HEARTY WELCOME

1. Brief introduction on Company / Unit- *Leading the way for over 8 decades*

Date : 13 - 15 September 2023

16 Varieties of Cement from One Location
Operating 8 Management systems
Won 66 National Awards in Years FY 18 to FY23.
DPM Green Fuel TSR Annual Avg.16.4%(22-23)
Indian Avg., is @ 4%.
Water Positivity – Our DPM Plant is 6.70 times

Group Profile

- Started in 1935 by Shri Jaidayal Dalmia
- Pan India presence in Cement business
- 4th largest cement manufacturer in India
- Capacity grown to 43.7 Million Tons per Annum

M/s DALMIA CEMENT (BHARAT) LTD, DALMIAPURAM

Our Uniqueness

- Only Plant in the World , Making 16 Varieties and Operating 8 Management systems
- A Pre-independent, first born Indian Cement Plant, has won 66 National Awards in the recent 5 years , including the CII EHS 5 Star / CII National Energy leadership Awards.
- Lowest Carbon footprint in the World. (as a Group)
- Our Dalmiapuram Green Fuel TSR Annual Avg.19.7%(21-22)& 16.4%(22-23). Indian Avg., is @ 4%. Consumed 56KMT of Alternate Fuel in FY23
- Green fuel/AFR enhancement to replace Fossile is not only part of our National Agenda but also a Global main lever as well towards Carbon Nertrality & to combat climate change challenges.
- Water Positivity – Our DPM Plant is 6.7 times
- Carbon Neutral Ambition - Carbon Negative Cement Group 2040.
- DPM is the First Green Pro Certification in the Country for PPC

Our Uniqueness

- **First Rank in the country in the CDP League Table .Ranked no.1 cement group globally on business readiness for low carbon transition (Source : CDP Global Cement Sector Report, April 2018)**

- **RE 100 - first cement company in the country to join RE100 (Third amongst all after Tata Motors and Infosys . (RE 100 is** a global collaborative initiative of the world's most influential companies committed to 100 per cent renewable power.**)**

- **100% renewable power under fossil free electricity initiative – 2030 . (**Being one of the greenest cement companies in the world, Dalmia Cement has set an ambitious interim target to increase four-fold its percentage of renewable energy consumption by 2030)
- **Double energy productivity - 2030 (EP 100)**
- **EV 100 – Significant Electrical Vehicles Transition by 2030**
- **Renewable biomass and waste to replace fossil fuel use - 2035**
- **Third Indian Cement Company to sign the CSI Charter**

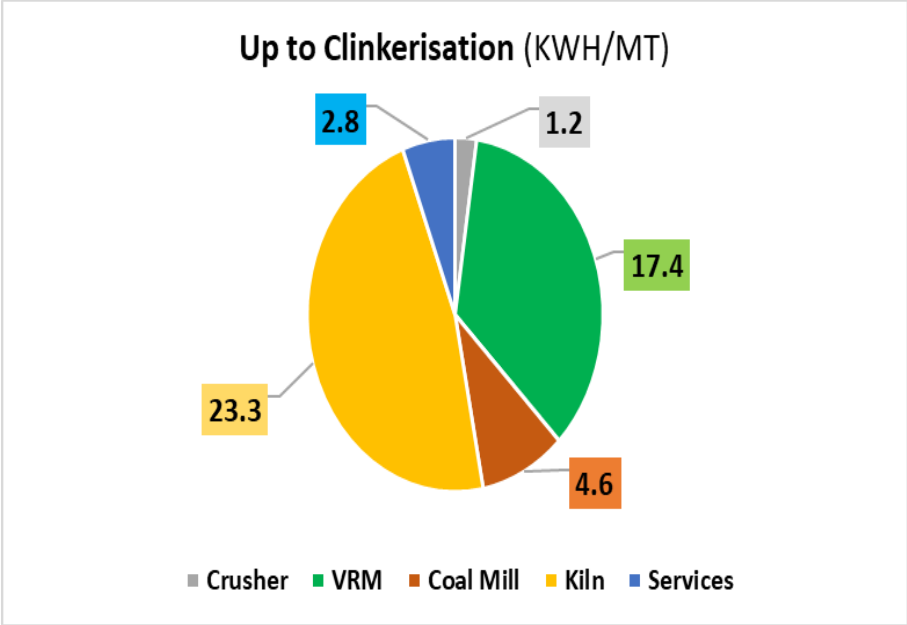
Presentation Coverage

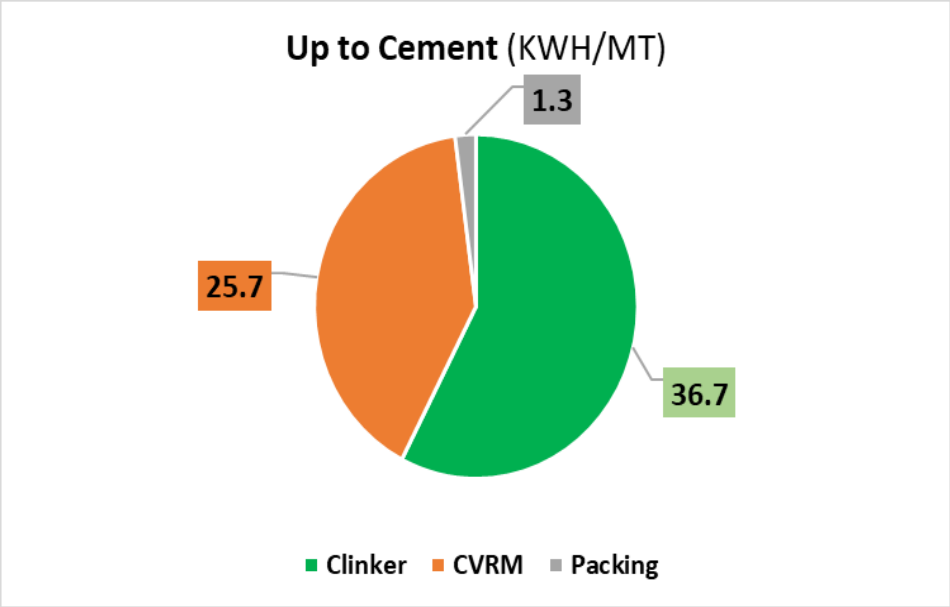
1. Brief introduction on Company / Unit
2. Energy Consumption Overview
3. Specific Energy Consumption in last 3 years
4. Information on Competitors, National & Global Benchmark
5. Energy Saving Projects implemented for last 3 years
6. Innovative Projects implemented
7. Utilization of Renewable Energy Sources
8. Utilization of Waste material as fuel
9. Learnings from CII Energy Award or any other award program
10. GHG Inventorisation
11. Net Zero Commitment
12. Green Supply Chain Management
13. Team work, Employee Involvement, Monitoring
14. ISO 50001,GreenCo, Green Pro

1.Specifications of major sections

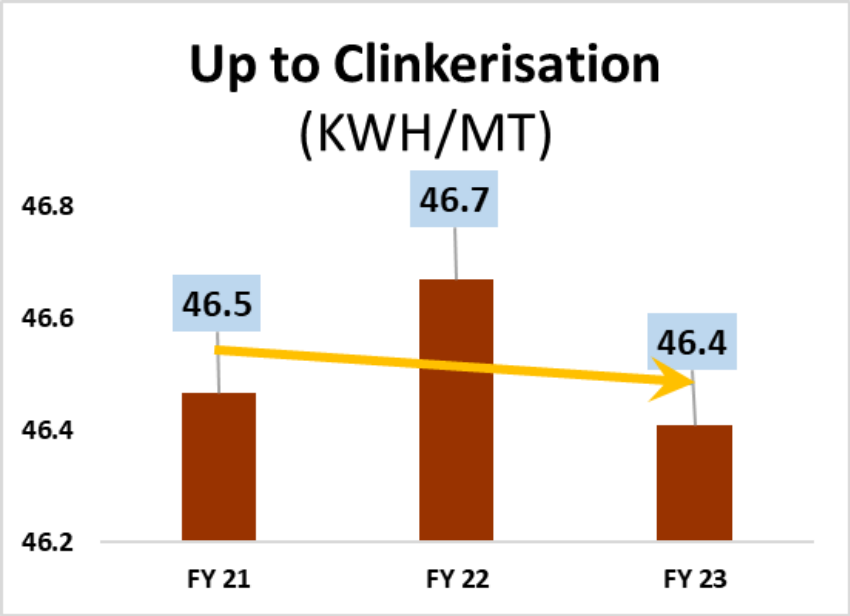
Equipment Name	Make	Rated Capacity
LINE 1		
Raw Mill	Loesche LM 30.31	190 TPH
Coal (Ball) Mill	KHD	22 TPH – Coal , 12 TPH – Petcoke
KILN	KHD (3.8 M D * 56 M L)	3250 TPD
Cement Vertical Roller Mill	Loesche LM 46.2 + 2	160 TPH
LINE 2		
Raw Mill	Loesche LM 30.31	320 TPH
Coal Mill	Loesche LM 46.4	33 TPH
KILN	FLS (3.95 M D * 62.1 M L)	3800 TPD upgraded to 4950 TPD
Cement Vertical Roller Mill	Loesche LM 56.3 + 3	305 TPH

