



# *THE RAMCO CEMENTS LIMITED, GOVINDAPURAM WORKS, ARIYALUR*

**RAMCO™**  
**SUPERGRADE**  
Engineered for Concrete



**22<sup>nd</sup> NATIONAL AWARD FOR EXCELLENCE IN  
ENERGY MANAGEMENT - 2021**

# OUR PLANT MANAGEMENT

- ❖ Unit Head – Mr. Madhusudan Kulkarni
- ❖ Head of Energy Management System – Mr. Ganesh Ram
- ❖ Designated Energy Manager – Mr. Jothiswaran
- ❖ Certified Energy Auditor – Mr. Vinoth Bharani

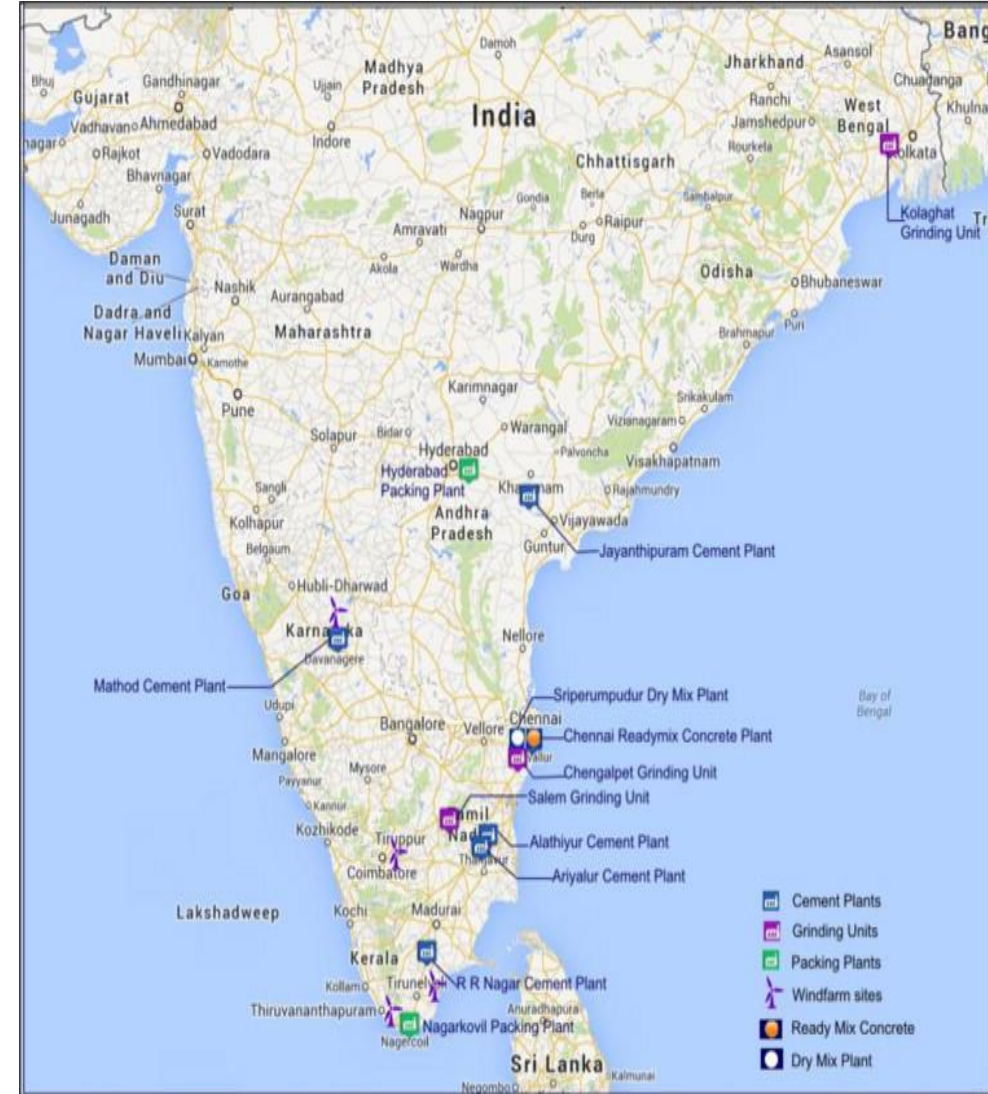
## **Presenting Team Members -**

- Vijayakumar - AGM(Mechanical)
- S Anand - Asst. Manager (Process)
- A Chinnarasu - Asst. Manager (Electrical)



# COMPANY PROFILE

- ❖ Founded in 1962 by **Shri P.A.C.Ramasamy Raja**
- ❖ A flagship Company of The RAMCO group which divested in different sectors like Cement, Software, Fiber Cement, Textiles and Surgical.
- ❖ **5th Largest Cement Producer** in India with total installed capacity of **16.05 MTPA** located at 11 places throughout India.
- ❖ RAMCO also produces Ready Mix Concrete and Dry Mortar products, and operates one of the largest wind farms in the country

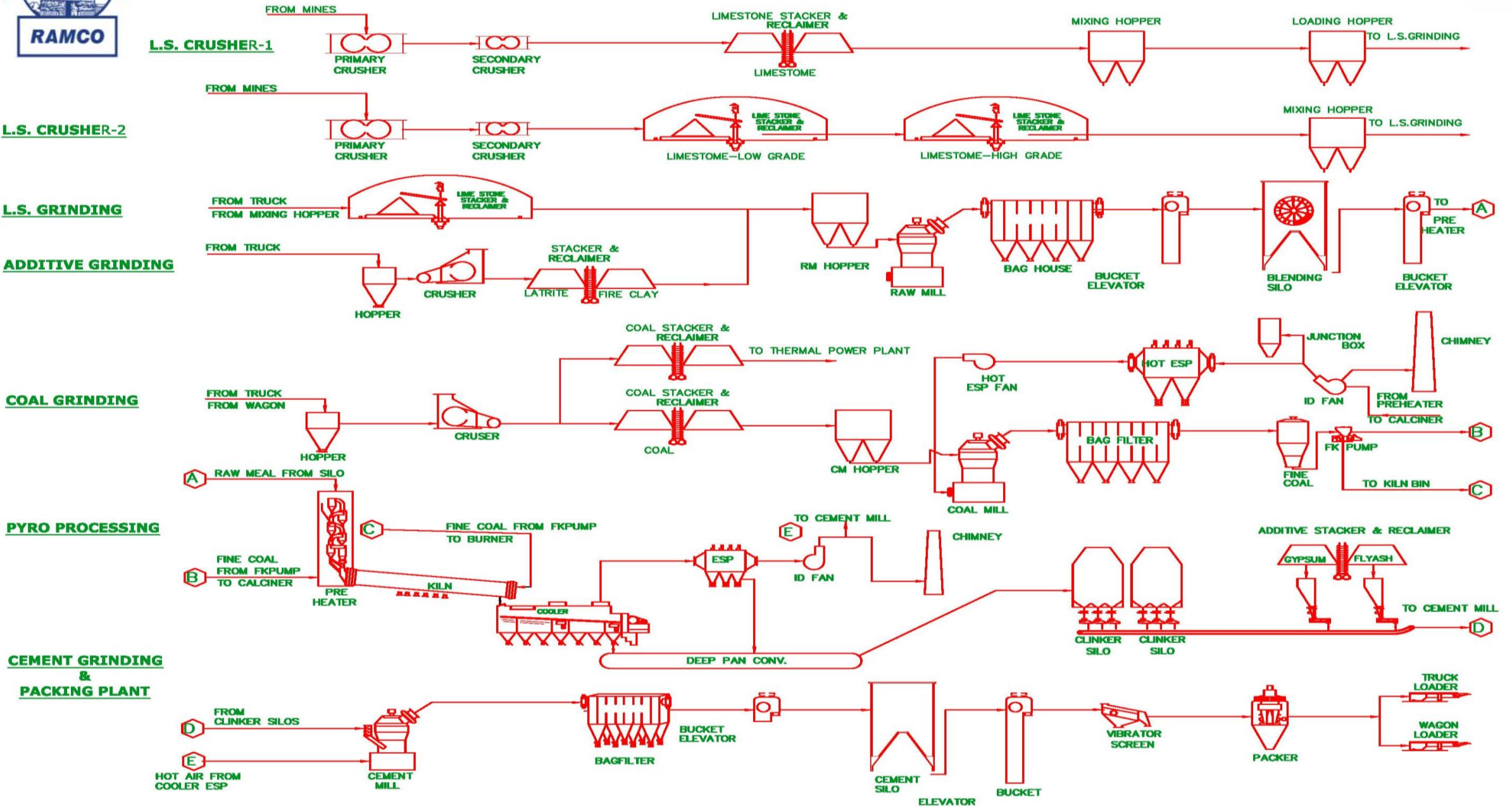


# PLANT OVERVIEW

RAMCO - ARIYALUR	CAPACITY (MTPA)	COMMISSIONING YEAR
Kiln-1	1.50	2008
Kiln-2	1.75	2011
Thermal Power Plant – 66 MW (40+20+6 MW Turbines) with 3 Boilers of 85 TPH Steam generation		

