THE RAMCO CEMENTS LTD

RAMASAMY RAJA NAGAR

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DATE: 23-08-2022 **VENUE: ONLINE EVENT**

RR NAGAR PLANT PROFILE

- TRCL having 5 integrated manufacturing units, 6 grinding units and the current capacity 22 MTPA
- RR Nagar plant was commissioned in the year 1961 with capacity of 0.06 MTPA and the Current Capacity is 2.0 MTPA
- First plant to install latest technologies like SF cross bar cooler, Cross belt analyser, X-ray analyser, ESP, FLS Combidon mill etc.
- First plant in India to install optical sorter in mines
- Our brand - Ramco Super Grade is Certified as Green Product by CII

INTEGRATED MANAGEMENT SYSTEM CERTIFICATION

IS/ISO 9001: 2015

Quality Management System

IS/ISO 14001:2015

Environment Management System

IS/ISO 45001: 2018

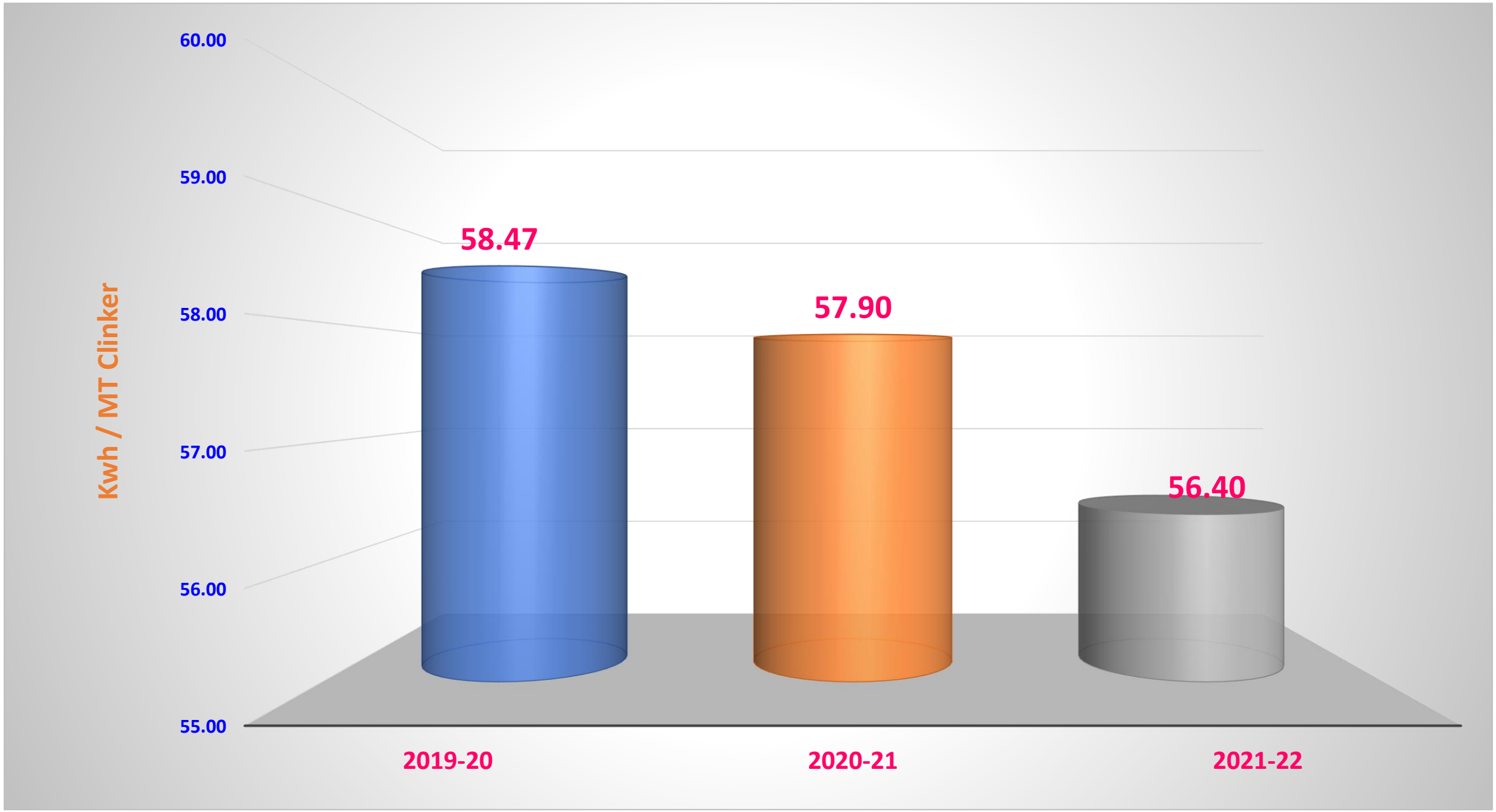
Occupational Health & Safety Management System

