

Environment

SDGs impacted



Operating in a 'hard to abate' and an energy-intensive sector, Sagar Cements has always been cognisant of its responsibility towards minimising its carbon footprint while maximising resource efficiency. The Company runs zero liquid discharge operations with increasing usage of industrial waste as alternate fuel and raw materials in its cement production.

Sagar Cements has also installed WHRS and is increasing the share of renewables in its total energy consumption. The Company has also been enhancing biodiversity in the areas surrounding its facilities and operational sites. Further, the Company rigorously identifies and mitigates potential environmental risks, while also investing on R&D to increase efficiency across operations.

Pledged to become Net Zero by 2050

Certifications



Bayyavaram Plant received the GreenCo Platinum Certificate award by CII for best practices



Gudipadu and Mathampally Plants received GreenCo Gold Certificate award by CII for best practices



Blended cements from all plants certified as Green Pro in 2019



Committed to SBTi to reduce emissions, aligned with the 1.5°C goal



Earned an ISO 14001:2015 and ISO 50001:2018 certification



Compliant to ISO 26000 standards

Focus areas

- ⚡ Energy
- 🔧 Emissions
- 🚛 Resources
- 💧 Water
- 🗑️ Waste
- 🌸 Biodiversity

Supporting policies

- Biodiversity Policy
- Corporate Sustainability Policy
- Energy Policy
- Environment Policy
- Green Purchase Policy
- Green Procurement Policy
- Product Sustainability Policy
- Waste Management Policy
- Water Management Policy



Energy

Cement manufacturing is an energy-intensive process. Therefore, it is of the essence that appropriate energy management, along with effective energy efficiency measures, are employed to achieve a low-carbon economy, minimising its impact on climate change. Sagar Cements has been at the forefront of adapting newer and innovative technologies aimed to achieve better efficiency

Progress

Sagar Cements has stepped up its consumption of green energy, and 1.35 MW and 130 KW solar plants are in operation at Sagar Cement's Mattampally and Bayyavaram locations, respectively. The Company has also implemented WHRS of 8.80 MW at Mattampally and 5.30 MW at Jeerabad. An 80 KW solar roof panel is also operational at its corporate office.

2,83,593 Mwh

TOTAL ENERGY CONSUMPTION

42,863 Mwh

WASTE HEAT RECOVERED

26%

GREEN ENERGY CONSUMPTION

Performance numbers are for FY2022 or as of 31st March, 2022 unless otherwise stated

Action plan

Sagar Cements has put in place well-defined policies and initiatives to drive continuous improvements in its cement manufacturing and power-generation activities.

- Reduce energy intensity by use of energy efficient processes and equipment and their continuous upgradation
- Minimise energy losses and maximise waste energy recovery
- Establish systems for monitoring and conducting periodic reviews of receipts, generation and consumption of all forms of energy
- Use of energy from alternate/waste energy materials
- Promote awareness and build competencies among all levels of employees, recognising and encouraging innovative ideas
- Conduct energy audit by in-house/ external teams at regular intervals, identifying and implementing betterment projects
- Benchmark the Company's performance with the best benchmark, set targets, document and communicate at all levels and provide resources to achieve targets

Enablers

- Enhancing the electrical efficiency
- Increasing the ratio of green electricity
- Improving the thermal substitution ratio
- Enhancing thermal efficiency thereby reducing specific thermal consumption
- Migrating to zero emission transportation

Targets

Deploying zero emission vehicles

30%
BY 2030

100%
BY 2050

Increasing green electrical energy ratio in operations to

50%
BY 2030

100%
BY 2050

Specific electric consumption per ton of cement

65 kWh
BY 2030

Specific thermal consumption per ton of clinker

700 Kcal
BY 2030

685 Kcal
BY 2050

Increasing the TSR to

25%
BY 2030

100%
BY 2050



Emissions

Sagar Cements is aligned with the global goal and India’s vision of decarbonisation. The Company is investing in the latest and advanced technology to minimise its carbon footprint, and is undertaking and exploring the steps it needs to take to reduce overall emissions. It is also working on internal carbon cost estimation and adaption.

