Welcome to
22nd National Award for Excellence in Energy Management 2021
Sagar Cements Limited-Bayyavaram

Team Members

Mr. Anji Reddy
Chief Sustainability Officer

Mr. Srinivasa Rao
Plant Head

Presenter

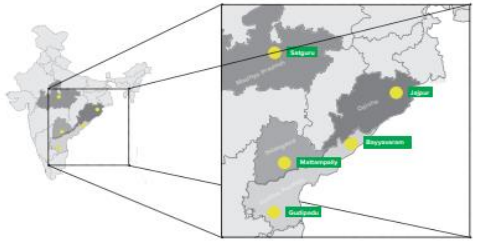
Mr. M Ganesh
Manager-Electrical

1.Introduction of the company

Strategic presence that enables efficiencies

We have set up world-class, highly advanced and integrated plants capable of producing 5.75 MTPA of cement with a group captive power generation of 61.55 MW. Our state-of-the-art facilities comply with top industry standards and some of the best practices in the world.

Compliance with



GreenPro
Product certification as a mark of SUSTAINABLE PRODUCT quality

GreenCo
Plant process certification as a mark of ENVIRONMENTAL FRIENDLY manufacturing

Description of Product	Plant @ Mattampally	Plant @ Gudipadu	Plant @ Bayyavaram
GreenCo Certification	GOLD	GOLD	PLATINUM
GreenPro Certification			
PPC (Portland Pozzolana Cement)	√	√	√
Composite Cement			√
PSC (Portland Slag Cement)		√	√
GGBS (Ground Granulated Blast Furnace Slag)			√

Sagar Cements Limited Mattampally, Telangana

Key Markets:
Andhra Pradesh, Telangana, Tamil Nadu, Odisha, Maharashtra

3.0 MTPA capacity
47% Capacity Utilisation (FY2021)
28.13 MW Captive power
404.21 MnT Limestone reserves
18 MW Thermal Power
10.13 MW Green energy

Sagar Cements (R) Limited Gudipadu, Andhra Pradesh

Key markets:
Andhra Pradesh, Karnataka, Tamil Nadu

1.25 MTPA capacity
69% Capacity Utilisation (FY2021)
25 MW Captive power
161.96 MnT Limestone reserves
25 MW Thermal Power

Sagar Cements Limited Bayyavaram, Andhra Pradesh

Key markets:
Vizag, Vizianagaram, Srikakulam, South Odisha

1.5 MTPA capacity
54% Capacity Utilisation (FY2021)
8.42 MW Captive power
8.42 MW Green energy

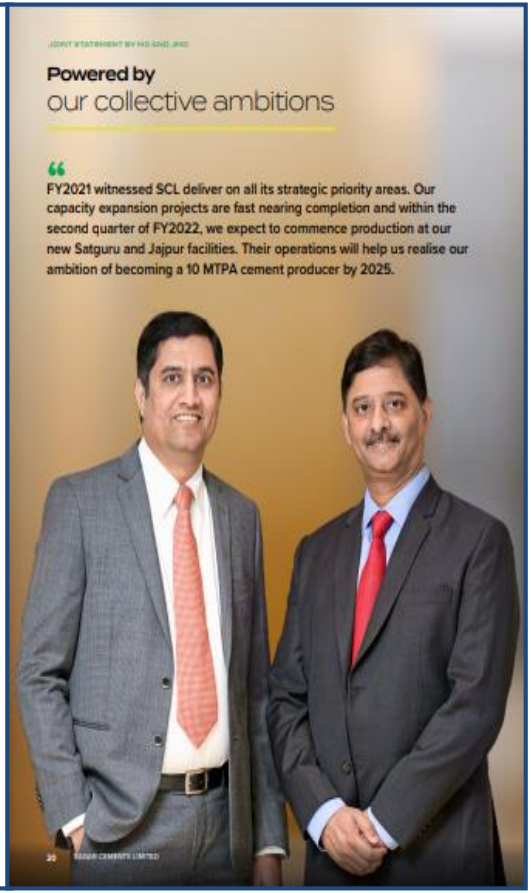
Upcoming facilities

Satguru Cement Pvt. Ltd
Greenfield integrated cement plant in Madhya Pradesh

Status: Under implementation
1 MTPA capacity
65% SCL stake
Acquired on 8th May, 2019
Approvals In Place
63.047 MnT Limestone Reserves
1.0 MW Solar Power Plant
5.3 MW WHRS Power Plant
30th September, 2021 Expected COD

Jajpur Cements Pvt. Ltd
Greenfield grinding unit in Odisha

Status: Under implementation
1.5 MTPA capacity
100% SCL stake
Acquired on 2nd May, 2019
Approvals In place
30th September, 2021 Expected COD



1.Introduction of the Bayyavaram Plant

Vision to double the capacity every 10 years

1985	1998	2008	2015	2017	2018	2025
0.20 MTPA	0.40 MTPA	2.75 MTPA	4.0 MTPA	4.3 MTPA	5.75 MTPA	10.00 MTPA
		With over 30 years of quality focused operation, the Company has established strong brand in the market.	From the surplus cash flow generated through its stake sale in the Vicat, JV, SCL acquired 1 MTPA plant from BMM Cement.	• Consolidated position in the South and made inroads in the East. • Acquired the Bayyavaram unit in 2016 and gradually ramped up the capacity to 0.3 MTPA	• Ramp up production at the Bayyavaram Unit to 1.5 MTPA • Ramp up production at SC(R) to 1.25 MTPA	Through Inorganic & Organic Growth

- Had strong desire, in conceptual stage itself, to make this plant highly sustainable.
- Opted for very compact layout (22acres).
- Used high efficiency products from reputed suppliers – Pfeiffer VRM, Reitz fans, Siemens Motors & Drives.
- Robotic automated complete laboratory.
- Solar plant is installed to the best possible extent on plant roof as well as colony roof.
- More than 33% of Green belt is developed.
- STP Treated water is being used in process.
- Networked and automated weigh bridges.
- Supporting neighbourhood communities.
- Lawn made in 4th Floor above load centre.

