

**Welcome to**  
**25<sup>th</sup> National Award For Excellence In**  
**Energy Management**  
**MY HOME INDUSTRIES Pvt., Ltd.**  
**VIZAG GRINDING UNIT**





## TEAM MEMBERS



Sr. VP - Works



Manager - Electrical



GM - Operations  
Presenter



# 1. BRIEF INTRODUCTION OF THE COMPANY



## MALLECHERUVU CEMENT PLANT



Mellacheruvu Cement Works, established in 1998, is the primary factory with three units and a combined installed capacities of clinker 7.0 and cement 6.4 MTPA. The facility is also supported by two coal-based captive power stations with capacities of 15 MW and 60 MW, both located within the cement factory premises.

## VIZAG GRINDING UNIT



The Vizag Grinding Unit, established in 2009 with a capacity of 1.5 MTPA, was upgraded to 2.0 MTPA in 2012. The facility features advanced technology, including a Vertical Roller Mill for slag grinding supplied by Loesche, Germany, and a Ball Mill for grinding OPC and PPC from Humboldt Wedag, Germany.

## SREE JAYAJOTHI CEMENT PLANT



My Home Industries acquired Joyajothi Cements in 2013, expanding its cement manufacturing capacity to 3.2 million tons per annum. The factory was established with world-class equipment and technology from nationally and internationally renowned suppliers, including Loesche, Germany.

**MHIPL Total Capacity : 11.6 MTPA**



## FOREWORD



### **Dr. Rameswar Rao Jupally, Chairman (Telangana State Ambassador for Swach Bharath & Pride of The Nation awardee)**

- The My Home Group is involved in Cement, Construction, Media, Power, and Education.
- My Home Industries Pvt Ltd (MHIPL) is one of the fastest-growing cement companies in India, thriving under the visionary leadership of our Chairman. Our cement sector journey began in 1998 with an initial capacity of 0.2 MTPA and has since expanded to 11.6 MTPA.
- MHIPL-VGU is dedicated to upholding the highest HSE&Q (Health, Safety, Environment, and Quality) standards throughout all stages of the process.
- Since 2011, MHIPL-VGU has been certified with an Integrated Management System (IMS) and EnMS 2020.
- As of April 2024, MHIPL-VGU will celebrate 12 years of safe plant operation.
- By August 2024, MHIPL-VGU have achieved 17.02 million man-hours of safe operation

## 1. BRIEF INTRODUCTION OF THE PLANT

My Home Industries Pvt. Ltd., Vizag Grinding Unit (MHIPL-VGU), was established in August 2009 with an initial capacity of 1.5 MTPA, which was upgraded to 2.0 MTPA in 2012.

### The plant features state-of-the-art technology, including:

- A Vertical Roller Mill for slag and clinker grinding, supplied by Loesche, Germany.
- A Ball Mill for clinker grinding, supplied by KHD, Germany.

### MHIPL-VGU produces and supplies a range of products, including:

- Portland Slag Cement, PSC
- Ordinary Portland Cement, OPC,
- Portland Pozzolana Cement, PPC
- Composite Cement, CC
- Ground Granulated Blast-furnace Slag, GGBS



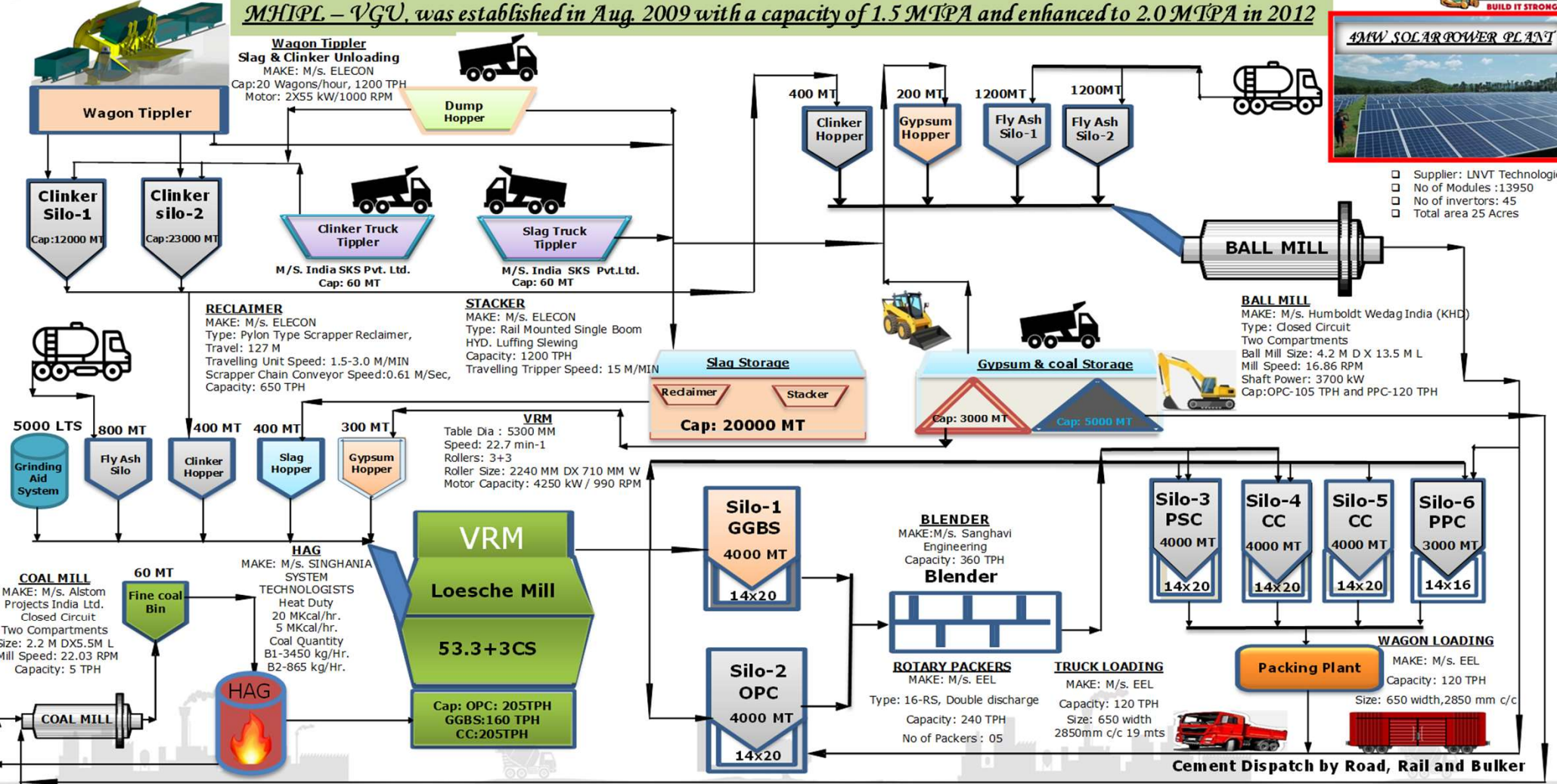
These products are distributed via road and rail through an extensive network of dealers across South India, North-East India, and Southern & Eastern India.

