

24th National Award For Excellence in Energy Management 2023



**Dalmia Cement (B) Ltd,
Ariyalur Plant
Welcomes you all !**

Team Members:

**Mr. V. Saravanan – Production Head
Mr. BR.Prasannakumar- Env Head
Mr A. Murugan – Energy Manager**

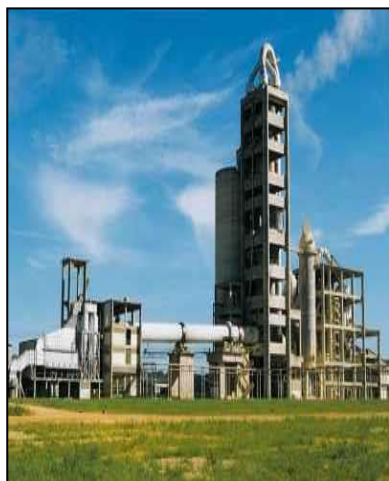
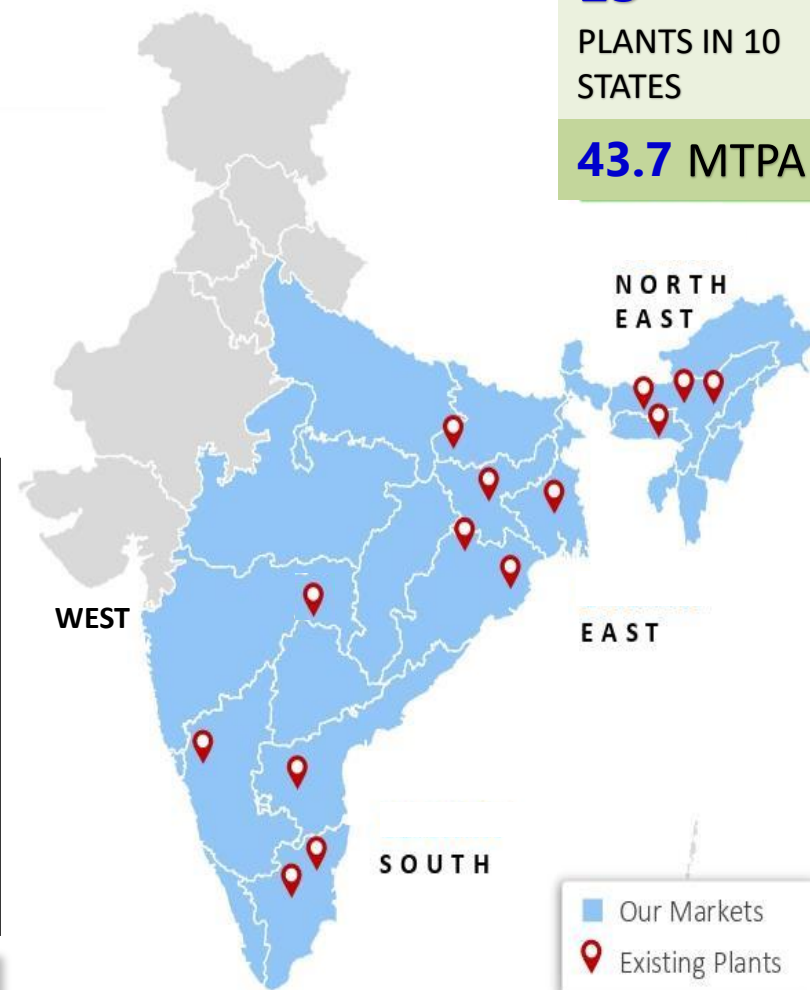


1. Brief Introduction on Dalmia Bharat Organization

- ▣ **Founded by Shri Jaidayal Dalmia in 1935**
- ▣ **Pan India presence in Cement business**
- ▣ **Capacity of 43.7 Million Tons per annum**
- ▣ **4th largest cement manufacturer in India**
- ▣ **Manufacturing of Special cements like Oil well, Air strips & Railway sleeper grade cement.**

15
PLANTS IN 10
STATES

43.7 MTPA



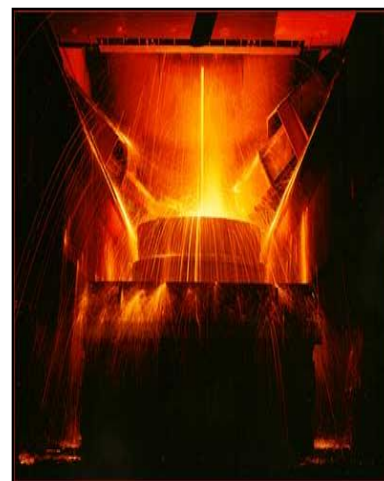
Cement



Power



Sugar



Refractory

Major Process Equipment Specifications

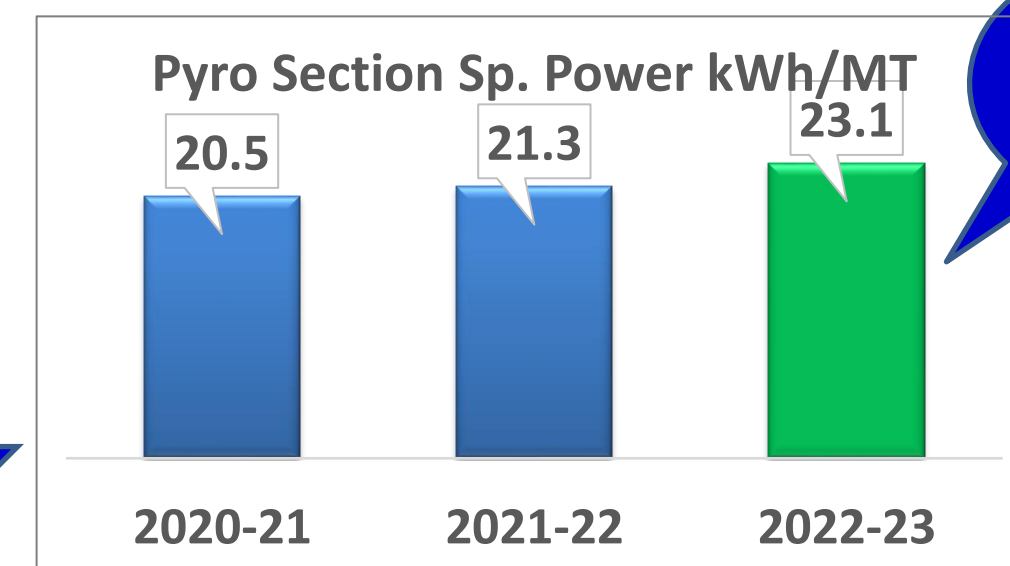
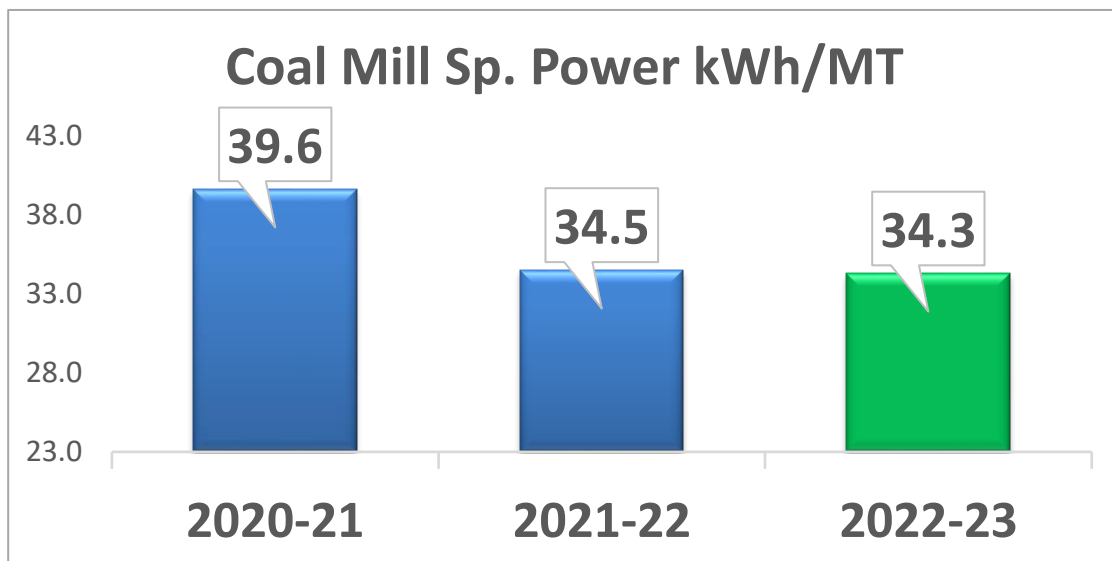
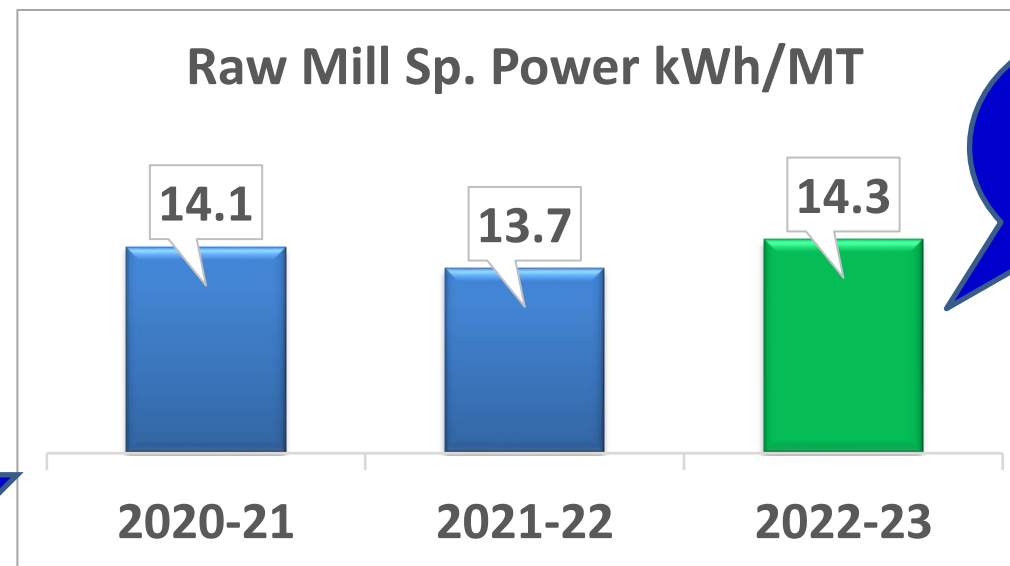
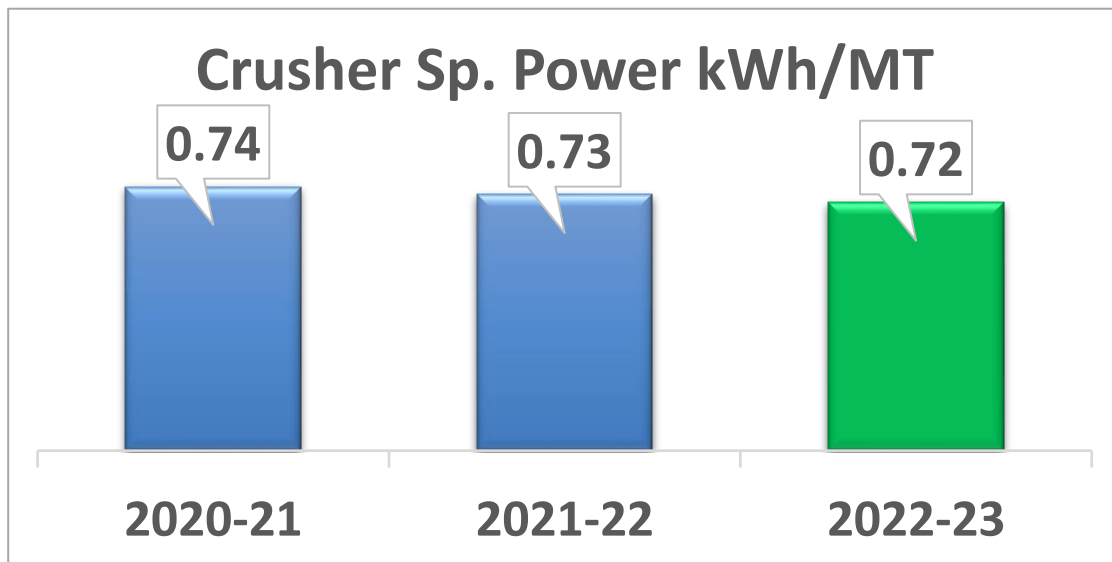
| Equipment | Supplier | Rated | Operating | Beyond Capacity |
|-----------------------|----------|----------------------------|----------------------|-----------------|
| Crusher | MMD | 900 TPH | 730 TPH | -18.5% |
| Raw Mill-VRM | Pfeiffer | 400 TPH | 418 TPH | 4.5% |
| Pyro-5Stage Preheater | FLsmidth | 4500 TPD | 6200 TPD | 38% |
| Coal Mill-VRM | Pfeiffer | 40TPH-Coal, 25-Pet-coke | 32 TPH (Pet-coke) | 12.5% |
| Cement mill-VRM | Pfeiffer | 300TPH | 400 TPH | 33% |