2.Impact of Covid-19

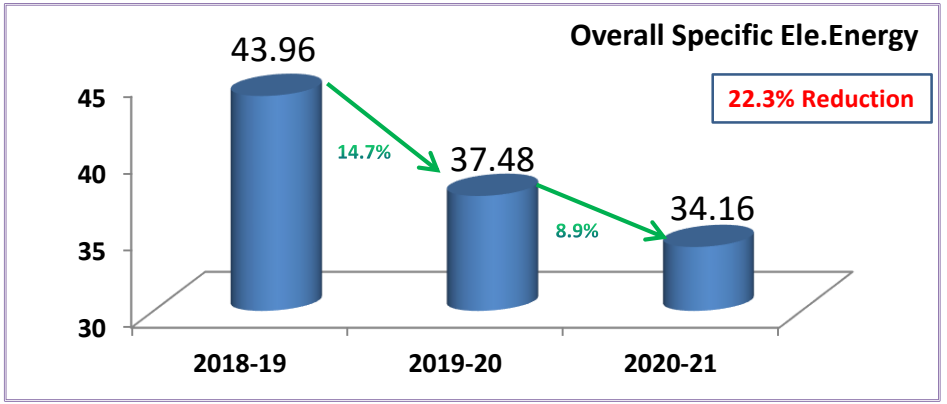
1. Mill Operation Perfectly organised and mill start stop made in view of Specific power in limits.
2. Mill specific power not effected.
3. Packing plant specific power has effected and increased due to low dispatch and trucks availability.
4. All employees have followed covid rules as shown
5. Few employees effected by covid & with home treatment recovered.

1. **Whole entry maintained Social Distancing**
2. **Contactless hand sanitizer installed for staff and workmen**
3. **Thermal screening test at main gate entry**
4. **RFID Card Punching instead of Bio matric attendance**
5. **Hand wash with soap and water before entering to plant**
6. **work allocation and maintained social distancing**

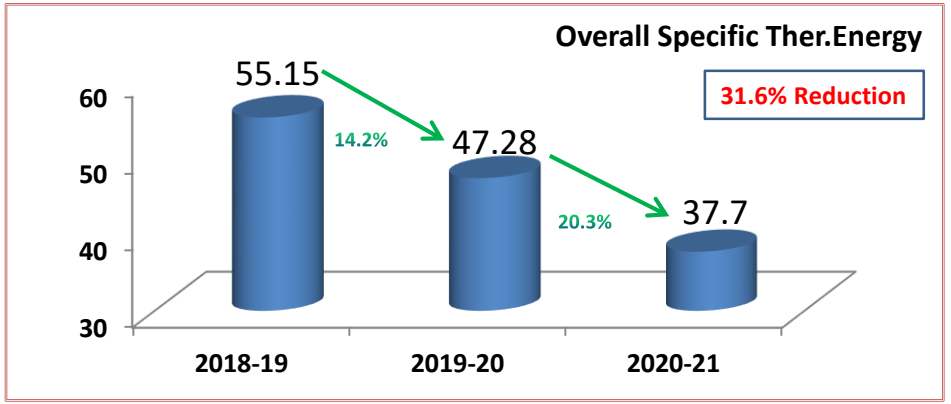
3. Sp. Energy Consumption in last 3 years (FY 2018-21)

- *Plant Overall Specific Energy Consumption:*

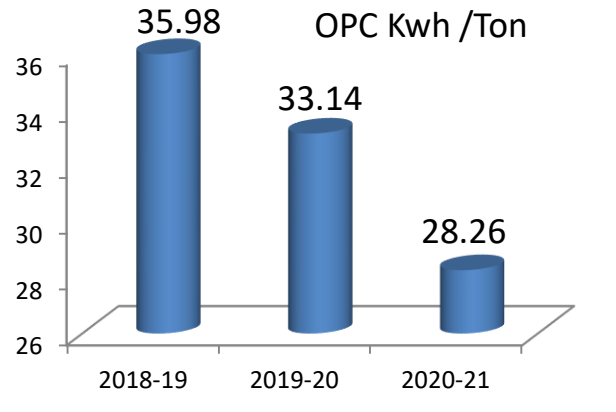
Specific Electrical Energy -Last 3 Years			
Year	2018-19	2019-20	2020-21
Total production(MT)	6,05,952	7,74,941	8,12,873
Energy consumption (Kwh)	2,66,36,302	2,90,47,521	2,77,44,22
Specific Energy (Kwh /Ton)	43.96	37.48	34.16
% Reduction	22.3%		