Progress

Sagar Cements has successfully reduced its emissions over the last five years. The Company’s GHG emissions arise mainly from its limestone-based cement manufacturing process and power generation. Hence, it continues to advance on improving its operational efficiency, thereby cutting down on the emissions. The company started capturing its GHG inventory every month from the year 2015.

Aligning with its commitment to the SBTi guidelines and the GHG Protocol, the company is inventorying scope 1,2, and 3 emissions. For Scope 1 and 2 emissions, inventorying is done in a comprehensive way covering all aspects of the business while Scope 3 emissions are limited to emissions from transportation and logistics.

The Company is also developing a methodology to assess its impact on the environment, its mitigation and preservation measures, which will be incorporated across all operations of the business. Sagar Cements is also collaborating with academia and research centres to excel in carbon capture and storage.

Carbon emissions in the past three years (tCO₂e)

Year	FY2022	FY2021	FY2020
Scope 1	24,39,571	18,84,489	20,30,741
Scope 2	46,452	44,541	74,012
Scope 3	80,852	69,450	72,981
Total	25,66,875	19,98,480	21,77,734

GHG emission intensity (tCO₂e/ton cement eq)*

Year	FY2022	FY2021	FY2020
GHG emission intensity	0.703	0.701	0.769

0.14 Kg/MT

SO_x EMISSION

0.052 Kg/MT

SPM



Action plan

Through its detailed environment policy, Sagar Cements has undertaken several measures to pare down its emissions:

- To reduce CO₂ intensity by adopting the best technologies and practices across all functions—from manufacturing to distribution
- To reduce energy intensity while continuously increasing the ratio of green energy and alternate raw materials and fuels
- To comply with the latest environmental regulations and other requirements that come into effect
- Minimising transport emissions by reducing the lead distances and gradually migrating to environment-friendly modes such as EVs
- Setting performance objectives and targets, monitoring the environmental performance and periodical reporting to all stakeholders
- To mobilise and deploy financial and non-financial resources such as upskilling employees, propagating and delegating responsibilities, making it a collaborative effort at all levels of the organisation to achieve targeted reduction in emissions

Targets

Net Zero
BY 2050

ALIGNED WITH
SBTi
1.5°-SCENARIO
BY 2030

INITIATE
**CCS/
CCU**
TO ACHIEVE NET ZERO
EMISSIONS BY 2050

SCOPE 1 EMISSIONS
TO BE REDUCED TO
495 Kg
Net CO₂/MT
BY 2030

SCOPE 2 EMISSIONS
TO BE REDUCED TO
8 Kg
Net CO₂/MT
BY 2030

SCOPE 3 EMISSIONS TO BE REDUCED TO
15.50 Kg
Net CO₂/MT
BY 2030



Emissions

On course to achieve Net Zero

Decarbonising raw materials

Target

2% by 2030 and 5% by 2050

- Conduct a detailed study of various sources of decarbonated lime
- Using industrial by-products as one of the sources
- Using infrastructure demolition waste

Reduction of specific electricity consumption

Target

70 kWh by 2030 and 65 kWh by 2050

- Upgrading the compressed air network, optimising the operating pressure and reducing leakages
- Replacing IE1 Motors with IE3, IE4 Efficiency class of motors to reduce specific electric consumption
- Installing VFD for all process fans and removing the flow control dampers
- Installing high-efficiency separators for raw mills in the Gudipadu plant
- Performing CFD Analysis study on all major process ducts and carrying out corrections
- Replacing low-efficiency process fans
- Replacing the big pressure compressor with an adequate compressor for fly ash unloading at the Mattampally plant
- Upgrading the water network and replacing the low-efficiency pumps with higher efficiency pumps