# VGU - PLANT FLOW CHART

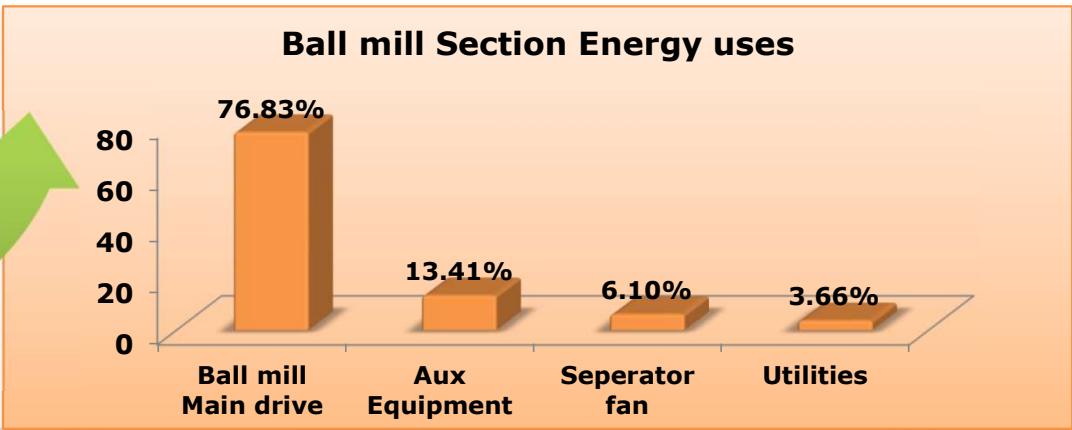
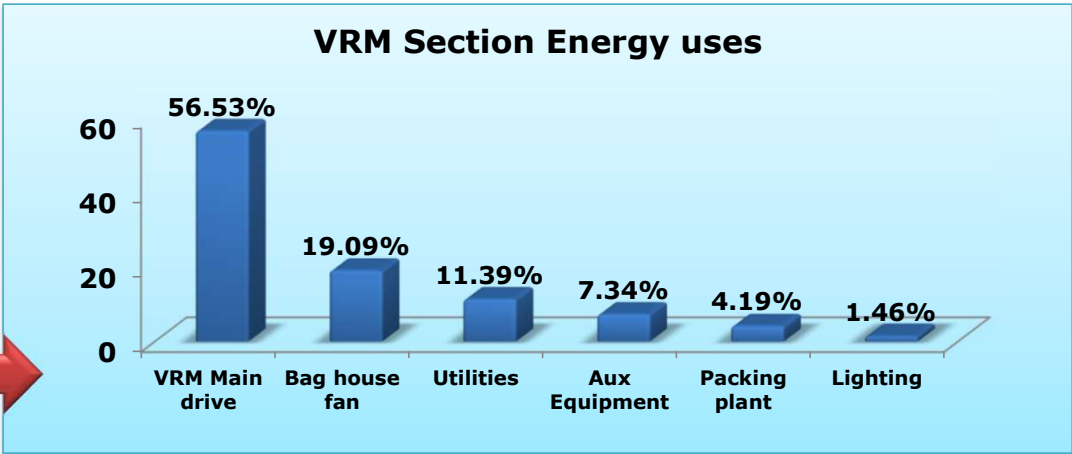
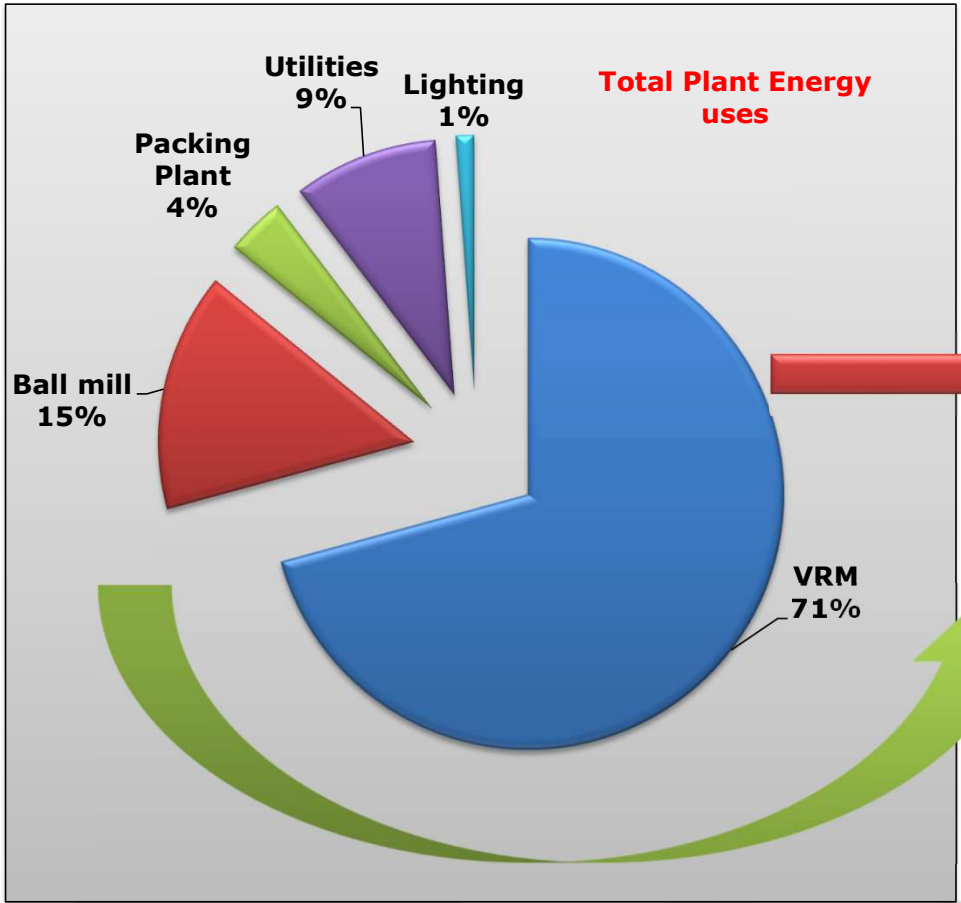
*MHIPL - VGU, was established in Aug. 2009 with a capacity of 1.5 MTPA and enhanced to 2.0 MTPA in 2012*