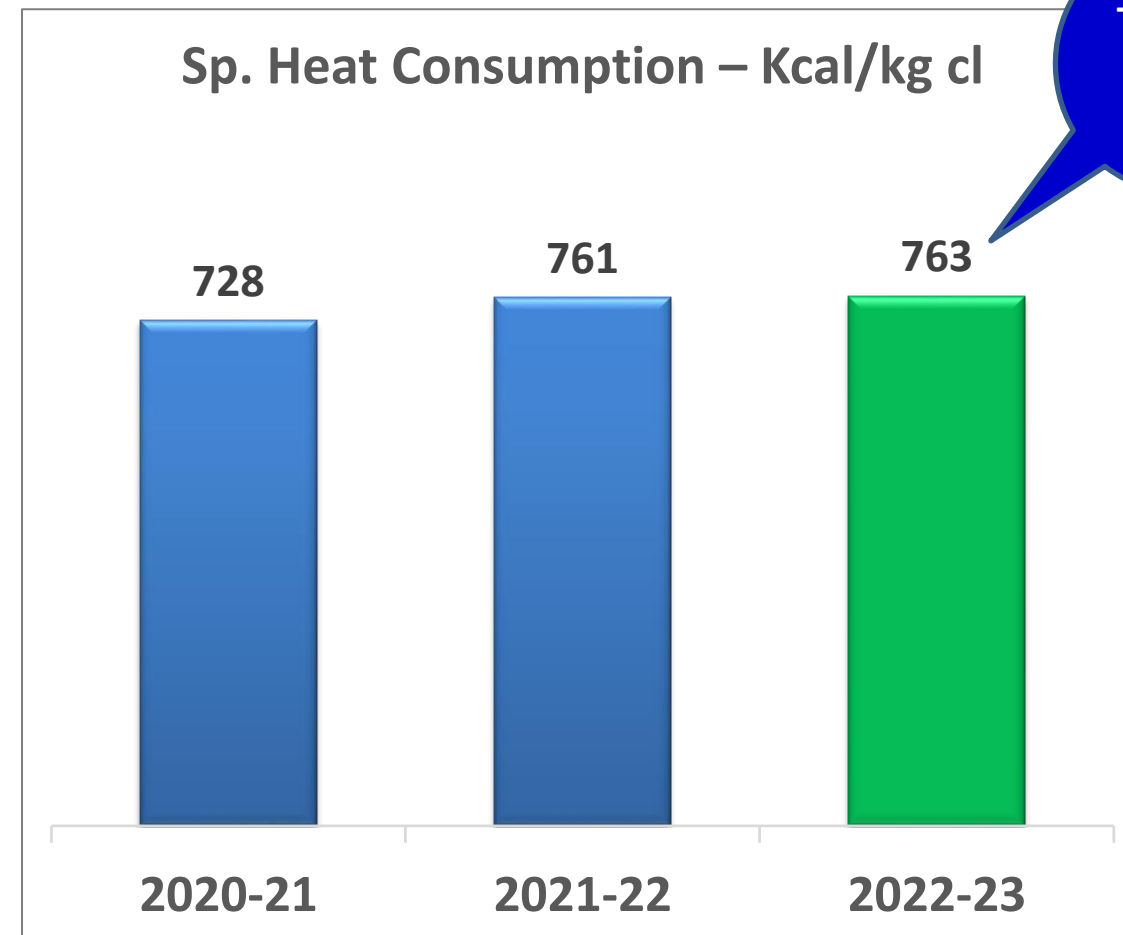
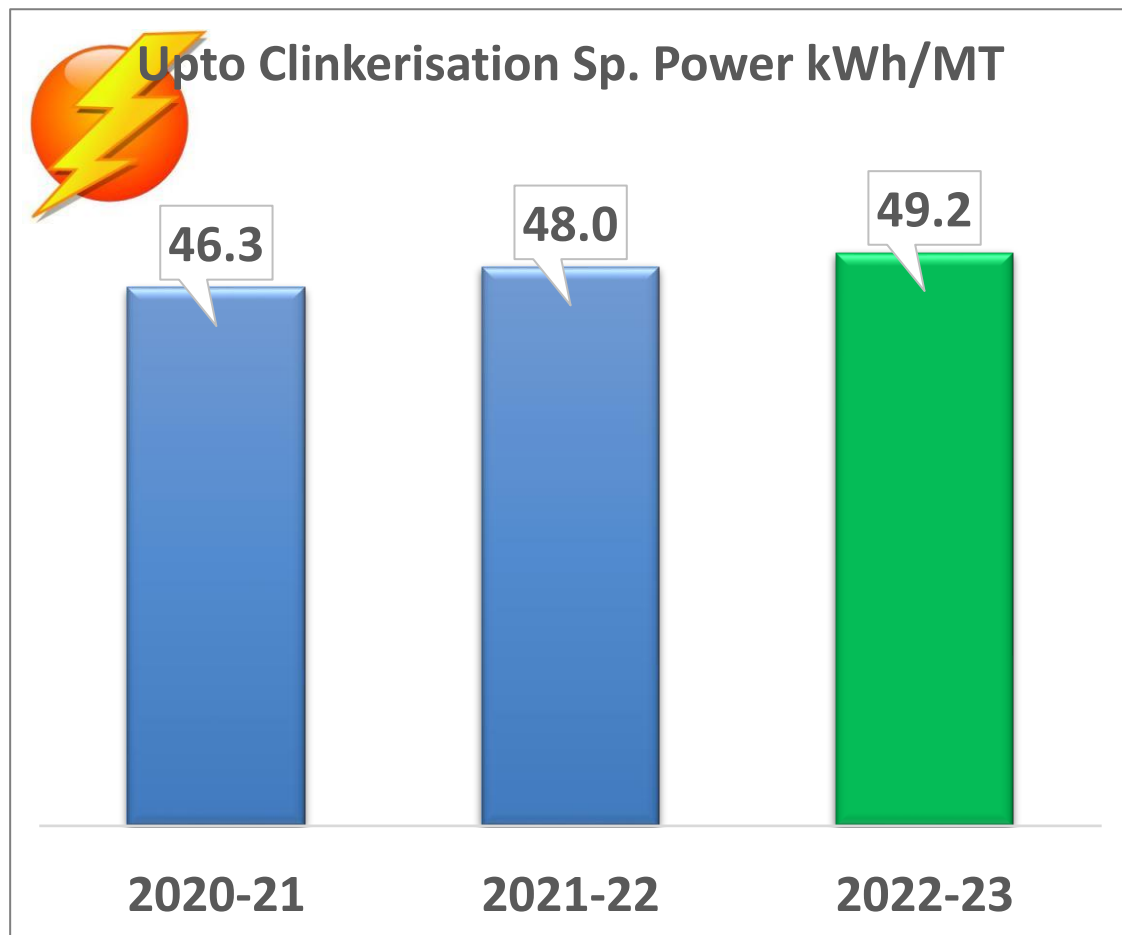
Operational Performance



