



ENTREPRENEURSHIP



COLLABORATION



CARE



INTEGRITY



NUVOCO[®]
Shaping a new world

OPERATIONAL EXCELLENCE



CII National Award for Excellence in Energy Management 2023

Nu Vista Ltd.

Panagarh Cement Plant

Presenting Team:

R. Anantha Nagesh

(HOD Production)

- 9748972119

Manas Mondal

(HOD Environment)

- 9832281707

Sanjoy Dey

(HOD Health & Safety)

- 8945530416

Nuvoco Company in brief



Nuvoco Vistas Corp. Ltd. is the fifth-largest cement group in India with 23.82 million Tonnes per year and the leading cement company in the East, in terms of capacity.

Our 11 Cement Plants comprising five integrated units in Chhattisgarh & Rajasthan and six grinding units in West Bengal, Jharkand, Orissa, Bihar & Haryana.

We are dominant in East with a good presence in North India in terms of capacity, and we feel proud to come under top Five cement companies in India.

Our Cement product portfolio comprising Concreto, Duraguard, Double Bull, PSC, Nirmax and Infracem addresses the complete spectrum of customers with Ordinary Portland Cement (OPC), Portland Slag Cement (PSC), Portland Pozzolana Cement (PPC) and Portland Composite Cement (PCC),