2. Energy Consumption Overview - FY 22-23





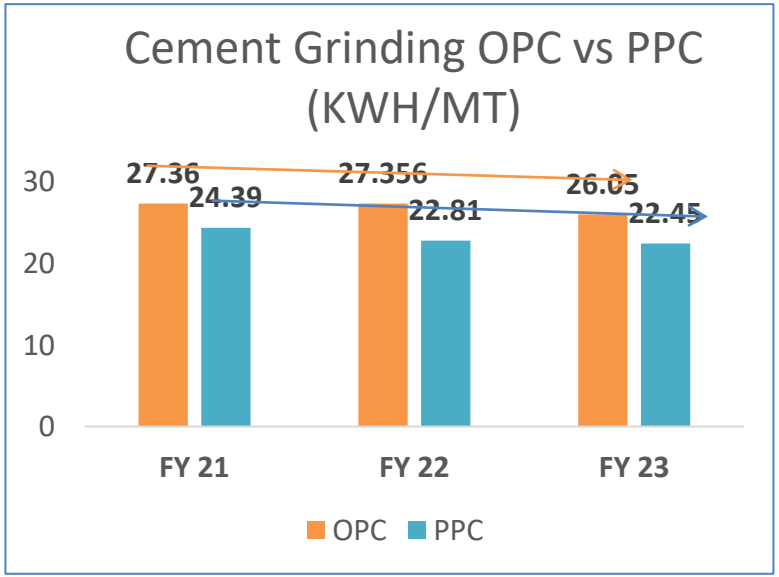
3. Specific Energy Consumption in last 3 years (Upto Clinkerisation)

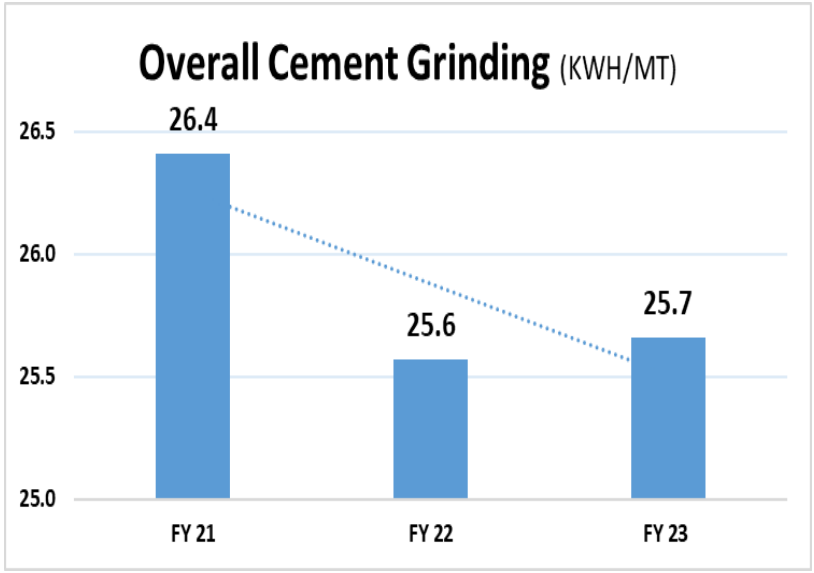


Section	UOM	FY 21	FY 22	FY 23
Crusher	KWH/MT Matl	0.84	0.85	0.80
Raw Mill	KWH/MT Matl	11.2	11.2	11.3
Coal Mill	KWH/MT Matl	55.5	58.2	51.4
Kiln	KWH/MT Clinker	23.1	23.0	22.9
Clinker	KWH/MT Clinker	46.5	46.7	46.4
Services	KWH/MT Clinker	3.0	3.1	2.8
Total Clinker	KWH/MT Clinker	49.5	49.7	49.3

✓ Coal mill table liner and roller tyre replacement contributes power reduction by 10 kWH/MT coal

3.Specific Energy Consumption in last 3 years (Cement Grinding)

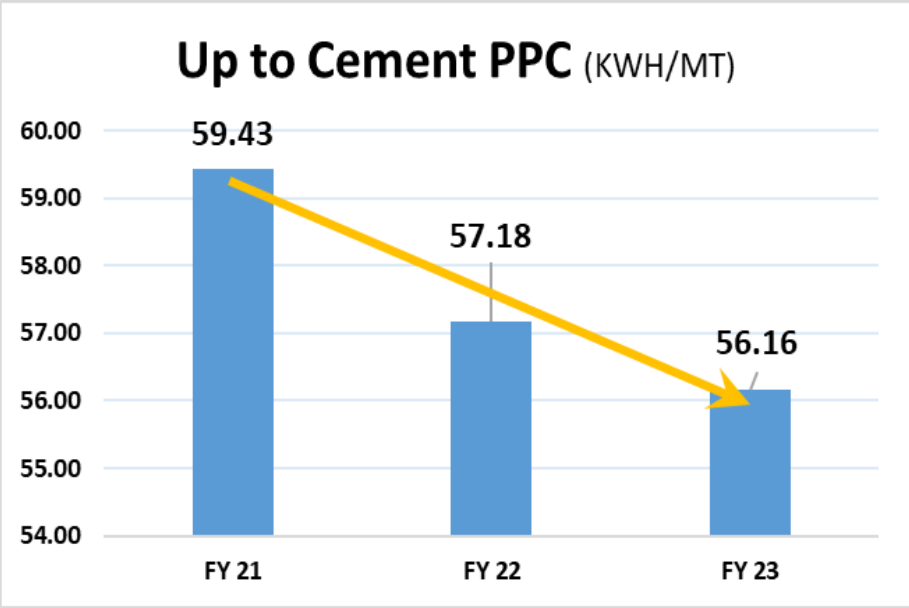


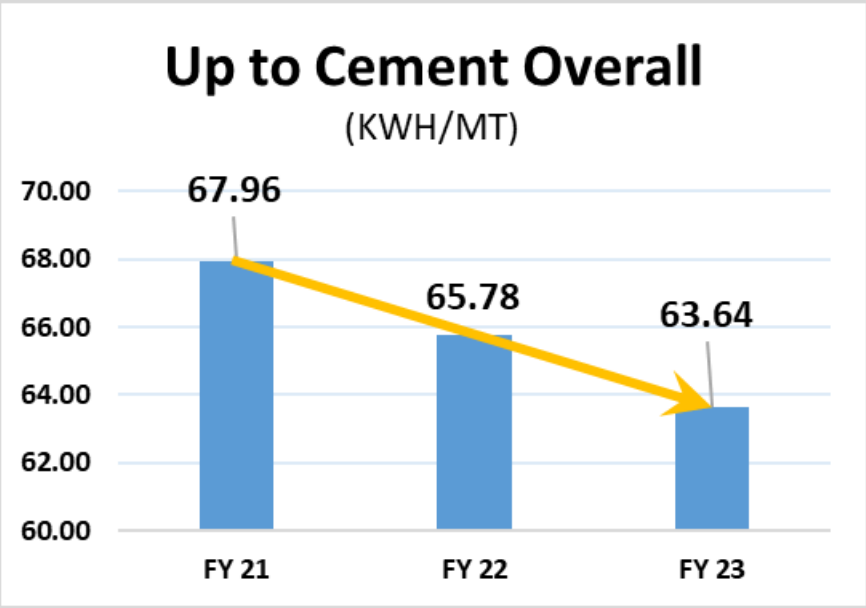


- ✓ Button welding in table liner and roller every 2 month
- ✓ Maintaining wearing and roller back end gap 20 to 30 MM
- ✓ Maximizing of DFA and maintaining classifier seal gap