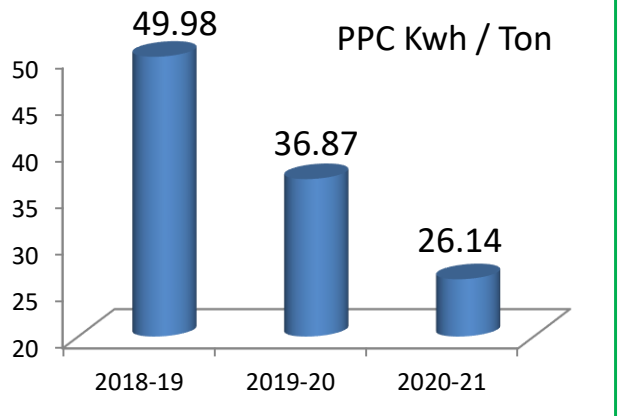


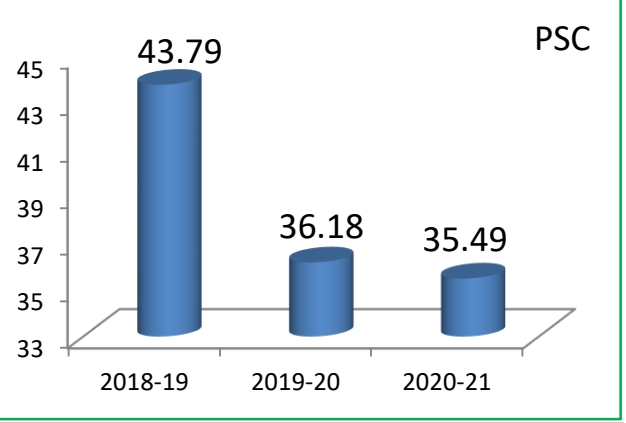
Specific Thermal Energy -Last 3 Years			
Year	2018-19	2019-20	2020-21
Total Production(MT)	6,05,952	7,74,942	8,12,873
Energy Consumption (MKcal)	33,418.77	36,642.41	30645.29
Specific Energy (Kcal /kg)	55.15	47.28	37.70
% Reduction	31.6%		

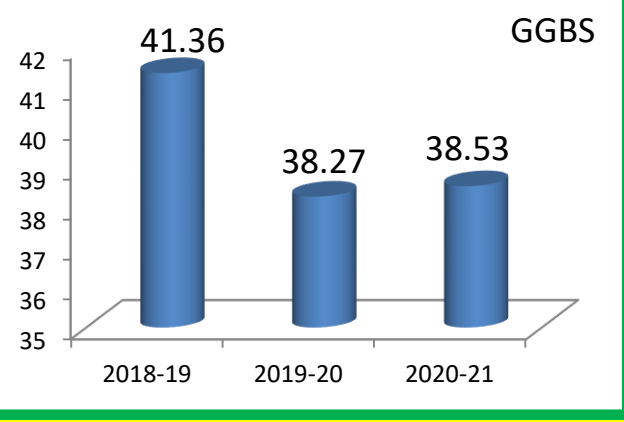


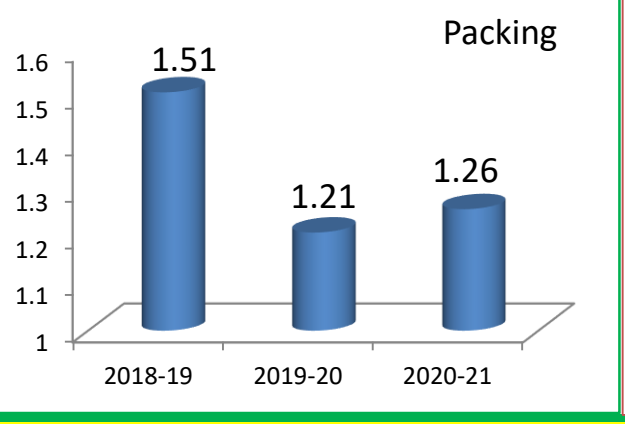
3. Sp. Energy Consumption in last 3 years (FY 2018-21)







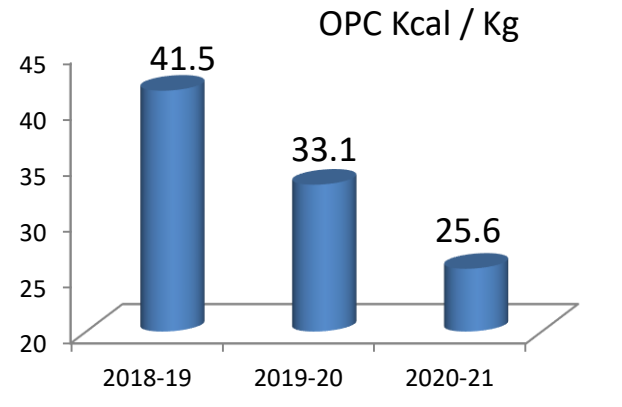


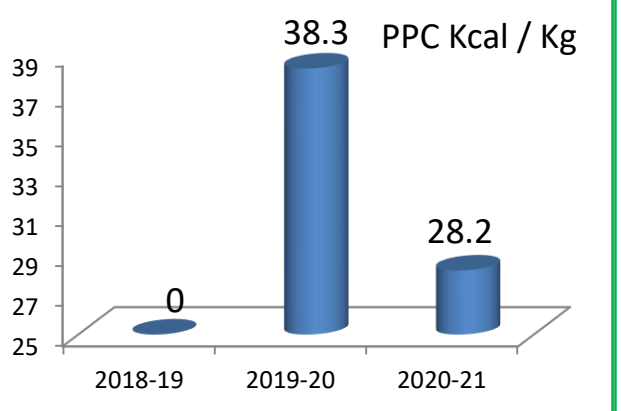


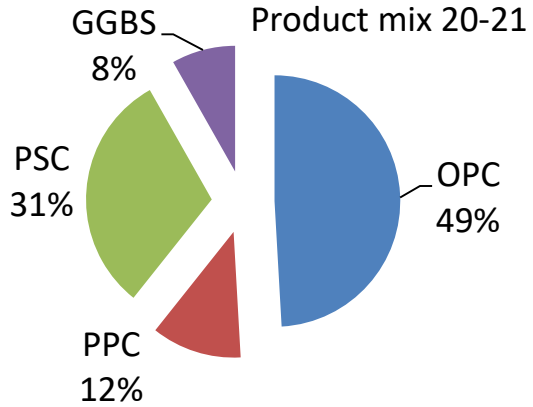
Main Reasons for Specific Energy Reduction:

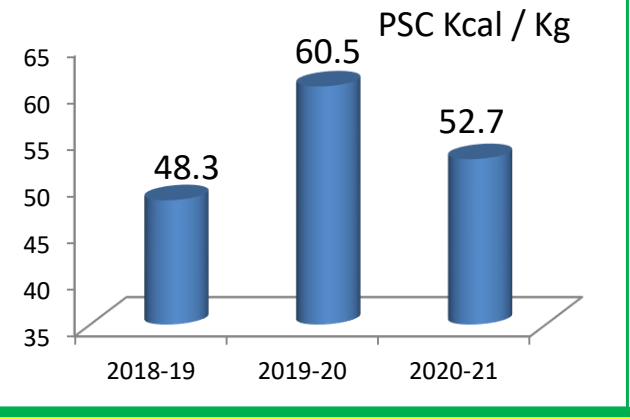
- Optimisation of Process Parameters.
- Clinker Weigh feeder Up gradation.
- Timely Energy audits & taking corrective actions against energy target deviations.

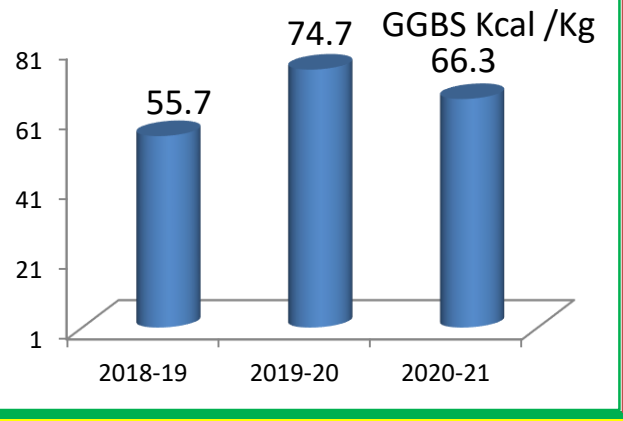
3. Sp. Energy Consumption in last 3 years (FY 2018-21)











Main Reasons for Specific Thermal Energy Reduction:

- Optimisation of Process Water Consumption.
- HAG Cold air entry reduction.

4. Information on Competitors, National & Global benchmark

Short term/ Long term Target & National Benchmarking

Sl. No.	Description	Specific Electrical Energy (KWH / Ton)			Short Term Target	Long Term Target	Bench Mark	How close to CII-National	Neighbour Plant
		2018-19	2019-20	2020-21	2021-22	2021-22	CII *	Where we	2020-21
1	PSC	43.79	36.18	**35.49**	34.42	33.71	31.90	Plant-5	36.71
3	OPC	35.98	33.14	**28.26**	27.41	26.84	24	Plant-3	31.03
4	PPC	49.98	36.87	**26.14**	25.35	24.83	18.80	-	28
2	GGBS	41.36	38.27	**38.53**	37.37	36.60	-	-	37.5
5	Packing Plant	1.51	1.21	**1.26**	1.22	1.19	0.81	Plant-5	-

Due to Covid, Plant Not Utilizing 50% of Capacity.

* **Source : CII -Energy Benchmarking for Cement Industry May-2021 version 5.0**

4. Information on Competitors, National & Global benchmark

Energy Conservation Projects –Planned FY 2021-22

Sl No	Year	Energy Management Project details	Actual savings achieved					
			Electrical savings		Thermal Savings		Estimated investment	Act pay back period
			Reduction in Power kWh/hr	Rs in Lakhs per annum	kcal / kg Cement	Rs in Lakhs per annum	Rs. Lakhs	months
1	FY 2021-22	Old Packing Plant Packer Design 90 mt per hour but present we are operating 54 mt per hour. So we need increse the packer capacity as per design.	53	3.2	0	0	25	94.41
2	FY 2021-22	Fly Ash Unloading from Tanker with LP Compressor inplace of 75 GA Compressor	20	1.36	0	0	3	26.46
3	FY 2021-22	Old Packing Plant Truck Loader length to be Extend for avoid of truck loading delay.	6	0.9	0	0	1	13.34
4	FY 2021-22	Minimization of VRM mill rejects by increasing grinding pressure to 130Bar from 110Bar	32	16.1	0.00	0	0	0.00
5	FY 2021-22	Usage of waste wood for firing in place of disel consumption during HAG restarting.	0	0.0	0.17	14	0	0.00
6	FY 2021-22	Use 3KW water pump instead of 7.5KW pump for process water.	2.75	1.2	0	0		0.00
7	FY 2021-22	Optimization of bag house fan flow by removing orifice in bag house outlet duct.	30	13.6	0.00	0	0	0.00
8	FY 2021-22	Instalation of VFD for Clinker Truck Tippler Bag Filter fan	3	0.30	0.00	0.00	1.5	59.52
		Sub total	**146**	**37**	**0**	**14**	**31**	

5. Energy Saving projects implemented in last three years

Year	No of Energy Saving Projects	Investments (In Millions)	Electrical Savings (In Million Kwh)	Savings (INR Million)	Impact on SEC (Electrical KWH / MT Cement)
2018-19	3	0.014	0.0079	0.06	0.01
2019-20	10	7.34	5.621	39.35	7.25
2020-21	10	31.42	1.664	11.65	2.05

Energy Conservation Projects -Last 3 Years

Sl No	Year	Energy Management Project details	Actual savings achieved			
			Electrical savings		investment	Act pay back period
			Reduction in Power kWh/hr	Rs in Lakhs per annum	Rs. Lakhs	months
1	FY 2018-19	Installed Astronomical switch For Street Lighting and area lighting	0.19	0.04		33
2	FY 2018-19	Minimisation of Idle running of cooling tower fan and pumps	13.20	0.44		0
3	FY 2018-19	Interlock conveyor operation and providing LPB at O.S in Truck Tippler.	131.00	0.07		4
		Sub total	**144.39**	**0.55**		