- Supplier: LNVT Technologies
- No of Modules :13950
- No of invertors: 45
- Total area 25 Acres

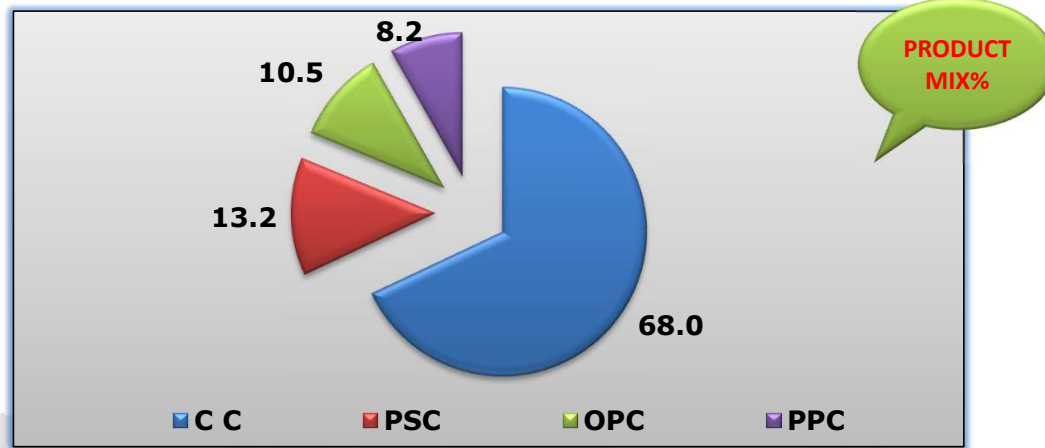
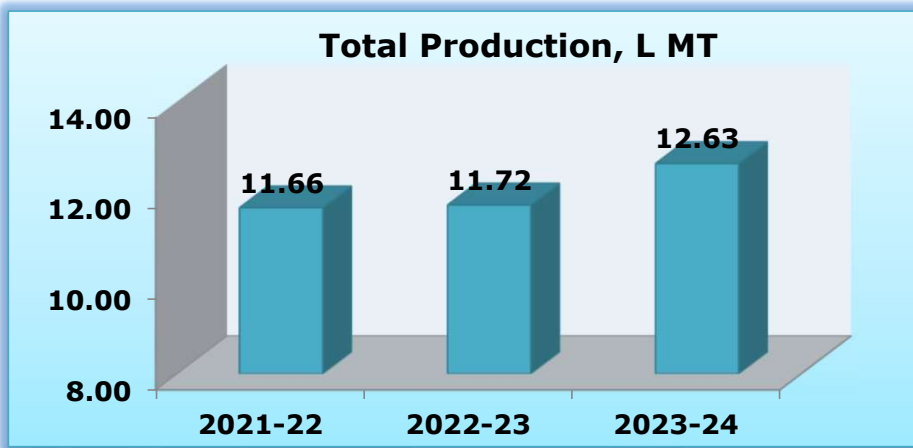
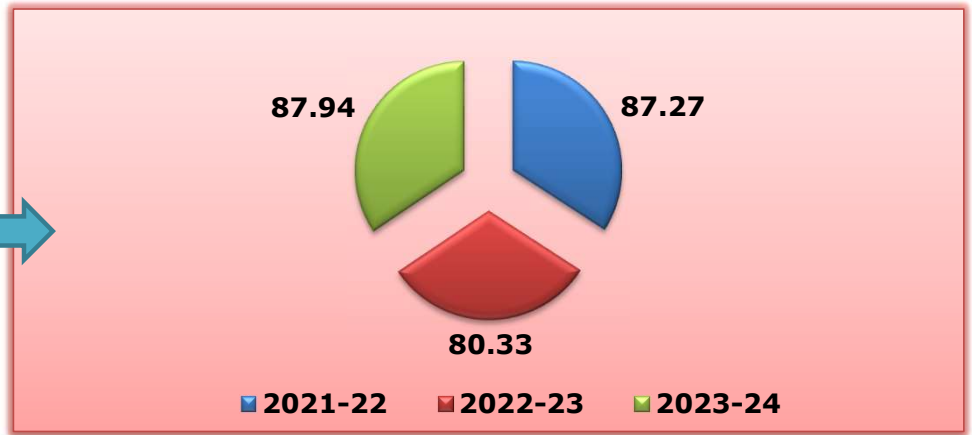