- ✓ Premium PPC % increased from 9 % to 20 % in overall cement grinding

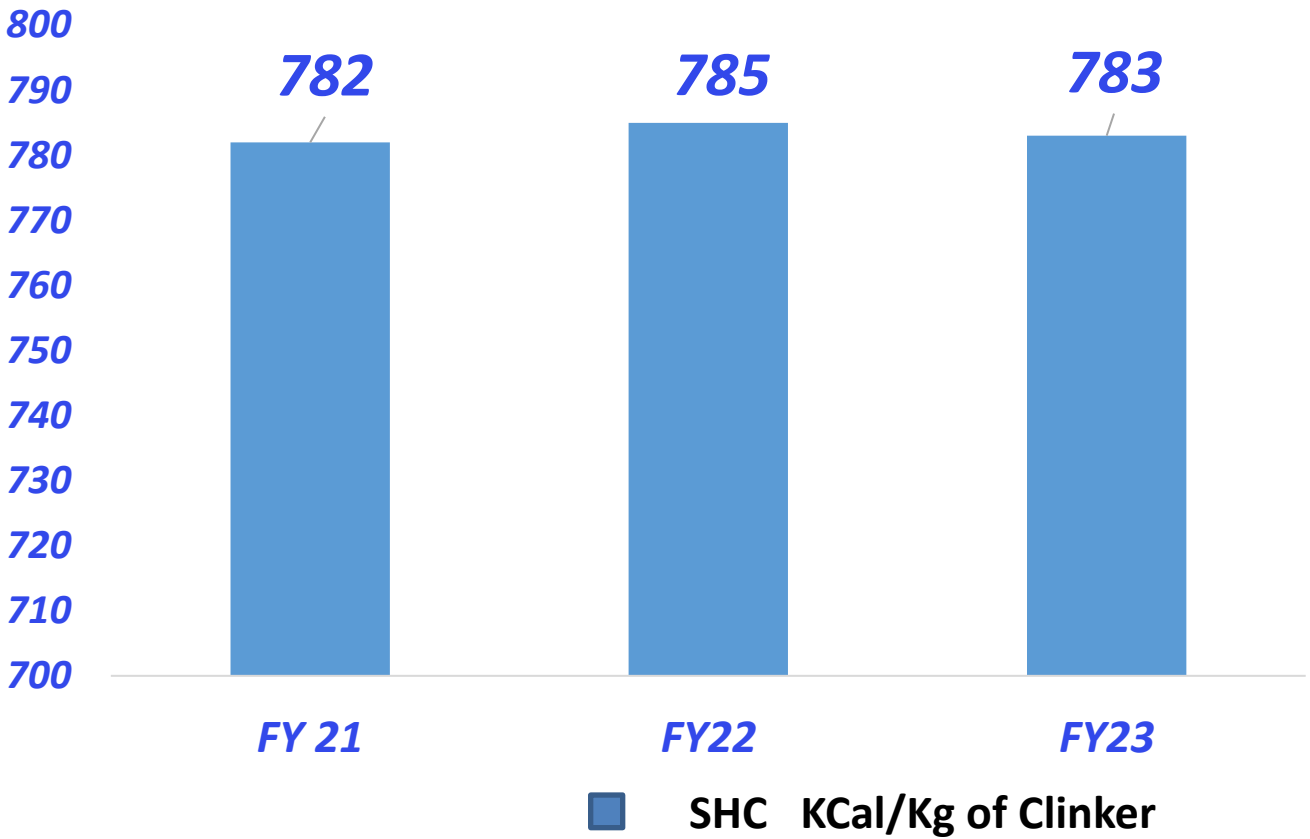
Upto Cement - PPC & Overall





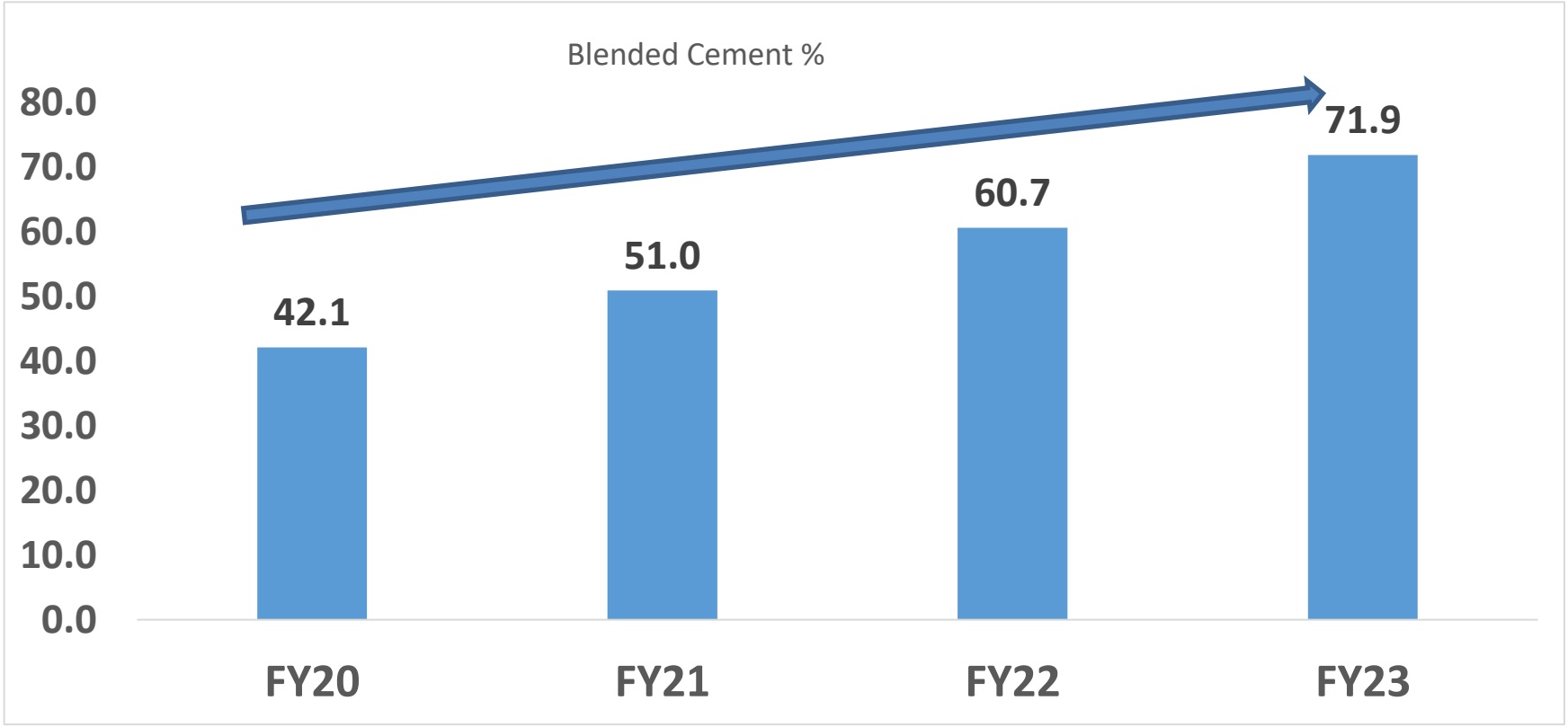
- Increase in Flyash addition from 31.4 % to 32.35 %

SHC



- SHC consumption reduced due to increase in calciner height for better combustion of AFR due to increase in residence time with increase in TPD and TSR %

Blended Cement %



4. Information on Competitors, National & Global Benchmark

Energy Bench Marking		
Sl. No.	**Section**	
A	**Electrical Power Consumption**	
1	LS CRUSHER (Kwh/MT of Limestone)	0.57
2	RAW MILL (Kwh/MT of Rawmeal)	10.80
3	COALMILL (Kwh/MT of Coal)	27.60
4	KILN (Kwh/MT of Clinker)	15.50
5	SPC Upto Clinkerisation (Kwh/MT of Clinker) with Shutdown Power	42.6
6	PACKING PLANT (Kwh/MT of Cement)	0.70
B	**Fuel Consumption (Kcal/Kg of Clinker)**	683

Energy Bench Marking		
Parameters (22-23)	**Electrical SEC (kWh / T of Cement)**	**Thermal SEC (kcal / kg of Clinker)**
Comparison of specific energy consumption (SEC)		
SEC : Dalmia Dalmiapuram	56.2	783
SEC Values for Competitor - 1	56.1	675
SEC Values for Competitor - 2	60.8	682
SEC Values for Competitor - 3	61.4	683
National Benchmark for SEC :	56.1	683
International Benchmark for SEC :	62.0	660

Road Map for FY 24

Dalmia cement
FUTURE TODAY

Sl.No	Title of Project	Year	Saving Kwh/T of Clinker	Annual Electrical Saving (kWh)	Annual Electrical Saving (Million kWh)	Investment (Rs. In Lacs)	Investment (Rs. In Million)	Annual Thermal Saving (Million KCal)
1	Upgradation of high efficiency Mill fan & latest generation classifier CVRM 2	23-24	-	2017575	2.02	580	58.0	-
2	Line-1 cooler upgradation	23-24	0.2	250800	-	2695	269.5	50160
3	Line-1 Top stage cyclone modification	23-24	0.3	376200	-	1200	120.0	6270
4	Line-1 Precalciner height increase	23-24	0.5	627000	0.63	4000	400.0	6270
5	WHRS in Line-1 Kiln (AQC boiler)	23-24	16	19800000	19.80	3600	360.0	-

5.Energy Saving Projects implemented for last 3 years

Year	No.of Proposals	Investments Rs. Million	Savings Rs. Million	Pay Back Months
2020-21	11	422.10	152.14	33
2021-22	12	50.41	122.88	5
2022-23	11	146.20	88.52	20
Total	34	618.71	363.54	20

5. Energy Saving Projects implemented for 2020-2021

Dalmia cement FUTURE TODAY

LIST OF ENCON PROJECTS IMPLEMENTED 2020-2021										
No	Title of Project	Year	Annual Electrical Saving (kWh)	Annual Electrical Cost Saving (Rs million)	Annual Thermal Saving		Annual Thermal Cost Saving (Rs million)	Total Annual Savings (Rs million)	Investment Made (Rs million)	Payback (Months)
					Quantity	Unit of Measurement				
1	Replacement of HPSV Light fittings by LED lights in Line-II	2020-21	219767	1.11				1.11	4	43.42
2	Replacement of HPSV Light Fittings by LED lights in Plant Area in Line-I	2020-21	178065	0.86				0.86	3	41.69
3	Line-2 cooler upgradation	2020-21	-		27977	Kcal/kg clinker	31	31.00	241	93.29
4	Upgradation of Line 1 Coal Mill Fan DOL to VFD System	2020-21	18250	0.09				0.09	0.9	122.02
5	Further maximization of alternate fuel by installation of Pre-processing unit	2020-21			111653	Kcal/kg cli	94.2	94.20	161.4	20.56
6	Shredder Machine for AFR Feeding -Line1	2020-21			24411	Kcal/kg cli	22.40	22.40	8.1	4.34
7	Upgradation of Existing Jet Blower for Line 2	2020-21			1	Kcal/kg cli	1.30	1.30	1.7	15.69
8	Installation of VFD for CVRM 2 Fly Ash low pressure (LP) Compressor	2020-21	44800	0.23				0.23	0.6	31.70
9	18 MW Gland steam condenser installation	2020-21			1330	Kcal/kwh	0.27	0.27	0.8	35.59
10	CPP 2 Maya fan savings	2020-21	0.04	0.3276				0.33	0.2	7.33
11	CPP 2 High efficiency CEP	2020-21	0.05	0.3668				0.37	0.4	13.09
			460882	**3.0**	**165372**	**0**	**148.8**	**152.15**	**422.10**	**33**