IS/ISO 50001: 2018

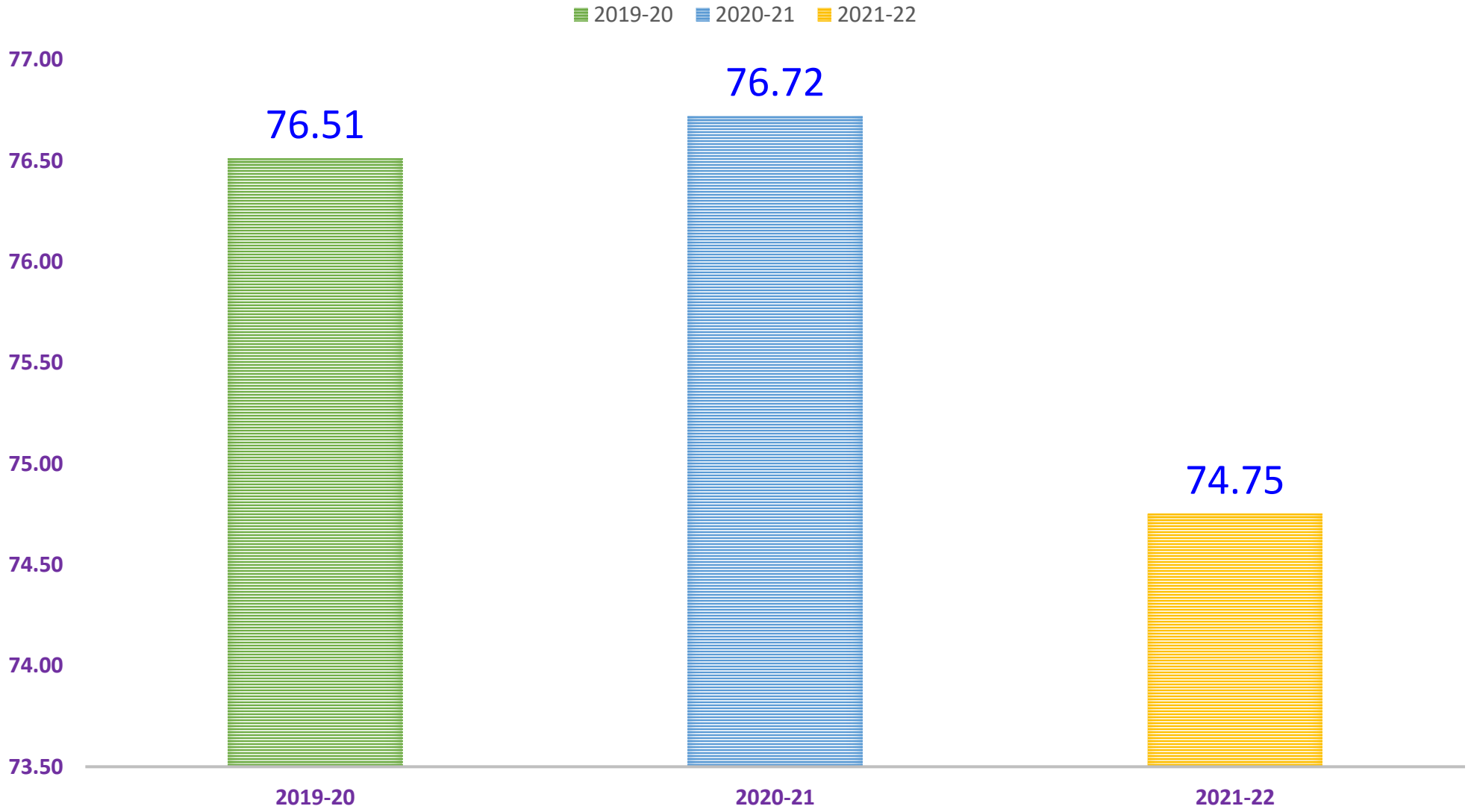
Energy Management System

5s Certified company with JUSE

SPECIFIC ELECTRICAL ENERGY CONSUMPTION - CLINKER

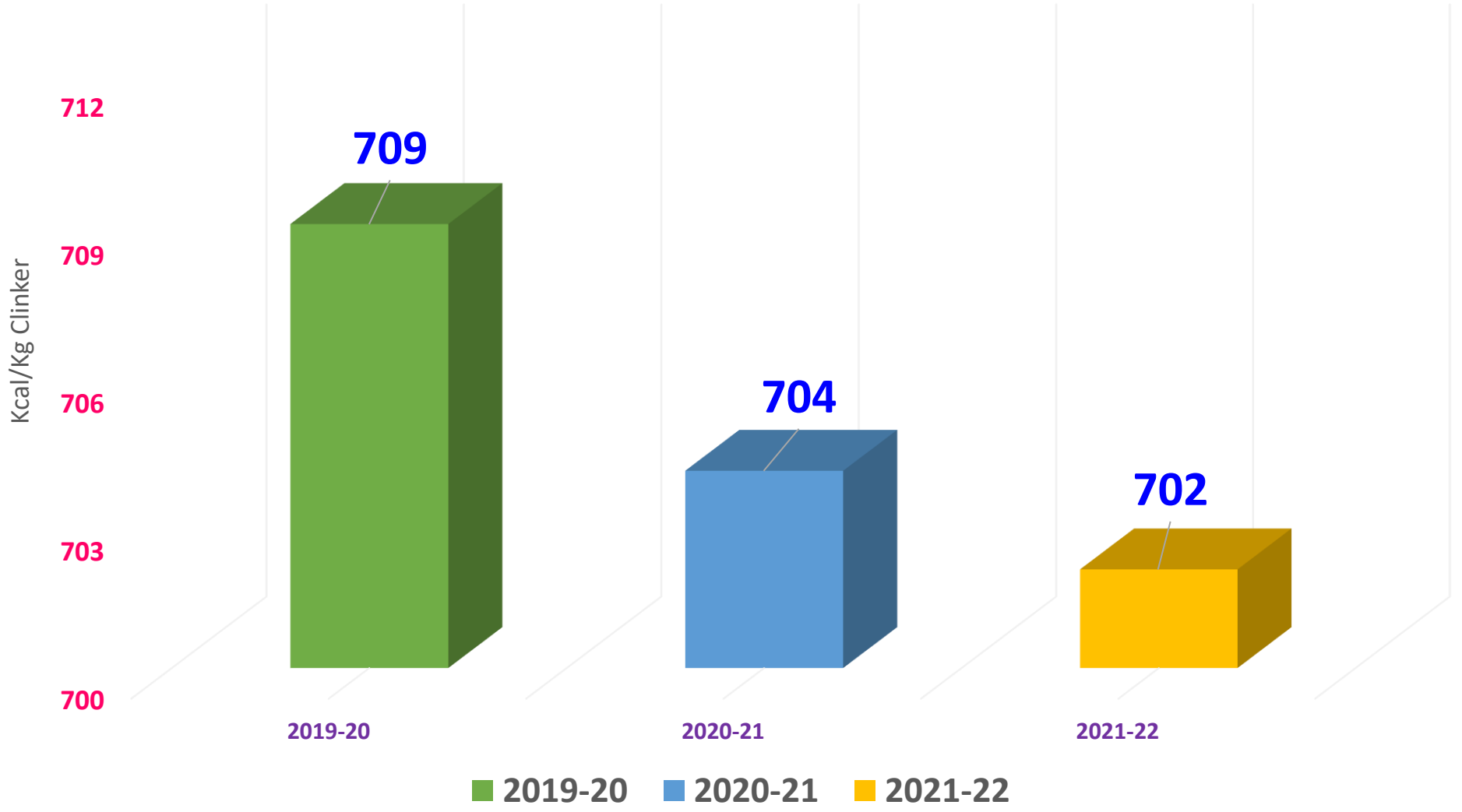


SPECIFIC ELECTRICAL ENERGY CONSUMPTION - CEMENT



Absolute Electrical Energy savings – 10,05,957 units over previous year Percentage of Electrical energy savings - 2.57 %