5. Energy Saving projects implemented in last three years

Energy Conservation Projects -Last 3 Years								
Sl No	Year	Energy Management Project details	Actual savings achieved					
			Electrical savings		Thermal Savings		investment	pay back period
			Reduction in Power kWh/hr	Rs in Lakhs per annum	kcal / kg Cement	Rs in Lakhs per annum	Rs. Lakhs	months
1	FY 2019-20	Stopping of 5 Nos of drives in recirculation group during OPC running	6.90	0.99	0.00	0.00	0.00	0.00
2	FY 2019-20	Replacement of 15KW Process Water Pump with 7.5 KW	8.50	2.28	0.00	0.00	0.65	3.41
3	FY 2019-20	Stopping of Ball Mill by connecting Mill-3 TO mILL-2 by air slides so that PPC Power will reduce from 48 to 28 KWH /Ton	4200.00	379.85	0.00	0.00	70.00	2.21
4	FY 2019-20	Stopping of HAG section during mill OPC cement Operation.	25.70	3.67	25.00	106.93	0.00	0.00
5	FY 2019-20	Installation of Complete LED lights in place of Conventional light system in staff quarters	6.22	0.78	0.00	0.00	0.81	12.47
6	FY 2019-20	Installation of 5 Star ceiling Fans in place of Conventional ceiling fans in staff quarters	3.15	0.53	0.00	0.00	1.92	43.43
7	FY 2019-20	Optimisation of 520BC03 Belt with reject bin level	1.50	0.38	0.00	0.00	0.00	0.00
8	FY 2019-20	Bag House Speed Reduction during mill tripping (instead of Fan speed manual Reduction from 900RPM to 600RPM)	500.00	1.47	0.00	0.00	0.00	0.00
9	FY 2019-20	Classifier Speed Reduction during mill tripping (instead of Classifier speed manual Reduction from 900RPM to 600RPM)	100.00	0.11	0.00	0.00	0.00	0.00
10	FY 2019-20	Stopping of Bag Filter drives for Packer 1 & Packer 2	8.47	0.28	0.00	0.00	0.00	0.00
		Sub total	**4860.44**	**390.34**	**25.00**	**106.93**	**73.38**	

5. Energy Saving projects implemented in last three years

Energy Conservation Projects -Last 3 Years								
Sl No	Year	Energy Management Project details	Actual savings achieved					
			Electrical savings		Thermal Savings		Investment	Pay back period
			Reduction in Power kWh/hr	Rs in Lakhs per annum	kcal / kg Cement	Rs in Lakhs per annum	Rs. Lakhs	months
1	FY 2020-21	Clinker weigh feeder capacity enhancement from 100TPH to 200TPH for OPC specific power reduction.	380	64	0.00	0	8.5	1.60
2	FY 2020-21	Plant Electrical system Power Factor Improvement from 0.97 to 0.99 by adding capacacitor bank	105	35	0	0	13	4.43
3	FY 2021-22	37KW ,Packer-1 &2 Bag filter operation with VFD in place of DOL	18.4	5.6	0	0	5	10.78
4	FY 2020-21	Relocation & Duct modification in Electrical Load center Air conditioning system to maintain panel room temperature below 30Deg .	27	12.2	0.00	0	4	3.92
5	FY 2020-21	Online mill Change over of Products grinding through PXP	25	2.9	0	0	0	0.00
6	FY 2020-21	Minimisation of circulating air entry to HAG by stopping of 2X7.5KW cirulating air fans.	9	4.6	1.43	15	0	0.00
7	FY 2021-22	Minimization of process water consumption in mill for PSC product grinding.	0	0.0	6.00	35	0	0.00
8	FY 2020-21	Consumption of Old Slag (6% Moisture)& Fresh Slag (12% Moisture) together to mill . so that average moisture will Approximate - 8% . so that thermal value consrvation	0.0	0	3	5.76	0	0.00
9	FY 2020-21	Replacement of Conventional40w tube lights with 24w LED lights for old quarters.	1.68	0.4	0	0	0.42	13.23
10	FY 2020-21	Arrange Permenant Magnet on 590BC01 Conveyor	49.2	0.52	0	0	0.5	11.61
		Sub total	**615**	**125**	**10**	**55**	**31**	

6. Innovative Projects implemented

Project-1 : Minimization of Circulating air to HAG

For mill running, we need hot gas, to generate HOT gas we are using HAG ..previously we have used 2nos of circulating air fans to control the HAG out let zone temperature. during heat balance time we identified some excess air going to HAG causing more thermal energy consumption to maintain the temperature.
then we removed fans and closed with sheets .

Savings: Electrical :9Kwh /Hr
Thermal: 1.43Kcal/Kg
Total in Rs: 20Lakhs /Anum

7. Utilisation of Renewable Energy sources

Year	Technology	Type of Energy	On site / Off site	Installed Capacity (in MW)	Generation (in Million Kwh)	% Over all electrical energy
2018-19	PV Cell	Solar	On-Site	0.130	0.0198	0.07
		Hydro	Off-Site	8.3	14.476	54.34
2019-20	PV Cell	Solar	On-Site	0.130	0.09995	0.34
		Hydro	Off-Site	8.3	21.283	73.26
2020-21	PV Cell	Solar	On-Site	0.130	0.123	0.44
		Hydro	Off-Site	8.3	21.352	76.87

Renewable energy is 77 %.

Note : Due to site constraint, we could able to install130KW rooftop solar system. No scope of c
Renewable Energy Generation expansion .

we are using off-site Renewable Energy.