5. Energy Saving Projects implemented for 2021-2022

Dalmia cement FUTURE TODAY

LIST OF ENCON PROJECTS IMPLEMENTED 2021-2022										
No	Title of Project	Year	Annual Electrical Saving (kWh)	Annual Electrical Cost Saving (Rs million)	Annual Thermal Saving		Annual Thermal Cost Saving (Rs million)	Total Annual Savings (Rs million)	Investment Made (Rs million)	Payback (Months)
					Quantity	Unit of Measurement				
1	Installation of high energy efficient Pre-Heater fan in Line-I	2021-22	10708320	69.60				69.60	9.0	1.5
2	Upgradation of Line-2 Coal VRM for reducing residue	2021-22	312095.5	2.03				2.03	4.0	24
3	Line-1 raw mill baghouse purging system modification to reduce bag filter pressure drop	2021-22	63740	0.41				0.41	0.15	4
4	Line-1 raw mill bag house compressure air line modification	2021-22	86049	0.56				0.56	0.05	1
5	Conversion of PD blower with Hybrid blower forLine-1 pyrojet blower	2021-22	114732	0.75	1.5	Kcal/Kg clinker	1.9	2.67	0.25	1
6	Heat resistance painting in Line-1&2 preheater cyclone	2021-22	0	0.00	5	Kcal/Kg clinker	10.1	10.1	15	18
7	Solar power system installation in KLK Mines	2021-22	15750	0.12				0.1	0.5	49
8	Bio mass fuel feeding in 27 MW overbed feeding system provided	2021-22			41615	Kcal/kwh	33.30	33.30	20	7.21
9	27 MW MS line Calcium Silicate insulation work	2021-22	0.33	2.6404				2.64	0.8	3.64
10	27 MW BFP Automatic recirculation (ARC) replacement	2021-22	0.09	0.7168				0.72	0.5	8.37
11	Condensate interconnection in 27 MW	2021-22	0.08	0.6272				0.63	0.1	1.91
12	CPP 2 LP drip pump	2021-22	0.02	0.14				0.14	0.1	8.57
			11300687	**78**	**41622**		**45**	**122.89**	**50.41**	**5**

5. Energy Saving Projects implemented for 2022-2023

Dalmia cement FUTURE TODAY

LIST OF ENCON PROJECTS IMPLEMENTED 2022-2023

No	Title of Project	Year	Annual Electrical Saving (kWh)	Annual Electrical Cost Saving (Rs million)	Annual Thermal Saving		Annual Thermal Cost Saving (Rs million)	Total Annual Savings (Rs million)	Investment Made (Rs million)	Payback (Months)
					Quantity	Unit of Measuremen				
1	Upgradation of Line-2, RABH Fan efficiency improvement.	2022 -23	136660	1.4	-	-	0	1.4	20	22.2
2	Increase in calciner height in Line 2	2022 -23	0	0	2235	Mnkcal	4.82	4.8	120	37.3
3	Raw mill Baghouse Compressor air optimization at line-1 [Compressor discharge line modified / replaced 1.5 inch to 2.5 inch dia for 4M long]	2022 -23	55800	0.6	-	-	-	0.6	-	-
4	Line-1 TSR% increased by increasing the winch drive speed [Winch cycle time increased from 2 to 3 trips]	2022 -23	-	-	4	Kcal/kg clink	7.6	7.6	-	-
5	Solar power system Generation KLK Mines	2022 -23	15750	0.16				0.16	0.5	37
6	Energy saving thro' clinker subtitution by way of increased flyash utilisation in PPC	2022 -23	665910	0.66	1404	MT/Annum	0.75	1.41		
7	Alternate Fuel Utilisation replacing Fossile Fuel	2022 -23			56044	MT of AFR	55.1	55.1		
8	27 MW Turbine Overhauling	2022-23	-		10500	Kcal/kwh	9.55	9.55	4	5.03
9	27 MW Sec Air Provision	2022-23			25	Kcal/kwh	6.75	6.75	0.4	0.71
10	18 MW BFP Destaging	2022-23	112000	1.01				1.01	0.6	7.14
11	18 MW MS line Calcium Silicate insulation work	2022-23	0.03	0.00007				0.21	0.7	40.00
			986120	**3.7**	**70212.0**		**84.6**	**88.5**	**146.2**	**20**

5.1 Modification of cvrm-1 classifier rotor sealing

Existing :

Lesser addition of flyash % against the requirement of 35 %

Challenge :

Cement Residue on 45- and 90-Micron sieve 16 and 5 %

Action taken:

- ✓ Fixed flap gap reduced by 10 mm from design and damaged flap replaced
- ✓ Sealing ring provided in-between fixed vane and rotor to avoid air escape
- ✓ Additional classifier seal provided to maintain top seal gap less than 5mm

Result:

45µ & 90µ residues reduced by 3 % and 1 % resulted increase in flyash % by 1.2 % in grinding

Product	OPC		PPC	
Residue	Before	After	Before	After
90 µ	5.3	4.2	5.5	4.6
45 µ	16.1	13.4	15.5	12.8

5.2 Sustenance of Cement Mill 2 output

Existing:

Cement Mill CVRM 2 is having OEM design Wear Ring of 20 x 40 mm

The GAP between wear ring and tyre is more due to ageing of tyre. operating hours 25 K Hrs

Challenge:

- Reduction in mill Output by 4 %
- Mill reject above 10 %

Action Taken:

- ✓ Wear Ring area increased to 128 sqmm from 80 sqmm (OEM design).
- ✓ Hard facing of wear ring and button welding in regular interval

Result:

- ❖ Overall Mill O/P increased from 265 TPH to 269 TPH
- ❖ Mill power reduced by 0.25 kWH / MT cement

5.3 Upgradation of Coal Mill Fan DOL to VFD System

Existing : By Design L 1 Coal mIll fan is operating in constant speed, hot air flow is controlled through damper @ 60 % opening, losing 15 KW /Hr.

Challenge - Existing fan motor is 3.3 KV HT system, HT VFD and switchgear arrangement cost is on higher side, ROI is not within specified time period of 36 months.

Availability of Suitable LT feeder@ L 1 as alternate.

Action Taken :

- In brainstorming session, team identified availability of LT motor in L 2 after Cooler vent fan upgradation and, LT feeder @ L1 RMLC become idle after RM ESP to bag house conversion.
- Team decied to make use of these to reduce the project cost and converted the HT motor to LT motor
- Provided VFD for the motor to control the speed as per process requirement
- Removed the inlet damper from line to avoid pressure drop

Results :

Achieved savings of 18250 KWH per annum (12.65 Units/Hr)

5.4 Automation of Line 1 Packing plant

Existing:

- Roto packer-1 and its feeding and loading system is having manual operation of all connected equipment's

Challenge:

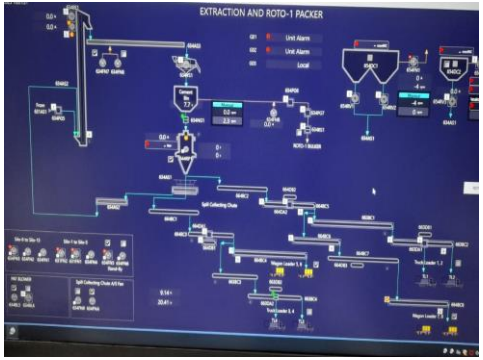
- Maintaining uniform feed is difficult since the feeding group is manually operated
- All interlocks are hardwired, taking more time for trouble shooting
- Bag filter fan is operated at full speed

Action Taken:

- Intelligent MCC Installed
- Roto packer-1, and its related equipment's are interfaced to PLC with necessary interlocks.
- VFD introduced for the bag filter fan.

Results:

- Total System operated via DCS PLC
- Energy saving by 0.41 Lakhs units / Year. by interlocking and VFD installation in fan



5.5 Stacker boom belt conveying capacity increase

Existing:

- Limestone trucks TAT increases while running for Line-1 circular stacker
- Boom belt tripping due to overload once surge load from Crusher chute

Challenge:

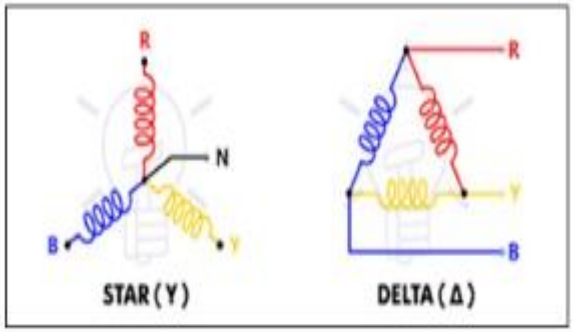
- Crusher Output forced to reduced from 800 TPH to 650 TPH while running to Line-1 circular stacker
- All the conveyors feeding to boom conveyors are 1200 mm width
- Boom conveyor belt width 800 mm

Action Taken:

- Boom belt motor star connection change over to Delta connection to accommodate the sudden surge load / material from crusher

Results:

- Crusher output increased from 650 TPH to 720 TPH on month average basis
- SPC reduced by 0.07 kWH/MT limestone even after increase in boom power increase by 9 kWH/Hr



6. Innovative Project 1 – Increasing Calciner Residence Time

Existing System :-

1. AFR feeding capacity 25 TPH , operating 15 TPH
2. Calciner residence time of 6 sec from PC bottom to bottom cyclone inlet
3. Incomplete combustion of AFR causing CO formation in PC Outlet and PH O/L due to high moisture content
4. Temperature fluctuation of 50 deg C in Bottom cyclone top temp

Specification

- Clinker production – 4000 TPD
- PH fan – 687000 M3/Hr
- RABH fan – 825000 M3/Hr
- TSR – 20 %

6.0 .Innovative Project 1 – Increasing Calciner Residence Time

Dalmia cement FUTURE TODAY

Upgraded System :-

1. Calciner height increased to 120 M from Precalciner bottom cyclone inlet
2. Calciner residence time of 11.9 sec from PC bottom to bottom cyclone inlet
3. AFR feeding quantity increased upto 25 TPH
4. TSR increased upto 30 % @ 4950 TPD
5. Reduction of CO at PH O/L
6. Lesser temperature fluctuation < 25 deg C at bottom cyclone top