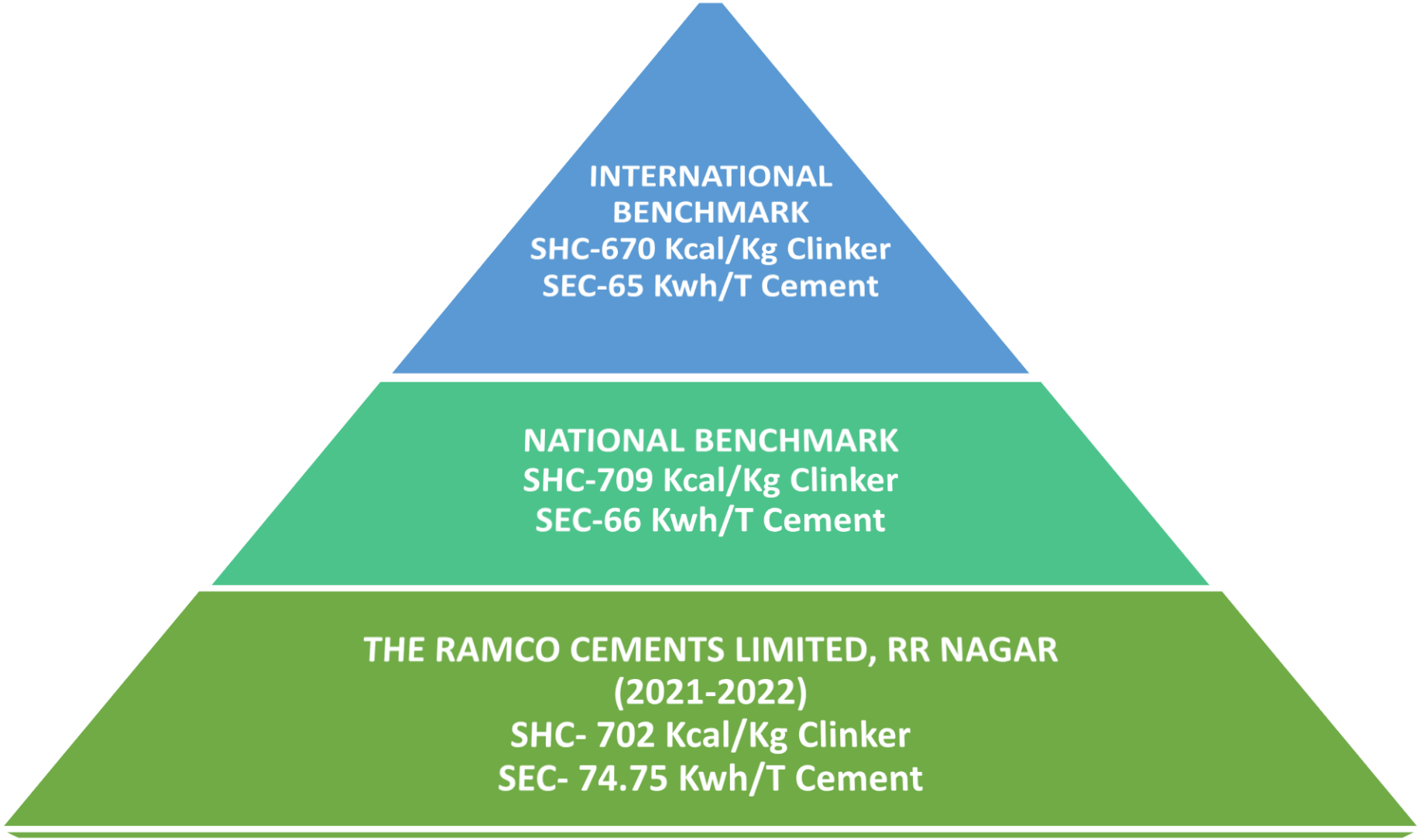
SPECIFIC THERMAL ENERGY CONSUMPTION



Percentage of Thermal energy savings - 0.3 % over previous year

SPECIFIC THERMAL ENERGY CONSUMPTION

GLOBAL NORMS - SHC & SEC



Reference : CII Energy benchmarking for Cement Industry May 2015 Version 2.0

ENCON PROJECTS WITH ZERO INVESTMENT

Sl.No	ENCON Projects Implemented for the year 2019-20	Savings (Rs. in Lakhs)
1	Stopping unwanted unit Bag filter	1.8
2	Optimization of air pressure & air leak arresting in compressor	1.1
3	Removal of damper in Cement mill Ball mill-2 vent fan inlet	0.9
4	Reduction of idle run hours in LSR circuit	0.8
	TOTAL SAVINGS	4.6

ENCON PROJECTS WITH ZERO INVESTMENT

Sl.No	ENCON Projects Implemented for the year 2020-21	Savings (Rs. in Lakhs)
1	Reduction of false air in Kiln	10.5
2	Replacement of 2 nos. blower in Kiln-2	1.3
3	Optimization of Compressor air consumption in bag filter	0.7
4	Reduction of idle run hours in Packing plant - 4	0.4
	TOTAL SAVINGS	12.9

ENCON PROJECTS WITH ZERO INVESTMENT

Sl.No	ENCON Projects Implemented for the year 2021-22	Savings (Rs. in Lakhs)
1	Interlinking of stacker and reclaimer compressor line	6.2
2	Optimization of Raw mill VRMP vent fan efficiency	2.5
3	Reduction of pulley size in kiln feed extraction blower	2.1
4	Optimization by stopping air slide blower in Kiln feed section	1.1
	TOTAL SAVINGS	11.9