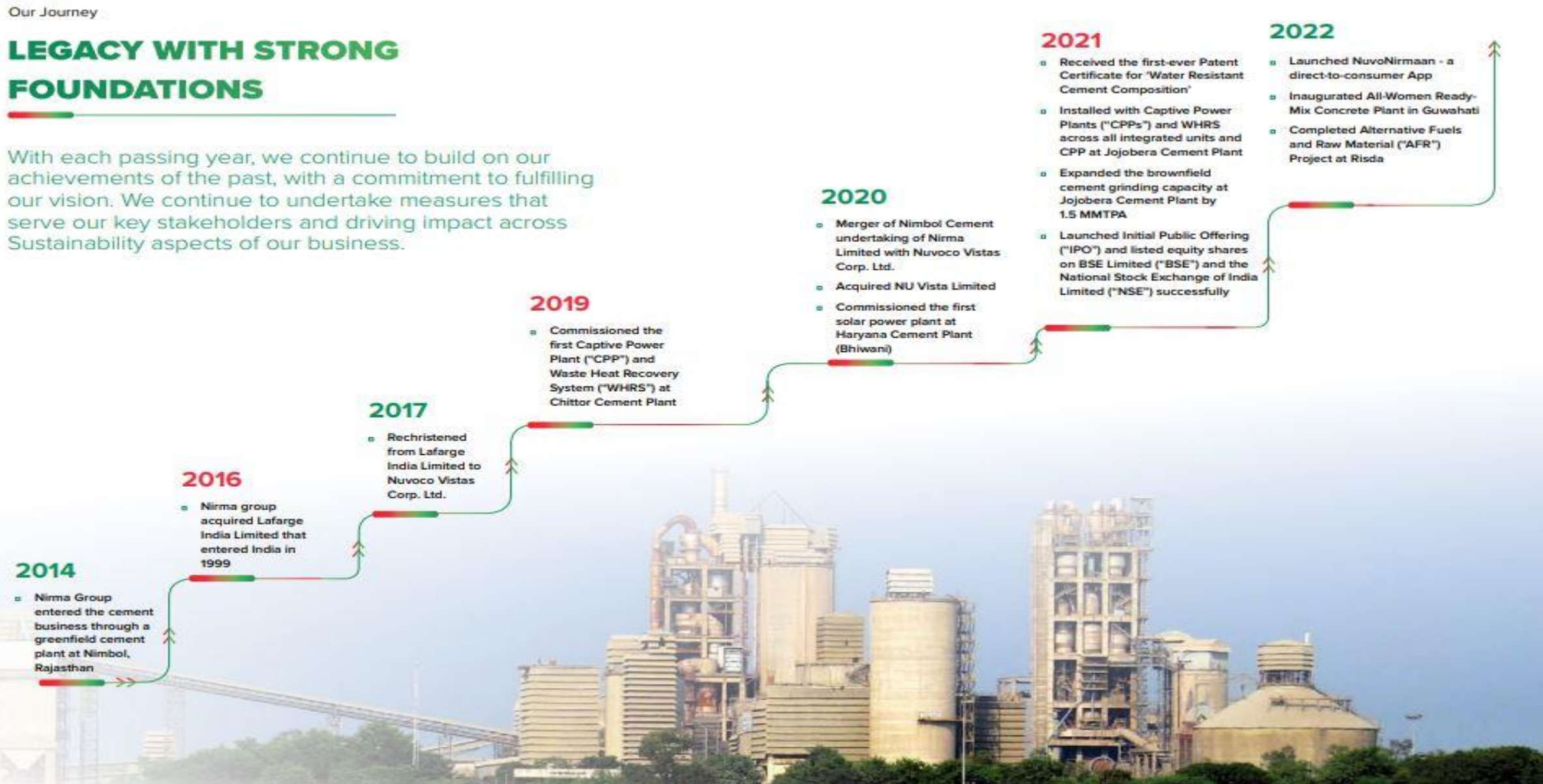
Nuvoco Company



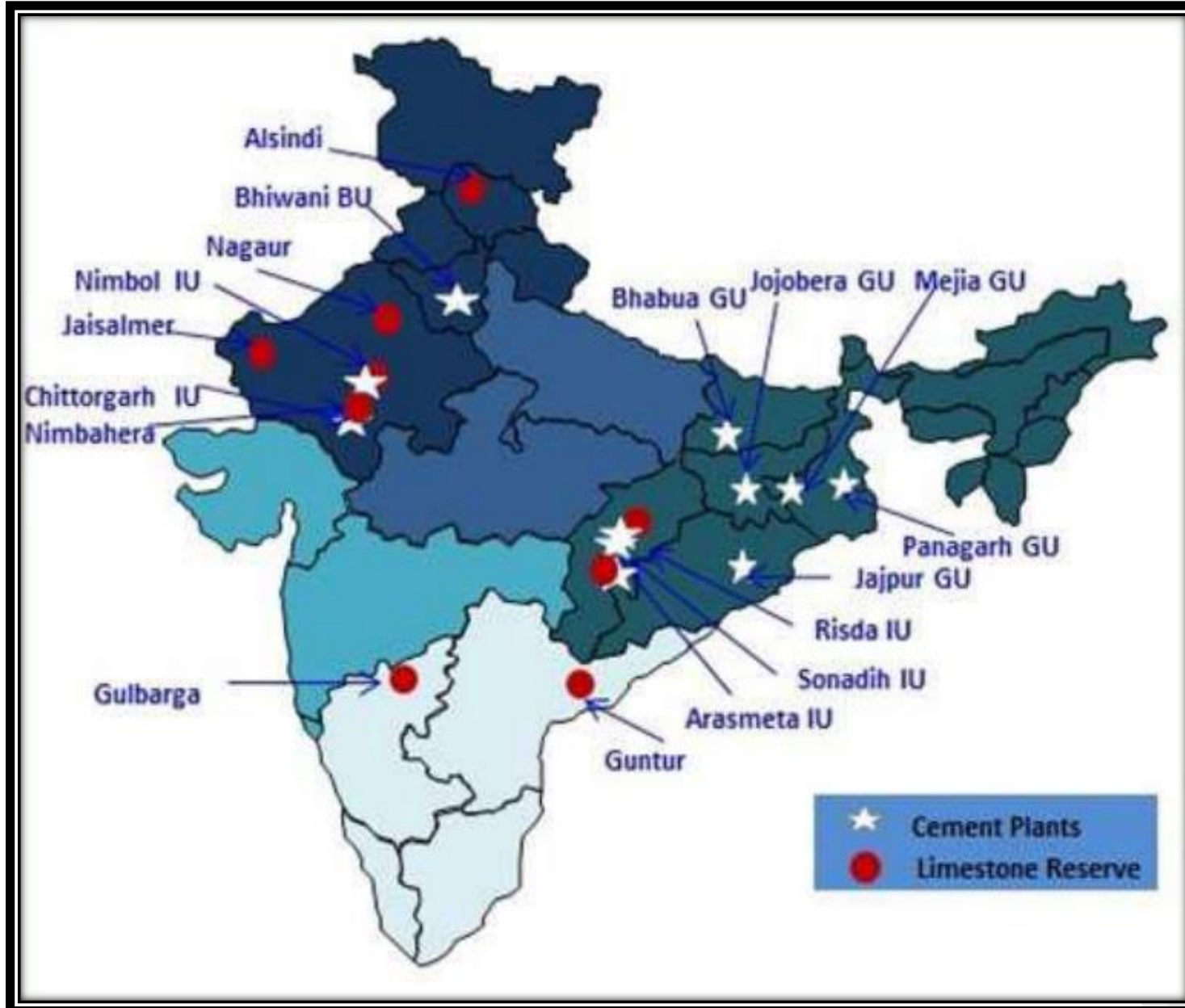
Our Journey

LEGACY WITH STRONG FOUNDATIONS

With each passing year, we continue to build on our achievements of the past, with a commitment to fulfilling our vision. We continue to undertake measures