- ❖ The Products manufactured at Ramco - Ariyalur are Ordinary Portland Cement (OPC) as per BIS & SLS Standards and Portland Pozzolona Cement (PPC) as per BIS Standards.
- ❖ Online Cross-Belt analyzers for quality control at the Raw materials stage itself & Modern X-ray methods – XRD & XRF for analyzing elemental and chemical composition
- ❖ State-of-the-art grinding Technology and 950 TPH Packing Plant with Auto- truck loader arrangement
- ❖ India's first Aluminum dome for Limestone storage
- ❖ Covered sheds for Additive & Fuel storage

# ARIYALUR UNIT - PROCESS FLOW DIAGRAM

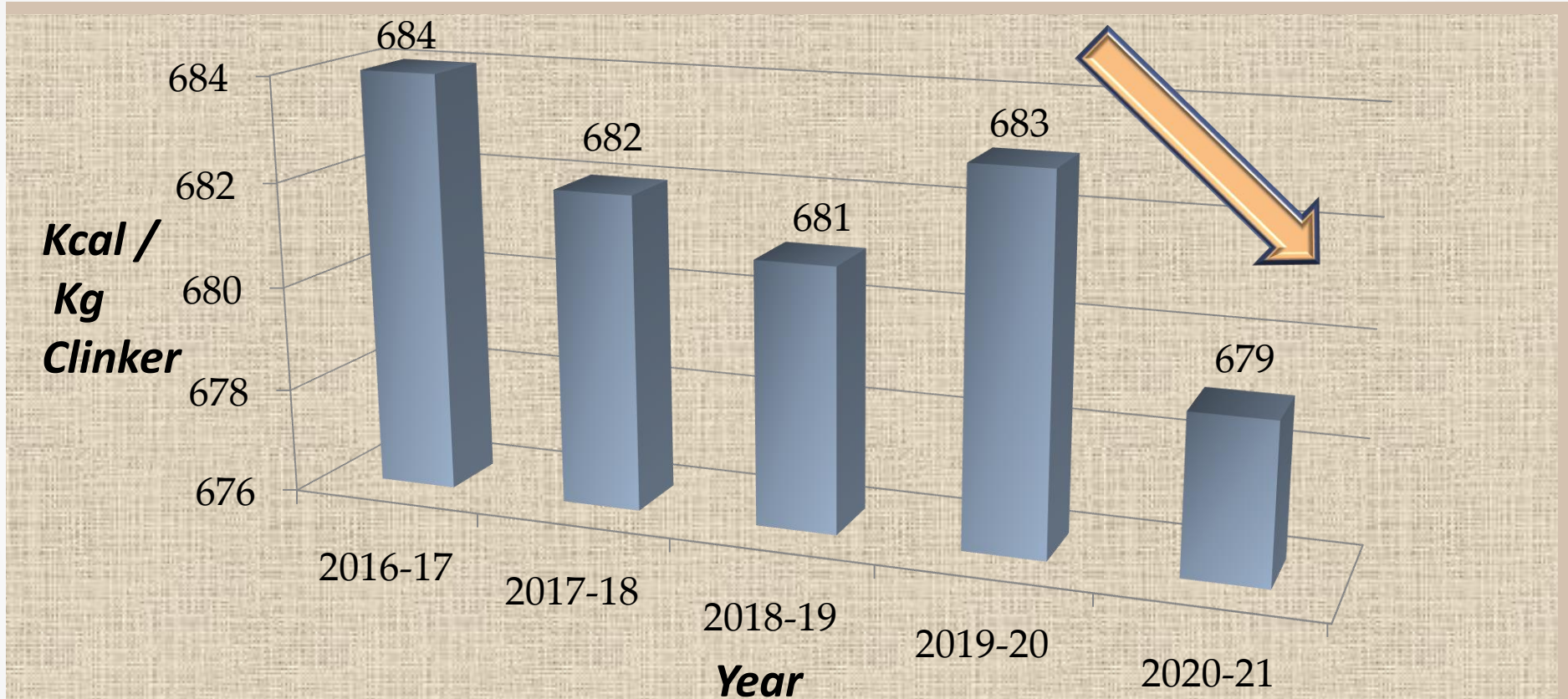




# IMPACT OF COVID-19

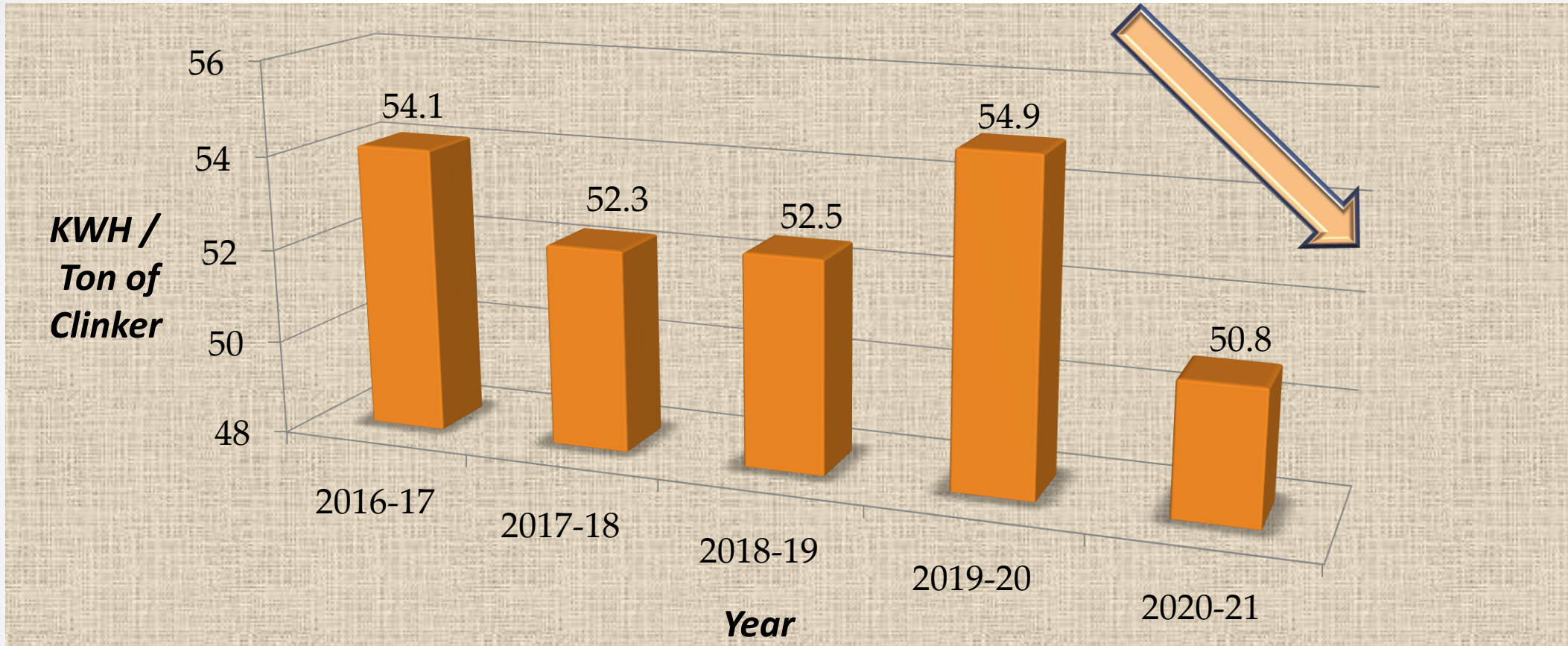
- Covid-19 had a huge impact on cement industry leading to drastic reduction in demand and sales.
- Despite all the hurdles posed by the Covid-19, constant energy consciousness and conservation measures made us resilient to withstand the challenging situation and sustain our energy performance.