ENCON PROJECTS WITH INVESTMENT

Sl.No	ENCON Project Implemented for the year 2019-20	Savings (Rs. in Lakhs)	Investment made (Rs. in Lakhs)
1	Installation of Waste Heat Recovery System in Kiln-1	637	2400
2	Installation of VFD for Kiln-1 Secondary firing blower	39.8	6.0
3	Installation of VFD for Raw mill VRMP Booster fan	13.4	12.0
4	Installation of VFD for Auxiliary Cooling Water pump	3.36	8.0
5	Factory lighting power consumption reduction by replacing LED lights	2.9	5.0
6	Installation of VFD for Coal mill-1 Booster fan	1.6	5.0
	SUMMARY	698.06	2436
	RETURN ON INVESTMENT	3.5 Years	

ENCON PROJECTS WITH INVESTMENT

Sl.No	ENCON Project Implemented for the year 2020-21	Savings (Rs. in Lakhs)	Investment made (Rs. in Lakhs)
1	Re-routing of Limestone feeding system	6.1	3.0
2	Replacement of efficient shell cooling fan (2 nos.) in Kiln1	2.6	2.2
3	Factory lighting power consumption reduction by replacing LED lights	1.9	6.0
4	Coal handling belt conveyor length reduced	0.2	1.0
	SUMMARY	10.8	12.2
	RETURN ON INVESTMENT	14 months	

ENCON PROJECTS WITH INVESTMENT

Sl.No	ENCON Project Implemented for the year 2021-22	Savings (Rs. in Lakhs)	Investment made (Rs. in Lakhs)
1	Re-routing of kiln -1 secondary firing pipe line	45.4	1.4
2	Installation of new high efficiency shell cooling fan (7 nos.) for Kiln	13.2	7.3
3	Installation of VFD for Cement VRMP vent fan	6.9	8.7
4	Installation VFD for Coal mill-1 main bag house fan	7.5	0.91
5	Factory lighting optimization by replacing LED lights	4.6	9.3
6	Installation of new high efficiency booster fan in Coal mill	2.2	5.5
7	Compressor air optimization by re-routing of pipe lines in Cement mill	2.1	1.0
	SUMMARY	81.9	34.11
	RETURN ON INVESTMENT	5 months	

ENCON SAVINGS SUMMARY

S.No	Period	Cost savings without investment (Rs in lakhs)	Cost savings with investment (Rs in lakhs)	Investment cost (Rs in lakhs)
1	2019-20	4.6	694.7	2428
2	2020-21	12.9	10.8	12.2
3	2021-22	11.9	81.9	34.11
	Total	29.4	787.4	2474.31

Total cost savings achieved - Rs 816.8 lakhs

PROPOSED ENCON PROJECTS

Sl.No	ENCON Project proposed for the year 2022-23	Expected savings (Rs. in Lakhs)
1	Installation Dp transmitter for all the unit bag filters their by saving power in compressor	3.2
2	Productivity optimization in Raw mill	19.7
3	Removal of damper in Cement mill VRMP vent bag filter fan	1.2
4	Installation of VFD for cement mill higher capacity (>450 CFM,75Kw) compressor	3.6
5	Low pressure compressor installation for Kiln bag filter to avoid losses in regulator	4.7
6	Modification of secondary firing nozzle in Kiln	1.2
7	Factory lighting power consumption reduction by replacing LED lights	5.0
8	Installation of occupancy sensor in kiln substation	0.3
9	Optimization by stopping the aeration blower in Cement mill	3.2
	TOTAL	38.9