Increase use of alternate fuel

Target

25% by 2030 and 50% by 2050

- Collaborate with residential communities and their leaders for proper segregation of waste materials
- Collaborate with authorities, policymakers to develop and put in place the infrastructure pre-processing of waste materials
- Collaborate with waste generating industries to develop Standard Operating Procedures (SOP) to achieve consistency in chemistry of waste being generated
- To develop and install the necessary infrastructure at the plant premises for unconstrained use of waste materials
- Develop cultural change and infrastructure to use plastic waste in the cement kiln
- Upgrade the plant machinery to accept waste materials without constraints
- Installation of the pre-combustion chamber
- Undertake support from domain experts, other companies and countries who are ahead in the reuse of waste
- Upskill the team so that they are confident and can comfortably use waste without impacting product quality and system efficiency

Reduction of clinker ratio

Target

64% by 2030 and 50% by 2050

- Promoting the use of blended cement
- Increasing the ratio of cementitious waste materials in cement

Reduction of specific heat consumption

Target

700 Kcal by 2030 and 685 Kcal by 2050

- Upgrade the Mattampally Line 1 cooler to a new generation high-efficiency cooler
- Increase the size of the Mattampally Line 2 cooler for better heat recovery
- Modify/optimize the Mattampally Line 2 Pre-heater for reduction of pressure drop, cyclone efficiency and exit temperature
- Study and upgrade feed chutes in all pre-heaters to reduce/minimise fresh air ingress into the system
- Optimize the chemistry of raw mix to minimise the heat of reaction for clinker formation
- Use of upgraded refractory, insulation to reduce radiation losses
- To reduce the specific heat rate of captive power generation
- Upgrading maintenance practices to reduce unscheduled stoppages and minimise heat loss during start up
- Improved fuel storage and management to reduce ground and air losses of fuel

Increase of green electricity ratio

Target

50% by 2030 and 100% by 2050

- Installing the waste heat recovery system power plants for Mattampally Line 1 and Gudipadu plant
- Installing on-site solar power plants with additional capacity
- Improving the heat recovery efficiency and turbine efficiency of running WHRS power plants
- Reducing and preventing hot gas leakages through bypass ducts by better dampers and regular maintenance
- Exploring the feasibility of solar power with battery and other forms of storage to overcome the irregular availability of solar energy, thereby adding higher capacity than instantaneous power demand
- Exploring the feasibility of using HAG fired by waste fuels and using the hot gases for higher and stable operation of WHRS power plants

Increase use of zero emission vehicles

Target

30% by 2030 and 100% by 2050

- Deploy zero emission trucks for material and product movement in all feasible use cases



Resources

Sagar Cements is aware that the effective use of natural resources is core to its business sustainability strategy, especially considering that cement manufacturing is a resource-intensive process. The Company is committed to adopting the circular economy approach for optimum usage and local sourcing of products to have a minimal environmental impact and is striving towards enabling a circular economic business model.

Progress

By adopting innovative practices and technology, Sagar Cements has progressed on its green purchasing agenda. The Company is consistently purchasing energy- and water-efficient products, while reducing the purchase of hazardous materials. The overall utilisation of recycled material has also increased, which has helped Sagar Cements contribute to the circular economy.

3.97 MnT

LIMESTONE MINED

0.37 MnT

TOTAL COAL USED

0.37 MnT

FLY ASH CONSUMED

0.11 MnT

GYPSUM CONSUMED

0.34 MnT

SLAG CONSUMED

Action plan

With its Green Sourcing and Purchase Policy, Sagar Cements strives to reduce its impact on the environment.

- Giving preference to materials, products and services with lower environmental impact than the equivalent market average, considering all phases of the life cycle including, the end-of-life management
- Developing specific internal guidelines for sourcing of products and services. Integrating the concepts of reduction, reuse and recovery in the sourcing model
- Encouraging suppliers and service providers to adopt best environment practices in their manufacturing process
- Creating awareness and enhancing the competency of staff and other personnel involved in procurement activity by providing relevant information and training
- Complying with legal requirements and regulations, that come into effect

Enablers

- Implement ISO 20400 sustainable procurement in the near term
- Develop and implement a plan to enhance the use of waste materials, both as alternate raw materials and as alternate fuels

Targets

Reduction in clinker factor

64%
BY 2030**50%**
BY 2050

Increased use of decarbonated raw materials, i.e.