## 2. SECTION WISE SIGNIFICANT ENERGY USES



# 1. PRODUCT MIX & BLENDED CEMENT %

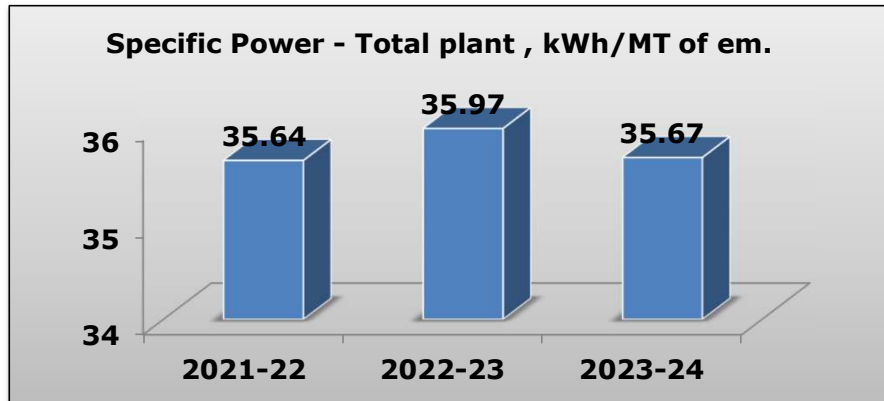
VGU- Blended Cement and Clinker Factor			
Product	2021-22	2022-23	2023-24
Blended Cement %	87.27	80.33	87.94
PSC – Clinker Factor	36.49	35.96	35.14
CC – Clinker Factor	35.20	35.06	35.34
PPC – Clinker Factor	Nil	Nil	60.36



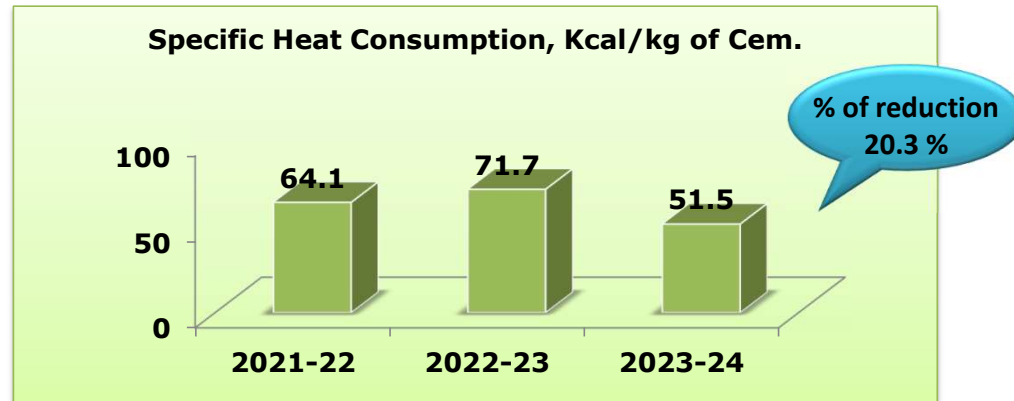


## 2. SPECIFIC ENERGY PERFORMANCE

### Specific Power Consumption

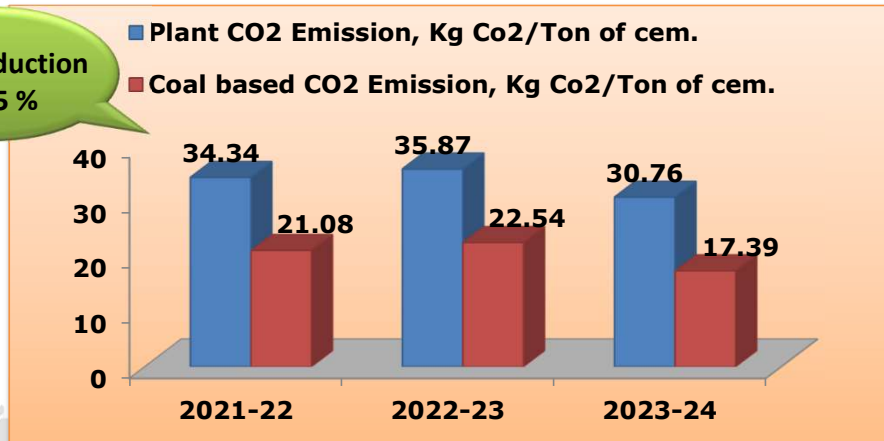


### Specific Heat Consumption



■ Plant CO2 Emission, Kg Co2/Ton of cem.  
 ■ Coal based CO2 Emission, Kg Co2/Ton of cem.

% of reduction 17.5 %



### Slag Crisis at Steel Plant (RINL):

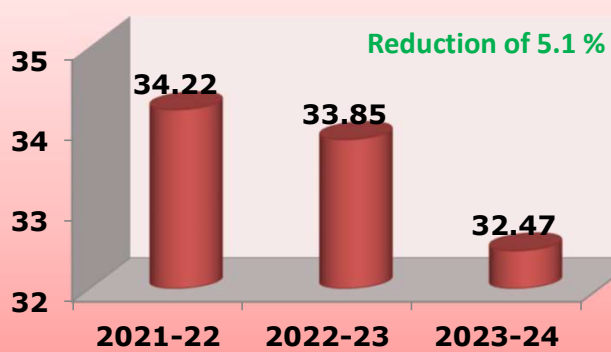
- Utilization of Dump Slag with 20-35% content, which contains over 18% moisture.
- Optimization of High Ash and Coal Mill operations.
- Fine-tuning of Vertical Roller Mill (VRM) operations and outlet temperature controls.