that serve our key stakeholders and driving impact across Sustainability aspects of our business.



Nuvoco- A Pan India View



□ Integrated Units:

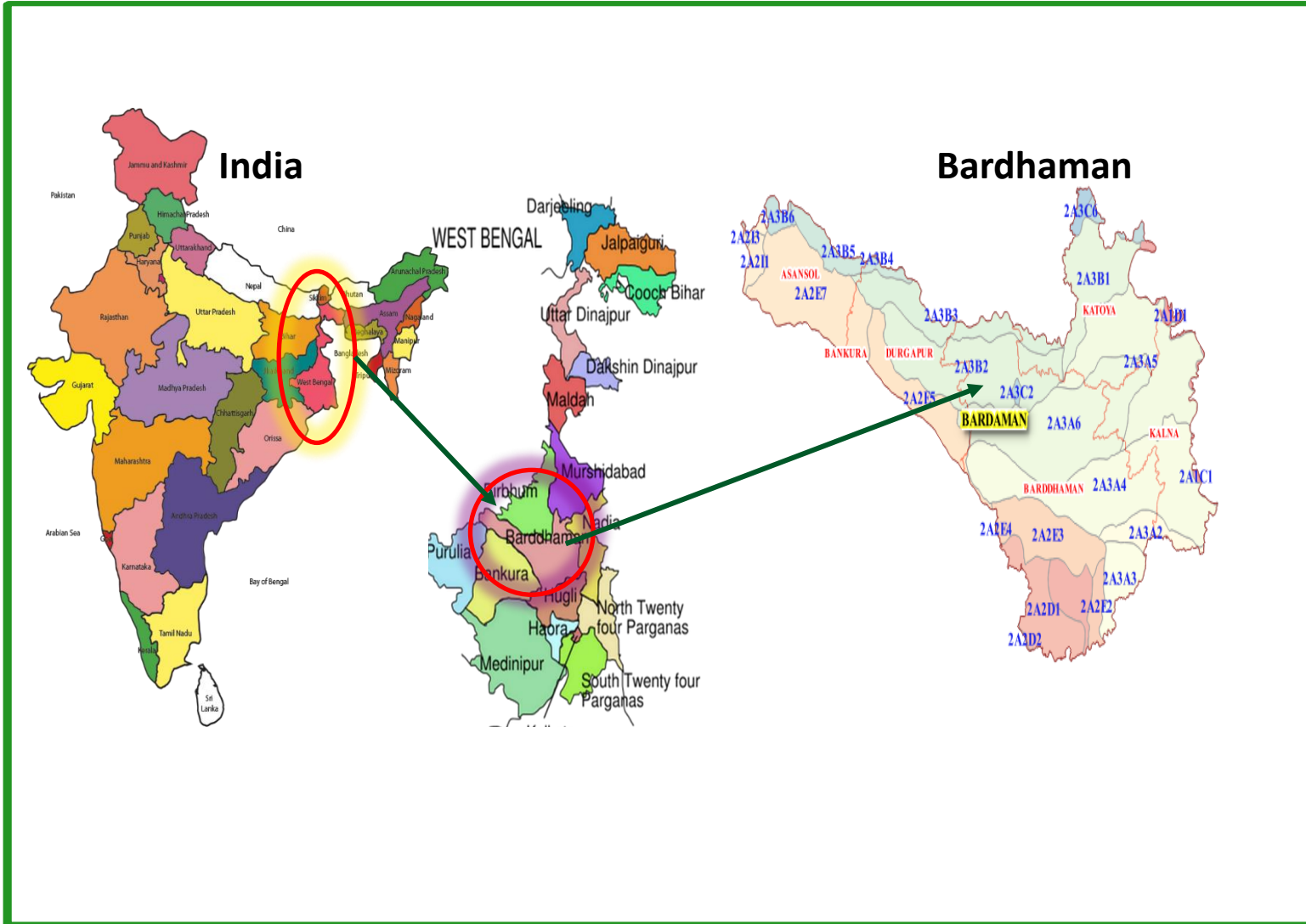
- Arasmeta Cement Plant
- Chittor Cement Plant
- Nimbol Cement Plant
- Risda Cement Plant
- Sonadi Cement Plant