# YEAR WISE TREND - THERMAL SPECIFIC HEAT CONSUMPTION



- Reduction of 4Kcal/Kg clinker by Optimisation of kiln feed to avoid Kiln stoppage due to silo full condition.

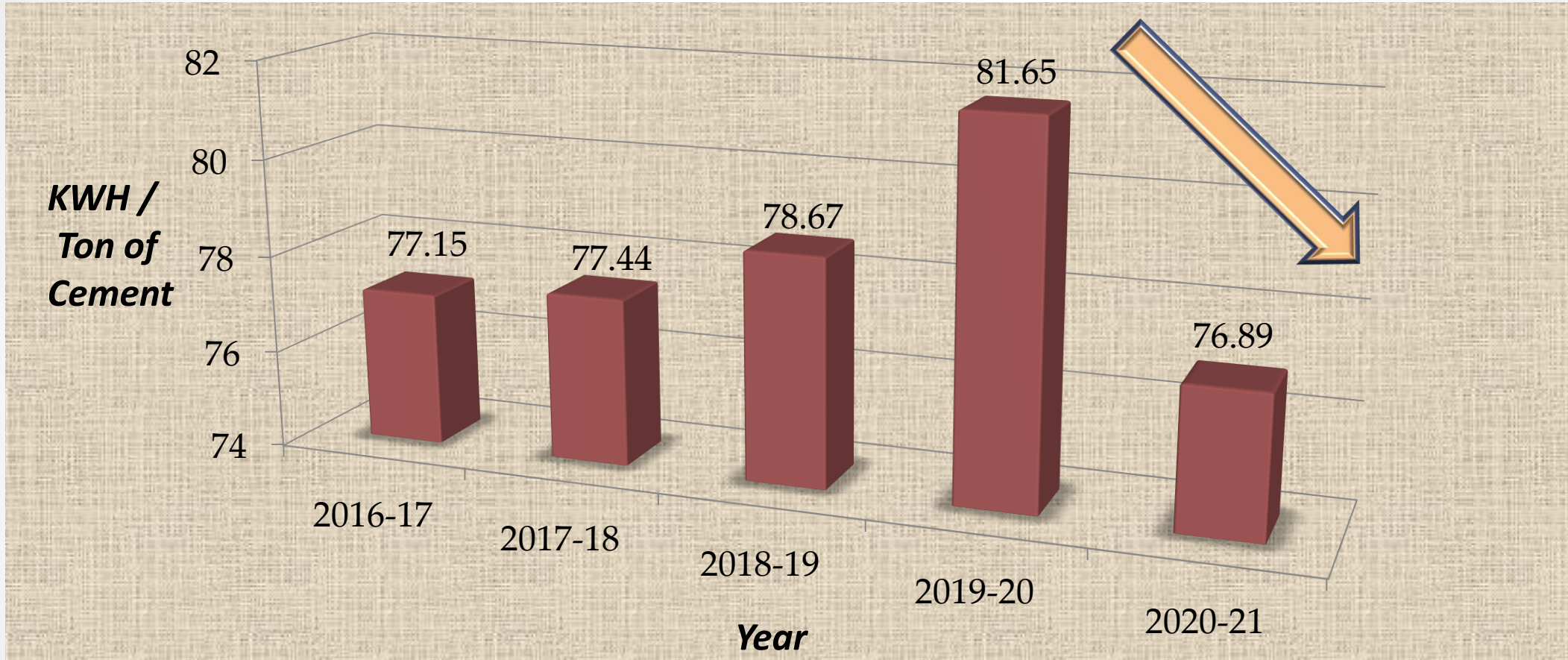
# YEAR WISE TREND - SPECIFIC POWER CONSUMPTION - UPTO CLINKER



- Reduction of 4.10 Kwh/Ton of Clinker due to Optimisation of kiln feed and subsequent reduction in Power consumption.