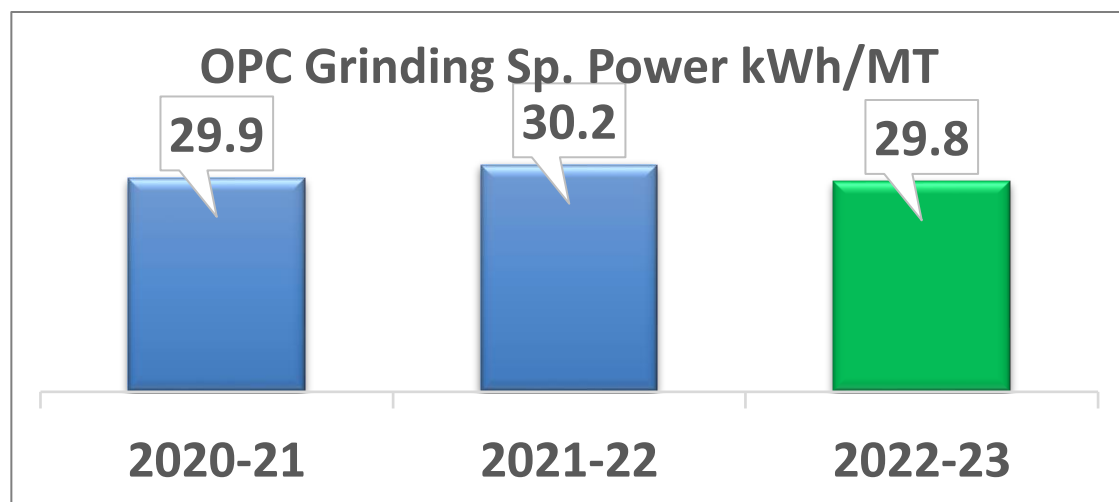
2. Specific Energy Consumption in last 3 years



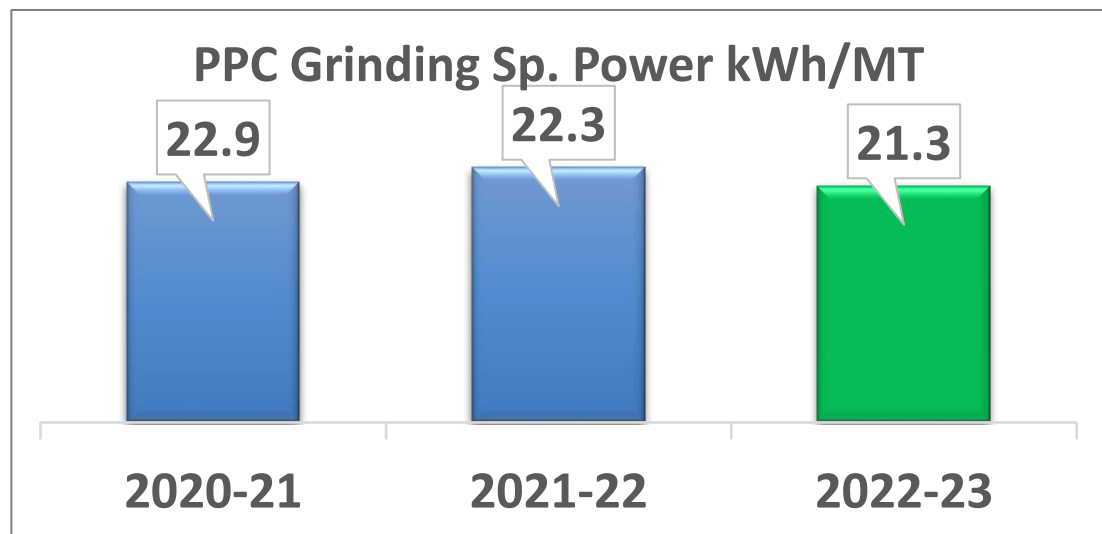
2. Specific Energy Consumption in last 3 years



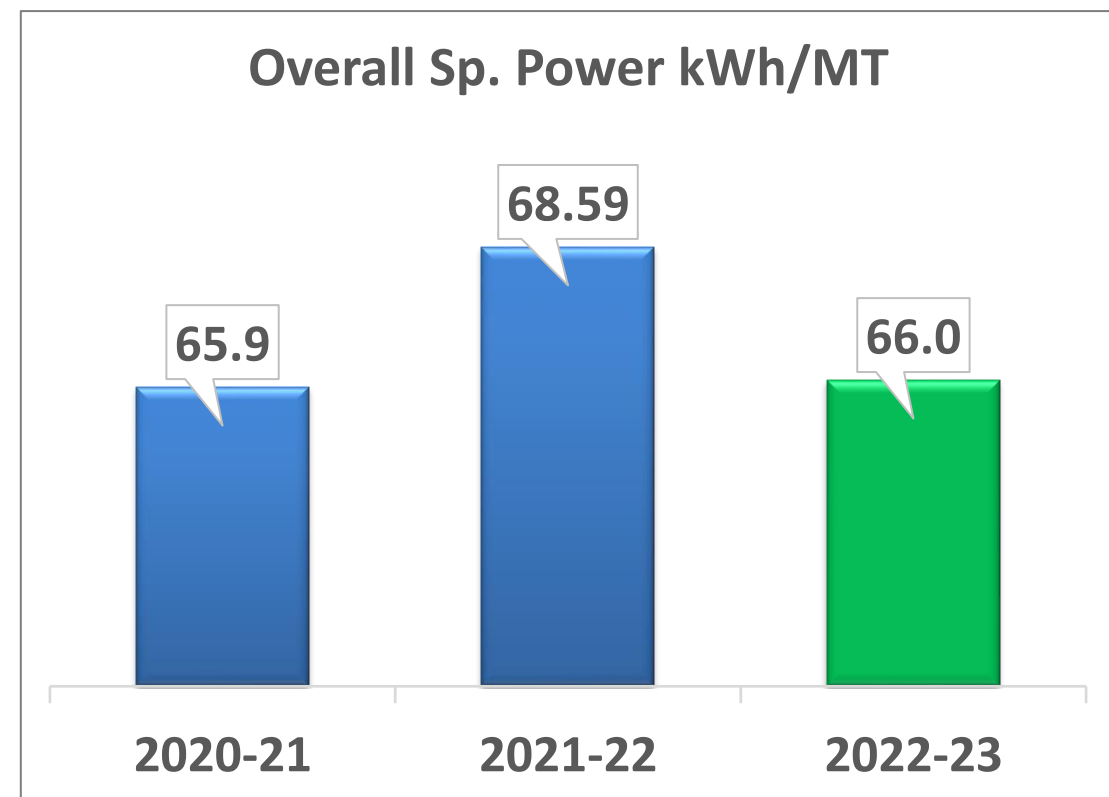
2. Specific Energy Consumption in last 3 years



1 % reduction



4.4 % reduction



2 % reduction

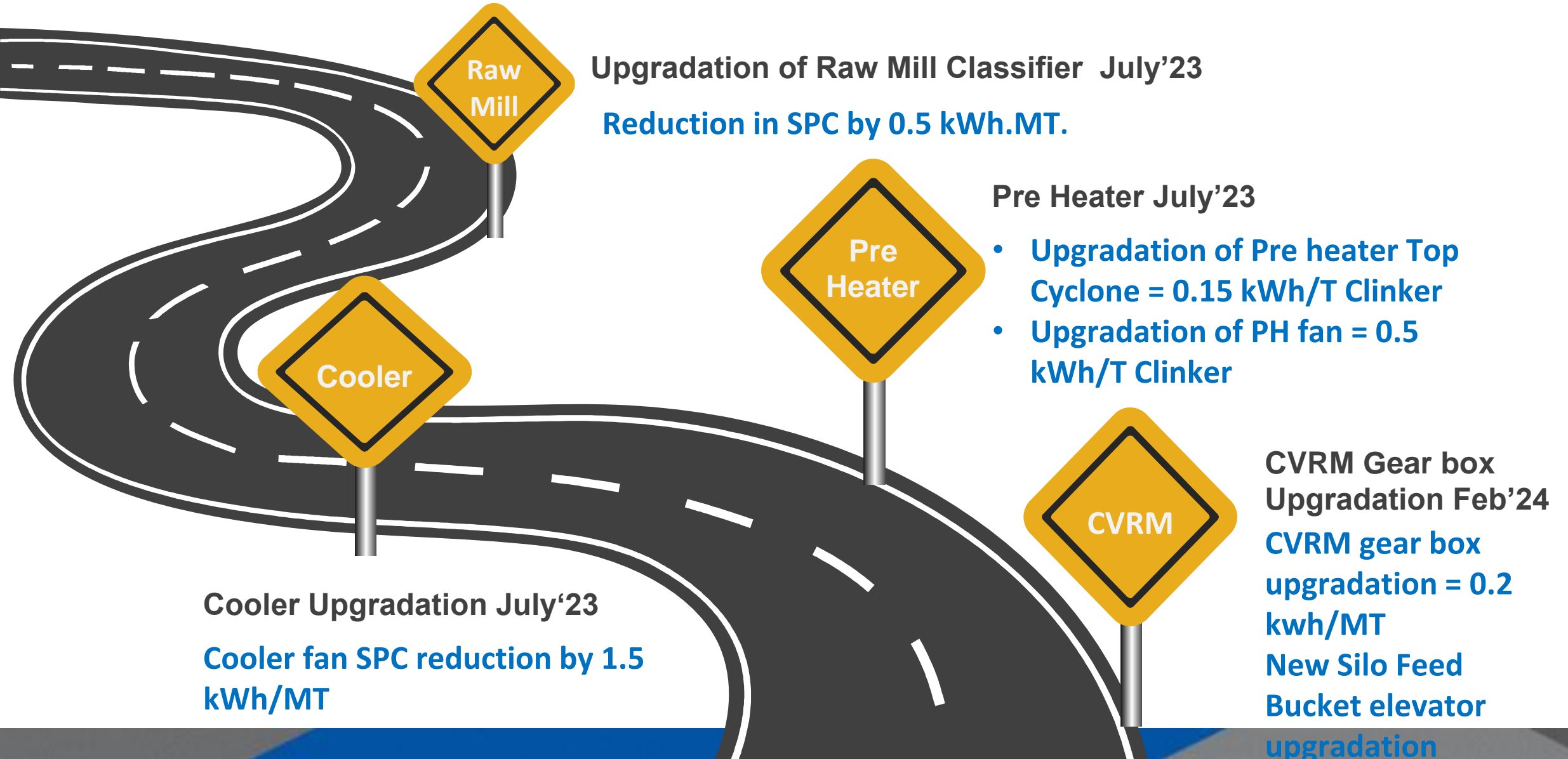
3. Information on Competitors, National & Global benchmark

ENERGY BENCHMARKING

| Parameters | Electrical SEC (kWh / T of Cement) | Thermal SEC (kcal / kg of Clinker) |
|---|---|---------------------------------------|
| Comparison of specific energy consumption (SEC) | | |
| SEC : Dalmia Cement –Ariyalur Plant | 66.0 | 763 |
| SEC Values for Competitor - 1 : | 69.30 | 735 |
| SEC Values for Competitor - 2 : | 71.40 | 746 |
| SEC Values for Competitor - 3 : | 71.65 | 758 |
| National Benchmark for SEC : | 56.14 | 676 |
| International Benchmark for SEC : | 55.0 | 670 |
| SEC Target for FY 2023-24 : | 63.3 | 760 with 35% TSR |
| Please mention the sources / references for the furnished data (National & International Data) | As per CII Bench marking details (National & International Data) | |