2.0%
BY 2030**5.0%**
BY 2050



Water

The cement industry is highly dependent on water resources for operations. Sagar Cements thus makes conscious efforts to reduce water consumption at all levels. The Company utilises harvested or recycled water for business operations, while freshwater is used for human consumption. The Company's water strategy involves zero liquid discharge and rainwater harvesting at all plant locations, while regularly upgrading its water filtration plants.

Progress

Over the last decade, the Company has gradually reduced its water usage. It has also minimised its reliance on freshwater withdrawals by resorting to rainwater harvesting at its plants and nearby communities. Sagar Cements also proactively undertakes initiatives to recharge groundwater. There has also been a transition from water-cooling systems to air-cooling systems to reduce usage and conserve water resources.

Water use at SCL (KL)	Quantity consumed in		
Source of water	FY2022	FY2021	FY2020
Harvested water	1,73,781	1,34,218	1,34,390
Bore well	1,61,441	1,77,246	1,93,178
Total water	3,35,221	3,11,464	3,27,568
Cement production	34,70,968	30,67,099	30,44,236
Specific water consumption (KL/t of cement)	0.10	0.10	0.11

1,61,441 KL

FRESHWATER WITHDRAWAL

91 Litre/Tonne

CEMENTITIOUS MATERIAL
SPECIFIC WATER CONSUMPTION

39,332 KL

WASTEWATER RECYCLED

Zero

LIQUID DISCHARGE

100%

INDUSTRIAL WATER REQUIREMENT MET
FROM HARVESTED RAINWATER



Action plan

Sagar Cements is accelerating its processes to become water positive and, through its water policy, has actioned various measures:

- Constructing rainwater harvesting systems such as harvesting pits and check dams
- Introducing the water reporting system including specific water consumption
- Measurement and monitoring of water sourcing and consumption
- Implementing measures to reduce water consumption where avoidance is not possible
- Avoiding the use of water in the process wherever alternate systems are available
- Recycling/treatment of rejected water for reuse in process, plantation
- Promoting awareness about conservation among users

Enablers

- Reduce specific water consumption
- Implement an Integrated Water Resource Management plan

Targets

BECOME

10x

WATER POSITIVE BY 2030

REDUCE FRESHWATER
CONSUMPTION FURTHER BY

20%

BY 2030

Waste

Sagar Cements, a responsible business, disposes off its hazardous and non-hazardous waste as per the norms prescribed by law. The Company also utilises the waste generated by other industries as a feed to its operations, thereby achieving resource optimisation and reducing waste generation. Waste such as fly ash, slag, gypsum, oil, and metal scrap are also disposed efficiently and responsibly with zero hazardous waste making it to landfills.

Progress

Waste disposal

Total hazardous waste disposed

Type of waste	Unit	FY2022	FY2021	FY2020
Waste lubricant oil	Generated L	40,739	27,740	37,279
	Consumed L	21,501	22,210	28,879
	Sold L	19,238	5,530	8,400
Waste grease with cotton waste	Generated KG	8,030	6,442	5,363
	Consumed KG	2,980	2,970	1,403
	Sold KG	5,050	3,472	3,960
E-waste	Generated KG	2,057	401	231
	Disposed KG	2,057	401	167

Total Non-hazardous waste disposed

Type of waste	Unit	FY2022	FY2021	FY2020
Metal Scrap	T	1,141	334	739
Belt Scrap	T	10	7	60
Office, In-House Packing & Socked Cotton	T	2	0	10
Tyre Scrap	No	0	0	4
PP Scrap	T	65	45	50