## 2. SPECIFIC ENERGY CONSUMPTION PRODUCT WISE FY 2021-24

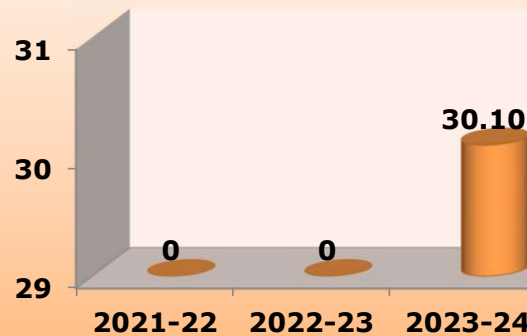


OPC Specific Energy Consumption, kWh/MT

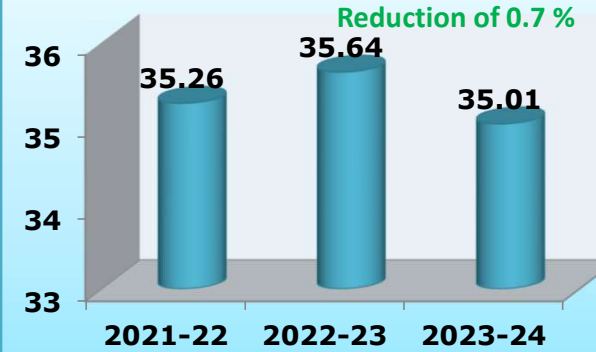


PPC Production started in the month of MAY'2023

PPC Specific Energy Consumption, kWh/MT



PSC Specific Energy Consumption, kWh/MT

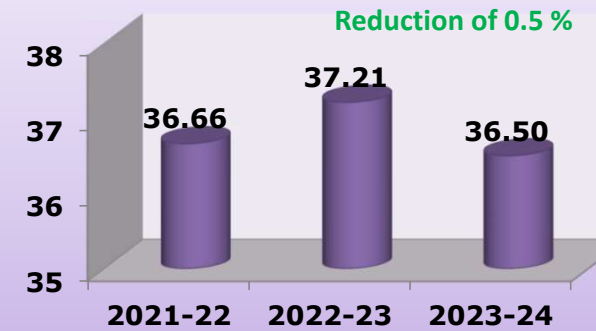


C C Specific Energy Consumption, kWh/MT



Composite Cement Specific power variation due to Dump slag usage which contributes ~ 20-35%

GGBS Specific Energy Consumption, kWh/MT





### 3. INFORMATION ON COMPETITORS, NATIONAL & GLOBAL BENCHMARKING



S. No	Product	Specific electrical Energy consumption (KWH/ Ton)			Short term Target	Long Term Target	Benchmark	How close to CII-National	Neighbor Plant
		2021-22	2022-23	2023-24	2024-25	2025-26	CII		
1	C C	24.39	24.53	24.51	24.30	24.20	-	-	28.10
2	OPC	34.22	33.85	32.47	32.20	32.10	29.79	Plant-1	-
3	PSC	35.26	35.64	35.01	34.50	34.25	31.90	Plant-1	35.50
4	GGBS	36.66	37.21	36.50	36.20	36.10	-	-	-
5	PPC	Nil	Nil	30.10	30.00	29.90	27.07	Plant-1	-





### 3. INFORMATION ON COMPETITORS, NATIONAL & GLOBAL BENCHMARKING



#### ENERGY SAVING PROJECTS PLANNED in 2024-25

S. No	Energy Saving Project details	Electrical Energy		Thermal Energy		Investment	Pay back period
		Reduction in Power kWh	Rs. Lakhs per Annum	Million Kcal	Rs. Lakhs per Annum	Rs. Lakhs	Months
1	S-Rollers will be removed from VRM	5,00,000	35.00	-	-	0.20	01
2	VRM Reject bucket elevator Optimization and avoid the idle running hours	1,15,000	8.05	-	-	0.40	06
3	Bag house inlet duct wear plate replacement and arresting the false air entry in the system	1,64,000	11.50	-	-	1.00	10
4	Optimization of specific coal consumption in HAG to reduce the heat consumption from 51.14 to 50 kcal/kg of cement	-	-	1.409	27.15	Nil	Nil
<b>Total Projects summary Estimated savings</b>		<b>7,79,000</b>	<b>54.55</b>	<b>1.409</b>	<b>27.15</b>	<b>1.60</b>	<b>17</b>



## 4. ENERGY SAVING PROJECTS IMPLEMENTED LAST 3 YEARS



Year	No of Energy Saving Projects	Investments (In Millions)	Electrical Savings (In Million kWh)	Thermal Energy Savings million kcal.	Savings(INR Million)	Impact on SEC (Electrical kWh / MT Cement)
2021-22	10	1.500	0.6477	-	3.396	0.56
2022-23	08	2.094	0.4358	-	2.558	0.37
2023-24	06	1.000	0.5329	162	32.57	0.42





## 4. ENERGY SAVING PROJECTS IMPLEMENTED LAST 3 YEARS



S. No	Energy Saving Project Details Year : 2021-22	Achieved Savings: 2021-22			
		Electrical Energy		Investment	Pay Back Period
		Reduction in Power kWh	Savings Rs. Lakhs per Annum	Rs. Lakhs	Months
1	Optimize operation of VRM reject belt conveyor by installing VFD and maintain desired RPM	11300	0.61	1.50	29.51
2	Optimize operation of coal mill bag filter by installing VFD and maintain desired suction	30220	1.63	4.00	29.45
3	Reduce the dust accumulation inside VRM inlet-1 & 2 ducts	267500	14.44	1.00	0.83
4	Improve the power factor and reduce the distribution losses at identified location by installing capacitor banks	34290	1.85	3.30	21.41
5	Optimize operation of 1 no silo top bag filter by installing of VFD and maintaining desired silo suction	11340	0.61	4.00	78.69
6	Reduce excess pressure drop across cement mill ball mill CA fan to prevent dust accumulation in inlet of cyclones	27200	0.47	0	0.00
7	Reduce false air infiltration in coal mill separator from identified area by arresting air ingress	5600	0.30	0	0.00
8	Reduce false air across VRM circuit by arresting air leakages from identified areas	244800	13.22	0	0.00
9	Avoid leakages from flange opposite to 613BL4 blower	6500	0.35	0	0.00
10	Replace existing blades with FRP blades in CT cooling fan	9020	0.48	1.20	30.00
<b>Total Projects summary</b>		<b>6,47,770</b>	<b>33.96</b>	<b>15.0</b>	<b>190.0</b>

