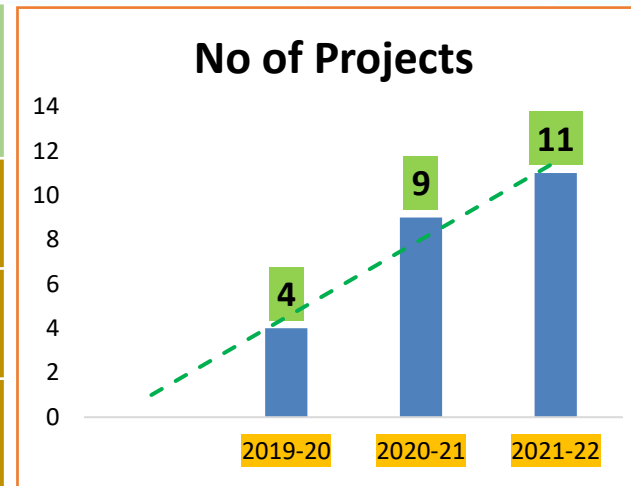
Major E-CON Projects Panned for FY 2022-23

Title of Project	Annual Saving	Investment	Status
	(Million kWh)	(MINR)	
Solar Capacity enhancement by addition Installation of 500 KWp solar power plant	0.5	35	Technical detailing done. Approval in process
Replacement of conventional blower to EC blower	0.03	1	Management approval done. EC Blower installed and monitoring started
Installation of IFC unit for controlling flow of compressed air.	0.09	1	Management approval done. IFC installed and monitoring started
Installation of BLDC fan by replace of Conventional type fan	0.01	0.32	Management approval done. Installation in process
Replacement of Manual Grinding Machine with New Pneumatic grinding machine	0.06	0.5	Technical detailing done. Approval in process
Replacement of inefficient motor by energy efficient motor	0.02	0.3	Approval Completed .Delivery awaited
Lighting ckt modification for use only require lights on shop floor	0.01	0	Feasibility done for modification by our internal team
Air leakage reduction by proper monitoring and plan	0.05	0	Weekly ongoing process by our internal team.
	0.77	38.12	



Last Three-Year Energy Saving Projects

Year	No of Projects	Investments (INR Million)	Saving (Mil. Kwh)	Savings (MINR)	Impact on SEC (%)
2019-20	4	4.38	0.68	3.76	Reduced by 6.08%
2020-21	9	14.6	0.61	3.382	Reduced by 11.11%
2021-22	11	11.75	0.46	2.07	Reduced by 5.7%



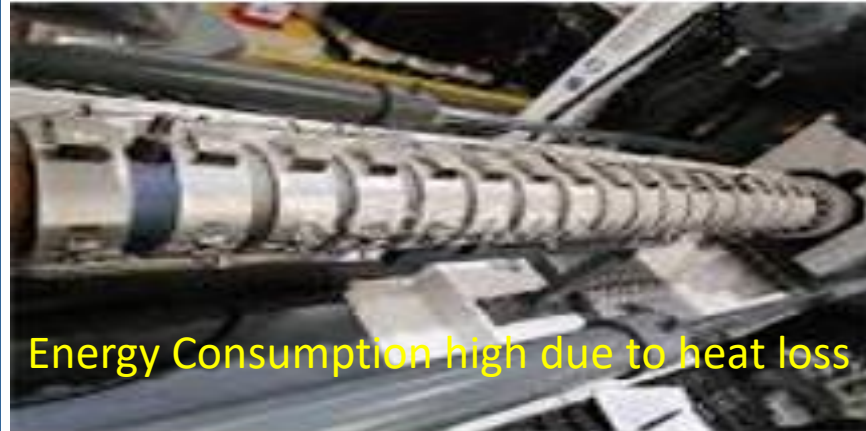
Innovative Projects-01: Energy Saving by Heat insulation jackets provide on Injection Molding Machine

Item



Injection Moulding Machine

Before



Energy Consumption high due to heat loss

Barrel Heater Without Jacket

After



Barrel Heater With Jacket

Before Energy Consumption

- Power Consumption of 5 machines : $5.07 * 5 \text{ Nos} = 25.35 \text{ KW}$
- Power Consumption of 5 machines : $5.07 * 5 \text{ Nos} = 25.35 \text{ KW}$
- Power consumption in KWH per month : $25.35 \text{ KW} \times 24 \text{ Hours} \times 25 \text{ Days} = 15210 \text{ KWH}$
- Power consumption in KWH per Annum = $15210 \text{ KWH} \times 12 \text{ Month} = 182520 \text{ KWH}$
- Total Consumption/Annum in KWH = 182520 KWH

Efforts and contribution : Reduced heat loss at shop floor area for comfortable working. Improved machine efficiency and operating of machine. Complete Team and management effect to replace in 5 nos Injection moulding machine.

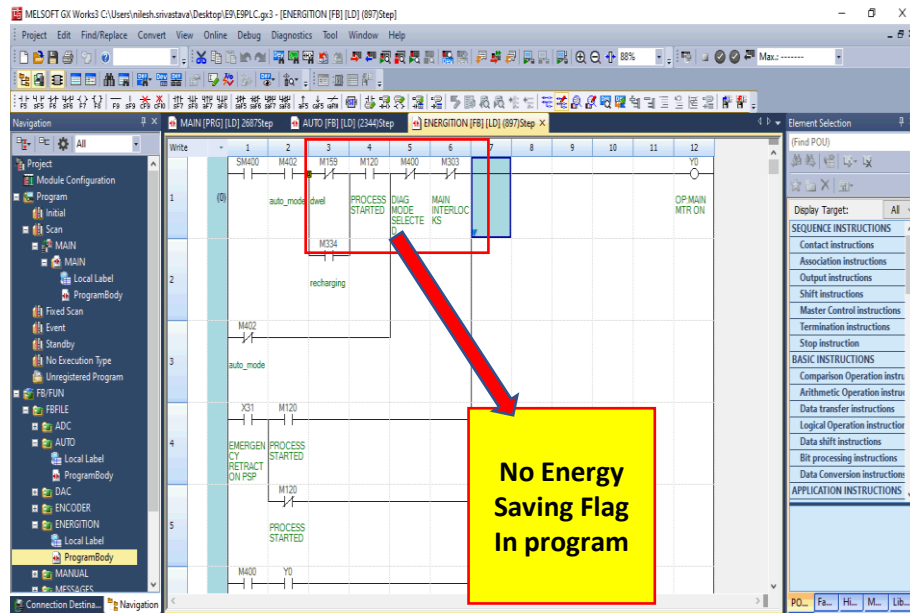
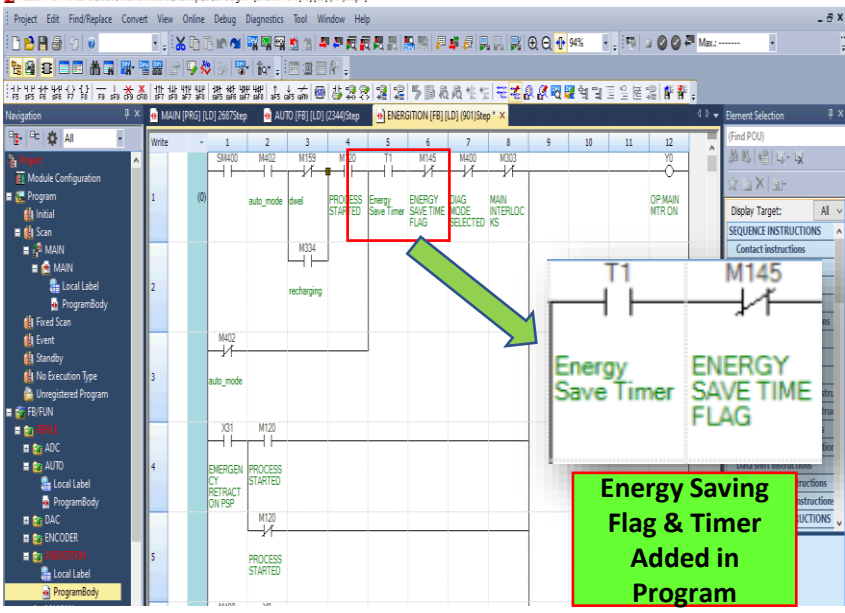
After Energy Consumption