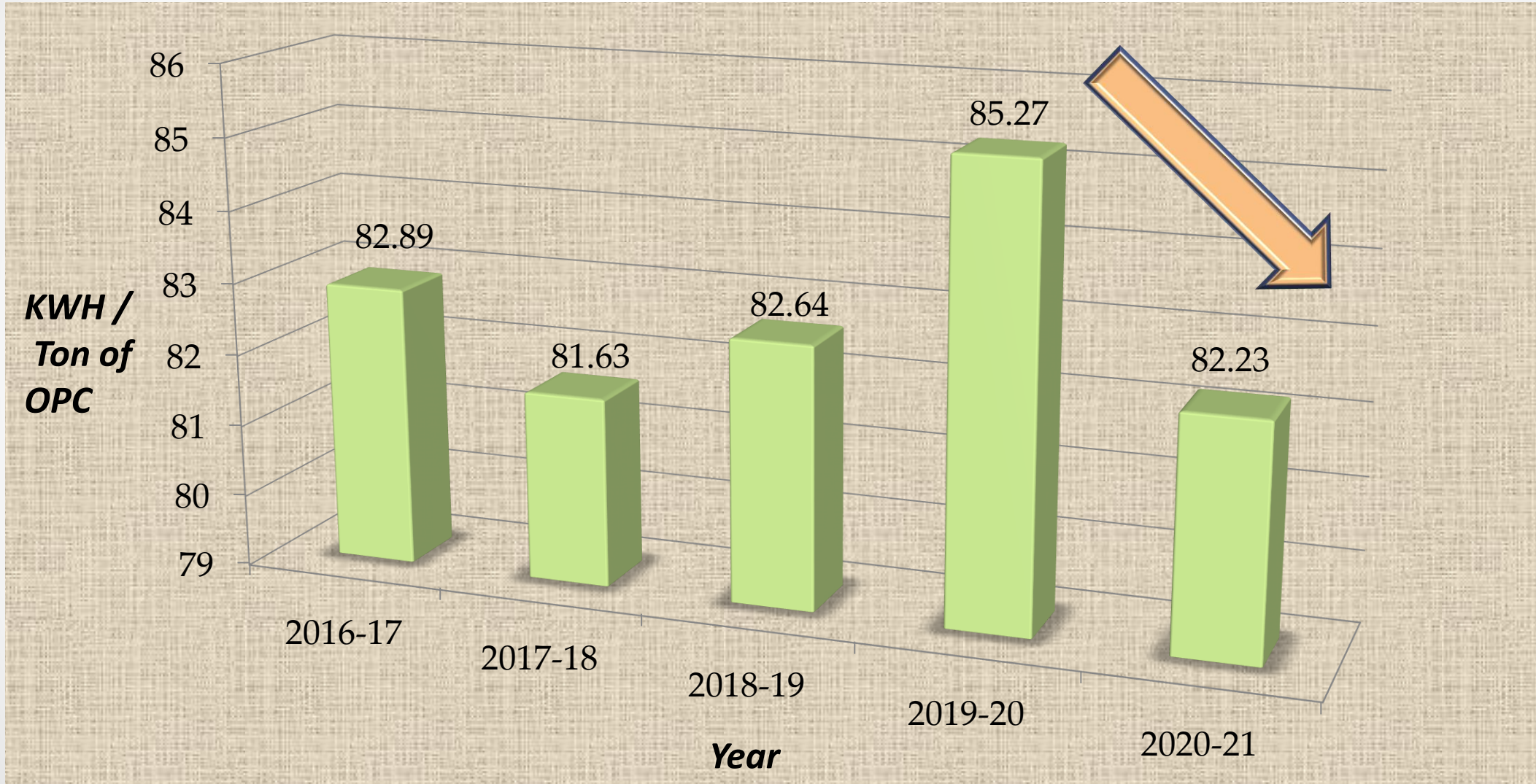


# YEAR WISE TREND - SPECIFIC POWER CONSUMPTION – UPTO CEMENT (OVERALL)

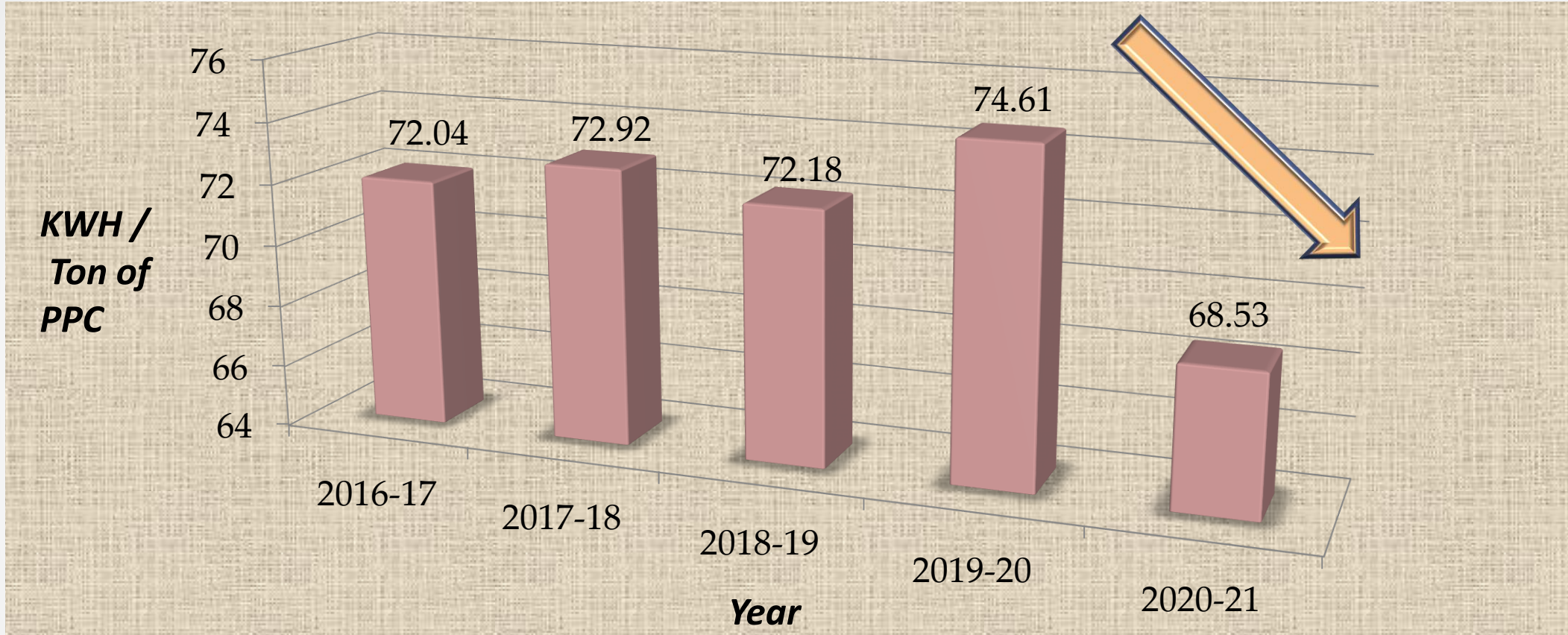


- Kiln feed optimisation and increase in PPC production from 31% in the previous year to about 39% in the current year has led to the reduction of 4.76 Kwh/Ton of Cement

# YEAR WISE TREND - SPECIFIC POWER CONSUMPTION - UPTO CEMENT (OPC)



# YEAR WISE TREND - SPECIFIC POWER CONSUMPTION – UPTO CEMENT (PPC)



- Increase in the Flyash consumption in PPC and Mill internals modifications such as Scatter ring adjustment, Dam Ring height adjustment and Roller edge welding helped to increase the Mill output also replacement of Table liner, thereby resulting in the reduction of Specific Power by 6.08 Kwh/Ton of PPC



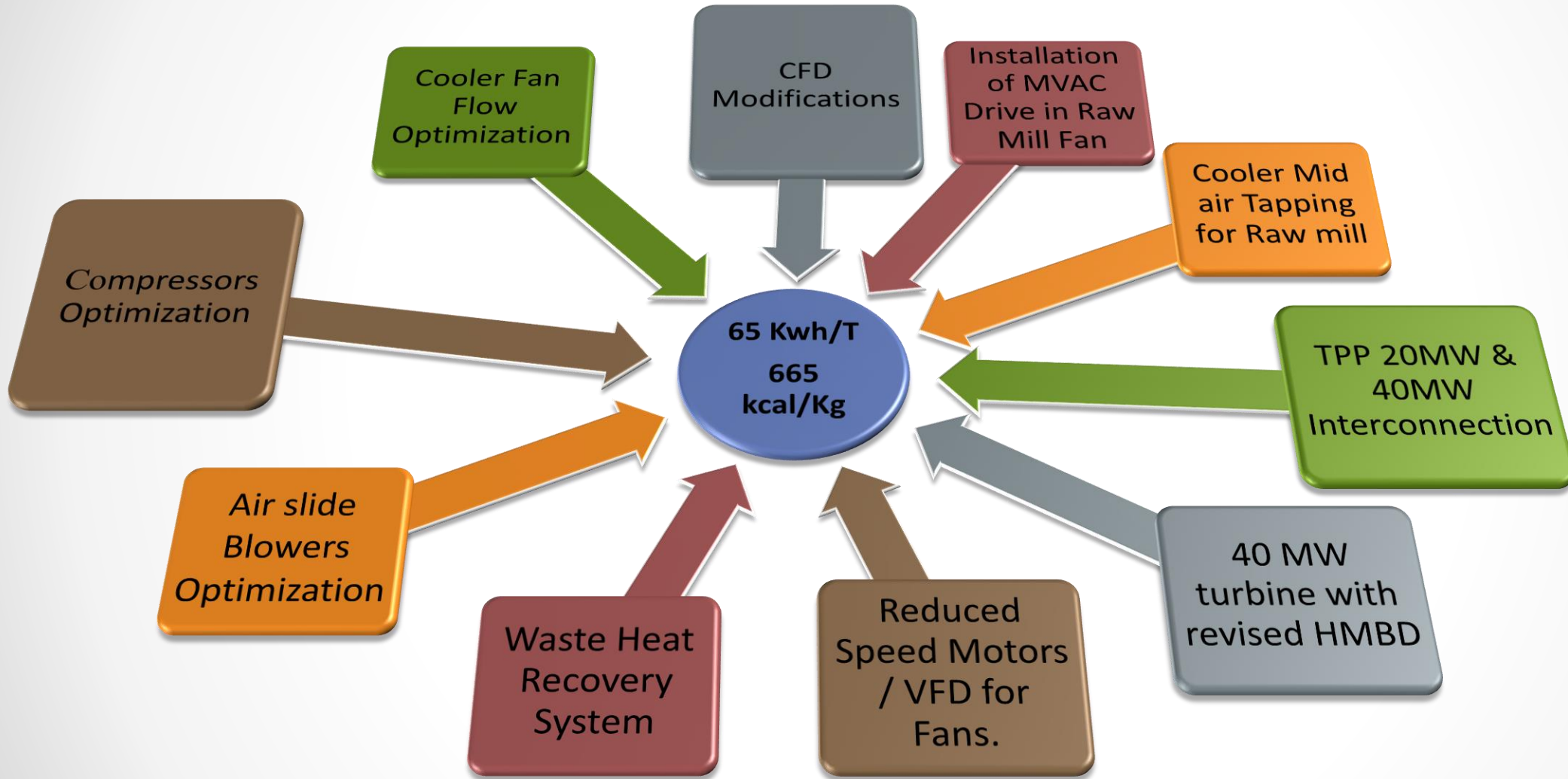
# ENERGY BENCHMARKING

DESCRIPTION	INTERNATIONAL BENCHMARK	NATIONAL BENCHMARK	RAMCO-ARIYALUR (2020-21)
Specific Heat Consumption (Kcal/ Kg Clinker)	665	675	679
Specific Power Consumption (KWH/Ton of Cement)	65	63.90	82.23 (OPC) 68.53 (PPC)