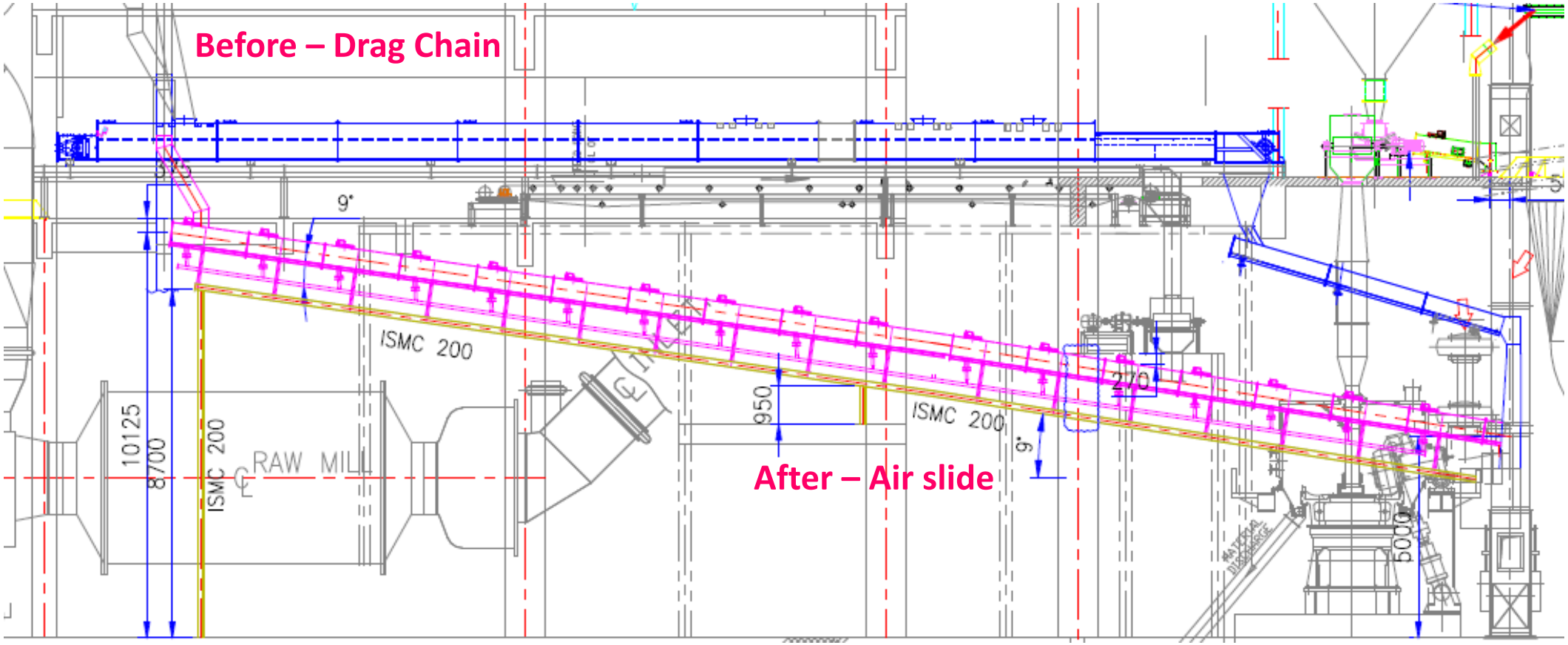
INNOVATIVE PROJECT - 1

REMOVAL OF DRAG CHAIN CONVEYOR IN RAW MILL

REASON TO CHOOSE THE NEW SYSTEM

- High Power consumption and expected power saving 20 Kw/hr
- Frequent breakdown due to chain week
- Spares consumption is high
- Production loss during stoppage

DRAG CHAIN CONVEYOR REPLACED WITH AIR SLIDE



Drag chain bypassed by installing air slide and trial taken for one week. After observation drag chain removed.

DRAG CHAIN CONVEYOR REPLACED WITH AIR SLIDE

PERFORMANCE IMPROVEMENT & BENEFITS ACHIEVED

Power Consumption Reduced

- **Power Saving : 26 Kw/hr**
  : 2,15,280 Units/annum
- **Cost saving : Rs. 1.08 Lakhs/annum**
- **Project Cost : Rs. 0.6 Lakhs**
- **Payback Period : 7 Months**

INNOVATIVE PROJECT - 2

SHIFTING OF BYPASS DAMPER IN KILN-1 PREHEATER FAN

REASON TO CHOOSE

- To avoid material accumulation above the damper
- To avoid stoppage due to material rushing and preheater fan stoppage
- To run the Kiln at steady condition
- To improve Waste Heat Recovery Boilers performance

PREHEATER FAN INLET BY PASS DAMPER POSITION

Before

After

DEVELOPMENT OF NEW SOLUTION

- Bypass damper available in Preheater exit duct to divert hot gas to Waste Heat Recovery Boiler. Material accumulation above the damper, rushing to preheater fan and stoppage occurring. This project taken to avoid the kiln stoppage

Benefits achieved:

- Specific heat consumption reduced and coal saving achieved 160 MT/annum
- We can operate the damper whenever required since no material accumulation above the damper
- Kiln stoppage is avoided

UTILIZATION OF WASTE AS FUEL

Name of the Fuel	2019-20		2020-21		2021-22	
	Quantity (MT)	Waste fuel as % of Energy used	Quantity (MT)	Waste fuel as % of Energy used	Quantity (MT)	Waste fuel as % of Energy used
TPP Coal Ash	8421	0.76	11990	1.2	10966	4.3
Shredded Tyre Rubber	-		-		216.6	
Shredded Coir & Rubber mix	-		-		227.7	
Plastic Waste mix	-		-		265.4	
Carbon Black	-		-		1037	

UTILIZATION OF WASTE AS RAW MATERIAL

Name of the Fuel	2019-20		2020-21		2021-22	
	Quantity (MT)	% on Raw material used	Quantity (MT)	% on Raw material used	Quantity (MT)	% on Raw material used
ETP Sludge	270	0.015	101	0.01	213.5	0.01