- Power consumption = 4.04 KW
- Power Consumption of 5 machines : $4.04 * 5 \text{ Nos} = 20.2 \text{ KW}$
- Power consumption in KWH per month : $20.2 \text{ KW} \times 24 \text{ Hours} \times 25 \text{ Days} = 12120 \text{ KWH}$
- Power consumption in KWH per Annum = $12120 \text{ KWH} \times 12 \text{ Month} = 145440 \text{ KWH}$
- Total Consumption/Annum in KWH = 145440 KWH

Replication: This projects can be replicate to all manufacturing sector. We have implemented this project in our Injection moulding process

Overall yearly consumption reduced from 1,82,520 KWH to 1,45,440 KWH/year. i.e. Saving of 37,080 KWH/year and 2,13,210/- INR /year

Innovative Projects-02: Energy Saving by reduce cycle time of press motor Of Molding Machine By PLC Programming

Item	Before	After
<p>Compression Molding Machine</p> <p>Problem statement: Press motor running continuous operation during each cycle of 72 sec.</p>	 <p>No Energy Saving Flag In program</p>	<p>Solution: Press motor stop for 34 sec during each cycle of 72 sec by PLC Program modification.</p>  <p>Energy Saving Flag & Timer Added in Program</p>

Efforts and contribution : Completely inhouse team effort for getting observation and plan to modified in PLC programming for Stop unnecessary use of press motor during process . We have implemented 58 nos of our Compression moulding machines.

Replication: This projects can be replicate to all manufacturing sector. We have implemented this project in our Compression moulding process

Result:

Overall yearly consumption reduced from 49500 KWH to 23375 KWH/year. i.e., Saving of 26125 KWH/year and 1,43,688/- INR /year

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Innovative Projects-03: Bin stoker pneumatic & electrical operation to minimize by gravity Bin stoker IN-HOUSE BIN STOCKER (BY GRAVITY) G LINE

Before Condition

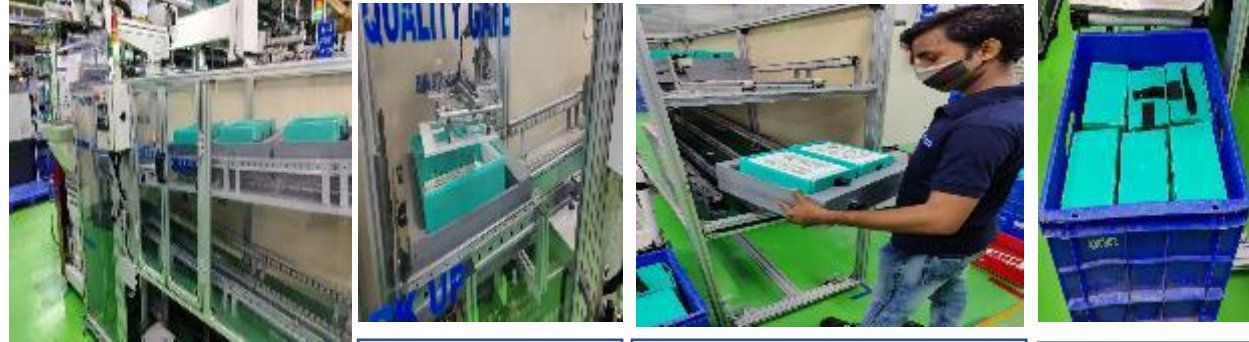


Operator Manually PICK , PACK & PLACE the SFG in Bin.

- Operator must manually fill the SFG in Bin.
- Conveyor used for placing the part and feeding to operator.
- Use of Non-Woven bag is high.

Efforts and contribution : Completely inhouse team effort for getting observation, plan and made gravity bin stoker by removed additional conveyor and saved electricity. Also, PLC auto synchronize with robot for placing and packing of SFG. Implemented 5 nos I. Moulding machine.

After Condition



In-House made & installed **GRAVITY BIN STOCKER**

Robot places the part on BIN Stoker collector box

When Collector bin gets full it comes out from stoker & collected by operator.

Filled bin placed in Packing bin

- Auto filling of SFG in Part collector Box.
- Electric conveyor removed by which saved electric energy.
- Use of Non-woven Bag packing eliminated.
- PLC Auto synchronize with Robot for Placing & Packing of SFG.

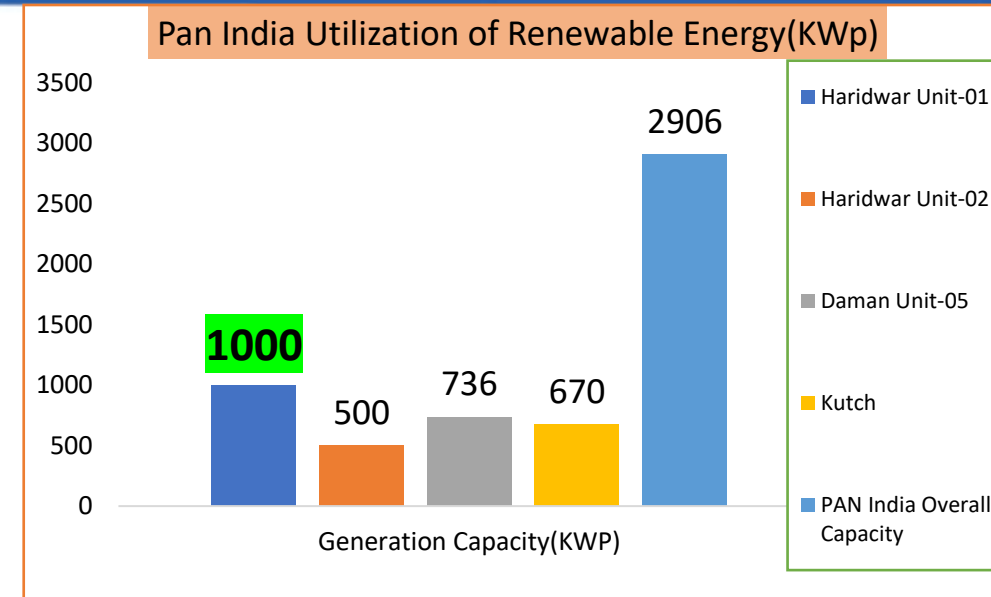
Overall yearly consumption reduced from 269568 KWH to 149760 KWH/year. i.e., Saving of 119808 KWH/year and 6,88,896/- INR /year