## ***Source of Benchmarking Data:***

- ❖ National Benchmark – CII & CMA CEMENT INDUSTRY BENCHMARKING – 2019
- ❖ International Benchmark – UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION - BENCHMARKING REPORT FOR CEMENT INDUSTRY - 2014

# ROADMAP TO ACHIEVE BENCHMARK



# ENCON PROJECTS – PLANNED FOR 2021-22

S. No.	Title of Project	Savings (in Million kWh/Annum)	Savings (in Million Kcal/Annum)	Investment (in Million Rs./Annum)
1	Cooler mid-air tapping to be done and to be used for Raw mill		2.20	2.50
2	CFD Analysis is done in Line1 & 2 and the recommended changes to be done to reduce the pressure drop and Preheater (ID Fan ) power consumption	0.58	1650	
3	Installation of MVAC Drive in RAW Mill -1 Fan		2.56	8
4	40 MW ACC & 20 MW ACC Interconnection in TPP	-	1445	10
5	40MW Turbine with Revised HMBD	-	867	100
6	Mines section : Solar dewatering pump – 50HP	0.0816	-	2.80
7	All Mines tower Lights control manual to automatic.	0.0077	-	0.03
8	Installation of Solar Panel at Service Building	0.22	-	2.50
9	Compressors Optimisation in Cement Mill Bag Filters	0.40	-	-



# ENCON PROJECTS - 2020-21 (ZERO INVESTMENT)

S. No.	Title of Project	Savings (in Million Rs./Annum)
1	Cement mill roller edge welding to increase the Roller life and improve the mill performance	2.41
2	Bore-well Automation System - Operating bore-wells spread across 10KM circle through mobile SIM operated automation system and avoided overflow of tanks and vehicle movement	0.10
3	Cooler fans optimization	3.99
4	Grinding medium optimization in Cementmill-2	3.72
5	Optimization of Raw material mix & fuel mix for clinkerisation process	4.90
6	Belt Conveyor Idle Run Hours study made and Logic modification done to reduce the idle hours	0.94

# ENCON PROJECTS – 2020-21 (WITH INVESTMENT)

S. No.	Title of Project	Savings (in Million Rs./Annum)	Investment (in Million Rs./Annum)	Payback Period (in Years)
1	Feeding of limestone from crusher to ASR	1.10	0.80	0.72
2	Line-2 Nose ring cooling fan 55 KW,1500RPM MOTOR replaced with 55KW,1000RPM MOTOR	0.60	-	-
3	ASR – 2 Power Cable Reeling Drum Analog Panel Modified to Drive Panel and Stall Torque Motor to Induction motor	0.40	0.18	0.45
4	RPM Mines office Solar Power supply	0.05	0.38	7.60

# ENCON PROJECTS – COMPLETED IN 2019-20

S. No.	Title of Project	Savings (in Million Rs./Annum)	Investment (in Million Rs./Annum)
<b>WITH INVESTMENT</b>			
1	Installation of LED lighting instead of HPSV Lighting	0.88	
3	Installation of energy efficient smaller capacity boiler feed water pump at TPP	1.73	3.10
4	Replacement of energy efficient air cooled condenser fans at TPP	5.18	4.70
5	Replacement of Old Rotary sir locks by New ANVAL Rotary air locks in Cement mill-1 bag-house	1.02	2.40
<b>WITHOUT INVESTMENT</b>			
1	Unit Bag-filter fan motor RPM reduced from 1500 to 1000 at Raw mill-2 reject recirculation circuit	6.37	-
2	Biodiesel usage for EME equipment	10	
3	Usage of Tyre Oil instead of Diesel during Kiln Startups		
4	Usage of power plant ash in Raw material		



# ENCON PROJECTS – COMPLETED IN 2018-19

S. No.	Title of Project	Savings (in Million Rs./Annum)	Investment (in Million Rs./Annum)
<b>WITH INVESTMENT</b>			
1	Cooler-2 hot gas routing to rawmill-2	13.52	20
2	VFD installation for 20MW boiler feed pump	1.84	5
3	LED Lighting replacement	0.51	0.10
<b>WITHOUT INVESTMENT</b>			
1	Air conditioner optimization	0.20	-
2	Air slide blowers optimization	0.37	
3	Unit bag filters optimization	1.10	
4	Compressed air optimization	0.31	
5	Star delta connector for belt conveyors	0.11	
6	Installation of Power Distribution Panel at TPP Package Air conditioning unit	0.02	
7	Operation of Raw water pumps with level based level sensor	0.42	
8	Reduction of idle hours by providing interlock to the critical auxiliary equipments	0.25	

# INNOVATIVE PROJECT-1

**Xcentric Ripper (XR-40) bearing assembly modification for easy removal during maintenance.**

## **Project Description:**

Xcentric Ripper(XR-40) bearing removal process is usually done by removing the brass cage by gas cutting. Bearing outer sleeve was removed by hydraulic puller. Now, Jack bolt arrangement was done with tapped holes on the cover has been made for easy removal bearing assembly.

## **Trigger for implementing the project:**

- 1.Frequent Bearing damage is observed during removal process
2. Usage of gas cutting for bearing removal
3. More time consuming for bearing removal process.



# XR-40 BEARING REMOVAL PROCESS



BEFORE	AFTER
<ul style="list-style-type: none"><li>➤ XR- 40 gear box Bearing removal difficulties</li></ul>	<ul style="list-style-type: none"><li>➤ Bearing removal becomes easily and could be reused</li></ul>
<ul style="list-style-type: none"><li>➤ Bearing damage while Dismantling.</li></ul>	<ul style="list-style-type: none"><li>➤ No physical damage to the bearing and the bearing bore</li></ul>
<ul style="list-style-type: none"><li>➤ Usage of gas cutting set for bearing removal causing problems in the bearing bore area.</li></ul>	<ul style="list-style-type: none"><li>➤ Thermal impact due to usage of gas cutting in gear box chamber is eliminated</li></ul>
<ul style="list-style-type: none"><li>➤ More time consumed for the bearing removal</li></ul>	<ul style="list-style-type: none"><li>➤ Work duration to complete the job is reduced</li></ul>
<ul style="list-style-type: none"><li>➤ Brass cage of bearings was removed by gas cutting, irrespective of working / failed condition</li></ul>	<ul style="list-style-type: none"><li>➤ Bearing shall be removed with out damaging it by jack bolt arrangement</li></ul>
<ul style="list-style-type: none"><li>➤ Bearing outer sleeve was removed by hydraulic puller, as there is no provision for removal in Gear box housing</li></ul>	<ul style="list-style-type: none"><li>➤ Tapped holes provided in the cover and housing to remove the bearing with out any debris</li></ul>



# BEFORE AND AFTER MODIFICATION

Gear box Cover **1**



Bearing housing **2**



Damaged Bearing – after removing using gas cutting **3**



Outer sleeve removal - Hydraulic puller **4**



Tapped



Box housing cover



## **Tangible benefit:**

- Productivity of the equipment increased

## **Intangible benefit :**

- Reduced maintenance hours
- Increase in equipment availability

# INNOVATIVE PROJECT-2

## Installation of Motorized Control Gate in Line-1 & 2 Cooler hammer crusher discharge

### Project Description:

As per OEM, clinker from hammer crusher falls through a chute into the DPC, no flow control of the material to the conveyor. Motorized gate was provided at the chute to control and maintain an even flow of clinker falling into the DPC. After this modification, Overloading of DPC has considerably reduced.

### Trigger for implementing the project:

- Material overflow was observed frequently in Clinker pan conveyor and
- In some cases, Conveyor gets tripped due to overload. Spilled clinker due to overflow is usually cleaned by wheel loader and tipper. Fuel used for this transportation can be saved.