Specification

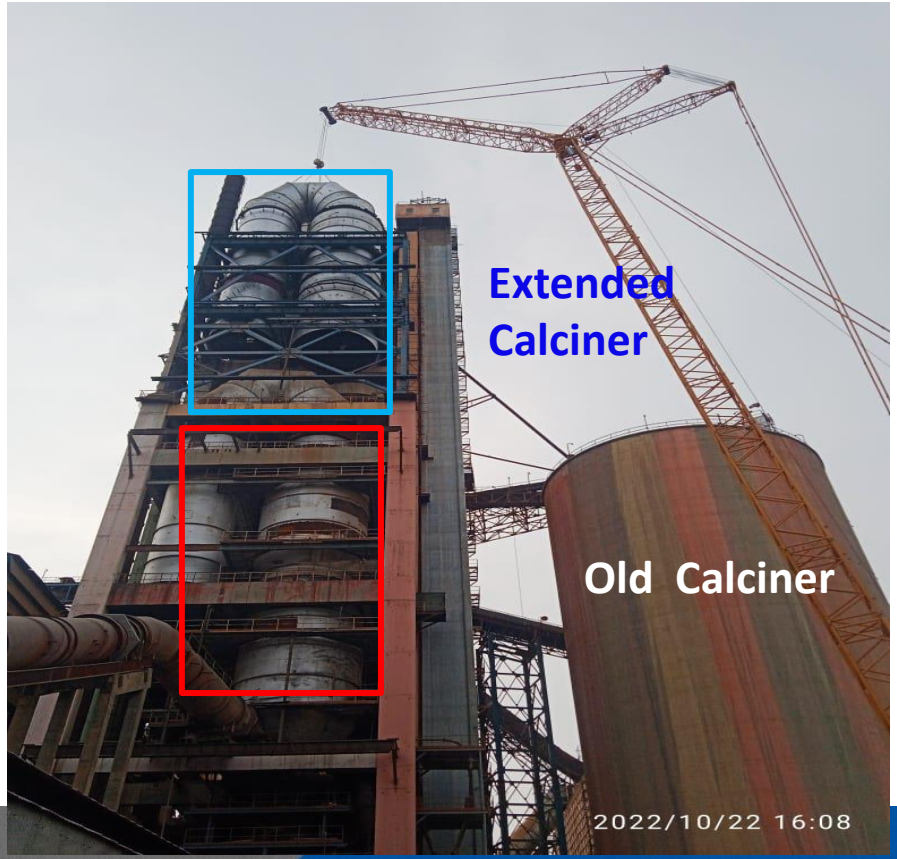
- Clinker production – 4950 TPD
- PH fan – 840000 M3/Hr
- RABH fan – 1200000 M3/Hr
- TSR – 35 %

*Achieved 25 % TSR , 35 % target with Chlorine bypass installation

6. Innovative Project 1 – Increasing Calciner Residence Time

Dalmia cement FUTURE TODAY

Pre Calciner height increase



Refractory inside New Calciner

6 .Innovative Project 2 – Intercarting Weigh Bridge Automation

Challenges:

- Usage were differed in department, materials, logic sequence & requirements.

Action Taken:

- Introduced RFID cards .
- Installed Boom barriers & Surveillance cameras, LED display, vehicle position sensor, RFID reader
- Software for logic sequence, report generation.

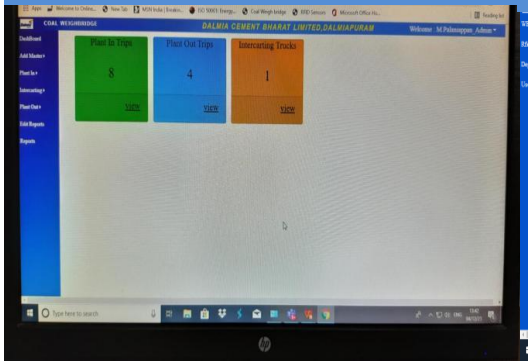
Results:

- Software access for Weigh bridge weighment .
- Tracking of Vehicle movement
- Avoided weighment delay.
- Effective Man Power Utilization

1.Weigh bridge In

2.Weigh Bridge Out

3.Software Screen



4. Live status Screen

Innovation 3 - Switching to Alternate Fuel

USAGE of BIOFUEL AS ALTERNATIVE FUEL IN MINES MACHINERY

A

HSD

Pure HSD no sedimentation

B

Bio-Diesel

Bio fuel sedimentation found at bottom

Filter

Dalmia cement
FUTURE TODAY

Clogged filters collected from the machine after Biodiesel usage

New Filter

Clogged Filter

In House Design for Biodiesel Filtration

Dalmia cement
FUTURE TODAY

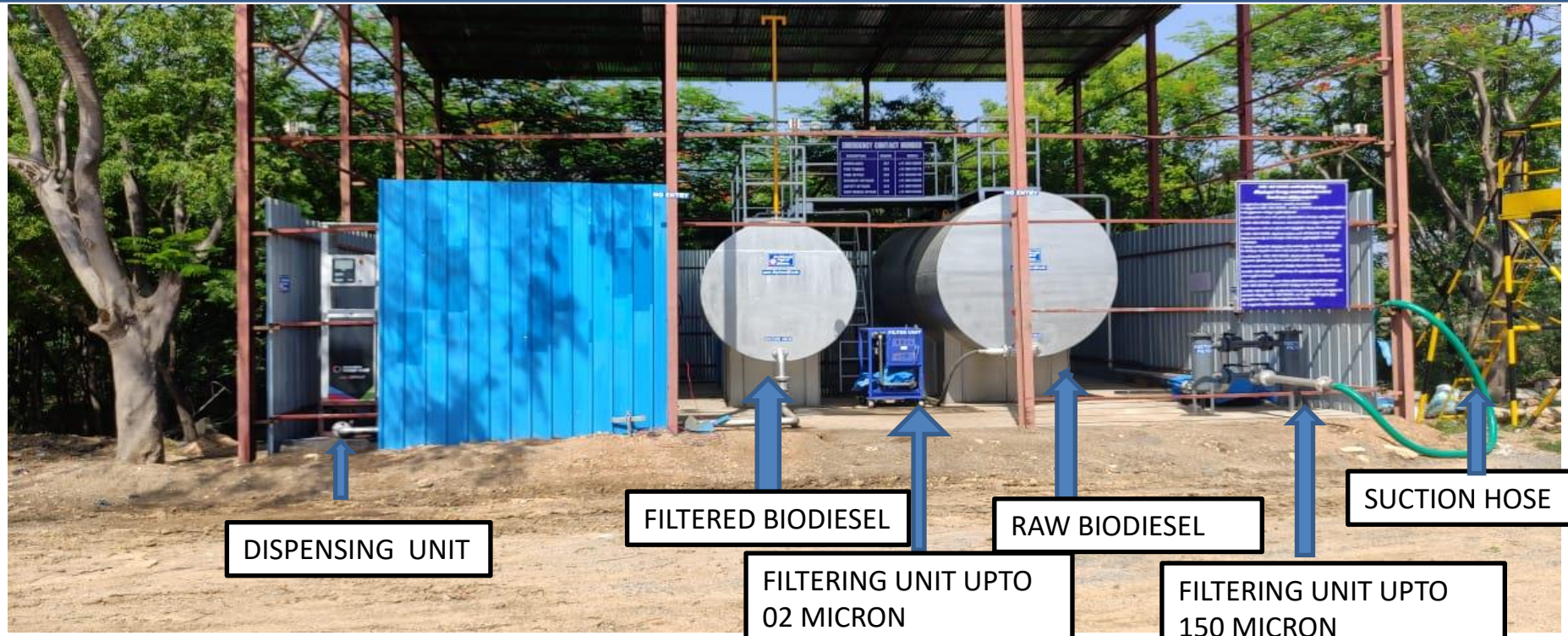
Biodiesel filtration Arrangements

Bio-diesel Filtration unit with Single filter

Bio-diesel Filtration unit with double filter

BIOFUEL BUNK AT KLK MINE

Biodiesel storage and handling facilities



Major Improvements in Productivity

Year	Bio diesel % in total Fuel	Savings (in Crs)
FY 22	75 %	1.2
FY 23	85%	1.35

Bio diesel Storage and filtration Unit

7. Utilization of Renewable Energy Sources

Dalmia cement FUTURE TODAY

RE 100

Renewable energy -

- Wind Mill
- First Cement Plant in Tamil Nadu. Location and Capacities are as mentioned as below:
- Site-I : In Muppandal,Kanyakumari District

Capacity : 11.5 MW

- Site-II : In KarungulamVillage at Thirunelveli District

Capacity : 5.025 MW

7.Utilization of Renewable Energy Sources

Replacement of Electrical Energy with Renewable Energy	Annual Energy Generated in 2020-21 (million kWh)	% Share	Annual Energy Generated in 2021-22 (million kWh)	% Share	Annual Energy Generated in 2022-23 (million kWh)	% Share
Wind Energy	21.9	**14.9**	**21.49**	**14.73**	**24.34**	**16.70**
Replacement of Thermal Energy with Renewable Energy		% Share	Equivalent Annual Fuel Savings in 2018-19 (million kcal/year)	% Share		

RE 100 - first cement company in the country to join RE100 (100% renewable Power by 2030).

WHRS (3.5 MW Installed at Line 2 & 2.5 MW under Installation for Line 1,

Solar 5 MW Installed out of 10 MW Approved.