□ Grinding Units:

- Bihar Cement Plant
- Haryana Cement Plant
- Jojobera Cement Plant
- Meija Cement Plant
- Panagarh Cement Plant
- Orissa Cement Plant

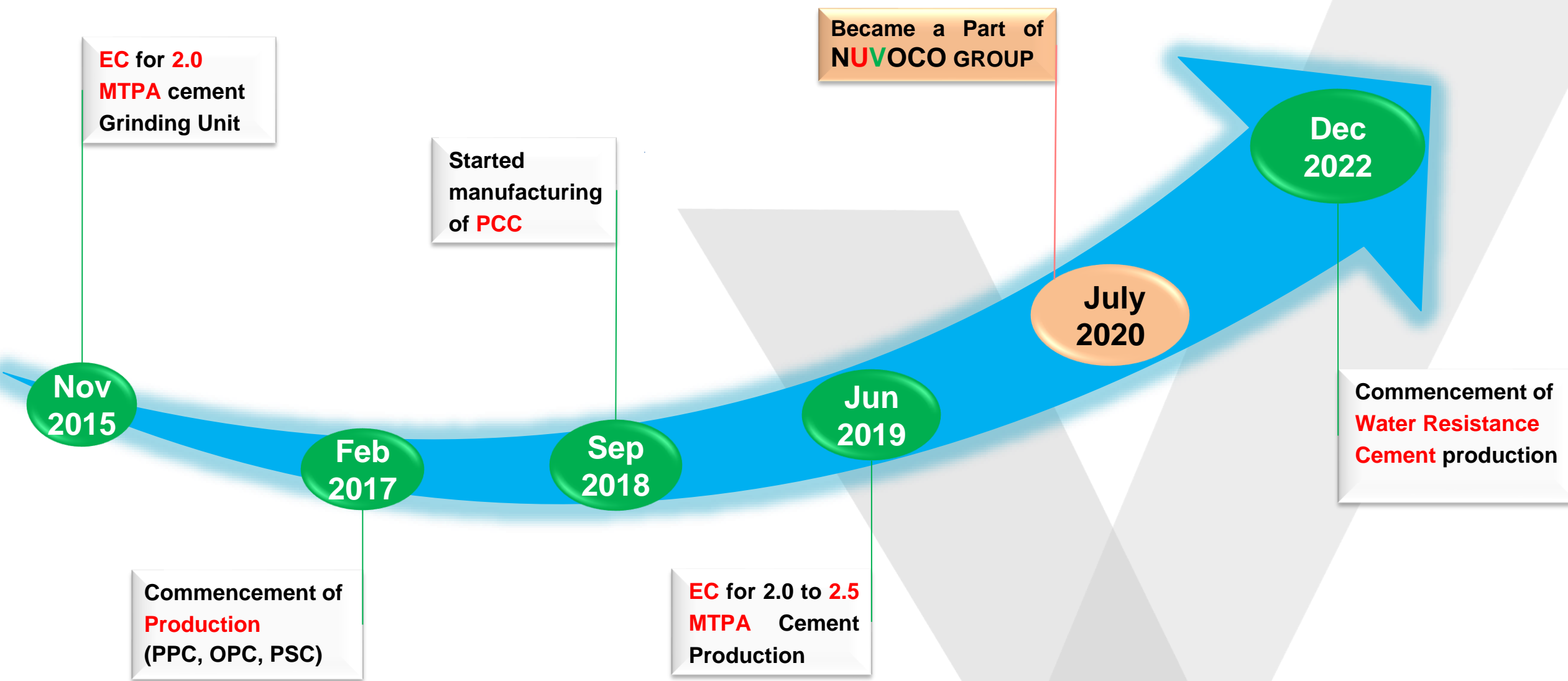
□ 54 RMX plants

Panagarh Cement Plant - Overview



- ❖ **NU VISTA LIMITED, Unit-Panagarh is the new state-of-the-art cement manufacturing plant**
- ❖ **The cement manufacturing plant at Panagarh is equipped with cutting edge technology have been established in collaboration with specialists FLS VENTOMATIC & GEBR Pfeiffer (Germany)**
- ❖ **Commercial Production started on 30th November, 2017**
- ❖ **We have been granted license to produce OPC43, PSC, PPC, PCC**
- ❖ **The basic Raw Material of Cement is Clinker, Gypsum, Slag, Flyash, etc.**

Plant Evolution



Company Philosophy



VISION | Building a SAFER, SMARTER and SUSTAINABLE WORLD.



MISSION | Leading Building Materials Company Delivering Superior Performance.

Core VALUES

INTEGRITY

Honesty.
Ethical code of conduct.
Honouring commitments.
Serving communities, partners and customers.



ENTREPRENEURSHIP

Generating out-of-the-box solutions. Being innovative.
Superior customer satisfaction and value creation.
Intelligent, inclusive and strategic.
Solving problems than simply completing tasks.



IECCO



OPERATIONAL EXCELLENCE

Leveraging knowledge and expertise.
Speedy actions: striving for continuous improvement
Best in quality: value for customers.
Enabling people around to deliver their best.



COLLABORATION

Dealing respectfully and fairly with others.
Building mutual trust, transparency and teamwork.
Free-flowing knowledge and information.
Partnership with internal and external stakeholders.



CARE

Being compassionate and empathising with others.
HSE and compliance.
Respect and support.
Giving importance to people over things.

Operating PHILOSOPHY



- Do it RIGHT the first time.
- FOCUS on SAFETY, QUALITY, COST, DELIVERY.
- Develop a culture based on TRUST, TRANSPARENCY, RESPECT, TEAM WORK and EXECUTION FOCUSED.
- EMPOWER people to take decisions at the lowest possible level.
- Build a culture of CONTINUOUS IMPROVEMENT and CUSTOMER SERVICE mindset.
- Be a Good CITIZEN.
- Meet our COMMITMENTS, deliver what we promise and have fun while meeting our goals.
- Develop NUVOCO to be recognised as the BEST BUILDING MATERIALS COMPANY IN INDIA.