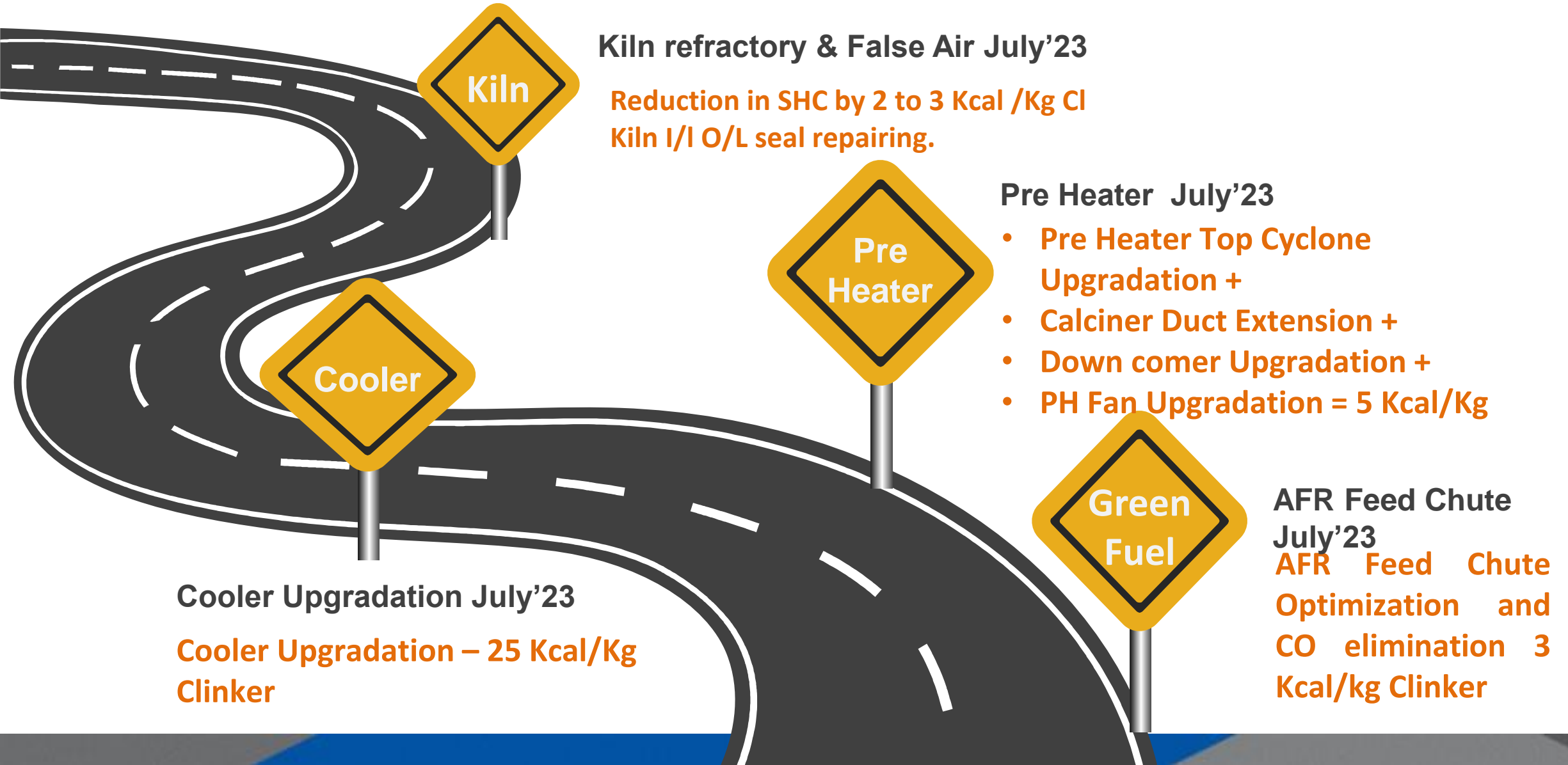
Road Map to Achieve Benchmark/National/Global Best

Reduction of Electrical Energy Consumption



Road Map to Achieve Benchmark/National/Global Best

Reduction of Thermal Energy Consumption



3. List of Major Encon project in Progress FY 2023-24

| Sl. No. | Title of Project | Annual Electrical Saving (kWh) | Annual Electrical Cost Saving (Rs million) | Annual Thermal Saving (Ton/year) | Annual Thermal Saving (Rs million) | Total Annual Savings (Rs million) | Investment Made (Rs million) | Payback (Months) |
|---------|---|--------------------------------|--|----------------------------------|------------------------------------|-----------------------------------|------------------------------|------------------|
| 1 | Enhancement of productivity in Raw Mill by up-gradation of Classifier | 1246780 | 9.1 | - | - | 9.1 | 40 | 4.39 |
| 2 | Up-gradation of Preheater Fan with high efficiency impeller | 782210 | 5.7 | - | - | 5.7 | 20 | 3.5 |
| 3 | Up-gradation of Baghouse Fan with high efficiency impeller | 391105 | 2.9 | - | - | 2.9 | 8 | 2.8 |
| 4 | Up-gradation of Clinker Cooler with IKN Cooler | 3259210 | 23.8 | 4179 | 39.1 | 62.9 | 237 | 9.96 |
| 5 | Up-gradation of Pre-calciner by duct height extension | - | - | 1045 | 9.8 | 9.8 | 53 | 5.41 |
| 6 | Reduction of radiation loss in Pre Heater by applying Heat Resistance Paint | - | - | 209 | 2 | 2 | 10 | 5 |
| 7 | Reduction of PH pressure drop by retro-fitting of Top Cyclone | 260737 | 1.9 | 313 | 2.9 | 4.8 | 20 | 4.16 |
| 8 | Up-gradation of Cement Mill Classifier with High Efficiency | 1046787 | 7.6 | - | - | 7.6 | 144 | 18.84 |
| 9 | Enhancement of CVRM mill output by retro-fitting of CVRM gear box | 697858 | 5.1 | - | - | 5.1 | 83 | 16.29 |
| | Total | 7684687 | 56.1 | 5746 | 53.8 | 109.9 | 615 | 70.35 |

3. List of Major Encon project in FY 2022-23

| Sl. No. | Title of Project | Annual Electrical Saving (kWh) | Annual Electrical Cost Saving (Rs million) | Annual Electrical Cost Saving (Rs million) | Total Annual Savings (Rs million) | Investment Made (Rs million) | Payback Months |
|--------------|--|--------------------------------|--|--|-----------------------------------|------------------------------|----------------|
| 1 | CVRM Power reduction by Process Optimization by Classifier Seal Gap reduction , Nozzle ring optimization and usage of Grinding Aid | 477937 | 204 | 4.11 | 4.11 | 1.3 | 4 |
| 2 | Installation of new silo feed elevator with capacity of 550 TPH to enhance the CVRM PPC output by 20 TPH | 252000 | 113 | 2.16 | 2.16 | 19.5 | 108 |
| 3 | Nozzle ring optimisation in Raw mill for Productivity improvement | 287272 | 48 | 2.47 | 2.47 | 0 | - |
| 4 | Solar Power plant in plant campus to utilize renewable energy for plant operation | 8671023 | 3754 | 74.65 | 74.65 | 480 | 77 |
| 5 | Raw Mill RABH Fan power reduction by reduction in false air | 106260 | 14 | 0.91 | 0.91 | 0.24 | 3.1 |
| 6 | Coal mill nozzle ring modification to improve productivity and reduction in mill run hours | 98820 | 48 | 0.85 | 0.85 | 0.1 | 1.4 |
| 7 | Chiller efficiency improvement through optimisation of operating parameters | 60000 | - | 0.51 | 0.51 | - | 0 |
| 8 | CVRM new conveying system with RAL for reject dust handling to reduce load and power in flyash elevator | 12965 | 6.9 | 0.11 | 0.11 | 0.05 | 5 |
| 9 | Providing APFC panels with detunes filters for stacker reclaimer power distribution. | 3330 | 0.4 | 0.02 | 0.02 | 0.17 | 71 |
| Total | | 99,69,607 | 4188 | 85.79 | 85.79 | 501.36 | |

4. Energy Saving projects implemented in FY 2021-22

| Sl. No. | Title of Project | Annual Electrical Saving (kWh) | Annual Electrical Cost Saving (Rs million) | Annual Thermal Saving (Ton/year) | Annual Thermal Saving (Rs million) | Total Annual Savings (Rs million) | Investment Made (Rs million) | Payback (Months) |
|---------|--|--------------------------------|--|----------------------------------|------------------------------------|-----------------------------------|------------------------------|------------------|
| 1 | Reduction of Pressure drop across Raw Mill nozzle ring by modification of nozzle pattern | 384411 | 2.65 | | | 2.7 | 1 | 5 |
| 2 | Up-gradation of Coal Classifier with high efficiency | 460420 | 3.18 | | | 3.2 | 4.99 | 19 |
| 3 | Reduction of Radiation losses by applying heat resistant paint in kiln shell | | | 252 | 3.46 | 3.5 | 0.8 | 3 |
| 4 | Increase in Clinker Liquid content by increasing KF alumina from 3.2 to 3.5% | | | 1051 | 14.41 | 14.4 | 0.0 | 0 |
| 5 | Cyclone -3 Dip tube replaced with new thereby PH exit reduced by 20 Deg C | | | 1051 | 14.41 | 14.4 | 3.8 | 3 |
| 6 | TAD temperatere increased by replacing damaged duct portion with new duct around 20m | | | 1261 | 17.29 | 17.3 | 3.3 | 2 |
| 7 | PC Outlet temperature fluctuations optimized by implementation of Puzzy logic in EO System | | | 840 | 11.52 | 11.5 | 0.8 | 1 |
| 8 | Enhanced shredder productivity by installation of ARCO plate instead of MS plate | 80018 | 0.55 | | | 0.6 | 0.5 | 11 |
| 9 | Enhanced OPC productivity from 260 to 290 TPH and reduction of Sp. Power consumption | 1922339 | 13.26 | | | 13.3 | 0 | 0 |
| 10 | Cement Bag house False air reduced by 1% by replacement of anval rotary air lock type | 240292 | 1.66 | | | 1.7 | 0.7 | 5 |
| | Total Saving | 31,14,154 | 21.5 | 4,454 | 61.1 | 82.6 | 16.3 | 2.4 |