7. Utilisation of Renewable Energy sources

Projects implemented for Renewable Energy for Sagar Group:

- GBC-GNT-4082 –Mini Hydro power plant - 4.3MW-20th November 1997
- LIS -KNL-781 - Mini Hydro power plant - 4.0MW- 7th September 1998
- 1.65MW Wind power plant at Theni, Tamilanadu -2nd June 2009
- RVC-1-1.5MW Wind power project at Tamilanadu - 31st March 2010
- RVC-2-1.5MW Wind power project at Tamilanadu - 30th September, 2010
- RVC-3-0.85MW Wind power project at Bhud, Maharashtra- 29th March, 2012
- 80.0 KW Rooftop Solar power plant @ Hyderabad – corporate office-2012
- 130KW Rooftop Solar power plant @ Bayyavaram -10th December 2018
- 1.25MW Rooftop Solar power plant @ Mattampally-2017
- 8.80 MW WHRS power plant @ Mattampally-2017

Planned for 10.0 MW ground mounted Solar plant.

5.3 MW WHRS power plant is in construction at new plant in Dhar District, MP

2 More WHRS power plants are in planning

8.Learing from CII Energy Award 2020 or any other award program

1.Auditing of Load Centre Air Conditioning system

Before:
22TR AC units are in cable cellar and supplying their Cool air.

After:
After AC audit by blue star team, They suggested For units shit to Indoors

Benefits:

1.Previously 4 Units are running to maintain Load center temperature 28Dec, but unable to maintain and maintaining at 30 Deg
2.After modification only 3 Units are sufficient to maintain load center temperature at 28 Deg.
3. 27 Units/ Hr saving One unit become Stby.

9. GHG Inventorization

- *Absolute Emissions and Emissions intensity of last three years*

Description	Scope-1 & 2 Emissions		
	2018-19	2019-20	2020-21
Total CO_2 Emissions(MT)	33801	36926	33907
Total Production (MT)	6,05,952.25	7,74,941	812873.26
Emissions (Kg CO2 /Ton of Cement)	55.8	47.7	**41.71**

Description	Scope-3 Emissions		
	2018-19	2019-20	2020-21
Emissions (Kg CO_2 Eq/Annum)	7108996	7318715	10891217
Emissions (Kg CO_2 Eq./ton Cement)	10.30	9.44	13.40

9. GHG Inventorization

- *Target (short term/ long term) for CO2 emission reduction and action plan*

S.No.	Description	2018-19	2019-20	2020-21	Short term (2021-22)	Long term (2022-23)
1	Scope-1 (Kg Eq CO2/Ton of cement)	19.867	16.957	13.695	13.010	12.462
2	Scope-2 (Kg Eq CO2/Ton of cement)	36.045	30.736	28.018	26.617	25.496
3	Scope-3 (Kg Eq CO2/Ton of cement)	5.928	4.722	6.68	6.347	6.080

Action Plan:

Scope -1&2

- Implementation of identified energy conservation project
- Increase of slag addition in PSC, fly ash addition in PPC product
- 5% addition of performance improver (fly ash/slag) in OPC.
- Increasing Clinker to cement factor.
- Share increase of Renewable Energy
- Implementation of LCA study results for cement

Scope-3

- Logistic management.
- Encouragement of bulk transportation.
- Improving fleet efficiency.
- Usage of Vehicles for both sides material transportation.

10. Green Supply Chain Management

"Integrated environmental thinking into supply chain management"

Green Sourcing Policy

1.Green Procurement
2.Efficient fleet & 2 way logistics.
3.Local Vendors promotion.
4.Resource Conservation.
5.Vendor audit & Best Practices sharing

By Promoting various blended cements-2.58Lakh MT of other industries By-Products(Slag, Fly ash, Phosphor) for cement production, Around 32% raw materials are By-Products


BF Slag
RINL- Vizag Steel Plant
Distance from our Plant : 38Km


Gypsum
Coramandal Fertilizers
Distance from our Plant : 36Km


Flyash
NTPC- Simhadri
Distance from our Plant : 30Km


Imported Coal
Gangavaram Port
Distance from our Plant : 44Km


Flyash
Hinduja Power plant
Distance from our Plant : 42Km


Clinker & Cement Transportation
Vimla Infrastructure India Pvt Ltd.
Distance from our Plant : 07Km


Clinker
Sagar Cements Limited
Distance from our Plant : 454Km

Effective Resource Selection
Green Sourcing
Green Manufacturing
Green Design
Natural Resources Conservation
Green Packing
Green Logistics

Green Supply Chain Management

26 % of Product Sales through bulk Dispatches

100% Reverse Logistics

11. Teamwork, Employee Involvement & Monitoring

1.Daily monitoring system & use of iOT

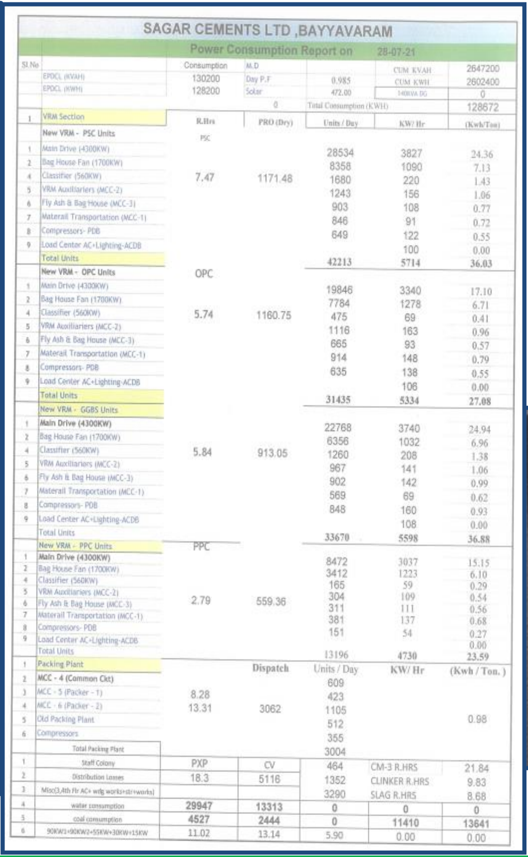
- Plant is having 45 Nos networked digital energy meters connected to plant DCS. All major and more than 5% energy intesive equipments have meters and connected to DCS and Day wise & Product wise Electrical, Thermal energy report is generated in the system automatically.