# BENEFITS DERIVED FROM THE PROJECT

- ❖ Even and stabilised flow of clinker in Deep pan conveyor (DPC)
- ❖ Elimination of frequent Cooler hammer crusher overload
- ❖ Control of clinker spillage in DPC bottom and tail end area
- ❖ Efficient cooler and kiln operation
- ❖ Fuel savings from Bobcat and Wheel loader operation



# BEFORE AND AFTER MODIFICATION







NEWLY INSTALLED IN-HOUSE FLAP GATE WITH OLD LINEAR ACTUATOR





- Solar panels with total generation capacity of 10 KW have been installed at the rooftop of Human Resources Department building.
- Our unit has been continuously involved in undertaking new projects with a view of effective utilization of renewable energy both in Plant premises and Mines

- Bio Gas Plant to consume kitchen waste from colony and canteen with a capacity of 400 kg/day

<b>Total KWH Saved in 2020-2021</b>	<b>14500</b>
<b>Equivalent Annual Fuel Savings (Mkcal/year)</b>	
<b>Total Cost savings (Rs.)</b>	<b>58000</b>

<b>Year</b>	<b>Million Kcal</b>
<b>2019-20</b>	<b>141</b>
<b>2020-21</b>	<b>102.20</b>

# UTILISATION OF WASTE IN 2020-21

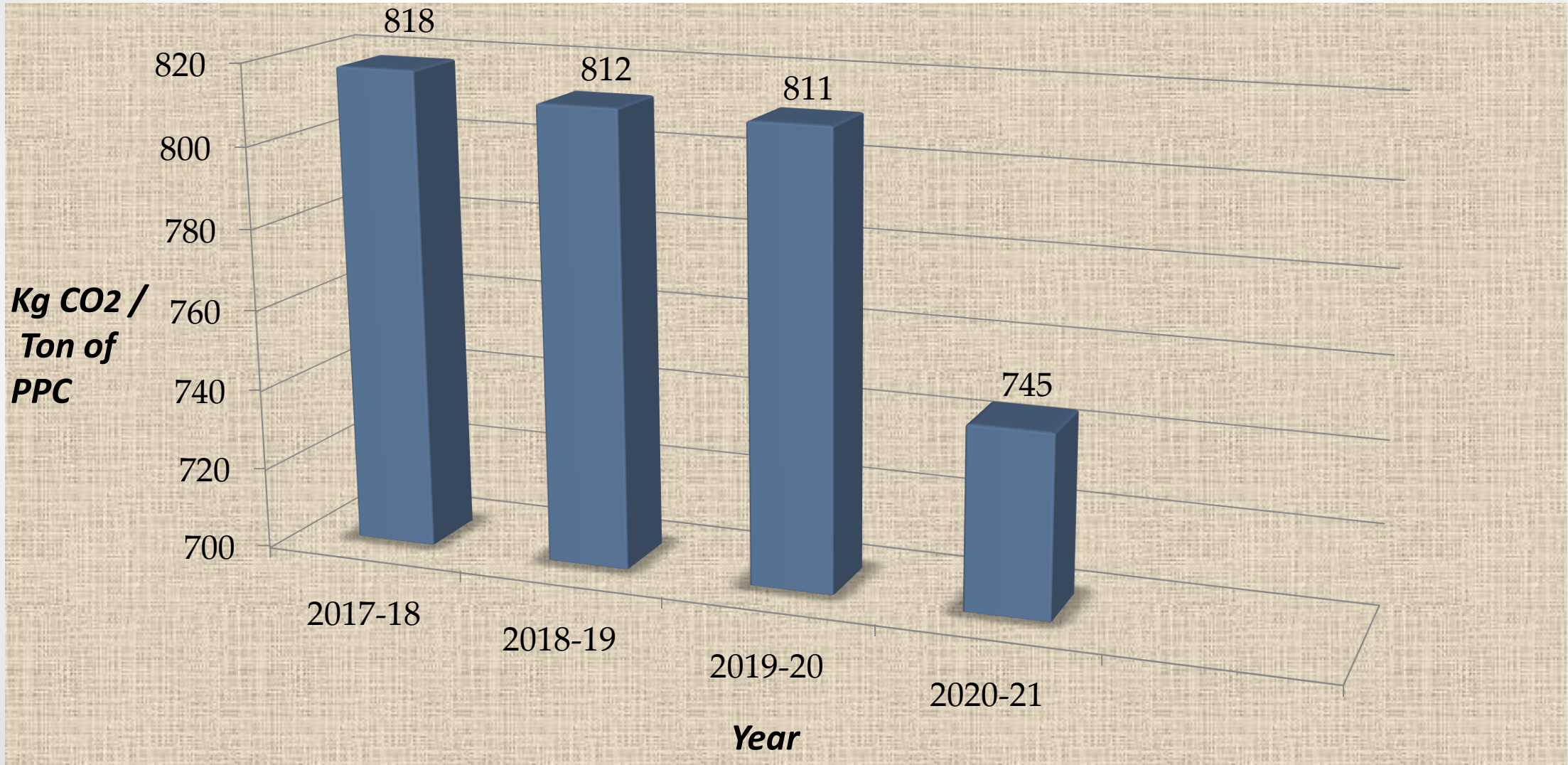
S.No.	Particulars	Quantity (MT)	GCV (Kcal/Kg Fuel)	Heat value (Mkcal/Year)
1	Woodchips	11	3000	33
2	Firewood	7.64	3000	22.92
3	Shredded RDF – 40 to 60mm	8.74	2000	17.48
4	Alternate fuel – Solid waste	740	3000	2220
5	Tyre Oil	130.50	9047	1180.63
6	Power Plant Ash	12675.62	500	6337.81



# UTILISATION OF WASTE IN 2020-21

- ❖ Continuous review of Fuel consumption is being done in order to effectively use available resources and minimize the dependency on fossil fuels.
- ❖ Dedicated AFR storage and handling system to improve the thermal substitution rate.
- ❖ Trials are under progress with the usage of Segregated Municipal Waste, Rubber waste, Firewood etc as Alternate Fuel & Raw Material (AFR).
- ❖ Slag is being used as a alternative material instead of Laterite for Alumina and Iron correction in Limestone. **Total amount of Slag used in 2020-21 – 75544 Metric Tonnes.**

# CO<sub>2</sub> EMISSION PER TON OF PPC



# GREEN SUPPLY CHAIN

- ❖ Ramco-Ariyalur is planning to adopt a Green Supply Chain Policy as a part of the sustained efforts towards making the Supply chain environmental friendly.
- ❖ Based on the Life cycle assessment, LT & HT Motors, gear boxes etc., are being purchased based on energy consumption criteria.
- ❖ Reverse Logistics has been followed in which transportation used for bringing Raw materials (such as Gypsum, Coal etc) to factory have been used for transporting Clinker and Cement.
- ❖ Bulker Cement Dispatch % has been increased from 9 % to 25 % which has reduced the specific power consumption of Truck loading is 1.6 Kwh/Ton of Cement, where as for bulk loading it is 0.50 kWh/Ton of Cement.