Replication: This projects can be replicate to all manufacturing sector. We have implemented this project in our Compression moulding process

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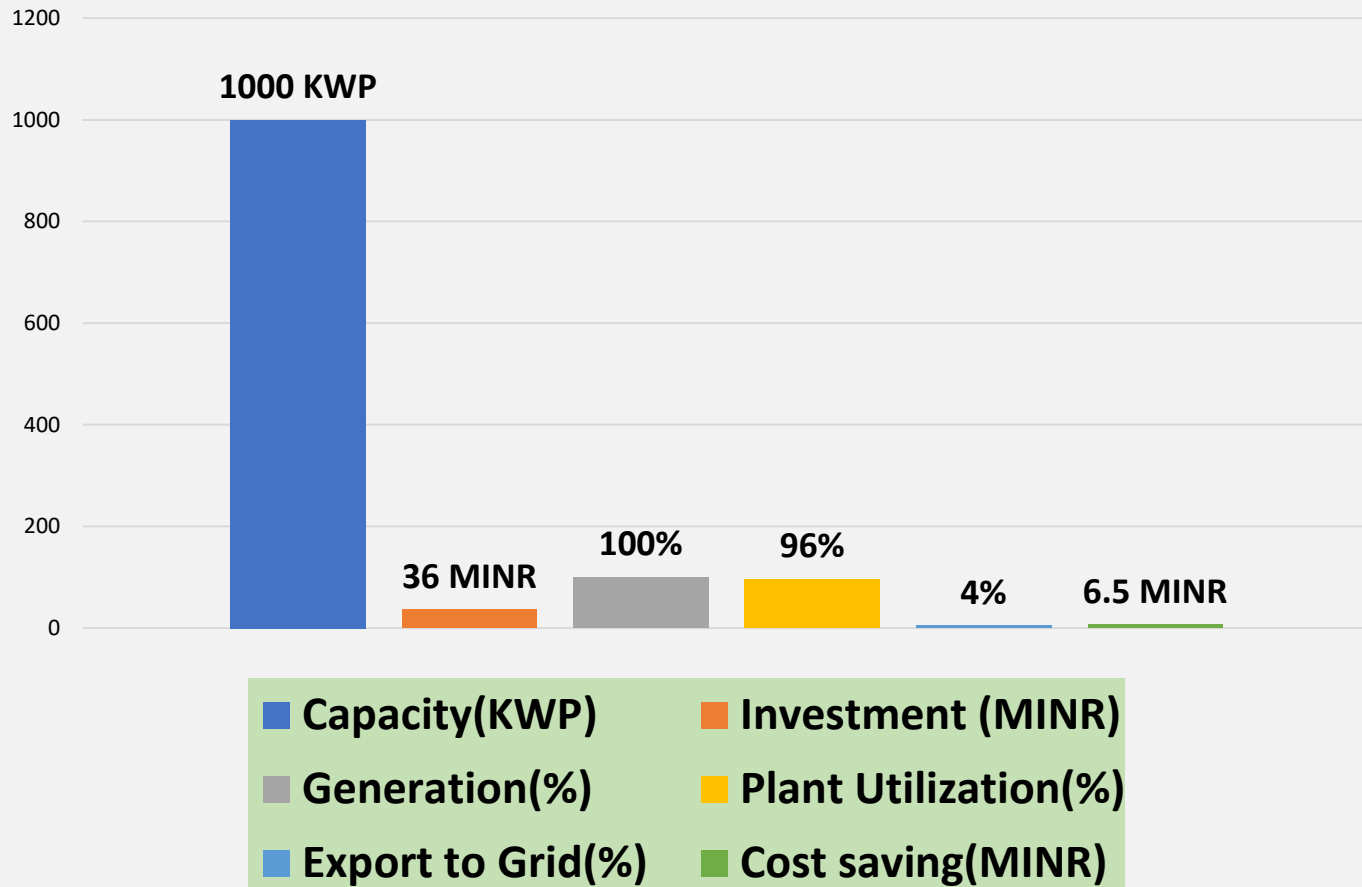
Utilization of Renewable Energy Sources

Year	Technology (electrical)	Type of Energy	Onsite/Offsite	Installed Capacity (MW)	Generation (million kWh)	% of overall electrical energy
FY 2019-20	NA	NA	NA	NA	NA	NA
FY 2020-21	NA	NA	NA	NA	NA	NA
FY 2021-22	Electrical	Solar	On Site	1	1.13	7