Rules of the JOURNEY



01 We must all **PLAY TO WIN**.
We cannot play not to lose.

02 We are all in the same boat;
No STARS, NO SPECTATORS.

03 **FULL COMMITMENT** to achieve our ambition.
'CAN DO' attitude. **ZERO COMPLACENCY.**

Expected BEHAVIOURS



Externally Focused



Customer-Centricity



Win-Win Interactions



Action, not Debate



Walk the Talk

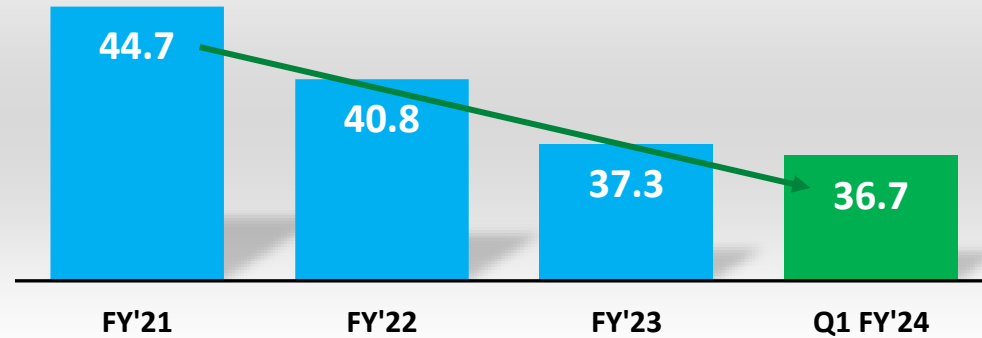
Major Equipments



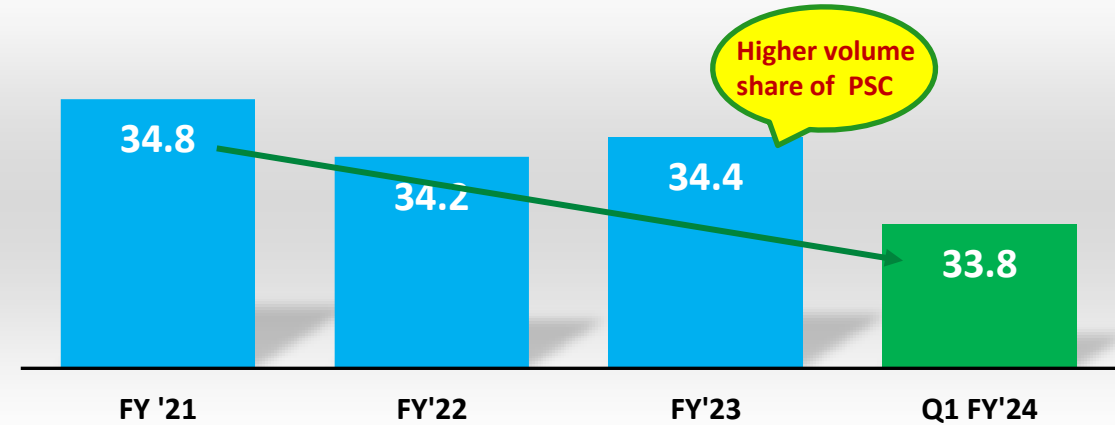
Equipment	Packer
Make	FLS
Rated Capacity	240
Operating Rate	180

Specific Energy Consumption

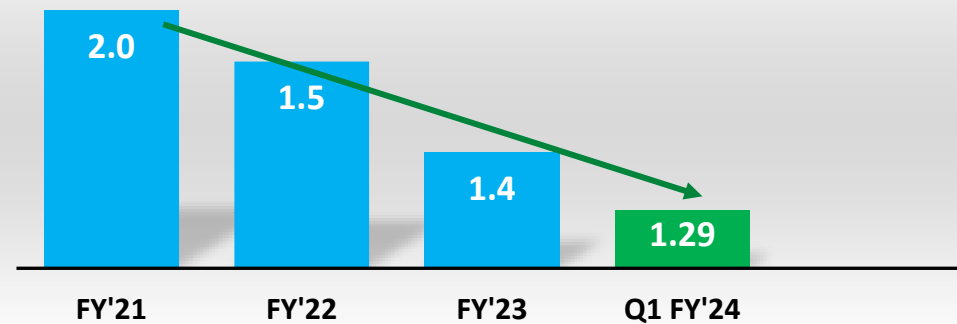
Heat Consumption (KCal/Kg Cement)



Sp. Power Grinding (Kwh/T)



Sp. Power Packing (Kwh/T)