2.Review meeting chaired by

- Production & performance review meeting headed by Plant Head – Daily.
- Review meeting with Corporate Office on 5th of - Monthly
- Energy review meeting by Energy Manager & Plant Head – Quarterly.

3. Separate budget for Energy Conservation

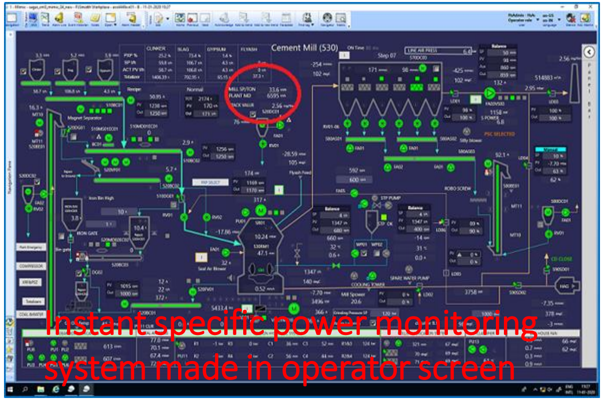
- Budget is planned and deployed as required based on identified Energy efficiency projects and their payback period – In general projects with simple payback period of less than 3 Years is preferred.
- 31Lakhs invested in FY 20-21



SAGAR CEMENTS LTD ,BAYYAVARAM

Power Consumption Report on 28-07-21

Sl.No		Consumption	M.D			
					CUM KVAH	2647200
	EPDCL (KVAH)	130200	Day P.F	0.985	CUM KWH	2602400
	EPDCL (KWH)	128200	Solar	472.00	140KVA DG	0
			0	Total Consumption (KWH)		128672
1	VRM Section	R.Hrs	PRO (Dry)	Units / Day	KW/ Hr	(Kwh/Ton)
	New VRM - PSC Units	PSC				
1	Main Drive (4300KW)			28534	3827	24.36
2	Bag House Fan (1700KW)			8358	1090	7.13
4	Classifier (560KW)	7.47	1171.48	1680	220	1.43
5	VRM Auxiliarers (MCC-2)			1243	156	1.06
6	Fly Ash & Bag House (MCC-3)			903	108	0.77
7	Materail Transportation (MCC-1)			846	91	0.72
8	Compressors- PDB			649	122	0.55
9	Load Center AC+Lighting-ACDB				100	0.00
	Total Units			42213	5714	36.03
	New VRM - OPC Units	OPC				
1	Main Drive (4300KW)			19846	3340	17.10
2	Bag House Fan (1700KW)			7784	1278	6.71
4	Classifier (560KW)	5.74	1160.75	475	69	0.41
5	VRM Auxiliarers (MCC-2)			1116	163	0.96
6	Fly Ash & Bag House (MCC-3)			665	93	0.57
7	Materail Transportation (MCC-1)			914	148	0.79
8	Compressors- PDB			635	138	0.55
9	Load Center AC+Lighting-ACDB				106	0.00
	Total Units			31435	5334	27.08
	New VRM - GGBS Units					
1	Main Drive (4300KW)			22768	3740	24.94
2	Bag House Fan (1700KW)			6356	1032	6.96
4	Classifier (560KW)	5.84	913.05	1260	208	1.38
5	VRM Auxiliarers (MCC-2)			967	141	1.06
6	Fly Ash & Bag House (MCC-3)			902	142	0.99
7	Materail Transportation (MCC-1)			569	69	0.62
8	Compressors- PDB			848	160	0.93
9	Load Center AC+Lighting-ACDB				108	0.00
	Total Units			33670	5598	36.88
	New VRM - PPC Units	PPC				
1	Main Drive (4300KW)			8472	3037	15.15
2	Bag House Fan (1700KW)			3412	1223	6.10
4	Classifier (560KW)			165	59	0.29
5	VRM Auxiliarers (MCC-2)			304	109	0.54
6	Fly Ash & Bag House (MCC-3)	2.79	559.36	311	111	0.56
7	Materail Transportation (MCC-1)			381	137	0.68
8	Compressors- PDB			151	54	0.27
9	Load Center AC+Lighting-ACDB					0.00
	Total Units			13196	4730	23.59
1	Packing Plant		Dispatch	Units / Day	KW/ Hr	(Kwh / Ton.)
2	MCC - 4 (Common Ckt)			609		
3	MCC - 5 (Packer - 1)	8.28		423		
4	MCC - 6 (Packer - 2)	13.31	3062	1105		
5	Old Packing Plant			512		0.98
6	Compressors			355		
	Total Packing Plant			3004		
1	Staff Colony	PXP	CV	464	CM-3 R.HRS	21.84
2	Distribution Losses	18.3	5116	1352	CLINKER R.HRS	9.83
3	Misc(3,4th Flr AC+ wdg works+str+works)			3290	SLAG R.HRS	8.68
4	water consumption	29947	13313	0	0	0
5	coal consumption	4527	2444	0	11410	13641
6	90KW1+90KW2+55KW+30KW+15KW	11.02	13.14	5.90	0.00	0.00



Instant specific power monitoring system made in operator screen

Energy Meters with real time communication to DCS.