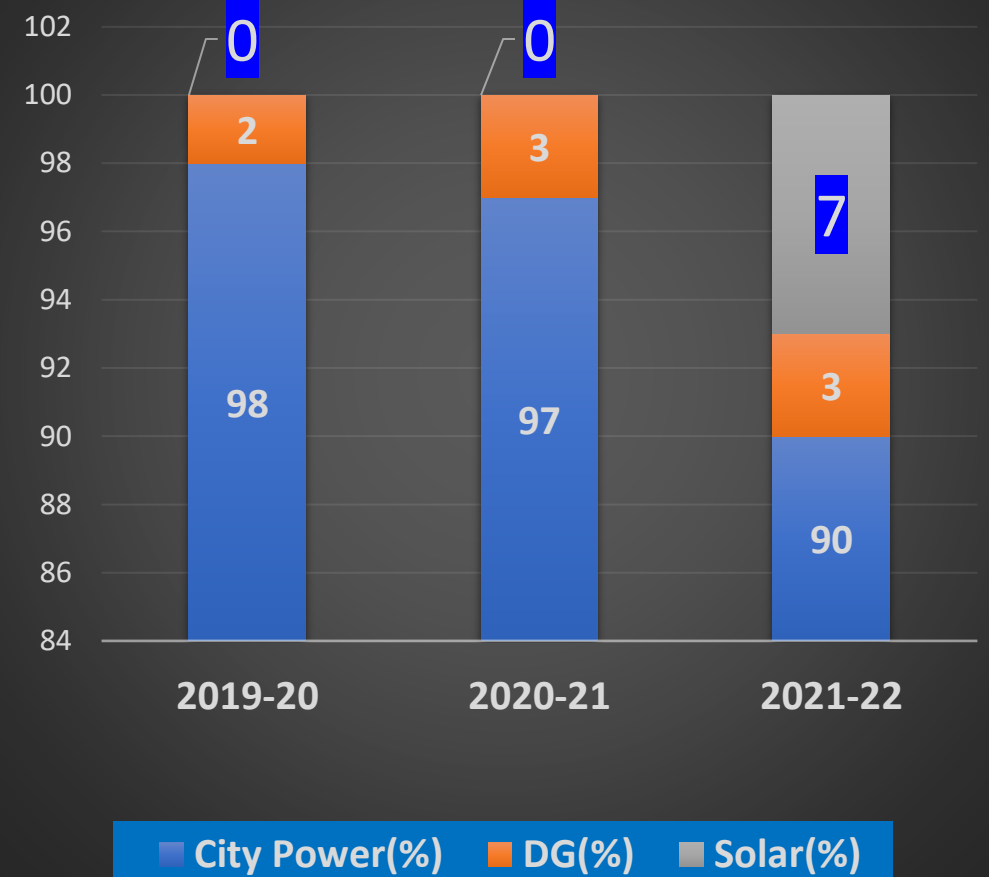


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Details of Generation, utilization & Investment



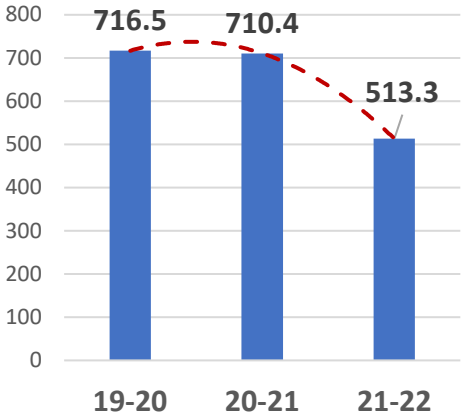
Energy consumption Trend (%)



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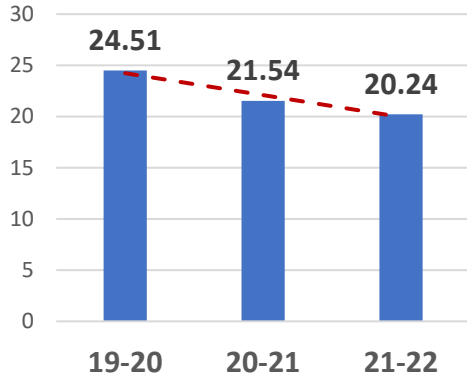
Waste Utilization and Management

**Urea Scrap
MT/Year**



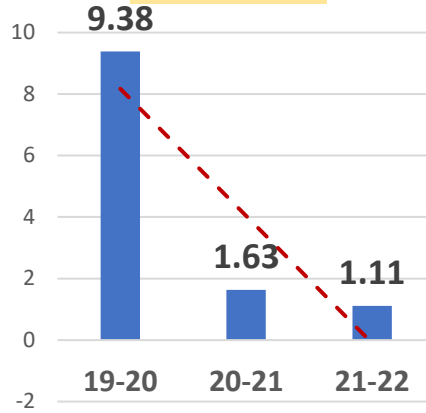
Save RM wastage by Reducing shot molding and flash generation

**Corrugated Box
MT/Year**



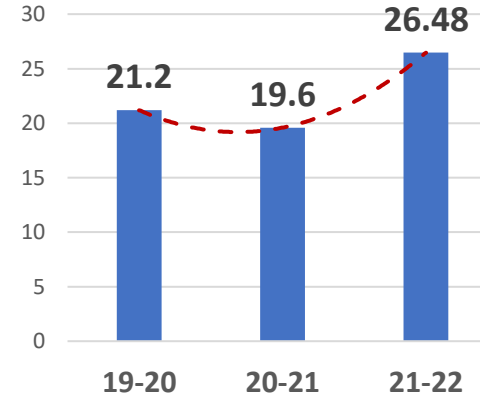
Raw material directly received in Unit-2, Few master carton merged for common packing

**Plastic Bags
MT/Year**



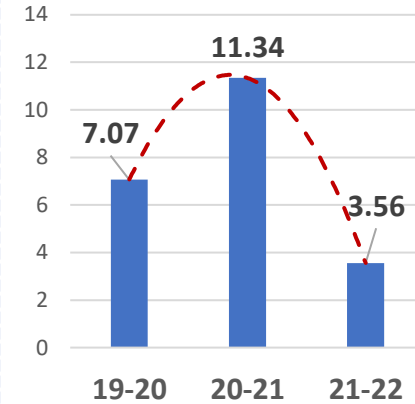
Replace plastic bags by Non woven bag and Corru fabricated box in Moulding

**Copper Scrap
MT/Year**



Develop and use standard Tool for cutting and use the complete part to reduce scrap

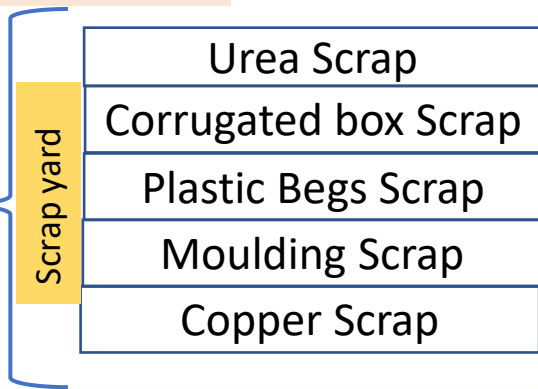
**Moulding scrap
MT/Year**



Reduce machine shutdown hence less generation of lumps, optimum reuse of lumps and runner as per standard.