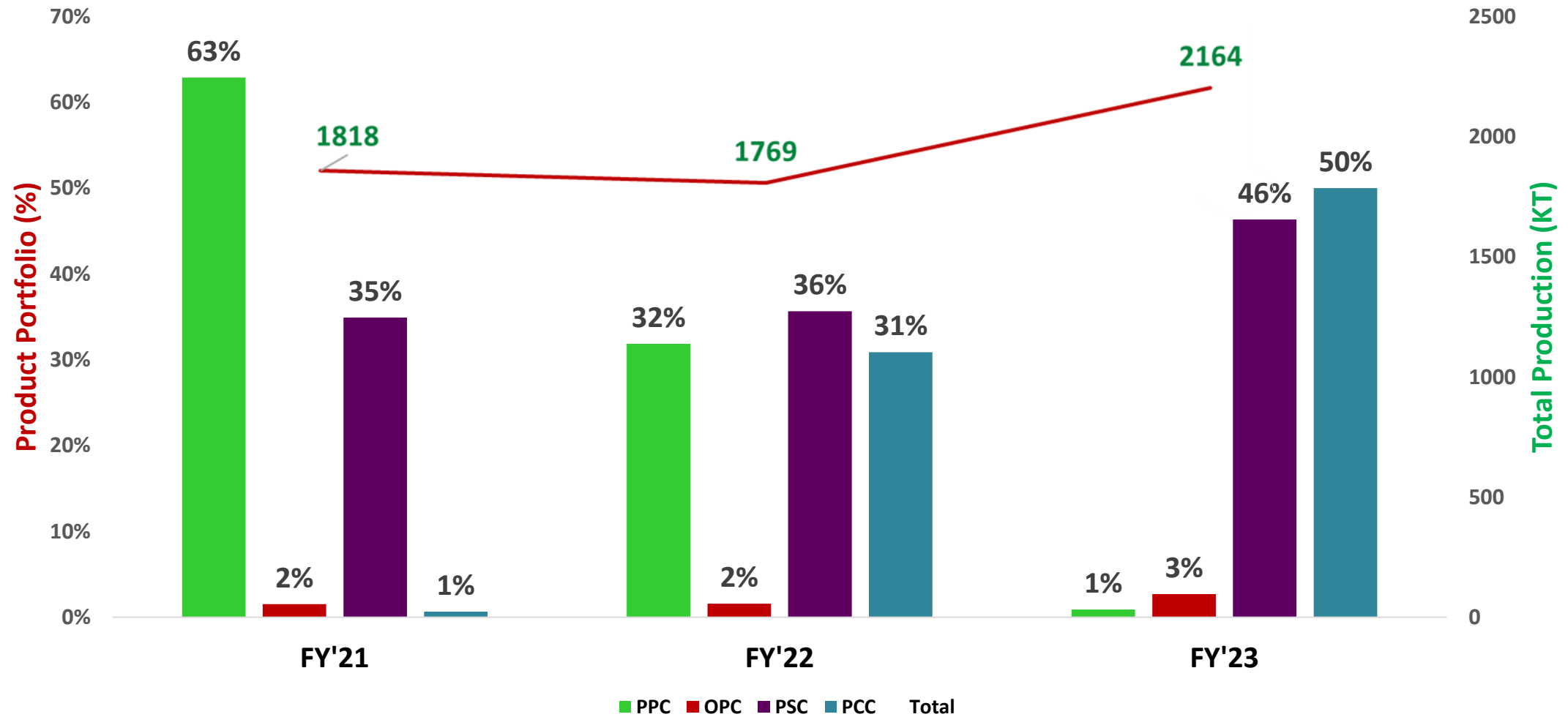


Key Actions taken in FY'23 to overcome challenges

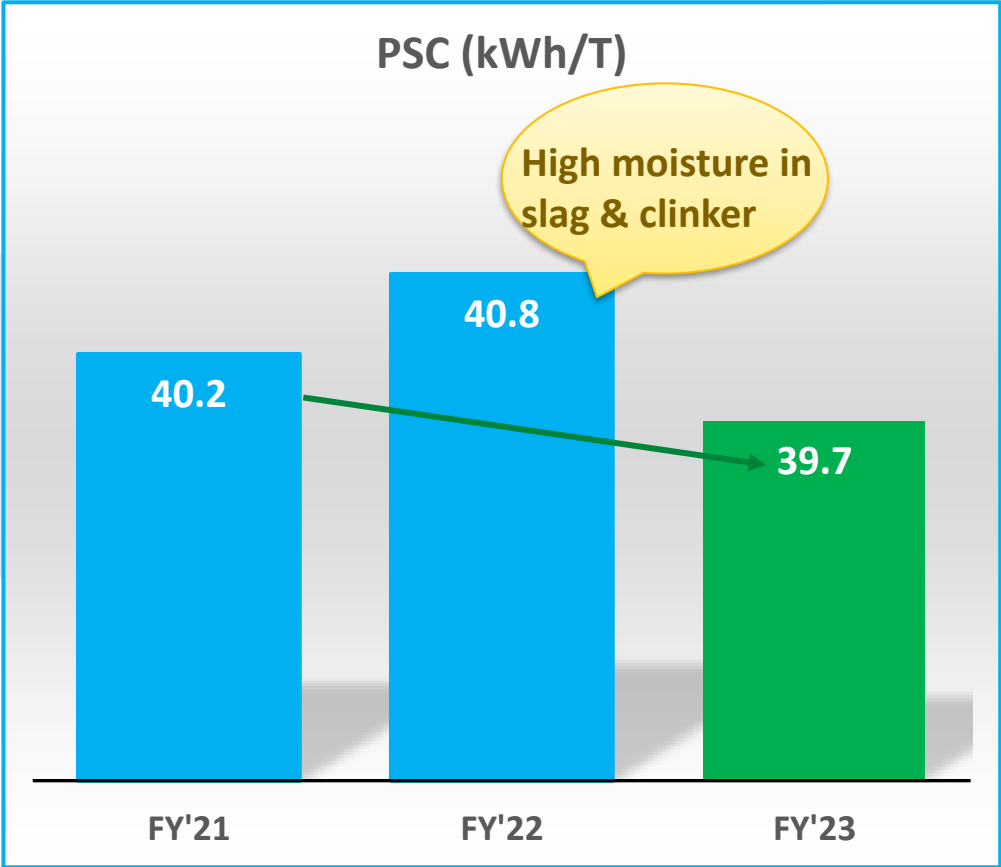
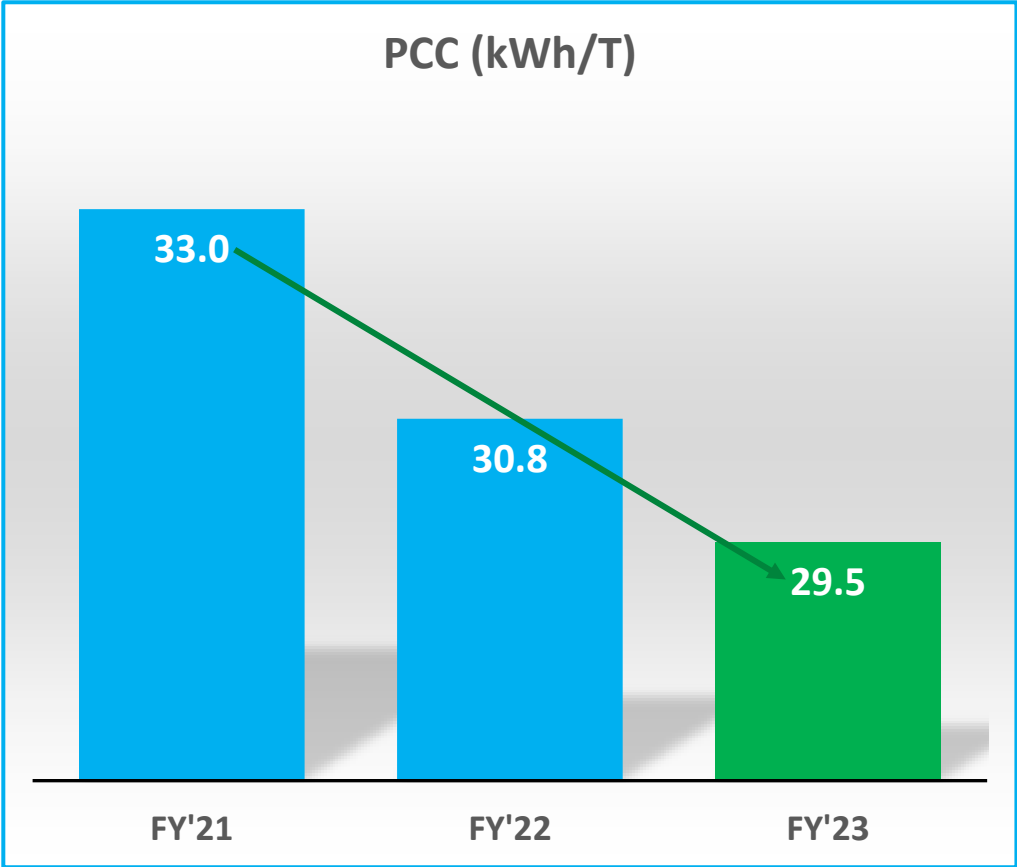
- ❖ Modification of air distribution and improvised Ash evacuation to improve burn-ability of coal in HAG.
- ❖ Optimized mill dam ring height to reduce product wise SPC.
- ❖ Optimisation in Process water consumption to reduce power consumption.
- ❖ Reduction of idle power, installation of VFDs and optimization of operation