4. Energy Saving projects implemented in FY 2020-21

| Sl. No. | Title of Project | Annual Electrical Saving (kWh) | Annual Electrical Cost Saving (Rs million) | Annual Thermal Saving (Ton/year) | Annual Thermal Saving (Rs million) | Total Annual Savings (Rs million) | Investment Made (Rs million) | Payback (Months) |
|---------|---|--------------------------------|--|----------------------------------|------------------------------------|-----------------------------------|------------------------------|------------------|
| 1 | Reduction of Classifier Annular Gap in Raw Mill | 272451 | 1.20 | | | 1.2 | 1.3 | 13 |
| 2 | Reduction of Classifier Annular Gap in Coal Mill | 113622 | 0.50 | | | 0.5 | 0.3 | 7 |
| 3 | Coal mill reject handling system installed | 85217 | 0.38 | | | 0.4 | 0.1 | 3 |
| 4 | Conversion of Duoflex to Jetflex burner | | | 771.4 | 5.46 | 5.5 | 3.6 | 8 |
| 5 | Enhancing AFR usage by installation of winch system | | | 192.9 | 1.37 | 1.4 | 1.2 | 11 |
| 6 | Enhancing AFR usage by installation of full fledged mechanized feeding system | | | 1928.6 | 13.66 | 13.7 | 230 | 202 |
| 7 | Optimization of ROBO lab Compressor power consumption | 295600 | 1.30 | | | 0.0 | 0.5 | 0 |
| 8 | Avoided starting delay in CVRM by providing additional Hydraulic pump | 75718 | 0.33 | | | 0.3 | 0.5 | 18 |
| 9 | Cement Mill silo feed elevator up-graded from 350 to 410 TPH by drive up-gradation | 82028 | 0.36 | | | 0.4 | 0.5 | 17 |
| 10 | Reduction of CVRM stoppages by installation of additional magnetic separator in the feeding belt | 100957 | 0.45 | | | 0.4 | 1.2 | 32 |
| 11 | Up-gradation of Cooler water spray pump | 94647 | 0.42 | | | 0.4 | 2.9 | 83 |
| 12 | Reduction of reject handling in CVRM by installation of weigh feeder in reject circuit | 189294 | 0.83 | | | 0.8 | 2.2 | 32 |
| 13 | Optimized 3 no's Aux. Bag filters DP by providing nozzle in purging pipe | 37859 | 0.17 | | | 0.0 | 0.2 | 0 |
| 14 | All 3 packers, feeding elevators are interconnected and operating the single elevator for 2 packers | 63360 | 0.28 | | | 0.3 | 0.2 | 9 |
| | Total Saving | 14,10,753 | 6.2 | 2,893 | 20.5 | 25.2 | 244.7 | 116.3 |

4. Energy Saving projects implemented in last three years

| Year | With Investment | | | | Without Investment | |
|--------------|------------------|----------------------|------------------|----------------|--------------------|------------------|
| | No. Of Proposals | Investments in Lakhs | Savings in Lakhs | Payback Months | No. Of Proposals | Savings in Lakhs |
| 2020-21 | 12 | 2447 | 252 | 116 | 2 | 7 |
| 2021-22 | 10 | 163 | 549 | 3.6 | 2 | 277 |
| 2022-23 | 9 | 501 | 85 | 270 | 2 | 2.1 |
| Total | 31 | 3111 | 886 | 389.6 | 6 | 286.1 |



4. Energy Saving projects implemented in FY 2022- 23

Reduction of SPC in Cement Mill (CVRM)

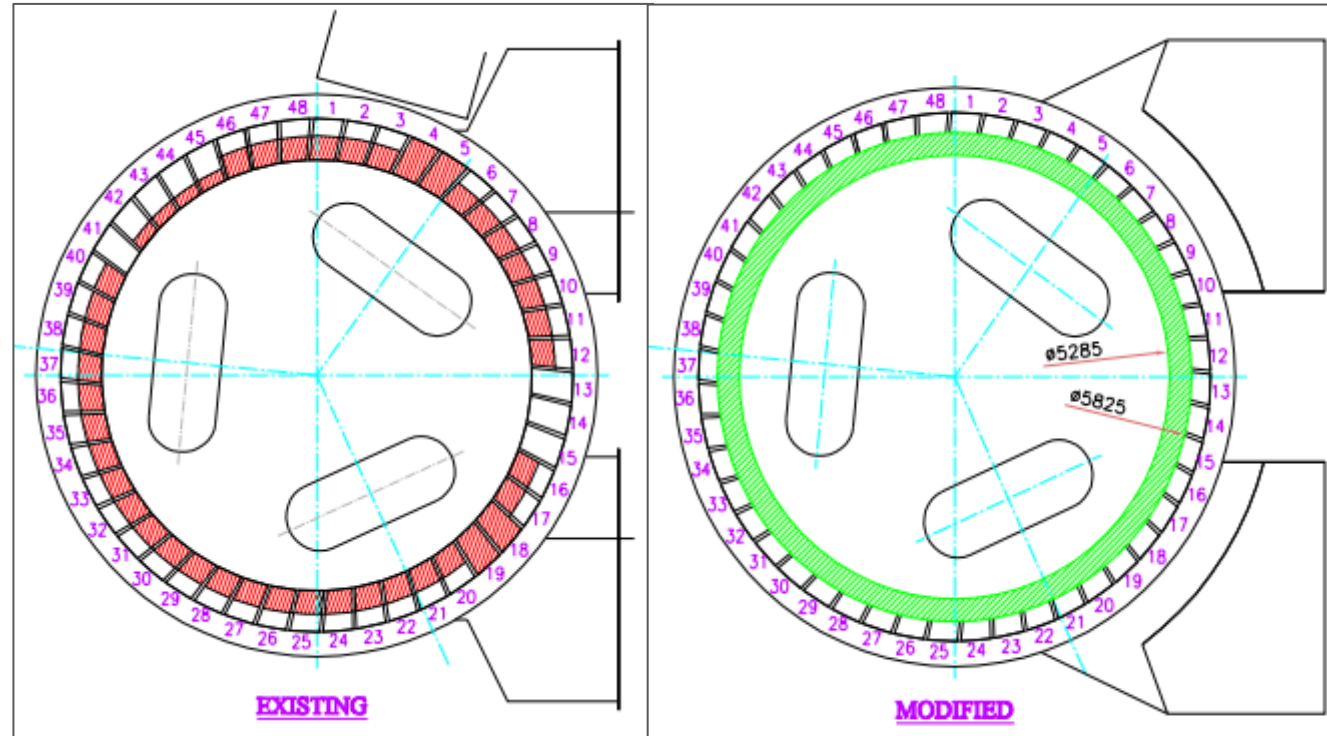
Constrain:

Higher rejection and residue which is impact on higher SPC

Project Details :

CVRM Power reduction by Process Optimization

- Nozzle Ring modification – Velocity increased from 45 to 52m/sec.
- Classifier Seal Gap Optimization from 10 mm to 5 mm



Benefits

- ✓ Investment – Nil – Inhouse Modification
- ✓ Mill TPH increased by 15 TPH & 0.8 Kwh/MTSPC reduced

4. Energy Saving projects implemented in FY 2022- 23

Energy saving initiative in cement mill by Auxiliary Bag filter discharge conveying equipment's modification.

Constraint

- ✓ As per OEM design, Aux bag filter discharge material feed to mill through DFA Bucket Elevator and airslide. There by required to operate DFA entire feeding circuit required to run during OPC grinding.

Project detail

- ✓ Installed new screw conveyor at Aux bag filter discharge line to feed directly feed into the mill
- ✓ Avoided operation of DFA circuit during OPC grinding.

Benefits

- ✓ Investment – In house Modification 1.3 Lakhs
- ✓ Overall Benefit– Sp power reduction by 0.3 kWh/MT of Cement
- ✓ Annual Savings – 10.45 Lakhs

Innovative Projects



Power optimization by Limestone addition in Coal Mill during low HGI Coal Grinding

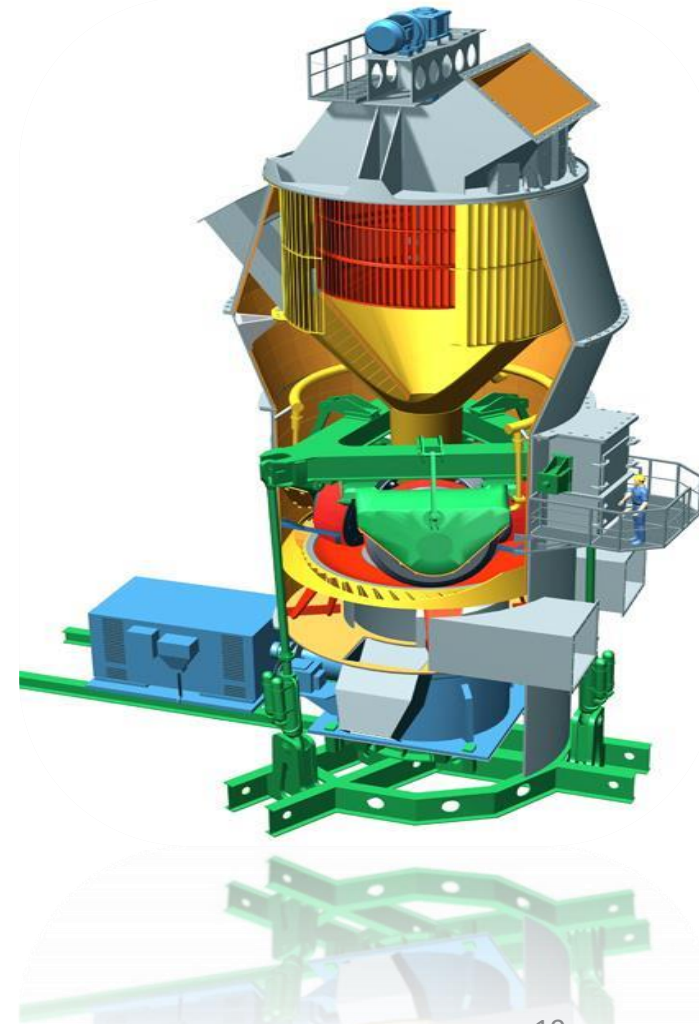
Constraint

- High Coal Mill Specific Power Consumption due Low HGI (43) Pet Coke Grinding
- Mill Running Continuous without Planned Maintenance and unable to produce required fine coal to cop up the kiln requirement.
- To Consume and utilization of Low HGI Coal which the mill is not originally designed

Innovative Method

- Limestone addition in Coal Grinding specifically for Low HGI Pet coke
- Trials taken with Limestone addition with various % and mill optimized.