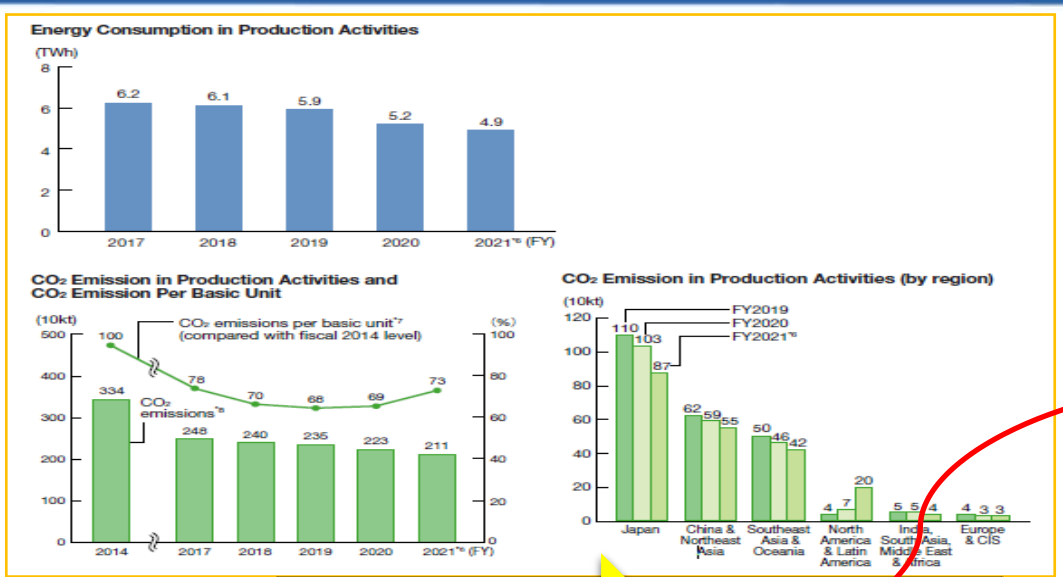
PLSIND U1



Send to authorized Recycler of M/s. Arun Plastic

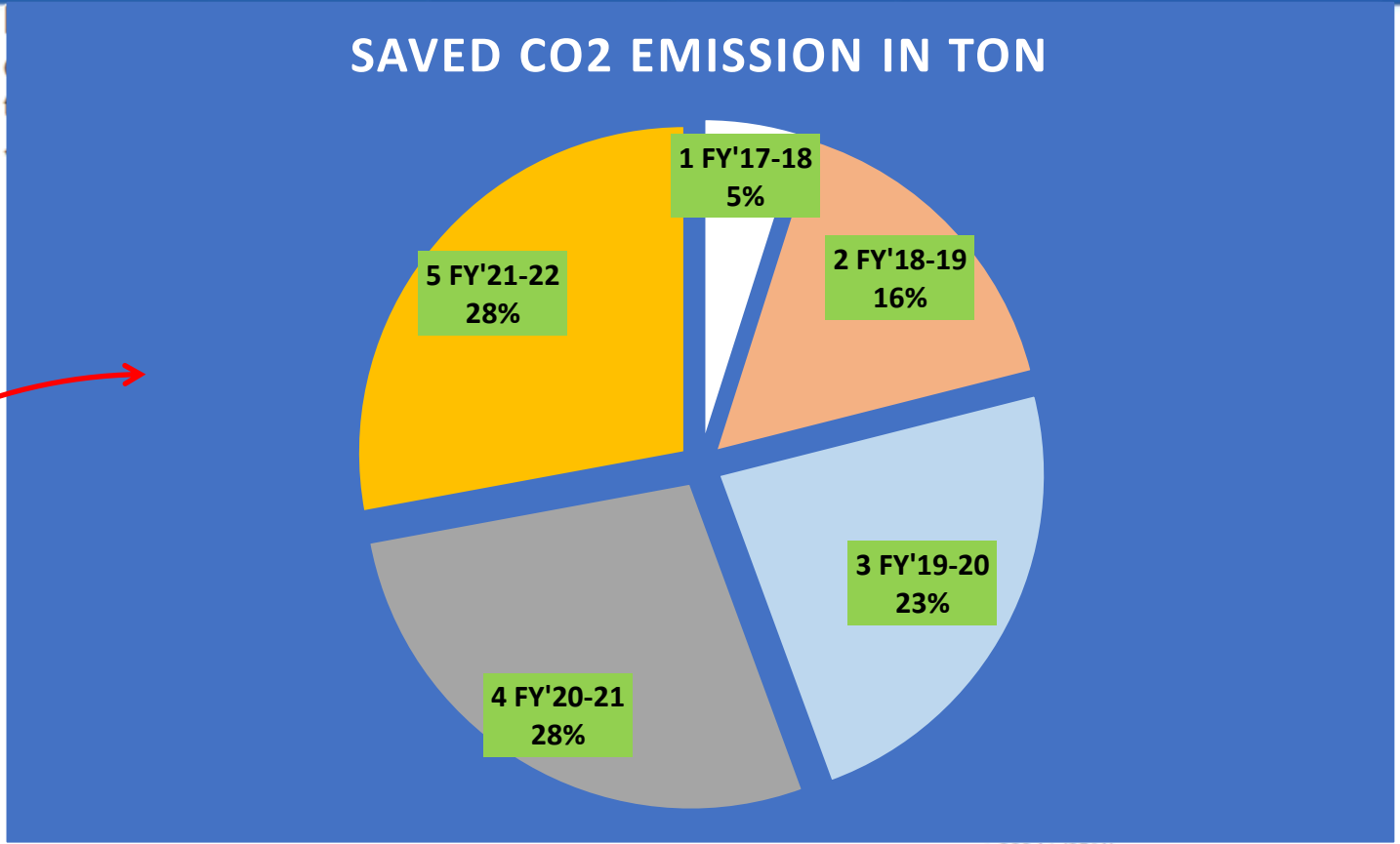


Recycler Site of M/s. Gupta Metals & Agarwal Metals



Last year four year % wise PLSIND Contribution for CO2 emission reduction

Sr.No	Year	Saved Co2 Emission in Ton
1	FY'17-18	494.628329
2	FY'18-19	1625.598232
3	FY'19-20	2351.43352
4	FY'20-21	2789.0858
5	FY'21-22	2810.589

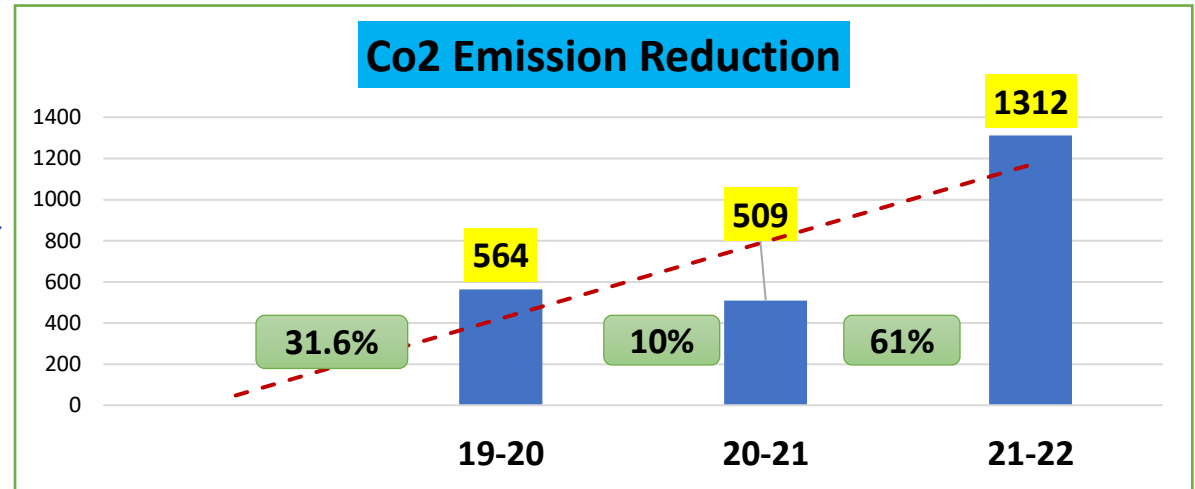
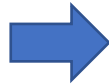


*14 The GHG emissions from energy use by Panasonic Corporation of North America included.