SHARING BETWEEN DPM & ALR Plant

7.Utilization of Renewable Energy Sources

Solar Power Plant-5 MWp Capacity with a Cost of Rs. 42.5 Crores

ON-SITE						
S.NO	Source	Installed Capacity (MW)	Generation (Million kWh) FY 23	Consumption (Million kWh)	% Share	Remarks
1	Solar	4	3.3	**3.3**	100%	

8. Utilization of Waste material as fuel (MT)

	FY20	FY21	FY22	FY23
Biomass	3,907	-	-	-
Carbon Black	1,357	-	1801	1521
Chocolate Wrapper	33	-	-	-
Emery Paper Waste	23	-	-	9
Cpp ash	-	-	194	
Foot Wear Waste	3,347	4,057	4827	3563
FRP Waste	361	203	12	262
High Ash Waste Mix Solid	1,977	887	92	
Julie Flora	140	-	-	
DRY PLYWOOD VENEER WASTE	-	-	-	60
Oil Soaked Cotton Waste	573	740	2102	1932
Plastic Waste MLP	240	4145	8072	13475
PP Waste	7,131	10,706	11758	13743
RDF	7,648	22,446	27062	19121

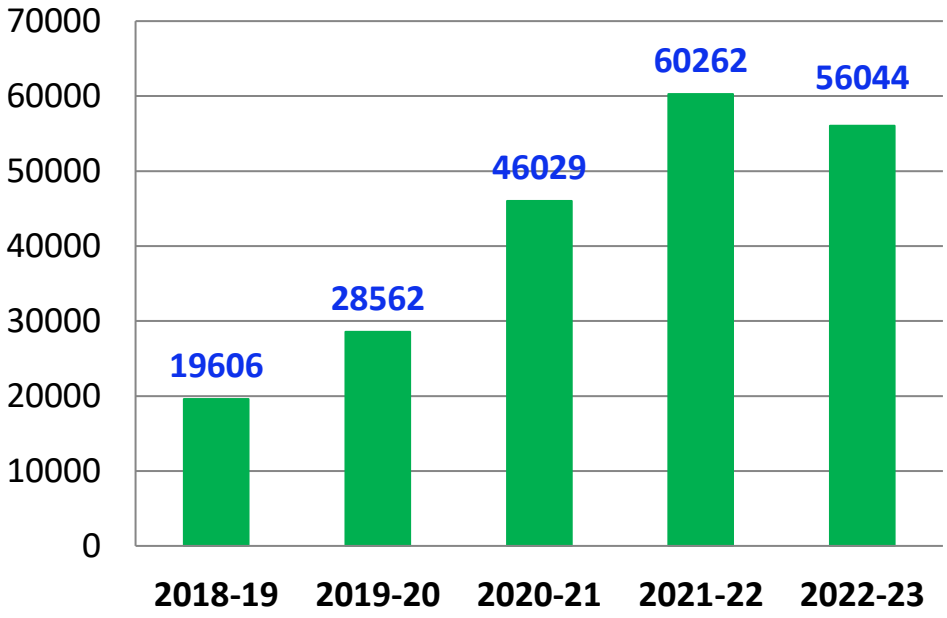
AF quantity (In addition we have done 27889 MT of Lime sludge in FY 20 ,21 ,22 & 23)

	FY20	FY21	FY22	FY23
Resin Waste	-	530	422	137
Rubber & Elastic Waste	59	160	261	347
Rubber & Foam Waste	-	293	53	41
Shredded Biomass Waste	227	-	-	197
Spent Wash	1,136	448	323	153
Tyre Chips	-	191	61	
Used PP Bag	15	54	61	66
Waste. Mix. Liq	439	367	295	200
Waste. Mix. Sol	160	-	-	433
DRY MANGO NUT	-	-	-	167
DRY FMCG WASTE	-	-	105	81
Organic liquid	-	133	35	8
ULB plastics	-	266	299	14
SCF	-	81	1253	86
ETP sludge	-	7	-	
Paint Sludge		21	25	
Grinding sludge	-	18	111	110
Shredded RDF	-	194	1010	165
Liquid Waste		650	28	145
Total Qty		46,599	60262	**56044**

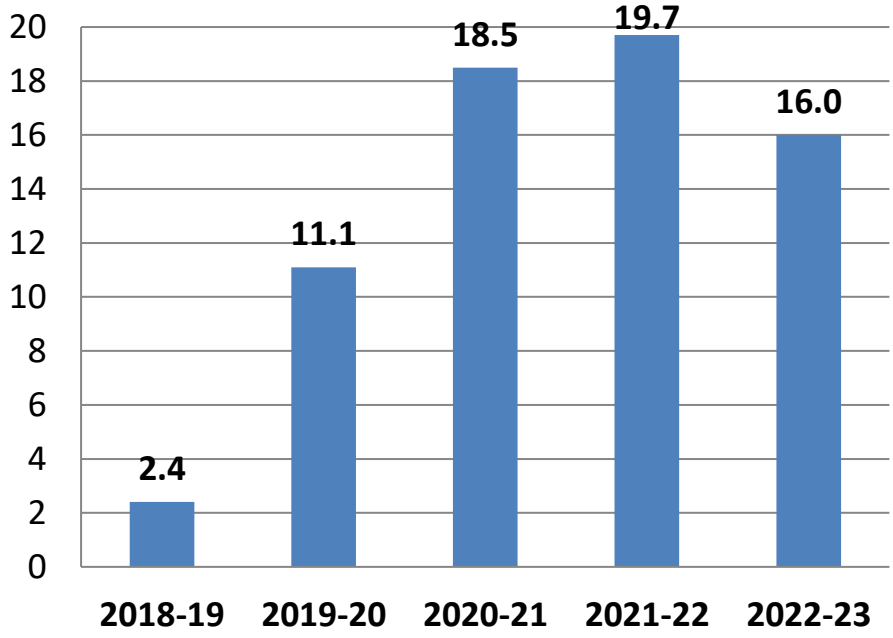
8.WASTE UTILIZATION & TSR% YEAR-WISE

Dalmia cement FUTURE TODAY

Waste Utilization in MT



TSR %



Reduction of TSR in FY 23 due to Kiln stopped for 40 days project work and stabilization

8. Waste Utilization– WHRS Installtion

Present System in Line-2

- Heat Available from Cooler Vent – 25 Mkal/Hr
- Heat required for Cement mill – 11.5 Mkcal/ Hr
- Excess Heat available in Stack – 13.5 Mkcal/Hr

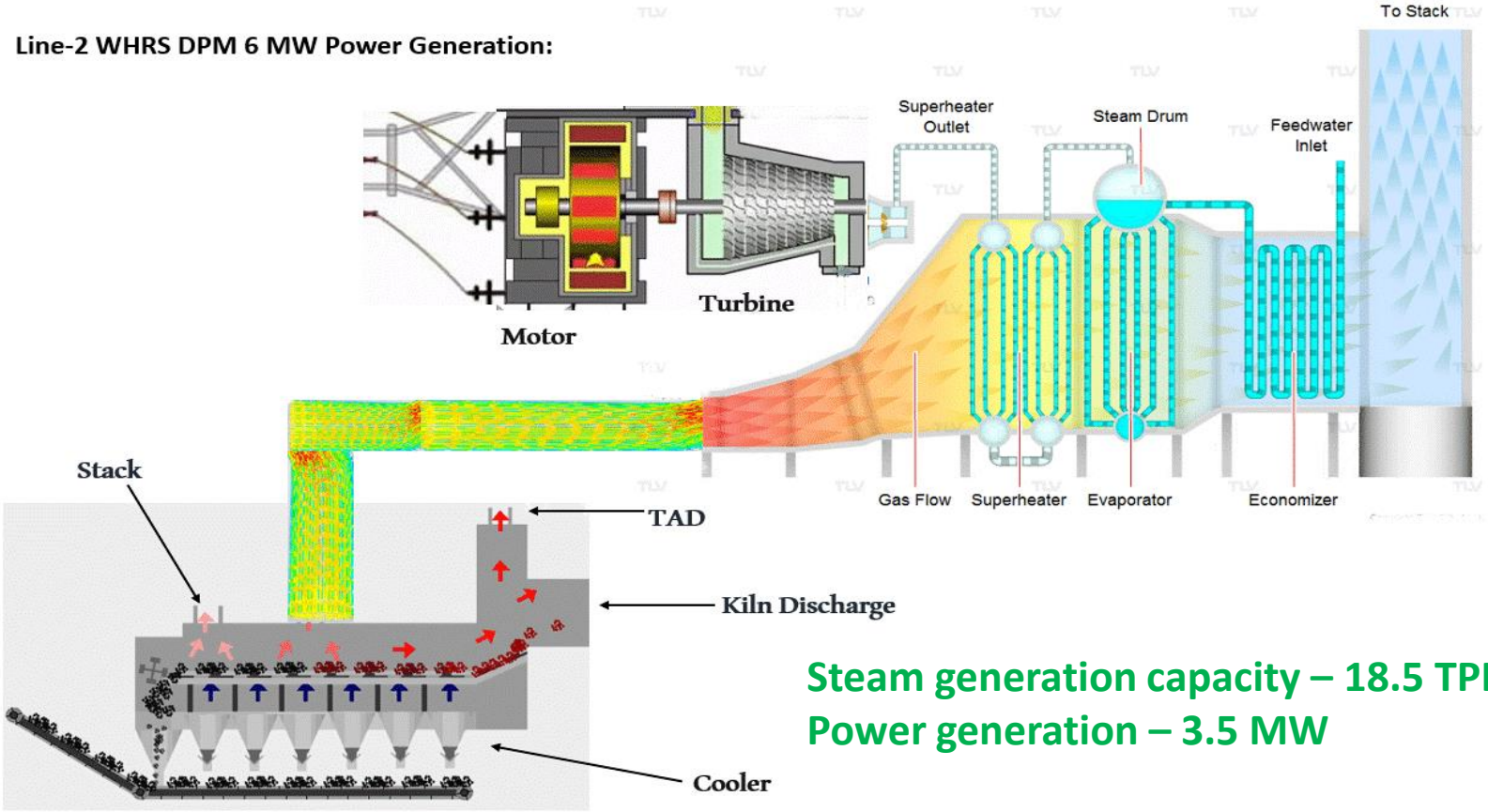
WHRS System

Heat Input to WHRS Boiler – Max 17 Mkcal/Hr

Max. Power generation – 4.0 MW

8. Waste Utilization– WHRS Installtion

Line-2 WHRS DPM 6 MW Power Generation:



Steam generation capacity – 18.5 TPH

Power generation – 3.5 MW

8. Waste Utilization– WHRS Installtion

ON-SITE						
S.NO	**Source**	**Installed Capacity (MW)**	**Generation (Million kWh) FY 23**	**Consumption (Million kWh)**	**% Share**	Remarks
1	**WHRS- GPP**	6	3	**2.85**	100%	

9. Learnings from Past Energy Award Events

1.CFD analysis in Preheater system to reduce pressure drop and improving heat transfer

2.Automation of AC and lighting system control through cloud-based technology

3.High energy efficiency IE3 Motors in place old low efficiency motors

4.High efficiency - 3 / 5 star rated Air conditioner.