**My Home Industries Pvt. Ltd.**

## 4. ENERGY SAVING PROJECTS IMPLEMENTED LAST 3 YEARS

S. No	Energy saving Project details Year : 2022-23	Achieved Savings: 2022-23			
		Electrical Energy		Investment	Pay back period
		Reduction in Power kWh	Savings Rs. Lakhs per Annum	Rs. Lakhs	Months
1	Packer section bag filter fan VFD installation and avoid the damper losses	15000	0.97	3.0	37
2	Replace existing High mast Light fixture with LED for identified poles	21020	1.26	5.0	48
3	Replace existing exhaust fan with BLDC fan	12260	0.66	0.14	2.5
4	Install AC energy savers for identified split AC units 45 no's	95000	5.13	3.20	7.5
5	Utilize VFD in screw compressor 634 cp1 and avoid unloading of compressor	214870	12.90	10.0	9.3
6	Elimination bag filter at Raw material handling section	32376	2.10	0.60	3.5
7	Provided continuous radar level for VRM Main water tank top reduce the pump running hours	34010	1.84	0.50	3.3
8	Silo-6 top bag filter fan VFD installation	11333	0.74	3.0	49
<b>Total Projects summary</b>		<b>4,35,869</b>	<b>25.60</b>	<b>25.44</b>	<b>160</b>



## 4. ENERGY SAVING PROJECTS IMPLEMENTED LAST 3 YEARS



S. No	Energy saving Project details Year : 2023-24	Achieved Savings: 2023-24					
		Electrical Energy		Thermal Energy		Investment	Pay back period
		Reduction in Power kWh	Savings Rs. Lakhs per Annum	Million Kcal	Savings Rs. Lakhs per Annum	Rs. Lakhs	Months
1	Reduction of Specific Heat Consumption 64 kcal/kg of cem. to 51.14 kcal/kg of cem.	-	-	162	288.5	Nil	-
2	Raw material hoppers high level vs feeding conveyors interlock given for to avoid the idle running of equipment	87600	6.13	-	-	Nil	-
3	Auxiliary Bag filters condition monitoring, leakages arresting and filter Timer ON/OFF sequence trouble shooting	14600	1.02	-	-	Nil	-
4	Auxiliary Bag filters Pulsing compressor air pressure reduced from 5.0 to 4.5 kg/cm2	65700	4.59	-	-	Nil	-
5	VRM Mill inlet chute to Cone stump gap reduced by 50 mm to maintain the uniform material distribution and bed formation and increase output by 5 tph	200000	14.0	-	-	Nil	-
6	Reduce specific power consumption of cement mill by increase grinding media specific surface area of 2nd chamber and replaced the 1st chamber liners for increased the grinding efficiency	165000	11.5	-	-	10.0	10.5
<b>Total Projects summary</b>		<b>5,32,900</b>	<b>37.24</b>	<b>162</b>	<b>288.5</b>	<b>10.0</b>	<b>10.5</b>



## 5. INNOVATIVE PROJECTS IMPLEMENTED

### OBSERVATION:

VGU Specific Heat Consumption is high. Previous lowest heat consumption was **64.1 Kcal/ Kg Cem. In 2021-22**

### The aforesaid parameters and sources are;

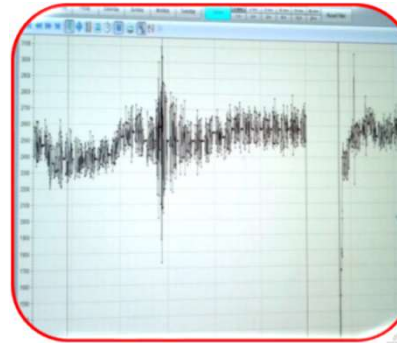
1. Dump slag usages **20- 35%**,
2. Coal Flow Rate Variation
3. Burner nozzles jamming problem
4. HAG coating dislodges due to coal fluctuations
5. HAG burning zone temperatures variations



Dump slag



Burner Nozzle



Coal Variation



HAG Coating

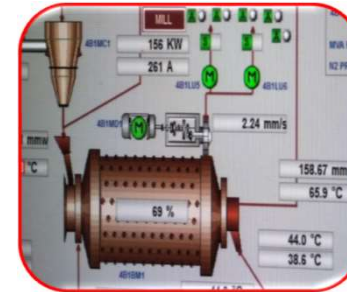
## 5. INNOVATIVE PROJECTS IMPLEMENTED

### Following implementations done :

- The stacking of the dump slag and fresh slag - pile by pile to enhance the mixing procedure effectively
- The optimization of coal mil outlet temperature based on VM (Volatile Matter)- less than 2.75 % moisture
- Monitoring keenly the fine coal moisture along with residue at **90 mic. And 212 mic.**
- The burner nozzle inspections and wear build up is constantly done.
- PID loops implementation is done to control the HAG (Hot Air Generator)
- Prominently feed fluctuations reduced to inter change of gravimetric mode to volumetric mode.
- False air entry in the system is identified and promptly arresting as and when detecting.



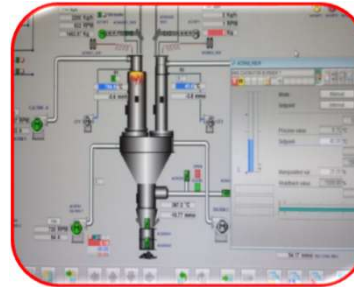
Dump & Fresh slag



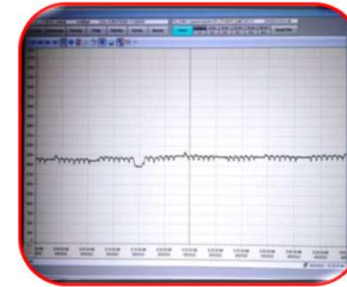
CM Outlet temp.