CO2 Emission Reduction Trend

Co2 Emission Reduction _ Last 3 Years

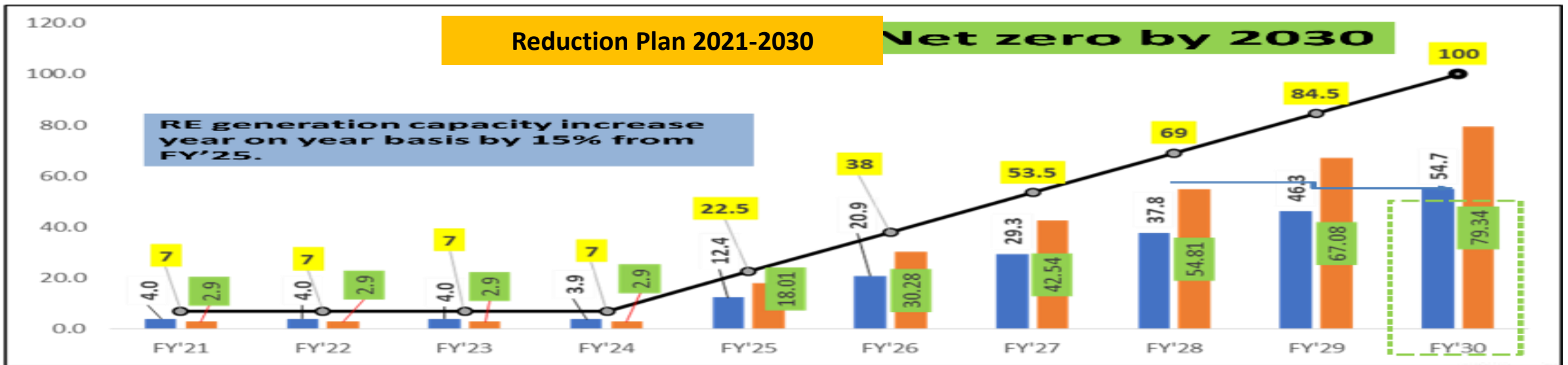
Year (FY)	Energy Saving (KWH)	Saved Co2 emission(TON)	% of Reduction
19-20	687975	564	31.6
20-21	620672	509	10
21-22	1600677	1312	61



Reduction Plan 2021-2030

Net zero by 2030

RE generation capacity increase year on year basis by 15% from FY'25.



■ Renewable generation Capacity Increasing (MWp)
■ % Increase year on year from FY'25

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100% water coolers of factory premise are replaced by eco friendly gas water coolers as a sustainable organization

100% Air-conditioners to be replace with eco-friendly gas

Only Energy efficient products are being procured in factory as a energy efficient factory.

With each purchase order ,it is communicated to vendors to supply only energy efficient product ,environmental friendly and safe products.

For supply of any item by vendor , with PUC and License ,vendor vehicles are not allowed in plant area.

Zero single use plastic goal for FY '2021

No plastic allowed having less than 50-micron thickness.

Panasonic

GREEN SUPPLY CHAIN POLICY

As an integral part of our business philosophy and core values, we at Panasonic Life Solutions India Pvt. Ltd., are committed to achieve excellence in green supply chain mechanism.

To fulfil this commitment, we shall provide information & resources to integrate green supply chain practices in all our activities.

We will have special focus on:

- Procurement of energy efficient and eco friendly products.
- Continual improvement in manufacturing process, to reduce energy consumption.
- Comply with all relevant statutory and other requirements applicable to green supply chain mechanism.
- Set and review objectives and targets for continual improvements related to green supply chain.
- Development of supplier, transporters, dealers and other associate's competency toward resource conservation and energy conservation.
- Promoting awareness through training on energy conservation and green supply chain mechanism among all stockholders.
- Strive for sustainable partnership.
- Reduce ,Reuse and Recycle.

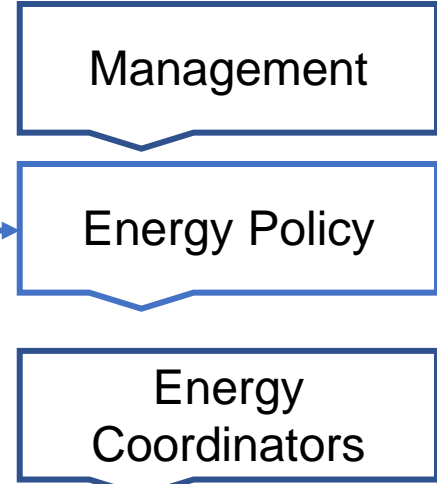
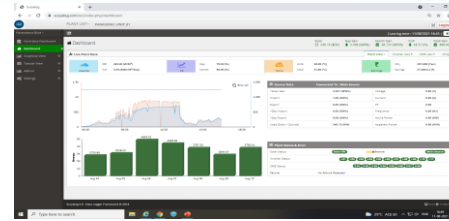
For Panasonic Life Solutions India Pvt. Ltd.

Mr. Dinesh Agarwal
Joint Managing Director & Occupier

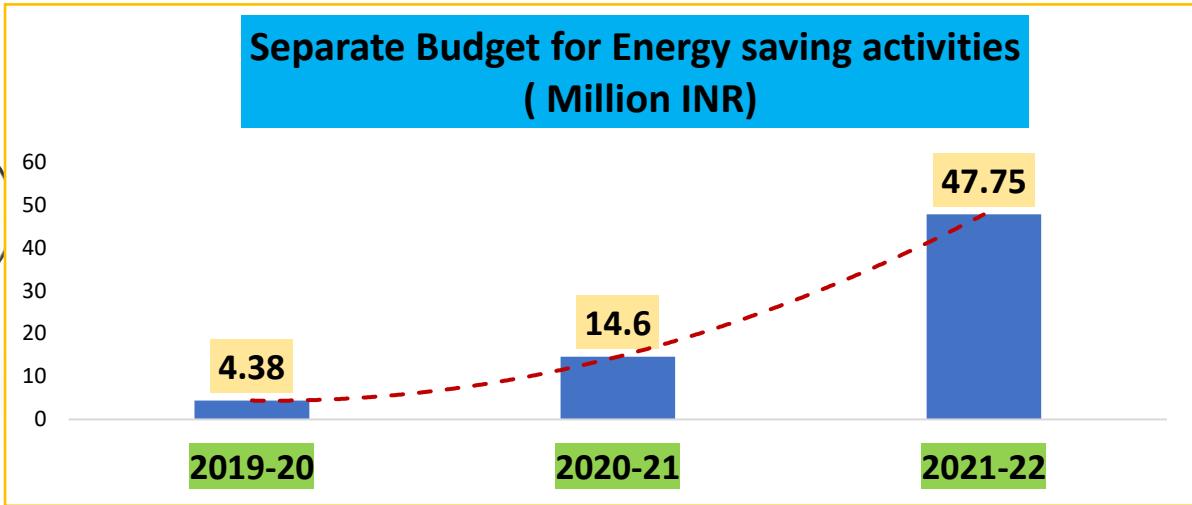
Date:



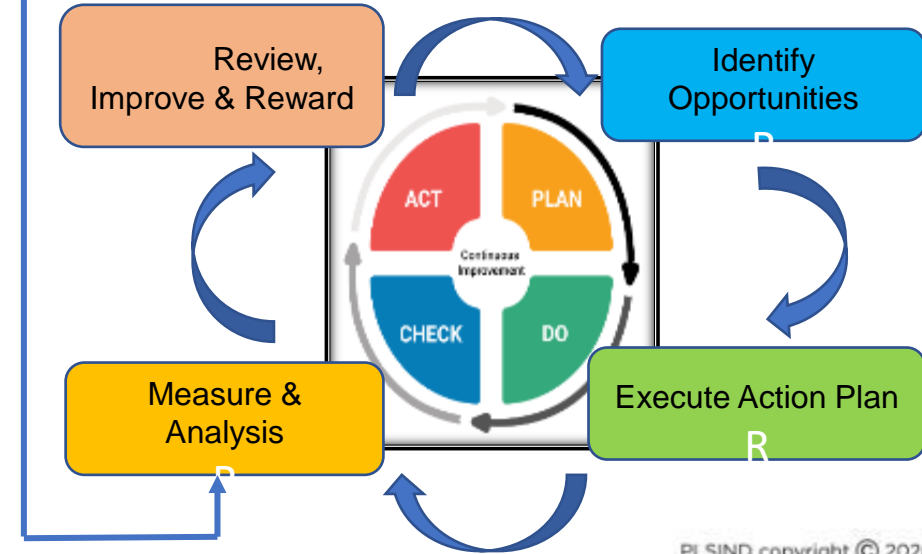
Daily Energy Data Coming on IOT based Energy management System & Cross Checked by Respective PIC & Reviewed by Section Head Facility



Separate Budget for Energy saving activities (Million INR)



Energy awareness programme is organized on regular basis- internal as well external



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Kaizen activity : Made in house part stands for Eco 1 way Rocker

Item



Part Stand for Eco 1 way rocker

Before



Machine running with Bin stacker conveyor

After



Machine running without bin stacker conveyor with the help of PP box stand

HOW TO (solution description)

- Component pack in small pp box with the help of bin stacker conveyor by part picker robot
- Check the feasibility to remove the conveyor from process to save the electricity.
- Make new part stand for pp box and implement with machine
- Now machine running with part stand without using bin stacker conveyor

Before:-

- ❖ Machine running with bin stacker conveyor with more consumption of electricity.

After:-

- ✓ Now machine running with part stand without using bin stacker conveyor

Result

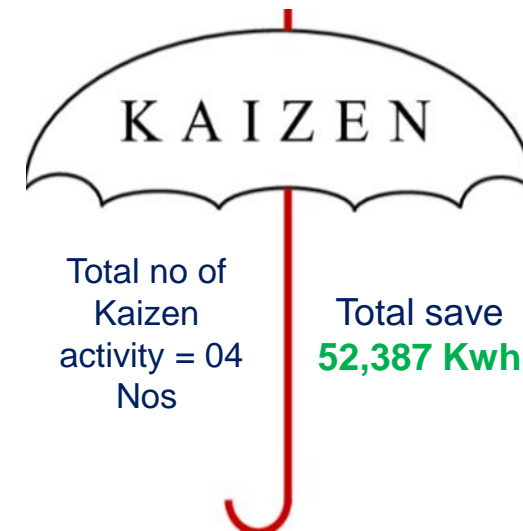
Electricity saving(KWH):

0.3 KW x 24 Hour X 25 day x 12 Month x 3 nos machine= 6480 KWH for 3 nos machine.

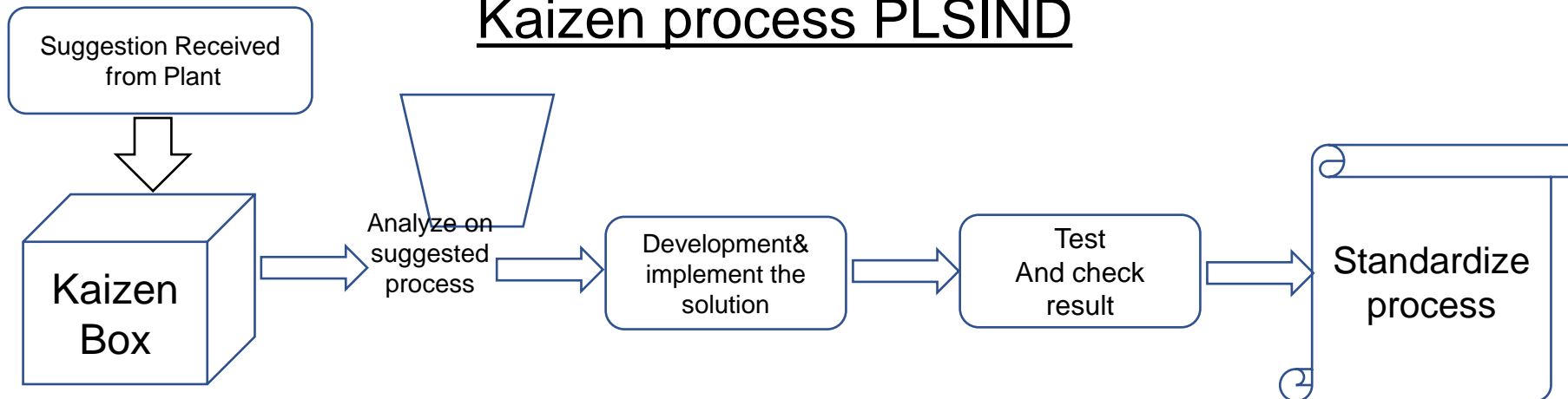
**Electricity cost saving(INR):
37260/- (INR)**