RENEWABLE ENERGY

Replacement of Electrical Energy with Renewable Energy	2019-20		2020-21		2021-22	
	Annual Energy Generated (Lakhs kWh)	% Share	Annual Energy Generated (Lakhs kWh)	% Share	Annual Energy Generated (Lakhs kWh)	% Share
Wind mill (Group)	3001.2	-	3010.0	0.67	2600.0	0.80

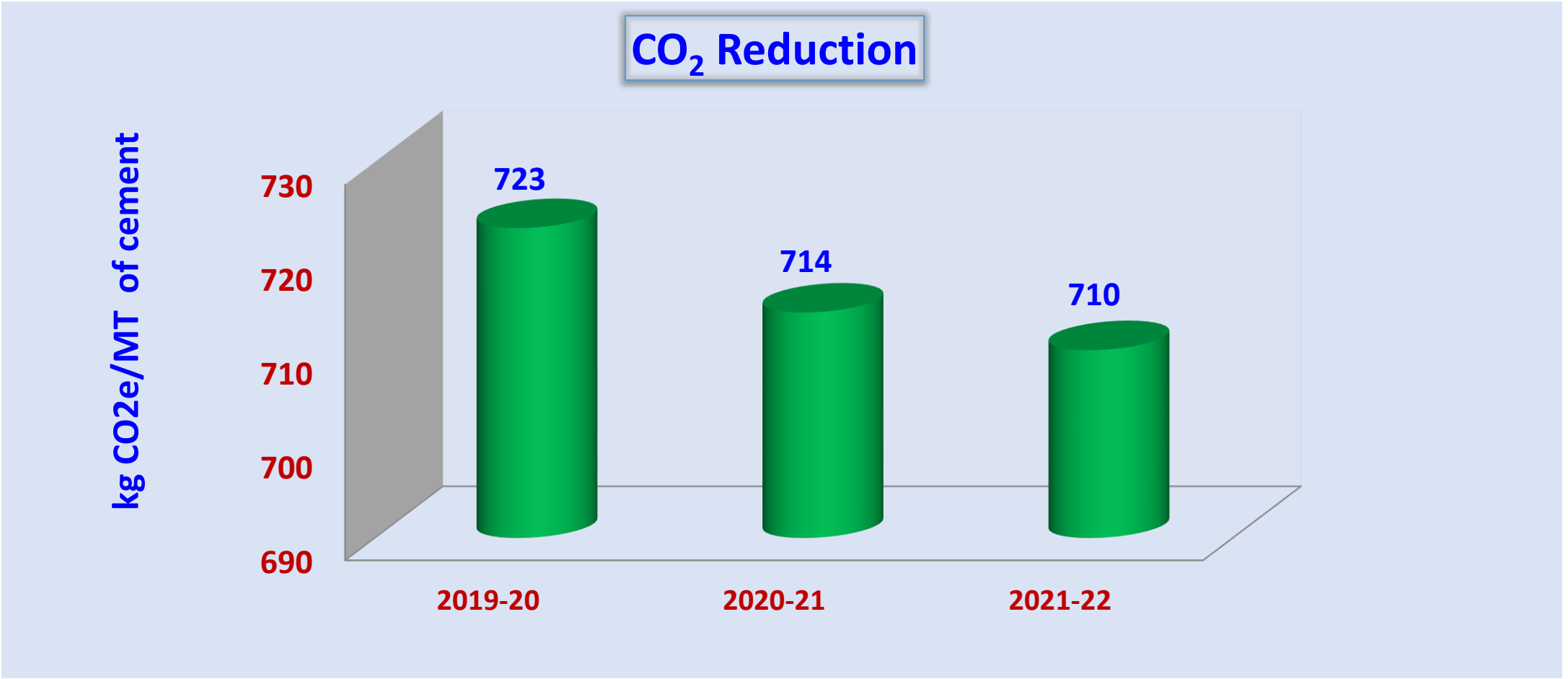
During 1996 **wind mill installed with capacity** of 33.24 MW, Present Capacity is 160 MW

Replacement of Thermal Energy with Renewable Energy	2019-20		2020-21		2021-22	
	Equivalent Fuel Saving (Lakhs Kcal)	% Share	Equivalent Fuel Saving (Lakhs Kcal)	% Share	Equivalent Fuel Saving (Lakhs Kcal)	% Share
Biogas (Canteen)	47.5	6.6	100.3	12.9	117.9	13.23