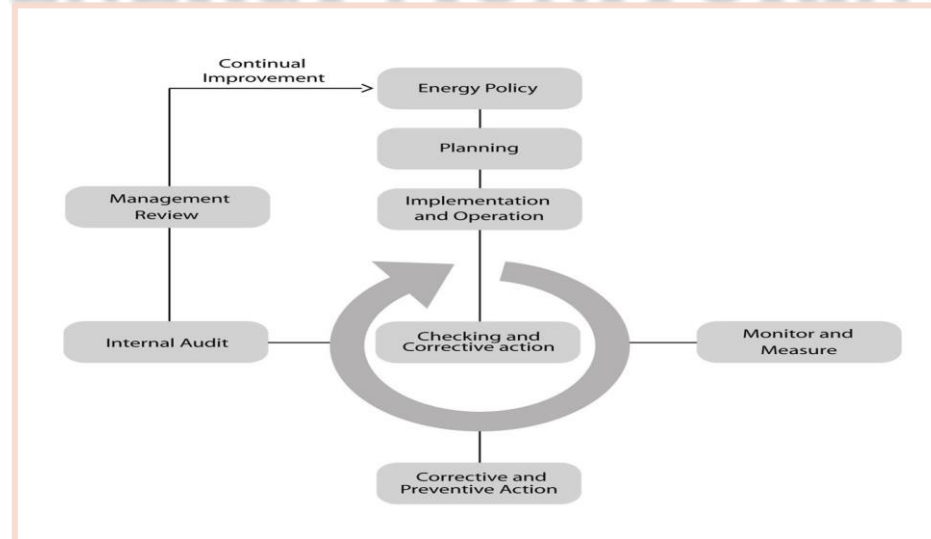
# GREEN PRO CERTIFICATION



❖ Our product is certified as Green product



# EMPLOYEE INVOLVEMENT & ENERGY MONITORING



Energy Cell Meeting to discuss the Energy consumption details and review the action plans for the ongoing ENCON Projects

With EnMs, Reports of IER, DEPTS, EMAPs of all sections are monitored regularly & discussed in monthly Review meeting

As a small step towards reducing carbon Emission, We have encouraged the usage of Bicycles and restricted the movement of Two-wheelers inside the Plant premises  
RAMCO- Ariyalur is a 5S Certified Organization



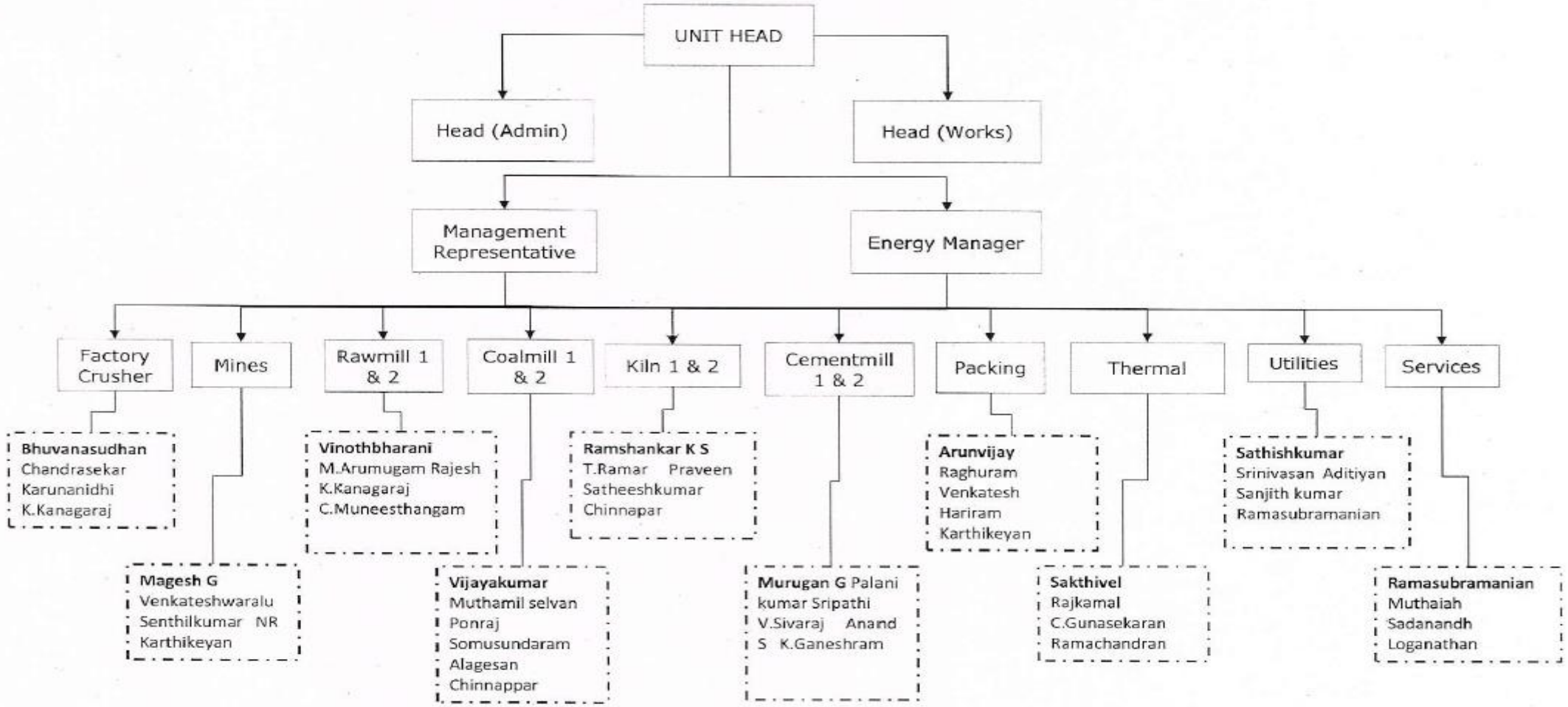
ISO- Certified Organisation



# ENERGY CONSERVATION CELL

Annexure - III

Organization Chart for Energy Conservation Cell







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फॉर्म III { विनियम 7 (1) D (d) देखें }  
Form III { see Regulation 7 (1) D (d) }  
MSC-F6.4-17

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

लाइसेंस सं. इएन/एल-6000078  
Licence No. EN/L-6000078

1. भारतीय मानक ब्यूरो अधिनियम, 1986 (1986 का 63) द्वारा प्रदान की गई शक्तियों के आधार पर, ब्यूरो By virtue of the power conferred on it by the Bureau of Indian Standards Act 1986 (63 of 1986), the Bureau hereby grants/renews to

द रामको सिमेंट्स ली.

गोविन्दपुरम वर्क्स, सेन्दुरई रोड  
अरियालु तालुक  
अरियालुर जिल्ला- 621 713  
तमिलनाडू.

The Ramco Cements Limited  
Govindapuram Works, Sendurai Road  
Ariyalur Taluk  
Ariyalur Dt. - 621 713  
Tamilnadu

को (जिन्हें इसके बाद लाइसेंसधारी कहा गया है) इसके साथ लगी अनुसूची में विशेष रूप से वर्णित उत्पादों और/या सेवाओं या प्रक्रमों के संबंध में ब्यूरो के ऊर्जा प्रबंध पद्धति प्रमाणन के लाइसेंसधारियों के रजिस्टर(री) में उसी संख्या से सूचीबद्ध होने का अधिकार और लाइसेंस प्रदान/नवीकरण करता है, जो इस लाइसेंस की है। इस प्रकार के उत्पाद और/या सेवाएँ या प्रक्रम लाइसेंसधारी द्वारा IS/ISO 50001:2011 के अनुरूप ऊर्जा प्रबंध पद्धति के अनुसार केवल ऊपर बताए गए पते (पते) पर निर्मित/पदत/प्रवाहित किए जाएंगे।

(hereinafter called the Licensee) the right and licence to be listed in the Bureau's register(s) of Licensees of Energy Management Systems Certification in respect of the products and/or services or processes particularly described in the schedule hereto, bearing the same number as this licence. Such products and/or services or processes shall be manufactured/provided/carried out by the Licensee at only the address(es) given above, and under the Energy Management Systems in accordance with IS/ISO 50001:2011.

2. यह लाइसेंस इस लाइसेंस का विनियम करने वाले उपरोक्त अधिनियम और उसके अधीन बनाए गए नियमों और विनियमों के संबद्ध प्रावधानों के अंतर्गत स्वीकृत/नवीकृत किया गया है और लाइसेंसधारी एतद् द्वारा ब्यूरो को उपरोक्त नियमों और विनियमों का विधिवत पालन करने का वचन देता है।

The licence is granted/renewed subject to the relevant provisions of the above Act and the rules and regulations made there under governing the licences referred to above, and the Licensee hereby covenants with the Bureau duly to observe with the said Rules and Regulations.

3. यह लाइसेंस 24 मार्च 2017 से 23 मार्च 2020 तक वैध होगा और इसका विनियमों के अनुसार नवीकरण किया जा सकेगा। This licence shall be valid from 24 March 2017 to 23 March 2020 and may be renewed as prescribed in the Regulations.