5.High energy efficiency impeller for main process fan.

6.Usage of high chlorine content alternate fuel – Based on chlorine balance.

7.Installation of Pre-processing system for making Uniform quality of AFR

8.Handling / Addition of lime sludge in crusher

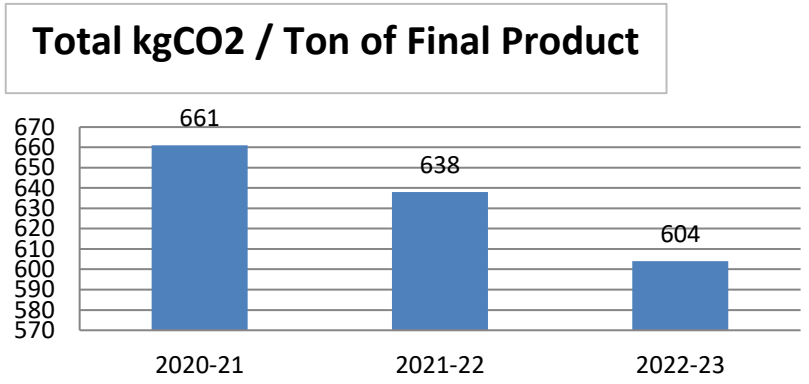
9.Installation of ATS make double flap, cycle time reduction from 14 S to 6 S

10.Installation of ATS extractor cum weigh feeder, for uniform feeding to reduced PC temperature fluctuation

11.Full-fledged laboratory for AFR analysis

10. GHG Inventorization

GHG Emission - Low Carbon Technology Road Map- Dalmia Cement & IFC Disclosure to Public thro' Dalmia Sustainability Report

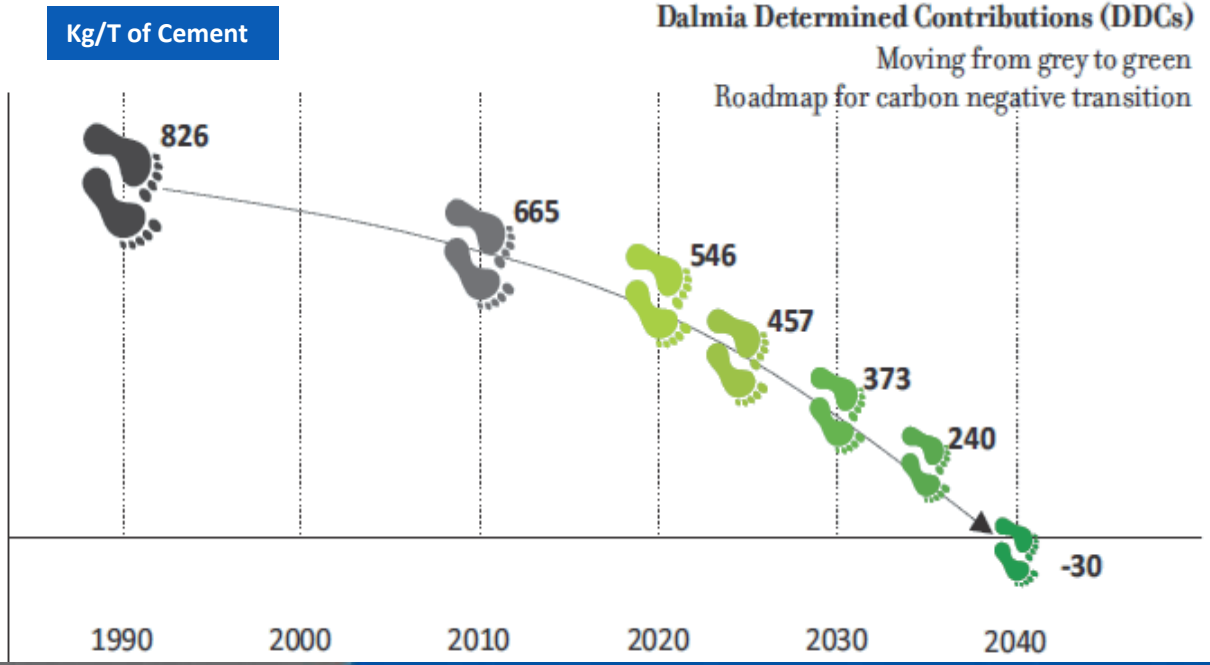


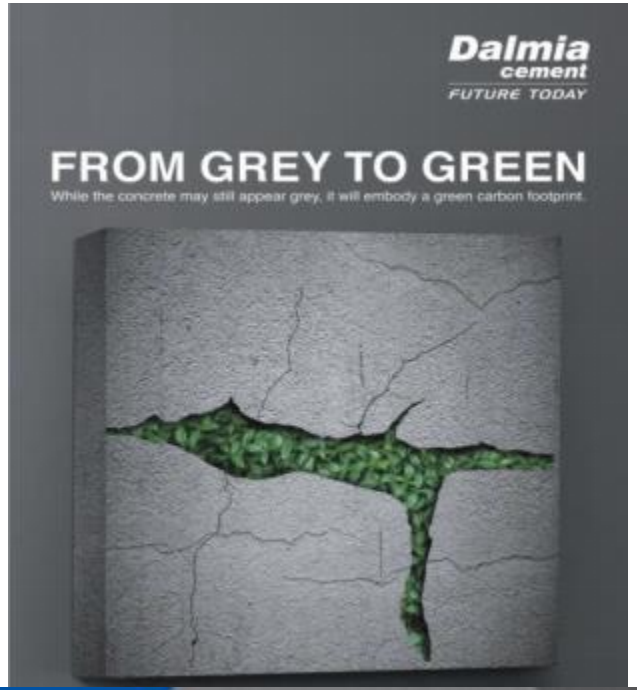
Our Group CEO (Cement) Shri.Mahendra Singhi represented india at the Highlevel signing ceremony of Paris Agreement on Climate Change.

11. Net Zero Commitment Road Map

Ranked No 1 Cement group Globally on Business Readiness for Low Carbon Transition

Source: CDP Global Cement Sector Report, April 2018





Dalmia participates in the Green Strategic Partnership of India and Denmark

Dalmia Cement and FLSmidth of Denmark sign a MoU for cooperation in next generation cement technology towards building a sustainable future in presence of Danish Prime Minister and Indian Prime Minister in Copenhagen

12. Green Supply Chain Management

Sl. No.	Projects Implemented	Investment Made (Rs In Million)	Benefits Achieved	Description
1	Electronic Proof of Delivery (E- POD) An electronic proof of delivery (E-POD) is a digital format (usually PDF) of a traditional paper Delivery Order or Delivery Note. An E-POD is the electronic form of such a paper document, and it is a fast-growing trend and our DCBL Dalmiapuram Plant implemented the E-POD System	1.15	E-PODs saves time, prevents disputes, and reduce the company's carbon footprints.	A delivery order or delivery note is required to facilitate a delivery and upon a successful delivery which consists of handing over of goods from the driver to the end recipient, a signature or some endorsement is collected on the paper document as a delivery. This proof of delivery is essential for subsequent billing of the customer and serves as an important acknowledgment to mark the delivery as completed.An E-POD is the electronic form of such a paper document, and it is a fast-growing. Achieved 90% during this FY23.

12.Green Supply Chain Management

Sl. No.	Projects Implemented	Investment Made (Rs In Million)	Benefits Achieved	Descript...
1	Radio Frequency Identification (RFID) implemented in yard IN / OUT ,Cement gate IN / OUT, Line1 & Line 2 packing House IN / OUT .	4.7	1.Capture vehilce time at various stages in the plant, uniformly and consistently. 2. Identify areas leading to increase in Plant OET & vehicle TAT. 3. Faster customer service result in increase in P2D 4. Increase in truck trips /month may facilitate lower freight rates. 5. Facilitate reverse logistics	It gives better clarity and position / location of truck from yard in to yard out. Ø This gives visibility of trucks available at parking yard with order placed / want of order truck details. Ø Through RFID security guards save time to create yard slip by auto generating trip register. Ø DPM plant & cement business highly adopted with digitization and helped business lot in speed / accuracy. Achieved 90% during this FY23.

12.Green Supply Chain Management – Cement Bulker %

FY 20-21		FY-21-22		FY-22-23	
Dispatch Quantity	Avg. Distance	Dispatch Quantity	Avg. Distance	Dispatch Quantity	Avg. Distance
482793	308	1930173	268	2224389	289
1586447	314	615097	332	955515	313
2069240	316	2545271	280	3179904	296

Bulker Quantity Increased - 955515 MT

Fuel Savings - 659255 Ltrs. x Rs.95.63/ Ltrs. of Diesel

Cost Saving - 630 Lakhs

12.Green Supply Chain Management– Back Hauling %

Dalmia cement
FUTURE TODAY

Results:

- ✓ Increased Backhaul Quantity = 277000 MT
- ✓ Fuel Savings = 369460 Ltrs. x Rs.95.63/ Ltrs. of Diesel
- ✓ Cost Saving = 353 Lakhs/annum

12.Green Supply Chain Management

Replication of Best Practices /

Reverse logic system for Limestone & Gypsum trucks

- Round Trip - Rs.131/Ton Straight Trip - Rs.209/Ton
- Savings - Rs.78/Ton Average Receipt/Day - 2400 Tons
- Installation of GPS tracking system, Monitoring of Supplier Rating Green Policy followed in our Purchase Order
- Green Purchasing: Polyethylene sheet used in packaging shall be more than 20 microns. Packing of material should be in good condition & it should be of bio- degradable material wherever possible
- Dalmia Cement encourages to re-use, re-cycle material
- PLMS (Plant Logistics Management System) Implementation
- RFID (Radio Frequency Identification) Reader Achieved 90% during this FY23.
- FT (Freight Tiger)Tracking Consent
- FT IVR (Freight Tiger Interactive Voice Response) / E-POD Achieved 90% during this FY23.
- Depot on Wheels/ Stacking on Platform in plant to reduce OET (**TAT reduced to 4.5 hrs)**

Green Purchasing Policy & in Purchase order

Dalmia Cement (Bharat) Limited, Dalmiapuram

Green Purchase Policy

1. Aim at making our value chain environmental friendly and responsible.
2. Committed to comply with the requirements of local laws and regulations related to environment in which it operates and from where it sources any material, product or services.
3. Realize that the scope and nature of operations of our suppliers vary and hence emphasis on these principles may vary accordingly.