Product Mix with year wise Production

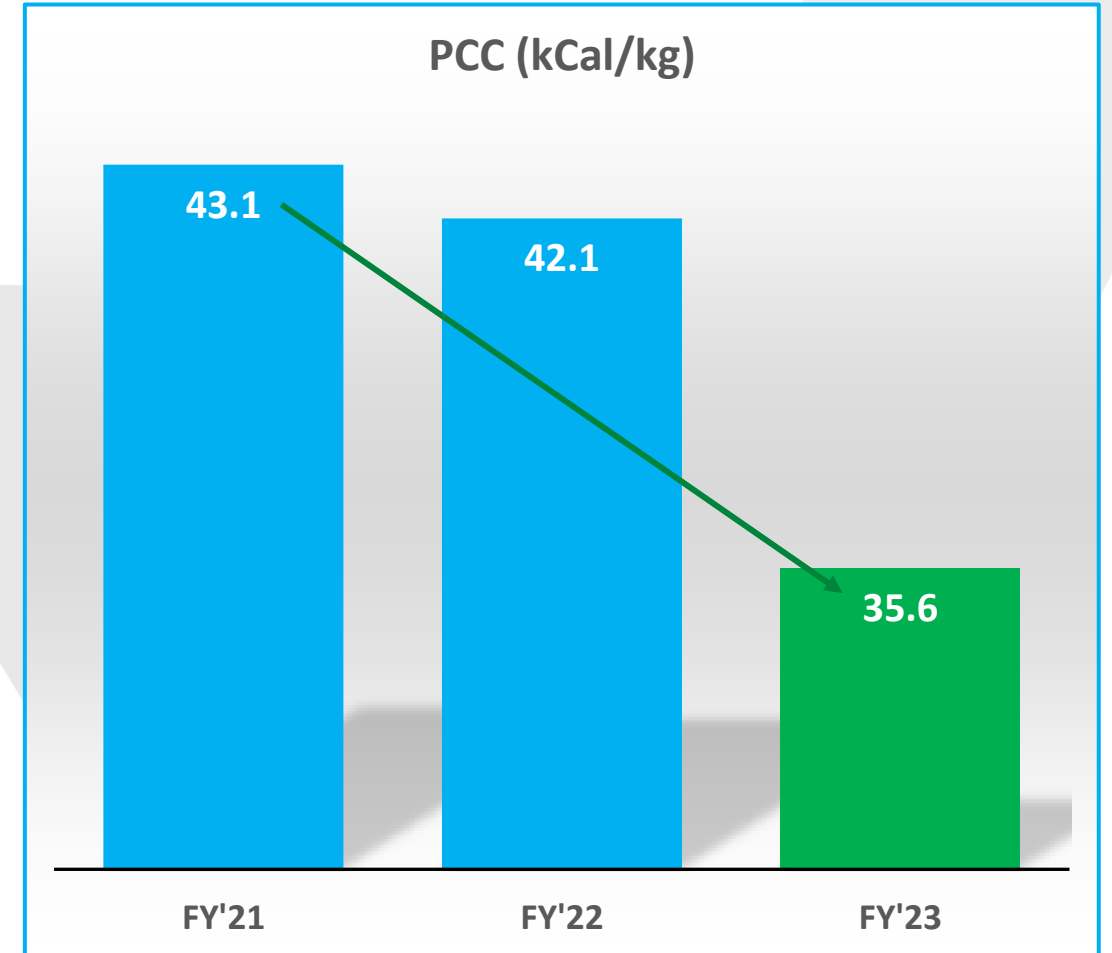
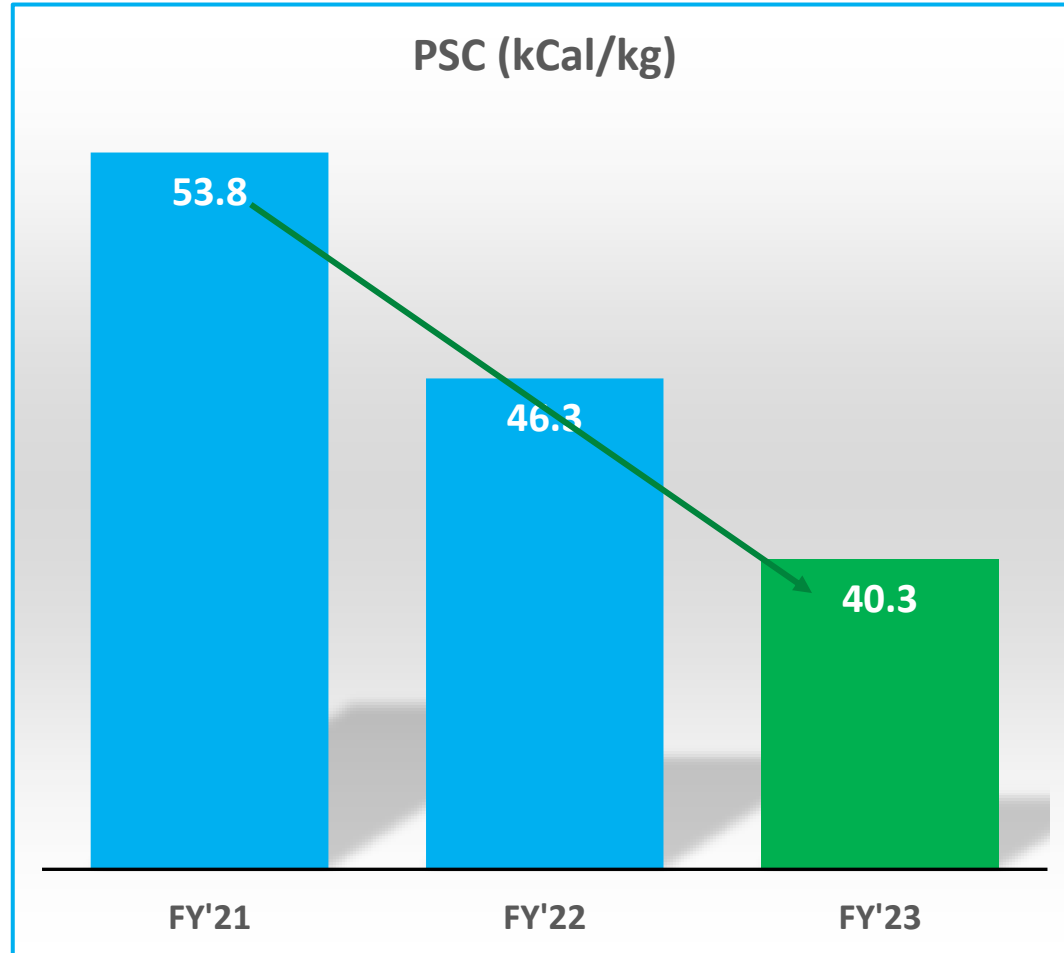
Product Portfolio & Year wise Production