Waste from other industries

Type of waste	FY2022	FY2021	FY2020
Red Mud	6,834	9,336	
Bed Ash from CPP	1,398	3,204	
Blast Furnace Slag - Dry	3,06,313	2,48,980	1,57,414
Chemical Gypsum	1,02,350	76,530	
Fly Ash from CPP	42,069	32,720	
Fly Ash Outsource	3,15,925	2,53,893	2,52,506
Blast Furnace Slag - Wet	34,771	49,871	
Iron Sludge	1,945	2,441	
Alternate Fuels	28,193	17,835	
Spent Carbon	8,369	6,921	3,950
Carbon Black	0	835	2,010

Action plan

Sagar Cements' waste management policy enlists other objectives such as:

- Identifying and minimising waste generation by adopting a hierarchal approach to reduce, reuse, recycle and recover by making use of viable technologies
- Striving towards using recyclable material for product packaging
- Ensuring all waste collected, stored, transported, and disposed in an environmentally acceptable manner
- Collecting and reviewing data and identifying opportunities and setting targets for continual improvement in managing and reducing waste
- Promoting the use of blended cements, thereby utilising the waste/by-products of other industries
- Liaisoning with the authorities/expert bodies regularly to learn and implement best practices, to source and consume RDF (Refuse Derived Fuels) in the kiln process with the larger objective of reducing environmental impact

- Developing framework for the use of demolition and construction waste in production process
- Promoting awareness via posters and notices and competency building among all employees through training
- Complying with all requirements, legal and others that come into effect

Enablers

- Enhance use of waste as alternate raw materials
- Enhance use of plastic and other waste energy materials as fuel in the process

Targets

USE

cementitious waste materials

AND REDUCE CLINKER FACTOR

INSTALL

waste heat recovery systems





Biodiversity

Sagar Cements has a range of operations in limestone mining and cement manufacturing. The business needs to co-exist with the local flora and fauna, and Sagar Cements has proactively undertaken several steps to ensure the protection and conservation of the biodiversity in its regions.

Progress

Sagar Cements regularly assesses the impact of its operations on flora and fauna, employs sustainable mining practices, such as controlled blasting to reduce dust, noise and emissions, and works to restore natural ecosystems after mine closures.

The Company also focuses on plantation and green belt development and goes above and beyond the required CPCB guidelines (i.e., 20%), having 33% of its premises under green cover. The plantation is spread across 287 hectares with 6 Lakhs+ saplings and a nursery, which has been established with an aim to grow both native and non-native plant species. The Company uses organic fertilisers and vermicomposting.

The Company has also established a goshala for cow care and supported the government's programmes for "Harita Haram". Sagar Cements has invested in employee training for biodiversity management, training its employees to become biodiversity lead auditors having them assigned the responsibility of managing the biodiversity in and around the plants.

Action plan

Sagar Cements is committed to conserving and protecting the biodiversity. Its biodiversity policy has the following objectives:

- Complying with all biodiversity-related laws and regulations
- Avoid or mitigate interference with nature to the maximum extent possible
- Carrying out impact assessment studies and implementing mitigation measures, including offsetting residuary impacts
- Preserving endemic, threatened or endangered species and protecting the natural habitat around the plant premises
- Continuing to raise awareness among suppliers and other stakeholders on the importance of biodiversity conservation and sustainable use of natural resources
- Maximising rainwater harvesting, reducing, recycling, and reusing water to minimise freshwater usage in operations
- Promoting biodiversity awareness among all employees through training
- Conserving, enriching and promoting efficient and sustainable use of natural resources and raw materials in business activities; maximising the use of

- alternate/waste raw materials and fuels to move towards a circular economy
- Promoting activities for biodiversity conservation in partnership with relevant stakeholders, including local governments, farmers, local communities, self-help groups, and non-governmental organisations
- Increase carbon sequestration by restoration of degraded village commons, riverbanks and tanks, foreshore plantations, and development of community-managed forests in forest fringe areas

Enablers

- Engaging with all suppliers and communities on a regular basis i.e., once in two years, to encourage them towards biodiversity preservation
- Implementing biodiversity management plans across all plant locations

Target

DEVELOPING A DIVERSIFIED AND NATIVE PLANTATION ACROSS FIVE HECTARES PER YEAR, WITH ABOUT

1,000 saplings