The following shall be followed at DCBL, Dalmiapuram shall:
Energy:
a. All new purchases of electronic items & energy-using appliances shall be energy efficient equipment's.
b. All copiers and printers purchased or leased shall be capable of double-sided copying/printing.
c. Complete phase out of incandescent, fluorescent light sources & CFL bulbs into LED.
d. Insisting suppliers strive towards enhancing the efficiency and performance of the equipment and processes by continual improvement, monitoring and assessment of technology.
e. Identifying the scope of replacing conventional sources of energy with sustainable and renewable sources in their operations thereby fighting for climatic change.

11. Please mention the HSN code of the material being supplied on the invoice clearly.

12. DCBL reserves the right to recover the GST charged on any of your invoice(s), if it comes to our notice that the same has not been deposited with the Govt.

13. The invoice shall show clearly whether they cover "part order" or balance order and shall indicate the item number as well as DCBL Purchase order number clearly.

14. Avoid any spillage / leakage of material during loading, transit and unloading.

15. Material Safety Data Sheet (MSDS) to accompany with the material, especially for all hazardous material & notified as per Government rules in effect.

16. The equipment#s used for manufacturing, calibrating our supplies / servicing our machine(s) should have valid master calibration certificate. The same is to be share with us on request. For all calibration activities, you should have a valid NABL / QMS certification.

17. Green purchasing: Any plastic materials used in packaging shall adhere to the "Plastic Waste Management Rule - 2018. Packing of material should be in good condition & it should be of bio-degradable material wherever possible.

18. Dalmia Cement encourages all its stake holders to reduce, re-use, re-cycle all possible packing material etc, to

Our GST REG No: 29AADCA9414C1ZV CST No: Our TIN No: CENTRAL EXCISE REGN No: ECC.No: PAN No: RANGE & COMMISSIONARATE: & , DIVISION: CORPORATE IDENTITY NUMBER: U65191TN1996PLC035963

PARTY / OFFICE / ACKNOWLEDGEMENT / ACCOUNTS PAGE: 3 / 6

PEH-0051580731

13. Team work, Employee Involvement & Monitoring

Team Work in Encon / Monitoring & Reporting / Employee Involvement in Encon

Dalmia cement FUTURE TODAY

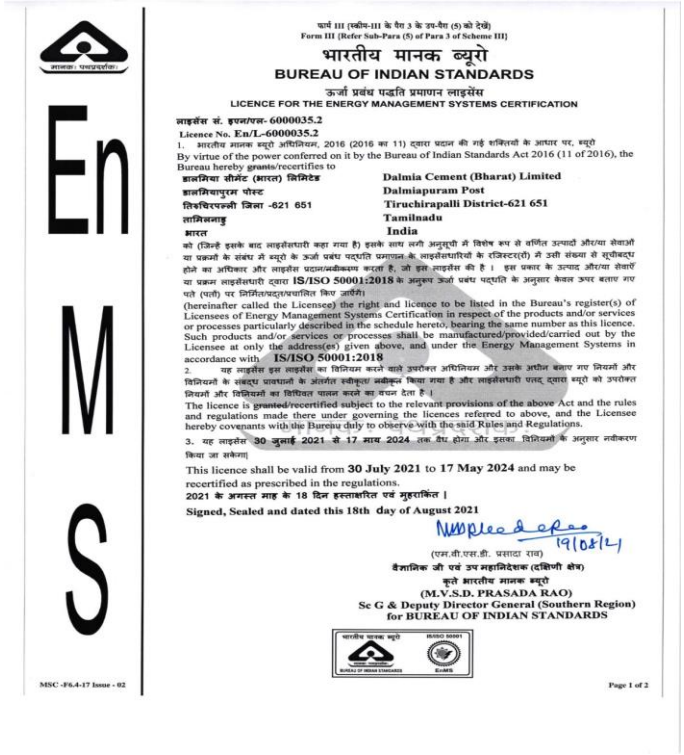
SPECIFIC POWER LINE 2 PLANT						
Description	Report Date : 31/05/2023 & Time : 00:00					
	FTD					
	KWH	Run Hrs	PROD	TPH	KWH/HR	KWH/T
LS Crusher						
LS Crusher Main Drive	4898	19.40	14813	764	252	0.33
MCC - 31(LS Transport & RM handling)	5636	19.40	14813	764	291	0.38
Circular Stacker	153	19.40	14813	764	8	0.01
Crusher Total (Both Line-1 +Line 2 Plant)	**10687**	**19.40**	**14813**	**764**	**551**	**0.72**
LINE-1 Transfer Power	4682	8.50	6484	763	551	0.72
LINE-2 Circular Stacker	4958	9.00	7592	844	551	0.65
LINE-2 Linear Stacker	1047	1.90	737	388	551	1.42
LINE-2 TOTAL	6004	10.90	8329	764	551	0.72
LS Crusher & Transport (Total)	**6004**	**10.90**	**8329**	**764**	**551**	**0.72**
Section Stoppage Power	**0**					

13.Team Work Involvement of employees

- E8K Mission
- Suggestion Scheme
- Good Work Award
- Long Service Award
- Employee of the Month
- EOM Training and Dinner
- Workers Education Class
- Nomination for Tamilaga Arasin Uyarntha Ulaipalar Virudhu
- Safety Quizzes in Gate Meeting
- Safety Messages Sharing in Gate Meeting
- Productivity week/ Environmental Day Celebrations Various Contests
- National Safety Day Celebrations Various Contests
- Health & Safety Committee Meeting Members Participation
- Various External Awards Participation
- Birthday Fiesta/Long service Mass Tree Plantation
- Trained for New Safety Approaches

14.Implementation of ISO 50001/Green Co/IGBC rating

IS/ISO 50001:2018, Green Pro Certification



भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
ऊर्जा प्रबंध पद्धति प्रमाणन लाइसेंस
LICENCE FOR THE ENERGY MANAGEMENT SYSTEMS CERTIFICATION

लाइसेंस सं. इएमएस- 6000035.2
Licence No. En/L-6000035.2

Dalmia Cement (Bharat) Limited
Dalmiapuram Post
Tiruchirapalli District-621 651
Tamilnadu
India

IS/ISO 50001:2018

This licence shall be valid from 30 July 2021 to 17 May 2024 and may be recertified as prescribed in the regulations.

Signed, Sealed and dated this 18th day of August 2021

(एम.वी.एस.डी. प्रसाद राव)
वैज्ञानिक जी एवं उप महानिदेशक (दक्षिणी क्षेत्र)
कृते भारतीय मानक ब्यूरो
(M.V.S.D. PRASADA RAO)
Sc G & Deputy Director General (Southern Region)
for BUREAU OF INDIAN STANDARDS

MSC -F6.4-17 Issue - 02

Page 1 of 2

Energy Management SystemCertifiion IS/ISO 50001:2018

Confederation of Indian Industry

CII-Green Products and Services Council

hereby certifies that

Dalmia PPC/ Vajram Cement

(GPDC10001)

Manufactured by Dalmia Cement (Bharat) Ltd meets the requirements of GreenPro Ecolabel and qualifies as Green Product.

This certification is valid till ***December 2024***

Jamshyd N Godrej
Chairman, CII-Godrej GBC

ParasuRaman R
Chairman, CII-Green Products & Services Council

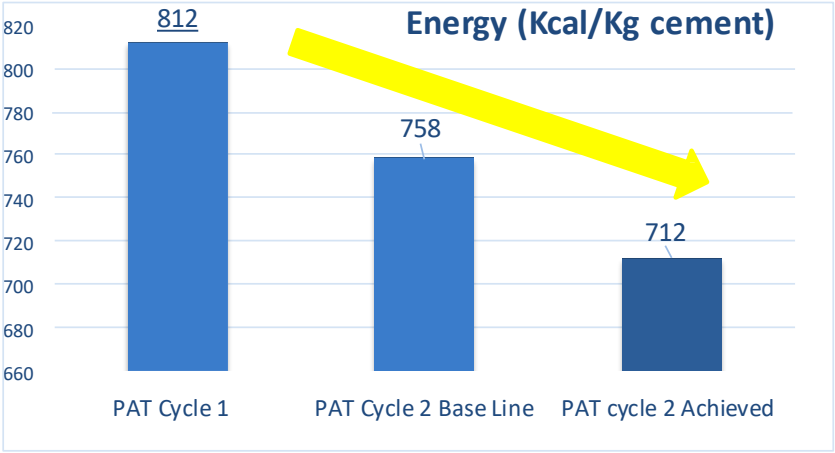
K S Venkatagiri
Executive Director, CII-Godrej GBC

Supporting Council and programmes

Dalmia PPC - Green Pro Certified by CII

Conclusion

1. Won 66 National Awards in Years FY 18 to FY23. from- CII , NCCBM , CMA and Apex India Etc.
2. 10 Times Won CII Excellent/Energy awards and twice won the BEE energy Award obtained from the President of India. Won CII Energy Leadership Award, all the five times, since inception.
3. PAT Cycle 3 Target 775 Kcal/Kg Cement Against 816 Kcal/Kg Base line year 2018-19



Our Manthra

We have never said "Yes to No"

(Made the impossible, Possible)