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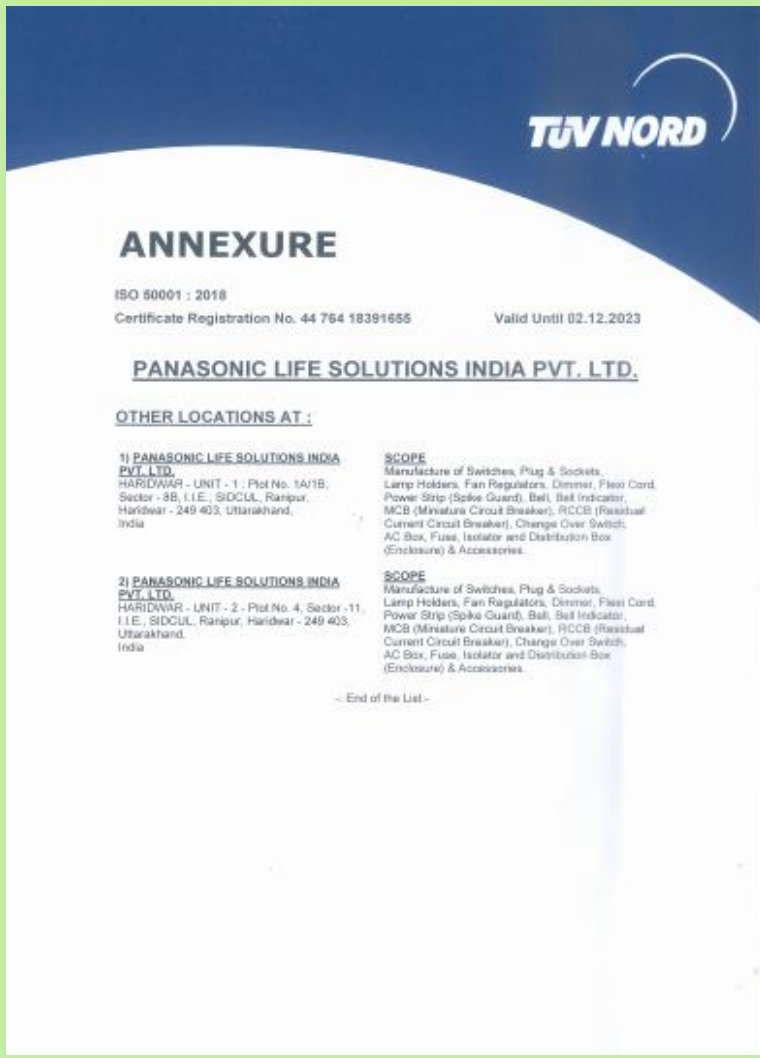
- | | | |
|----|--|-----------------|
| 1. | Machine running without bin stacker conveyor with the help of PP box stand | 6,480 Kwh/Year |
| 2. | Air compressor optimization use for energy save | 20,505 Kwh/Year |
| 3. | Manual operation to Auto operation in Exhaust fan (Penta Floor) | 6,682 Kwh/Year |
| 4. | Utilization of Inclined conveyor i.e., 2 machines 2 conveyors by 2 machines 1 conveyor | 18,720 Kwh/Year |



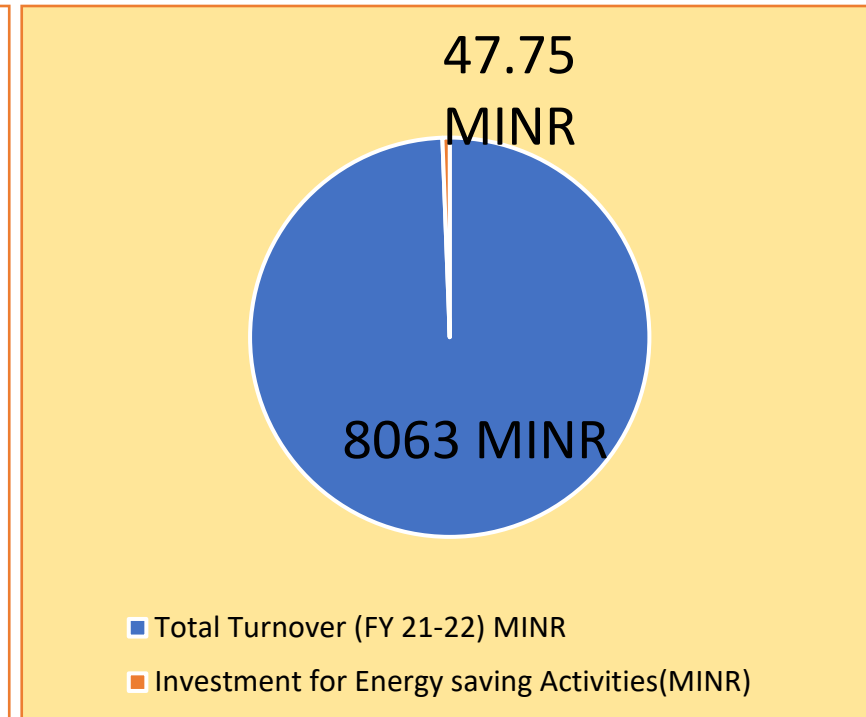
Kaizen process PLSIND



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- **PLSIND Haridwar Unit is EnMS Certified Since Nov-17 with 2018 version**
- **Set and monitoring Energy Baseline for individual departments.**
- **Regular Energy review and monitoring is being done**
- **Identify the SEU and taken monitoring control**
- **Energy awareness programmes are being planned on regular basis**
- **More Emphasis given for procuring energy efficient products.**
- **Compliance related to EnMS is being strictly maintained.**



0.6 % investment of energy saving projects on total turnover of the company (FY 21-22)

- ❑ Deep understanding of Energy management system and conservation.
- ❑ Better utilization of Renewable Energy source.
- ❑ Elimination of Non-value-added activities.
- ❑ Learned systematic approach towards improvements for energy saving ideas and technic.
- ❑ Enhance cost consciousness among team.
- ❑ Culture of Energy Improvement through Sustainable Activities.

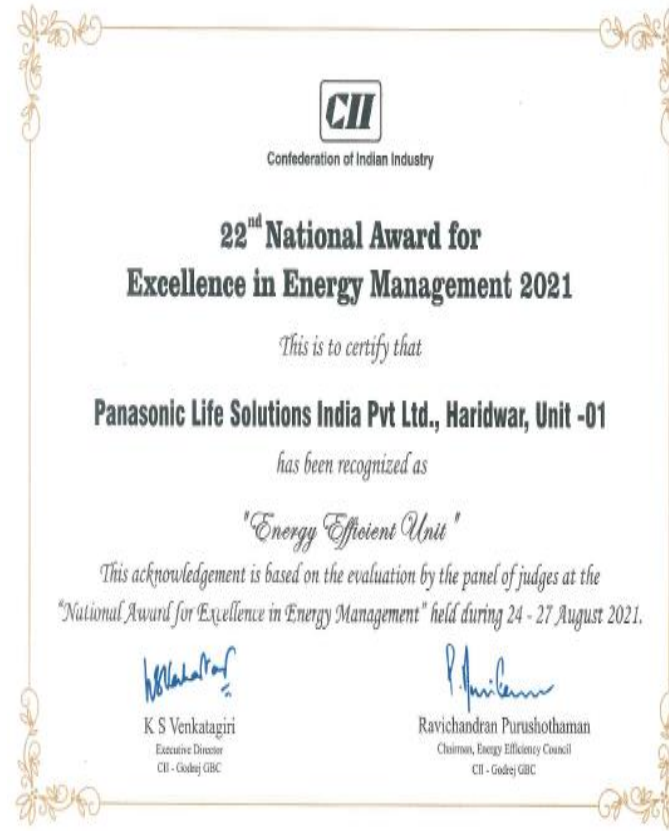
**APEX India
Green Leaf
Award-2021**



**CII National
Award for
Environmental
Best Practices –
2021**



CII National ENERGY MANAGEMENT AWARD 2021



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Thanks

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