Category : Category C New concept (risks taken/self driven/beyond OEM)



Power optimization by Limestone addition in Coal Mill for low HGI Coal Grinding

Project Details

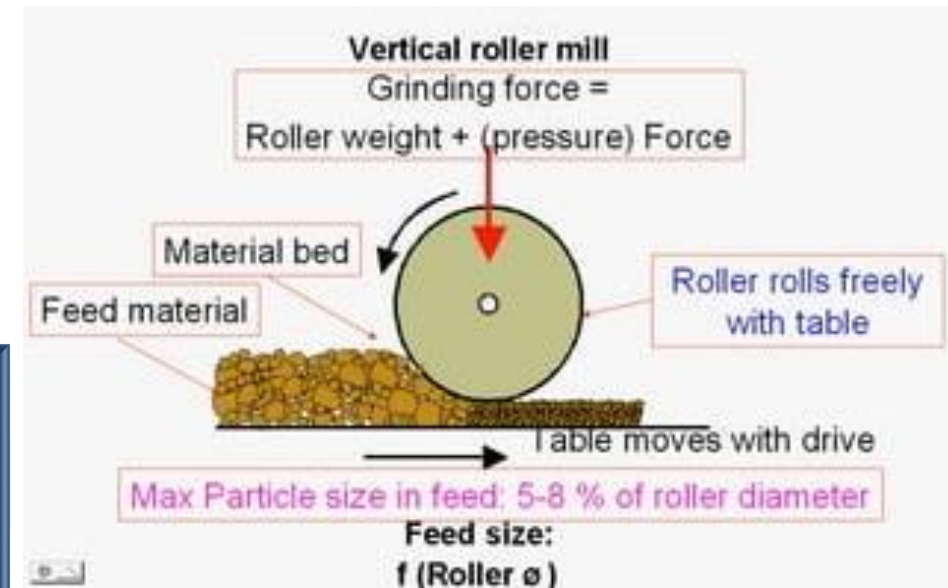
DCBL Ariyalur taken project in coal mill (VRM) with addition of limestone (2 to 4 %) for improving the mill productivity and also Sulphur absorption in clinkerisation process during usage of pet coke to avoid ring formation in kiln.

Replication Potential

➤ Yes , for any VRM with low HGI pet coke grinding .

Benefits

- ✓ Investment – Nil
- ✓ Power Saving – 0.6 kWh/MT Coal
- ✓ Savings – 9.8 Lakhs/annum



4. Energy Saving projects implemented in FY 2022- 23

Maximize the usage of AFR

Constrain:

- ➔ Frequent jamming in double flap chute
- ➔ High worn-out of refractory and material accumulation due to high ash material

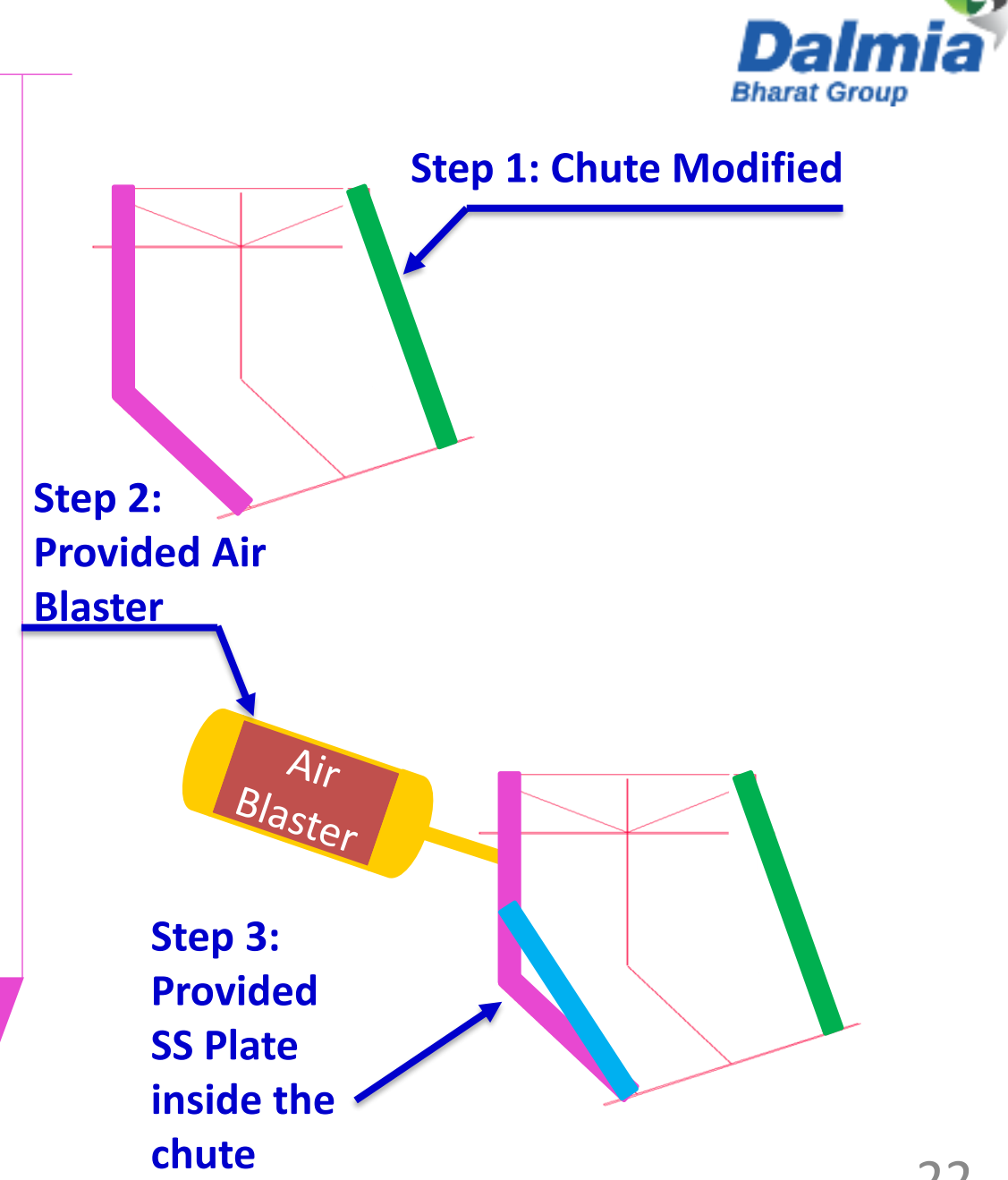
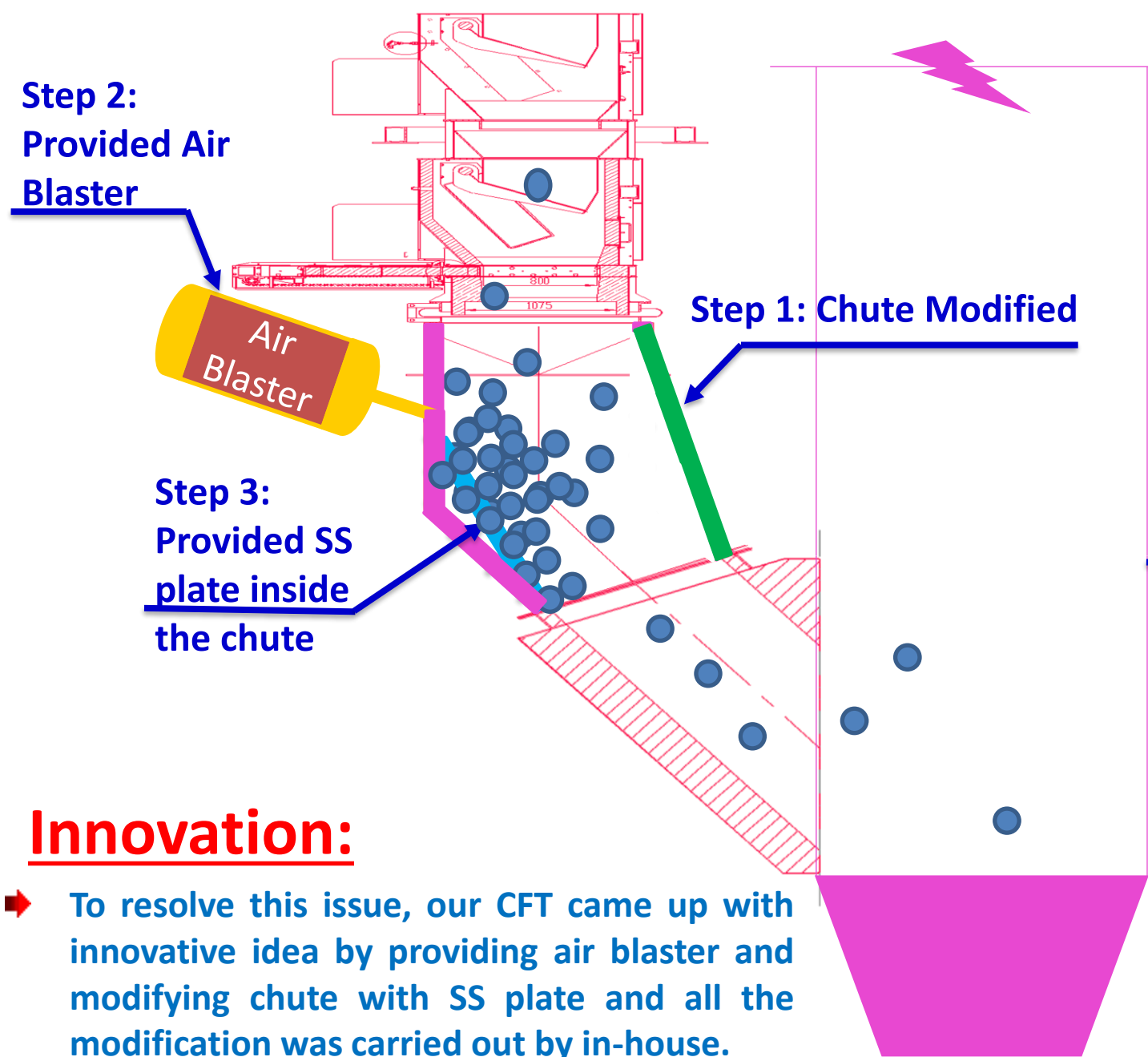
Project Details :

- ➔ AFR Chute height and Inclination Optimized.
- ➔ AFR Inclination Optimized wrt Green Fuel.