Burner Nozzle



HAG PID



Coal flow rate



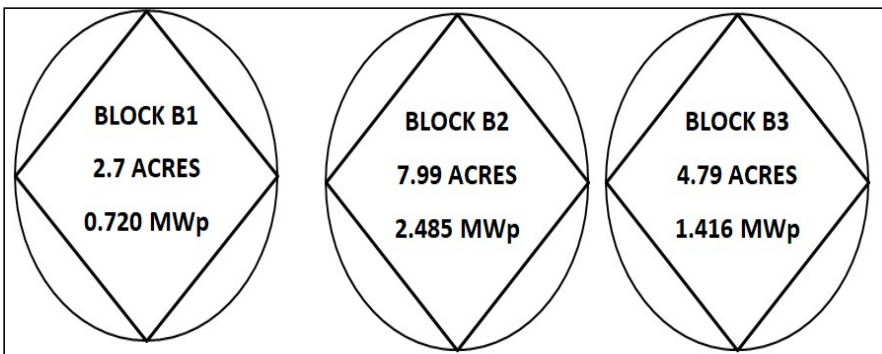
Fine Coal bin

*Heat consumption reduced from 64.1 Kcal/Kg Cem. to 51.1 Kcal/Kg Cem. (20.3%)*

*Secondly, The Net CO Emission also reduced by 3.17 Kg CO<sub>2</sub>/MT of Cem. (17.5%)*

## 6. UTILIZATION OF RENEWABLE ENERGY SOURCES

Year	Technology (electrical)	Type of Energy	Onsite/ Offsite	Installed Capacity (MW)	Generation (Million kWh)	% of overall electrical energy
FY 2021-22	PV Cell	Solar	Onsite Gen.	4.0	6.434	14.81
FY 2022-23	PV Cell	Solar	Onsite Gen.	4.0	6.281	14.11
FY 2023-24	PV Cell	Solar	Onsite Gen.	4.0	6.344	13.41



PLANT & MODULE DETAILS	
MODULE WATTAGE	330Wp
MODULE ORIENTATION	PORTRAIT
TILT ANGLE	16 Deg
TOTAL DC CAPACITY	4.613 MW
INVERTER TYPE	STRING
INVERTER NOMINAL CAPACITY	90 KW
NO OF INVETER	45
NO OF MODULES	<b>13950</b>



### Projects implemented for renewable energy for My Home Group:

**4.0 MW** SPP at Visakhapatnam – Feb'2019, **11.2 MW** SPP at Kurnool – Feb' 2019, **6.3 MW** WHRS at Kurnool – Jan' 2020, **10 kw** SPP at Kodad – Nov'2017 and **12.5 MW** WHRS at Kodad – Mar' 2017

Achieved significant CO2 reduction and enhanced sustainability in cement manufacturing



## 7. GHG INVENTORIZATION



Description	Emissions		
	2021-22	2022-23	2023-24
Production, MT	11,65,884	11,72,134	12,63,303
Total CO2 emissions, MT	40,032	42,047	38,953
Total Emissions, kg co2 /MT of cement	34.33	35.87	30.87

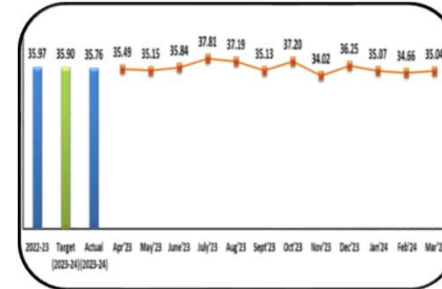
Description	2021-22	2022-23	2023-24
Scope-1 Emissions, kg co2 /MT of cement	21.13	21.20	17.43
Scope-2 Emissions, kg co2 /MT of cement	13.08	13.35	13.33
Scope-3 Emissions, kg co2 /MT of cement	0.122	0.114	0.108

- Reduced the carbon foot print by reducing the clinker proportion
- Utilized industrial by-products such as fly ash, slag, and chemical gypsum to extend the life of natural resources.
- Decreased clinker factor, contributing to the conservation of mineral resources including limestone, clay, laterite, iron ore, and coal.
- Achieved significant CO2 reduction and enhanced sustainability in cement manufacturing

## 8. EMS SYSTEM AND OTHER REQUIREMENTS

### 1. Daily monitoring system & use of IOT:

- Continuous monitoring of specific electrical energy through DCS with daily generation of section-wise SEC reports.
- Immediate identification and addressing of compressor air leakages as they are observed.



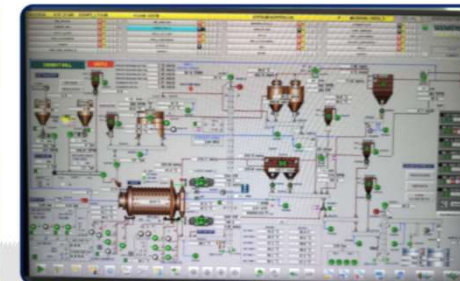
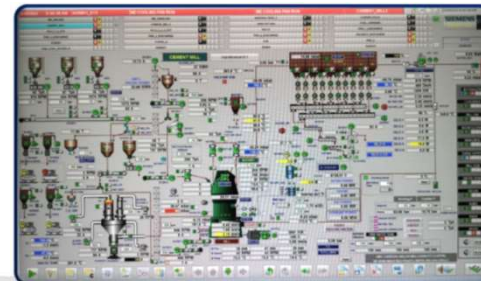
### 2. Review meeting chaired by:

- Daily production review meetings chaired by the Plant Head.
- Monthly review meetings with Directors (HO).
- Monthly energy performance review meetings with the Energy Cell



### 3. Separate budget for Energy conservation:

- ✓ Separate budget allocated for Energy conservation projects for 2024-25





# 8. EMS SYSTEM AND OTHER REQUIREMENTS



## IMPLEMENTATION OF ISO 50001/GREEN CO



- EnMS implementation began in 2020
- 2nd surveillance audit completed on 12<sup>th</sup> Aug'2022
- Recertification audit completed in Sep'23
- The audit team commended our initiatives and continual improvements during the audit