Mobile App
"Site Connect"

11. Teamwork, Employee Involvement & Monitoring

4. Energy Efficiency / awareness training programme

- Energy Awareness week celebrations by conducting various competitions like sloagns,essays,speech to all levels of employees & workers including staff colony.
- Training needs of each employee is identified during appraisal and training provided by internal or external lecturers.
- Management encourage employees to visit other plants for networking, sharing of ideas, learning about the improvement projects implemented by them etc.

5. Projects Implemented through Kaizen

- Minimization of circulating air entry to HAG by stopping of 2X7.5KW circulating air fans. so that fresh air entry is going by natural draft, so 2x 7.5kw motors have stopped.

Savings: *Electrical : 9Kwh / Hr.*
Thermal : 1.43Kcal / Kg of cement

External Training Programme on energy Conservation by in industry & fuel saving by PCRA

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

DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

Certificate No: 10000336309-MSC-RvA-IND | Initial certification date: 02 January 2020 | Valid: 02 January 2020 - 01 January 2023

This is to certify that the management system of

Sagar Cements Limited
Bayyavaram (Village), Kasimkota (Mandal), Anakapalli, Visakhapatnam - 531031, Andhrapradesh, India

has been found to conform to the Energy Management System standard:
ISO 50001:2018

This certificate is valid for the following scope:
Manufacture of Cement

ISO 50001:2018 Certification

Place and date: **Barendrecht, 02 January 2020**

MGMT. SYS. RvA C. 024

For the issuing office: **DNV GL - Business Assurance Zwolseweg 1, 2994 LB Barendrecht, Netherlands**

Erie Kosk
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV GL Business Assurance B.V., Zwolseweg 1, 2994 LB, Barendrecht, Netherlands. TEL: +31(0)102922689. www.dnvgl.com/assurance

Green Product Certification- PSC,PPC,CC,GGBS By CII

GreenCo-PLATINUM

0.09% **investment of energy saving projects on total turnover of the company**

Any other relevant information

Any other awards, acknowledgement ,Major Achievements from CII

"Sagar Sunrisers"
Quality Circles Team got
"GOLD AWARD"

CCQC-20,Quality Circle Forum of India, for CASE Study, Visakhapatnam Chapter .

CII
Confederation of Indian Industry
125 Years - Since 1895

Certificate of Achievement

This is to certify that

M. GANESH

has successfully completed the online course and examination for the

CII Certified Green Cement Manufacturing Expert Program

Course date : 20 April 2020 - 02 May 2020
Certificate No : GCMP/042020/003

K S Venkatagiri
Executive Director
CII - Godrej GBC

Ravichandran Purushothaman
Chairman, Energy Efficiency Council
CII - Godrej GBC

Issued by: CII - Sohrabji Godrej Green Business Center, Hyderabad

CII
Confederation of Indian Industry
125 Years: 1895-2020

This is to certify that

PRASAD BABU GANDHAMANENI

is a

CII Certified Expert in Climate Change & Environmental Sustainability

K S Venkatagiri
Executive Director
CII-Godrej GBC

Pradeep Bhargava
Chairman
Environment & Recycling Council

Hussain Shariyar
Chairman
GreenCo Education Committee

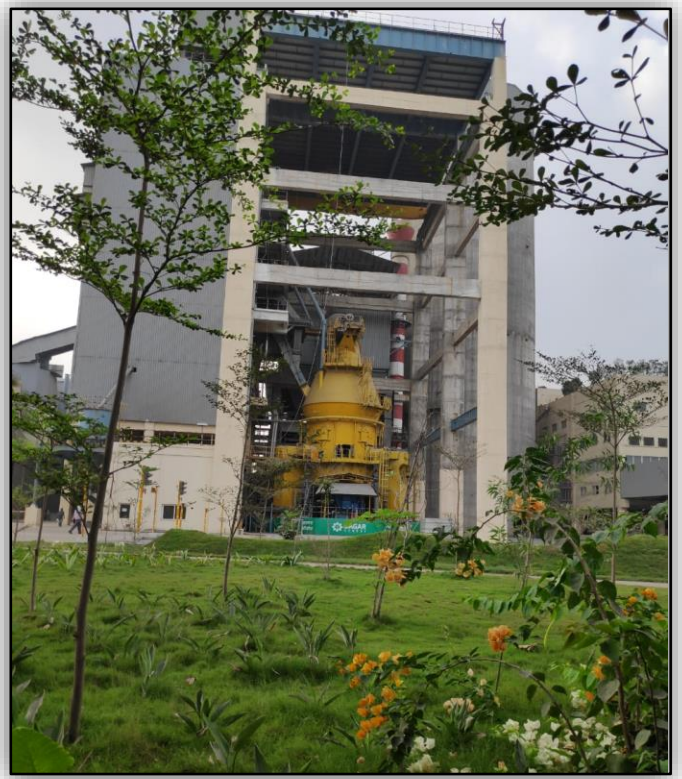
IGBC

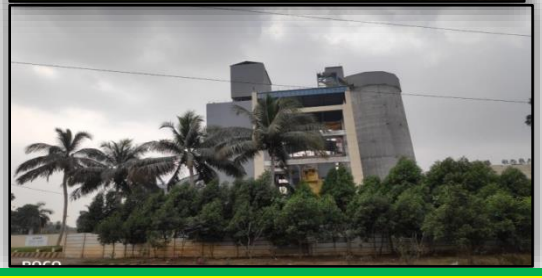
e-Learning

Any other relevant information

Landscaping

Green belt is 8% more, than CPCB guidelines (33%)





Mr. K Srinivasarao
Sr. G.M (Works)-Plant Head

Thank You

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Ph : 7997990901