Benefits

- ☑ Investment – In House Modification
- ☑ AFR Feed – Increased up to 25% TSR and Planning for 35% TSR





Innovation:

➔ To resolve this issue, our CFT came up with innovative idea by providing air blaster and modifying chute with SS plate and all the modification was carried out by in-house.

Crusher Barrel & span stamp strengthening to reduce breakdown.

Constraint

- Segment dislodge from barrel, resulting in crusher stoppage and idle power consumption

Innovative Method

- Crusher Barrel and Span stamp welding with CGS 680 Electrode to increase bonding strength
- Locking segments with additional ribs.



Crusher Barrel Modification to reduce breakdown stoppages

Project Details

- Barrel Modification was developed and fabricated inhouse.
- Reduced frequent breakdown

Replication Potential : Yes Can be replicated in LS Crushers

Benefits :

- ☑ Investment – 1.92 Lakhs
- ☑ Overall Benefit– Reduction in Breakdowns
- ☑ Ever highest annual crusher production achieved 2.79 Mn MT for FY 22-23

6. Utilization of Renewable Energy Sources



On Site -Solar Power plant (11 MWP) Commissioned on July 2022. Invested – 46 Crores

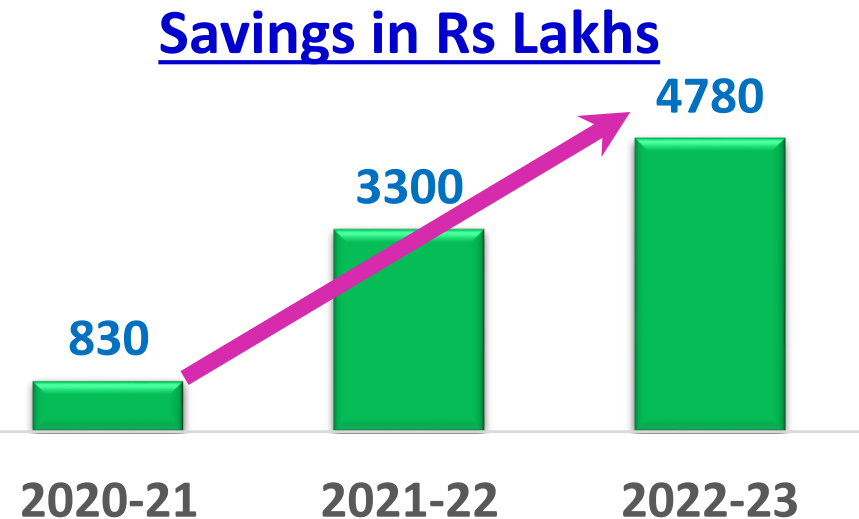
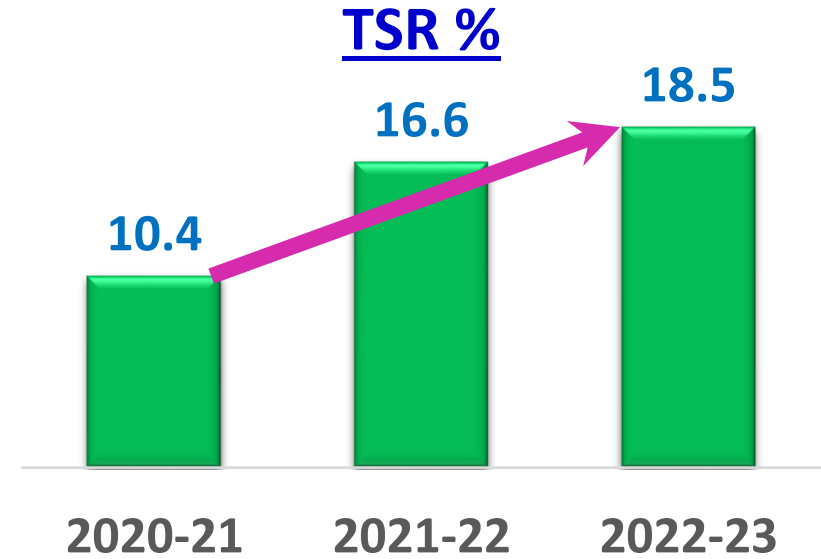
6. Utilization of Renewable Energy Sources

| Replacement of Electrical Energy with Renewable Energy | Annual Energy Generated in 2019-20 (million kWh) | % Share | 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 | 23.28 | 50 | 21.98 | 50 | 21.49 | 50 | 24.34 | 50 |
| Replacement of Thermal Energy with Renewable Energy | Equivalent Annual Fuel Savings in 2019-20 (million kcal/year) | % Share | Equivalent Annual Fuel Savings in 2020-21 (million kcal/year) | % Share | Equivalent Annual Fuel Savings in 2021-22 (million kcal/year) | % Share | Equivalent Annual Fuel Savings in 2022-2023 (million kcal/year) | % Share |
| Solar Thermal Energy | - | - | - | - | - | - | 11 | 100 |

7. Waste utilization and management

Clean & Green is Sustainable & Profitable

| FY | 2020-21 | | 2021-22 | | 2022-23 | |
|-----------------|--------------|--------------|--------------|--------------|--------------|---------------|
| MATERIAL | Qty, (MT) | % TSR | Qty, (MT) | % TSR | Qty, (MT) | % TSR |
| RDF | 14753 | 5.1% | 33495 | 7.9% | 39239 | 8.90% |
| Plastic waste | 7415 | 3.8% | 14502 | 5.9% | 16846 | 6.50% |
| Carbon black | 0 | 0.0% | 3192 | 1.6% | 3537 | 1.90% |
| Cotton Waste | 723 | 0.3% | 1064 | 0.3% | 1064 | 0.30% |
| SCF | 264 | 0.1% | 703 | 0.3% | 687 | 0.30% |
| Paint Sludge | 639 | 0.3% | 655 | 0.2% | 455 | 0.20% |
| Resin Waste | 863 | 0.4% | 526 | 0.2% | 766 | 0.20% |
| Tyre Chips | 236 | 0.1% | 294 | 0.1% | 133 | 0.10% |
| Solid Waste Mix | 924 | 0.3% | 129 | 0.0% | 233 | 0.00% |
| Other AFR's | 596 | 0.2% | 437 | 0.1% | 566 | 0.10% |
| Total | 26412 | 10.4% | 54996 | 16.6% | 63526 | 18.50% |



| Green Raw Material | 2020-21 | 2021-22 | 2022-23 |
|---------------------------|--------------|-------------|---------------|
| Tannery Sludge - MT (Wet) | 33 | 0 | 0 |
| Lime Sludge - MT (Wet) | 17489 | 4735 | 9111.2 |
| Total Quantity-MT | 17522 | 4735 | 9111.2 |

7. Waste utilization and management

Green Fuel Feeding System

- ➔ Full Fledged Feeding System was installed with investment of 23 Crores
- ➔ To achieve 35% TSR for FY 2023-24 , additional Pre Processing & Feeding Circuit in Progress

Pre-Processing



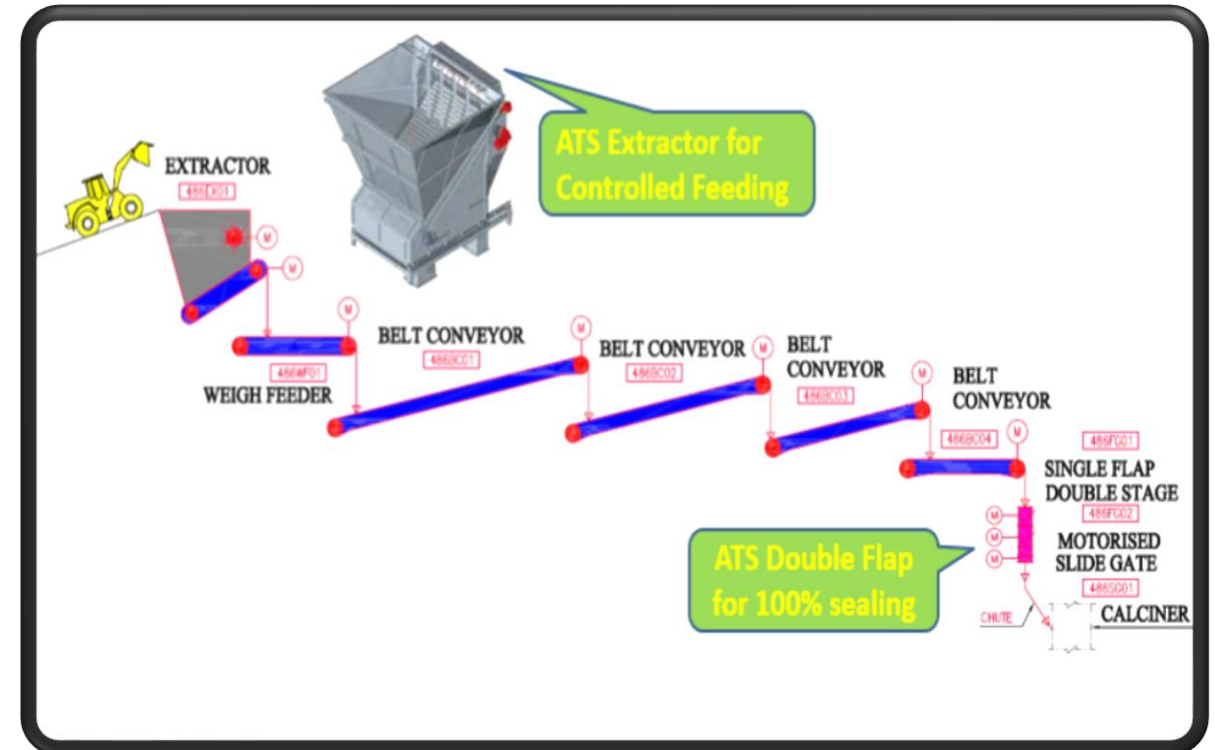
Unshredded Material Feeding thro' Chain Conveyor