### LEARNING FROM CII ENERGY AWARD OR ANY AWARD PROGRAMME

- CII study conducted for plant energy conservation
- Initiated and recommended 15 projects all of which have been completed and compiled

### CII Green Pro Certificates- Composite Cement & PSC



Class room trainings and On site pep talks conducted on Energy efficiency





# OTHER RELEVANT INFORMATION



## MANAGEMENT SYSTEMS



ISO 9001:2015



ISO 14001:2015



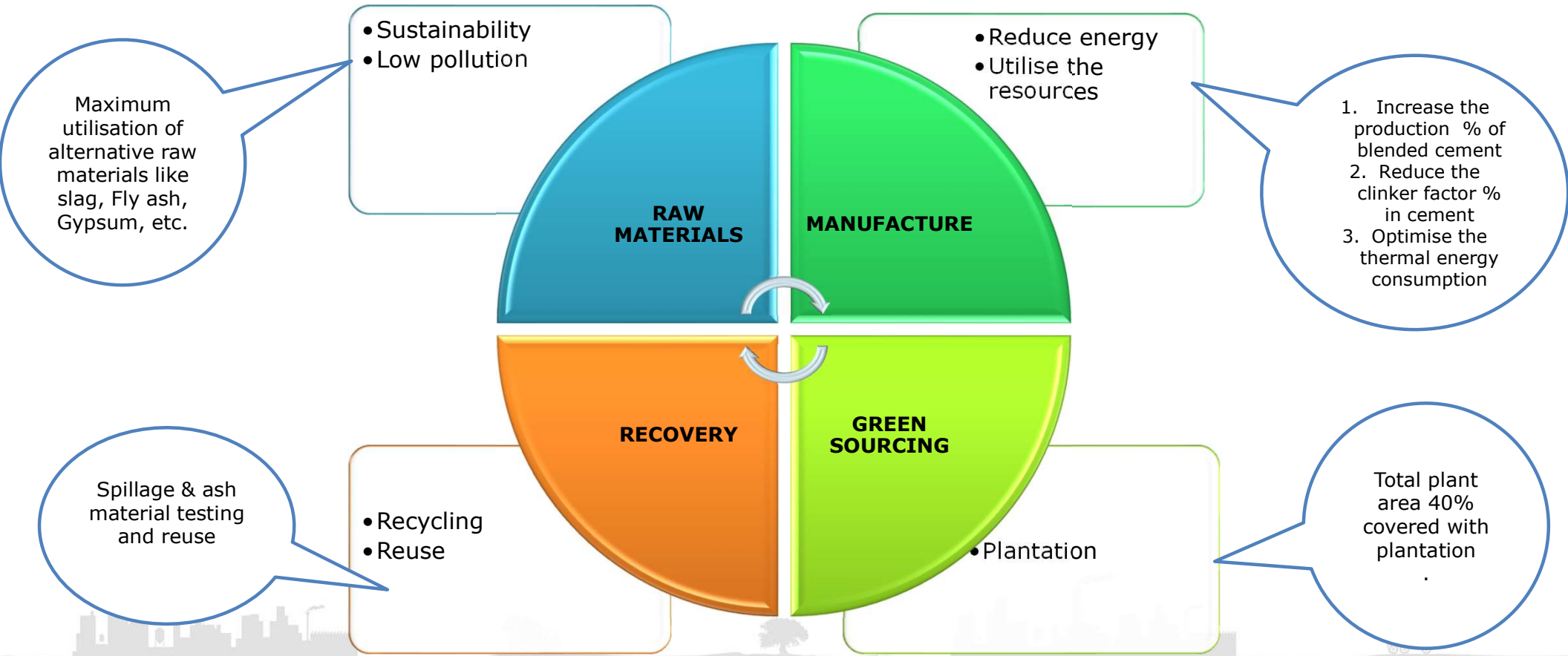
ISO 45001:2018



ISO 50001:2018



# GREEN SUPPLY CHAIN MANAGEMENT





## Escerts Achieved after Final Verification by BEE in PAT Cycle-6



S. No	Particular	Unit	BEE verification
1	Notified Specific Energy Consumption for Base Line	TOE/MT	0.0166
2	Target Specific Energy Consumption	TOE/MT	0.0156
3	Equivalent Major Product Output in tonnes as per PAT scheme Notification	MT	1674399
4	Normalized Gate to Gate Specific Energy Consumption after REC compliance	TOE/MT	0.0146
5	Difference in SEC or Over achievement of Target	TOE/T.	0.0010
6	Savings achieved	TOE	1674.40
7	Energy saving Certificates to be issued	No.	1674

PAT Cycle -VI Base line year were taken 2018-19

Mandatory Energy Audit conducted in the month of Nov'2021

Final Audit conducted by M&V in the month of June'2023



## AWARDS RECEIVED



National Best Award for Environmental Excellence in Grinding units for the years 2019-22 instituted by NCCBM



23rd National Award for Excellence in Energy Management 2022 by CII



Winner for outstanding achievements in EHS Best Practices by Green tech



Secured 'Bronze' in Industrial Safety Innovation Award category by CII AP-2022



Selected for British Safety Council - International Safety Award 2023



Special Recognition Award from "Rashtriya Ispat Nigam Limited- Vizag Steel, Vizag" for achieving "highest sales volume in Slag" FY.2022-23.



# AWARDS RECEIVED



Excellent Unit award from QCFI 3rd National Sustainability Awards of Energy Excellence



Excellent Unit award from QCFI 3rd National Sustainability Awards of Health & Safety



Efficient Unit award from QCFI 3rd National Sustainability Awards of Environmental Excellence



**THANK YOU**

**B.RAMASWAMY, GENERAL MANAGER  
(OPERATIONS)  
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**My Home Industries Pvt. Ltd.**