2017 के मार्च माह के 31 दिन हस्ताक्षरित एवं मुहरांकित।  
Signed, Sealed and Date this 31st day of March 2017

  
उप महानिदेशक (दक्षिण क्षेत्र)  
कुले भारतीय मानक ब्यूरो  
Deputy Director General (Southern Region)  
for BUREAU OF INDIAN STANDARDS  
पी.एम. पंतुलु  
P.M. PANTULU  
उपमहानिदेशक (दक्षिण)  
Deputy Director General (South)  
भारतीय मानक ब्यूरो  
BUREAU OF INDIAN STANDARDS  
चेन्नै/CHENNAI-600 113



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THE RAMCO CEMENTS LIMITED  
ARIYALUR

ENERGY POLICY

We, at The Ramco Cements Limited, producing cement and generating captive power at Govindapuram Works, are committed to achieve excellence in energy management practices in all our activities.

We shall fulfil this commitment through:

- Close and continuous monitoring of energy consumption at every point of use.
- Adoption of energy efficient technologies and continual improvement in our manufacturing and support processes to reduce energy consumption.
- Compliance with legal and other requirements applicable to energy use, consumption and efficiency.
- Ensuring availability of information and resources to achieve set objectives and targets.
- Setting objectives, targets and monitoring most appropriate energy performance Indicators and periodically reviewing energy performance through audits and benchmarking.
- Creating awareness and imparting training at various levels of management to facilitate identification and implementation of sound energy management methodologies.
- Considering energy performance improvements in design and modification of our facilities, equipment, systems and processes.
- Encouraging utilization of renewable energy and utilising industrial waste wherever feasible.
- Recognizing and rewarding innovative energy conservation ideas & initiatives taken by our employees.

Approved by: Unit Head

Date: 5<sup>th</sup> Sep 2015

EnMS re-certification has been completed by BIS audit team and our unit has been recommended for ISO-50001 certification.

# PROJECTS IMPLEMENTED THROUGH KAIZEN

1. Frequent Air Lock in Cooler Water Spray Pump
2. Rack Out Shutter Modification in 6.6kV HT Circuit Breaker
3. Inspection door in HT motor rotor junction box
4. To Ensure the Self Life of the Spares available in Stores – Rust Protection of Shafts, Bearings/Gear Box Re-Lubrication.
5. Study And Modification Of Clinker Loading Chute
6. Idle Run Of Equipment In Packer's Truck Loading Group
7. To Avoid Power Take Off Gear Damage and Slip in Gearbox of TPS Industrial Vacuum Machine.
8. In LSR-2 scrapper chain motor current is displayed in front of operator which avoided frequent overload trip.
9. Hot ESP bottom rotary air lock motor replaced from aluminium body to cast iron body. It helps to avoid the motor bearing housing problem
10. Cement silo bin bottom aeration pad has been changed to individual air-slide boxes.
11. The skirt rubber is placed in 260BC02 & 03 belt conveyor when lime stone feeding at discharge chute.

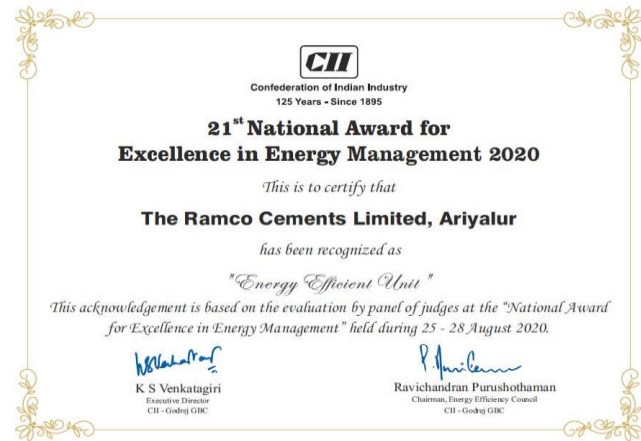


# ENERGY REPORTING FORMAT

Process Unit	RUN HOURS		PRODUCTION		CONSUMPTION UNITS		KWH T/MATERIAL		KWH T/CLINKER		KWH T/CEMENT	
	OTD	MTD	OTD	MTD	OTD	MTD	OTD	MTD	OTD	MTD	OTD	MTD
CRUSHER-1	1.4	209.05	665.36	106649.48	4230	190090	6.36	1.78	9.12	2.58	8.81	2.32
CRUSHER-2	17.15	401.4	13661.87	302988.45	13044	313564	0.95	1.03	1.37	1.5	1.32	1.35
FOR COMBINED CRUSHER	-	-	14327.23	409637.93	17274	503654	1.21	1.23	1.73	1.78	1.67	1.6
LS-TRANSPORT-1	-	-	585.88	14148.45	1715	56070	2.93	3.96	4.2	5.74	0	0
LS-TRANSPORT-2	-	-	12310.04	309256.92	10102	226408	0.82	0.73	1.18	1.06	0	0
FOR COMBINED LS TRANSPORT	-	-	12895.92	323405.37	11817	282478	0.92	0.87	1.31	1.26	1.27	1.14
RAWMILL-1	23.45	698.2	6774.79	202395.96	107476	3223347	15.86	15.93	24.32	24.42	0	0
RAWMILL-2	21.3	417.45	6636.5	131386.9	111980	2199737	16.87	16.74	25.87	25.67	25	24.81
FOR COMBINED RAWMILL	-	-	13411.29	333782.86	219456	5423084	16.36	16.25	25.09	24.91	24.25	22.4
COALMILL-1	13.25	430.2	337.98	10500.81	14752	477973	43.65	45.52	3.41	3.69	2.87	3.11
COALMILL-2	11.35	241.5	335.38	6879.64	15106	322976	45.04	46.95	3.58	3.58	3.46	3.46
FOR COMBINED COALMILL	-	-	673.36	17380.45	29858	800949	44.34	46.08	3.49	3.65	3.37	3.28
KILN-1	24	738.4	4332	129550	89161	2756203	20.58	21.28	20.58	21.28	17.37	17.95
KILN-2	24	451.45	4220	90127	94523	2260120	22.4	25.08	22.4	25.08	21.65	24.23
FOR COMBINED KILN	-	-	8552	219677	183684	5016323	21.48	22.83	21.48	22.83	20.76	20.53
SERVICE-1	-	-	4332	129550	4873	186897	1.12	1.44	1.12	1.44	0.95	1.22
SERVICE-3	-	-	4220	90127	4873	133933	1.15	1.49	1.15	1.49	1.12	1.44
FOR COMBINED SERVICES 1	-	-	-	-	9746	320830	0	0	1.14	1.46	1.1	1.31
CEMENTMILL-1	-	270.55	-	76535	5238	2100510	0	27.45	0	0	27.38	27.45
CEMENTMILL-2	20.45	472.35	2766.5	62726	78199	1736157	28.27	27.68	0	0	28.27	27.68
FOR COMBINED CEMENTMILL	-	-	2766.5	139261	83437	3836667	30.16	27.55	0	0	30.16	27.55
SERVICE-2	-	-	-	76535	1349	71113	0	0.93	0	0	0.91	0.93
SERVICE-4	-	-	2766.5	62726	3524	89303	1.27	1.42	0	0	1.27	1.42
FOR COMBINED SERVICES 2	-	-	2766.5	139261	4873	160416	1.76	1.15	0	0	1.76	1.15
PACKER OPC43-1	-	-	12469.36	140686.49	8788	232716	0.7	1.65	0	0	0.7	1.65
FOR COMBINED PACKING	-	-	12469.36	140686.49	8788	232716	0.7	1.65	0	0	0.7	1.65
FOR GRAND TOTAL	-	-	-	-	0	0	0	0	54.24	55.9	85.04	80.61



# Awards & Achievements



Best Community Development for Covid-19

CII – Energy Efficient Unit Award - 2020

5 star & Supplementary Award – Green Belt Development for Community by CII



India Green Manufacturing Challenge – Gold Medal

India Green Manufacturing Challenge – Overall Third Prize

Special Jury Award in Federation of Indian Mineral Industries Forum