Shredding done by SIDA Shredder

Screening Done by Eco-Star Screen

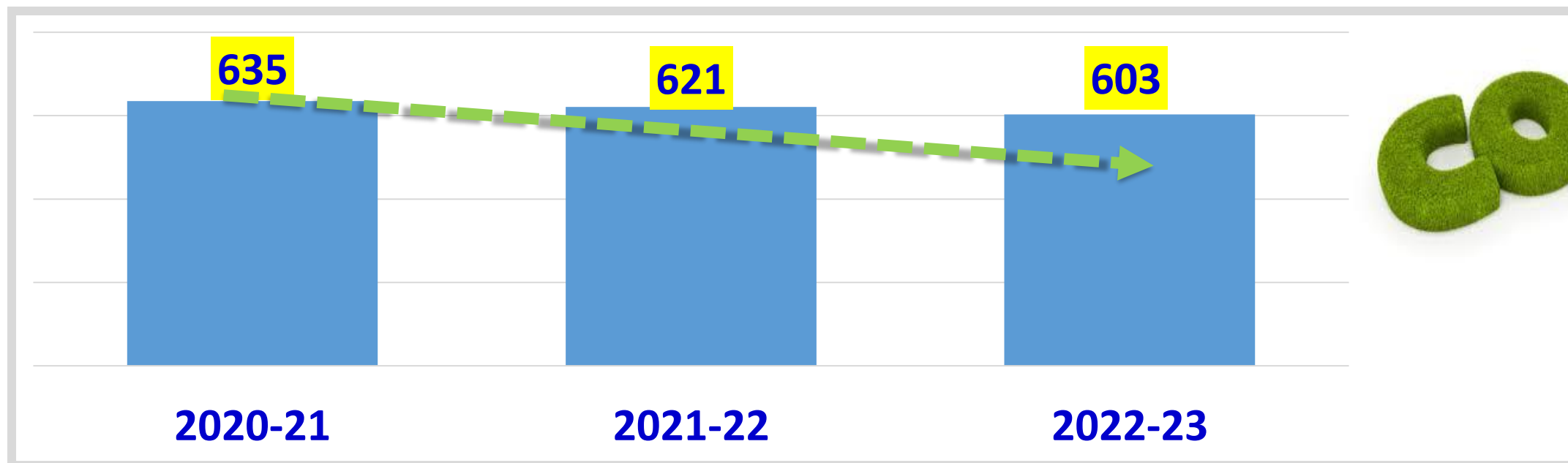
Output Shredded Material < 80mm

Co-Processing



8. GHG Inventorisation

CO2 emission (Scope-1) – Kg/ MT of Cement



Action Plan to achieve <400 kg /MT of cement

Short Term:

- Increase the AFR utilization from 16 to 35%
- Increase of PPC product ratio from 40 to 75%

Long Term:

- Negative carbon footprint on 2040
- Carbon Capturing & Utilization
- By introducing Composite cement
- 100% AFR utilization in PC

9. Green Supply Chain

Dalmia Cement (Bharat) Limited, Ariyalur **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, Ariyalur 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.

Issue No: 1

Revision No: 2

Date: 01.06.2022

Robert.T

Unit Head

Increased Bulker Dispatch Quantity



Results:

- Bulker Quantity
- FY 21-22 – 517513 MT
- FY 22-23 – 643079 MT
- Increased Bulker Quantity – (4%)
- Diesel Consumption – 1.5 Litres/MT
- Fuel Saved = 87500 Litres of Diesel
- ✓ **Cost Saving = 87 Lakhs/annum**

10. Team work, Employee Involvement & Monitoring

- ❖ Energy Task Force Team, Cross functional team (CFT) & Quality Circle team (QC) – Identifying energy saving potential projects, implementation and monitoring.
- ❖ Quick fund allocation by the management based on the pay back period less than 40 months
- ❖ Best Energy saving initiatives from Kaizen and Encon projects are awarded every month Gate meeting.
- ❖ Visiting Energy Efficient plant & Participating seminars for new technology adoption

Kaizen Format

| DALMIA CEMENT (B) LTD | | Department: process | | Kaizen No. | | Start date | | 1.05.2015 | | | |
|-------------------------------|--|---|---|---|----------------------------------|---|----------|--|---------------------------|--|--|
| ARIYALUR | | Regd. Date | | Finish date | | 22.06.2015 | | Format No: 55-ARY-01-2015 Page No: 1 of 1 | | | |
| PROBLEM | Raw Mill inlet duct pressure drop is too high | ANALYSIS | In length of 3m duct pressure drop is too high near Mill inlet, duct sizing reduced from 16m ² to 6m ² that is why the pressure drop happened | Kaizen Theme | Energy consumption reduction | Implemented Area/Zone | Raw Mill | Implemented by | Sakthivel & Eswaremoorthi | | |
| ACTION TAKEN | Mill inlet duct area increased from 6m ² to 18 m ² , the pressure drop is drastically reduced from 150mmwc to 10 mmwc, finally the benefit in Fan power saving of 70 Kw. | ROOT CAUSE | Mill inlet duct area to be modified | EFFECTS | P Q C D S M E | Comments related to PQCDSE: | | | | | |
| BEFORE IMPROVEMENT | Fan Static pressure is 1050mmwc | AFTER IMPROVEMENT | Due to this fan static pressure got decreased from 1050 to 980mmwc, Fan power saving 70kw | COST BENEFIT: | 5040/day | power and cost reduction of cement mfg. | | | | | |
| Head of the Department | | Technical Head | | Standards to be updated <input type="checkbox"/> SOP <input type="checkbox"/> HIRA/Aspect & Impact <input type="checkbox"/> Work Instruction <input type="checkbox"/> AM/PM Check Lists <input checked="" type="checkbox"/> Others (Specify) | | | | | | | |
| Ensure Kaizen is implemented | | 2. Verify Side Effects & confirm no adverse factors | | Scope of Horizontal Deployment | | Completed | | To be done | | Target | |
| | | | | Yes | | - | | - | | (To certify cost benefits for cost Kaizens only) | |

Project implemented through kaizen – 18 no's on FY 22-23


Energy Efficiency training, workshops & seminar's attended – 14 Programs



10. Team work, Employee Involvement & Monitoring

Daily Monitoring and Reporting System

Daily Review Meeting Chaired by Technical Head



On line Energy management System (EMS) and Knowledge Manager



Online Specific power consumption is monitored by CCR Operators



Software for identification of Compressors run hrs, Idle running hours of Major Equipment & Raw water Consumption

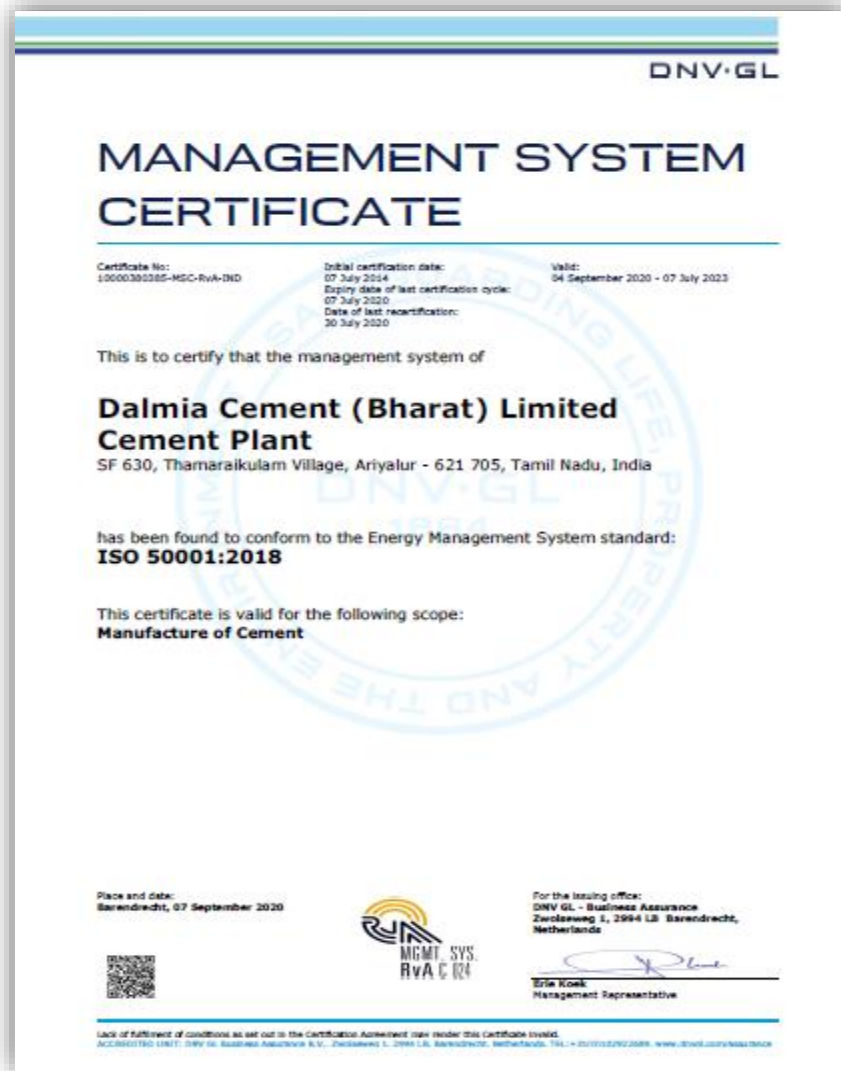


Production Software (PHP) for making Daily Production & Power Report & Circulating to all Executives by using IOTs & Clouds



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

ISO -50001:2018



Green-Pro Certification from CII



Almost 1.3 % of Turn over was invested on Energy Conservation Projects

12. Learning from CII Energy Award

1. Reduction of Pressure drop across nozzle ring by modification of nozzle pattern (**M/S Mechwell Design**) that was learned and it was implemented in Raw Mill– Reduced the sp. Power consumption – 0.16 kWH/MT
2. Reduction of Radiation losses by applying heat resistant paint (**ES 70HT silicon paint**) in kiln shell and it was implemented in Kiln shell– Reduced the SHC– 1.2 Kcal/Kg.Clinker

Carbon Pricing leadership



“Companies such as Dalmia Cement and Mahindra are driving innovation. But we need many more to join them”. **Hon’ble UN Secretary-General Mr. António Guterres (Aug. 2020)**

Source: <https://www.youtube.com/watch?v=G5FBpm4-6eg>



Hon’ble UN Secretary General invited Dalmia Cement to share its actions and commitments on climate change during UN General Assembly along with 63 country heads at the UN Climate Action Summit, New York

**Dalmia Cement (Bharat) Ltd is the first cement company to join RE100
(100% Renewable Energy by 2030)**

CII - Energy Awards 10 Consecutive Years



2012-13



2013-14



2014-15



2015-16



2016-17



2017-18



2018-19



2019-20



2020-21



2022-23

BEE - Energy Awards



National Energy Conservation Award From
Ministry Of Power FY 2012



National Energy Conservation award from
Ministry of Power FY 2013

National Award in an Two Categories – NCCBM (Energy & Environment) FY 2018 & 2019





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Thank you