UTILIZATION OF RENEWABLE ENERGY

Solar Power Generation: 40156 Units

CARBON FOOT PRINT ACTIVITIES



Carbon Emissions is in reduction trend

IMPLEMENTATION OF ENERGY FRONT AMONGST ASSOCIATES

Sl.No	Name Of Associate / Vendor	Name Of Service Provided To Vendor	Energy Consumed Prior To Implementing ENCON	Energy Consumed After Implementation Of ENCON	% Improvement	Type Of Inputs / Projects Provided To Vendor/ Associate
1	**M/s. LG Compressors**	**Compressor optimization**	**1.25 Lakhs kwh/year**	**1.16 Lakhs kwh/year**	**7%**	**Auto drain valve fixed**
2	**M/s. CIBI Transports**	**Raw material internal shunting contractors**	**603 Litres/year**	**402 Litres/year**	**33 %**	**New shortest route provided**
3	**M/s. Ammaiyaper Transports**	**TPP Ash feeding**	**700 Litres/year**	**540 Litres/year**	**23 %**	**Higher Capacity Bulker Placed**

ENCON EFFORTS

Sl.No	Source of ENCON IDEA	Idea originated	Details of members involved	Progress of implementation
1	Middle Management	2018-19	Utility department	Completed
2	Workmen	2019-20	Engineering department	Completed
3	Middle Management	2018-19	Utility department	Completed
4	Workmen	2019-20	Engineering department	Completed

PROJECT 1 : COST SAVINGS IN COAL FIRING BLOWER

- We are operating 1 no of lobe blower for primary coal firing and 1 no for secondary coal firing application, which are running in VFD drive
- Due to the presence of more number of bends (8 nos), we are facing high pressure drop near the FK pump
- Our Utility department team, decided to relocate the blower nearer to the FK pump with less number of bends (3 nos) in the pipe line
- After doing this modification we have achieved the following power savings
- Power Saving : 53,196 units/annum
- Cost Saving : Rs. 1.86 lakhs/annum

PROJECT 2 : NEW GATE UNDER SURGE BIN IN RM VRMP

- In Raw mill VRMP, we have faced material flushing problem under 40T surge bin
- Due to this Raw mill stops once in 2 days and material spill under the recirculation belt conveyor
- We have installed motorized slide gate to reduce the material flow and to close the slide gate automatically if the material flush from bin
- After installing slide gate, mill stoppage due to material flushing is avoided and we have achieved the following power savings
- Power Saving : 1,70,280 units/annum
- Cost Saving : Rs. 6.34 lakhs/annum

PROJECT 3 : KILN-1 FEED EXTRACTION SCREW MODIFICATION

- There are 2 nos. of 47 meters length screw conveyor in our kiln feed extraction
- We have faced the following problems in the screws
  - Screw cut off, Connecting shaft damage and Hanger bearing failure
- One of the Mechanical Engineer suggested to reduce the screw length from 47 to 18 meters by replacing with Air slide as the space is available for slope
- Due to reduction in screw length the power consumption is reduced
- **Power Saving : 32160 Units/annum**
- **Cost Saving : Rs. 1.61 Lakhs/annum**

PROJECT 4 : SS PLATE PLACED AT COAL MILL INLET BEND

- In Coal mill-2, we frequently noticed coal accumulation in the inlet chute.
- Due to this accumulation, mill productivity affected and there was occasional firing at coal mill inlet.
- Engineer suggested to modify the inlet feed chute by providing a guide plate to uniformly feed coal to the mill without accumulation.
- Implementation of this idea resulted in the reduction of coal mill run hours from 15:30 Hours to 15:00 hours a day.
- Power Saving : 60550 Units/annum

  Cost Saving : Rs. 3.04 Lakhs/annum

ENVIRONMENTAL PROJECTS

Sl. No	List of the Major Environmental Projects	Year of Implementation
1	Installation of covered shed for Coal/Pet coke storage	2019
2	Installation of unit bag filter for transfer points along with CSR project	2019
3	Modification of de-dusting bag filter ducts to improve venting in clinker transportation	2019
4	Water spray system installed in Coal shed to avoid flying of fine dust	2019
5	Installation of Wagon tippler for Fuel & Clinker	2020
6	Conversion of open trailers in to covered for limestone shifting	2020
7	Formation of rain harvesting pond in new material yard	2021

FUTURE ENVIRONMENTAL PROJECTS

Sl.No	List of the Future Environmental Projects	Investment (Rs. Lakhs)
1	Installation of new high efficiency Kiln in place of existing Kiln-2	48600
2	Stacker & Reclaimer with closed shed for Additives	5600
3	Installation feeding system for Alternate fuel	15.5
4	80 Nos. LED lights in place of Conventional lights	6.0

GREEN BELT DEVELOPMENT

Year	Location	Area covered in Acres	No. of Species planted
2019-20	Mines	170	**150000**
	Factory & colony	6	3000
	School	2	2000
	Nearby villages	10	5000
2020-21	Mines	110	**87377**
	Factory & colony	10	12625
	School	6	8000
	Nearby villages	17	23750
2021-22	Mines	156	**128097**
	Factory & colony	12	6500
	School	10	5000

ECO PARK-MINES