Product wise Electrical Power Consumption

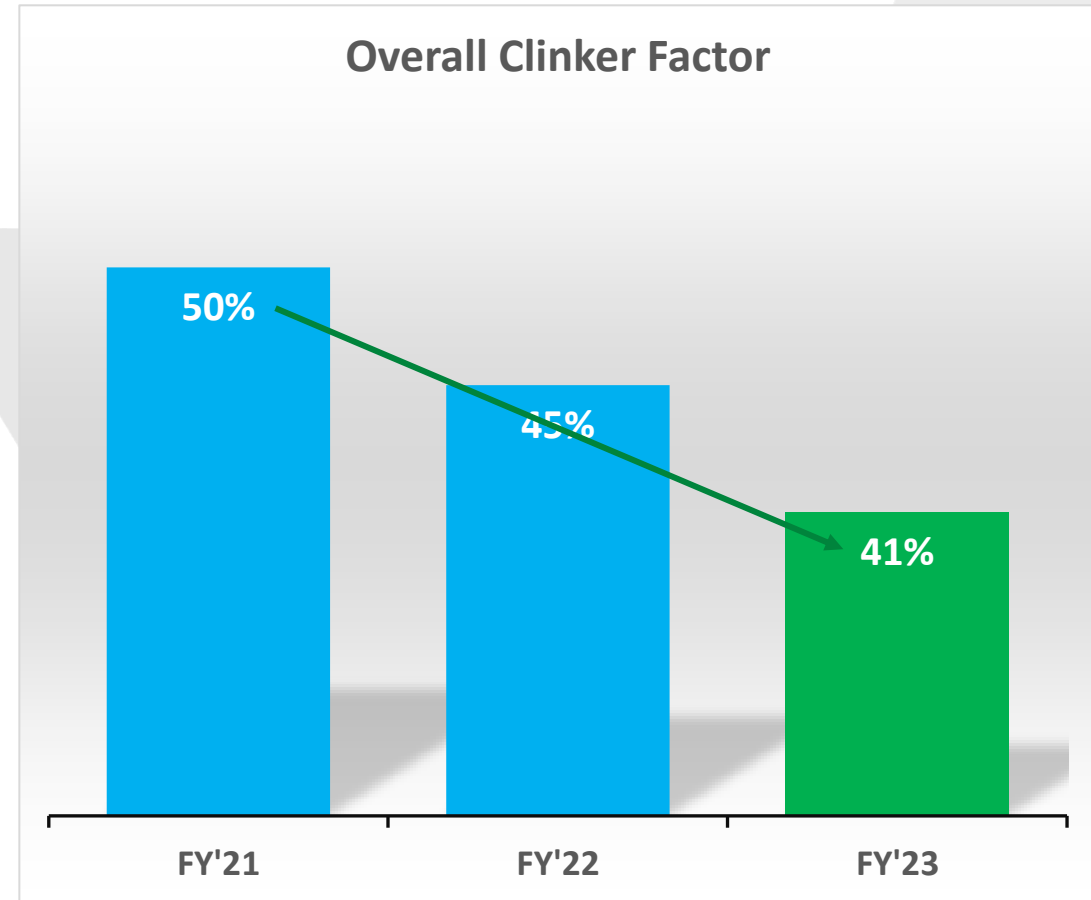


Product wise Thermal Power Consumption



Overall Clinker Factor improvement

Product	FY'21	FY'22	FY'23
PCC	45%	45%	44%
PPC	59%	58%	58%
PSC	31%	29%	28%



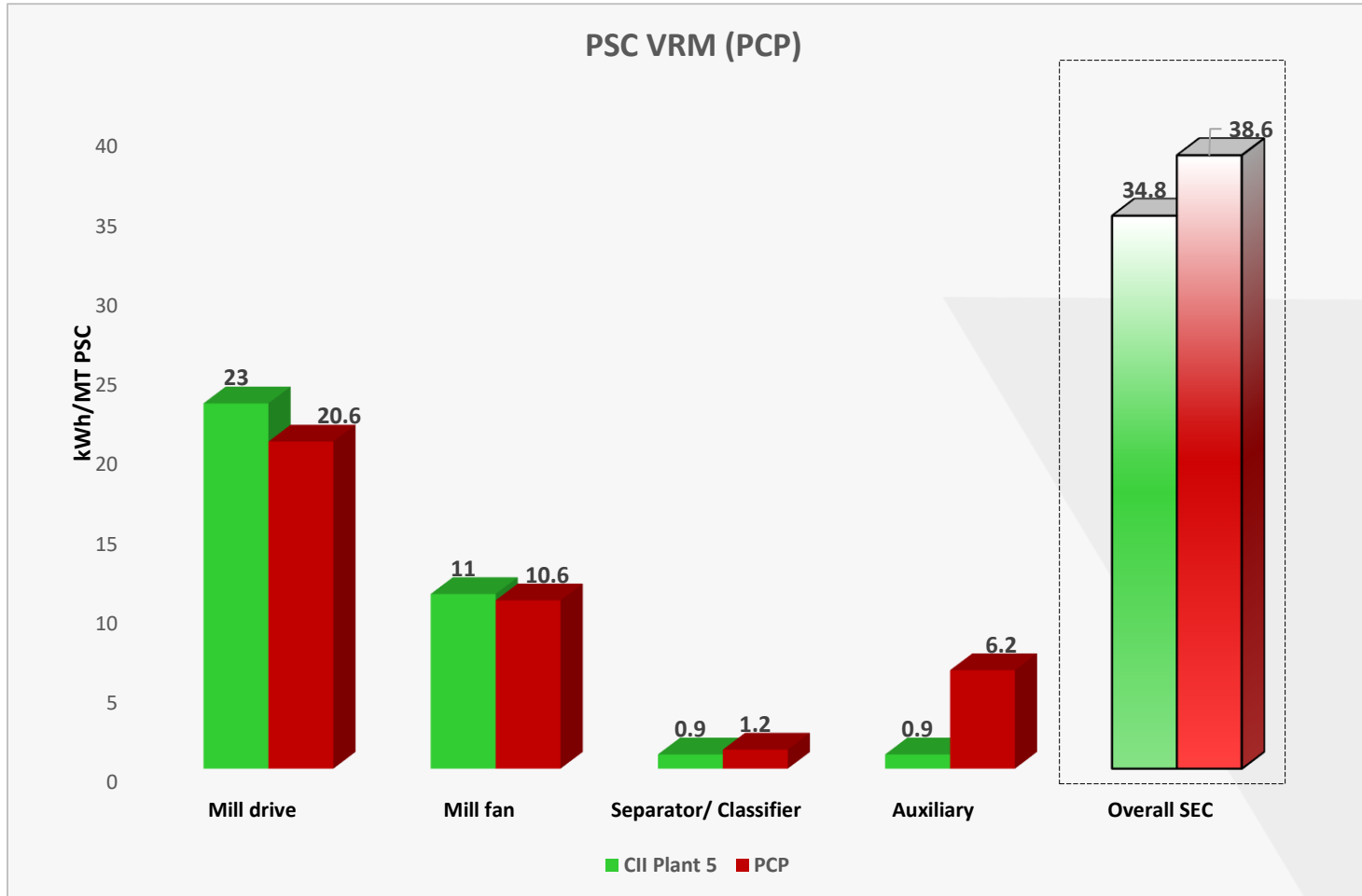
External Benchmarking of Power

Product	UoM	Plant1	Plant2	Plant3	Plant4	Plant5	Plant6	Plant7	Plant8	Plant9	PCP
PSC	kWh/MT		29.8	35.5							38.6
PCC	kWh/MT	28.5		29.4	29.5		25.1	39.3		29.6	29.5

We are exploring actions to reduce the SPC in PSC grinding

In Composite cement we are nearer to the Benchmarked SPC in the Industry. With optimisation of process parameters and bag house fan we will perform better.

PSC Bench Marking



	CII Plant 5	PCP 16.06.2023
Make	Pfeiffer	Pfeiffer
Model	MBR 6000 C6	MVR 6000 C6
Design TPH	250	250
Operating TPH	260	284
Blaine (m2/kg)	390	365
Clinker factor	30%	27%
Slag content	67%	68%
Table dia (mm)	6000	6000

Remarks –

➤ Auxiliary power consumption is much higher than CII benchmark plant resulting in higher overall SPC.

Energy Saving projects in 3 years

Year	No of Energy saving projects	Electrical savings (Million kWh)	Total Savings (INR Million)
FY'21	3	0.56	22.9
FY'22	3	0.17	0.9
FY'23	6	21.4	61.1

Energy Saving projects implemented in FY'21

Sl. No.	Name of Energy saving projects	Electrical savings (Million kWh)	Total Savings (INR Million)	Investment Made (Rs million)	Comments
1	Re-locating of 45 kwh compressor near to usage area	0.12	0.6	0	RMH area is about 1.6km away from Central Compressors house. To reduce line loss and better control of running hrs as per uses in RMH, the compressor relocated . It gave savings of 15kWh
2	Stoppage of 4 Nos of bag filters for slag feeding	0.21	10.4	0	Interlock from PLC given to stop bag filters in mill feeding circuit
3	Optimizing Silo cone venting fans as needed for 3 silos	0.24	11.9	0	Local control is provided at site to run as and when

Energy Saving Projects in FY'22

Sl. No.	Name of Energy saving projects	Electrical savings (Million kWh)	Total Savings (INR Million)	Investment Made (Rs million)	Pay Back (Months)
1	Installation of zero air loss based auto drains for compressed air receivers in place of timer based auto drains	0.04	0.22	0.32	17.8
2	Installed 94 nos LED lights of 40 W in place of 70 W MH	0.01	0.11	0.5	52.6
3	Reduction of LT voltage in distribution transformer	0.11	0.54	0	0

Energy Saving Projects in FY'23

Sl. No.	Name of Energy saving projects	Electrical savings (Million kWh)	Annual Electrical Cost Saving (Rs million)	Annual Thermal Cost Saving (Rs million)	Total Savings (INR Million)	Investment Made (Million Rs)	Pay Back (Months)	Comments
1	Burner improvement in horizontal HAG			15	15	1.0	1.25	We have improvised flame momentum by increasing burner air. Introduced additional ash chute to reduce ash accumulation in HAG. Provided two poking holes at 3 o Clock & 9 o Clock positions to dislodge ash. At present we are firing 70% indigenous coal saving Rs 1.5 Crores in FY23.
2	Elimination of dead stock of material from mill grinding bowl	21.16	10.5	0	10.5	0	0	It is observed the mill load has increased due grinding bowl was filled with fine material . The same is evacuated and table plates are strengthened by wear resistant plate. Bimonthly cross functional inspection and correction is put in place.
3	345 Nos of 70 W MH lights replaced with 40 W LED lights	0.04	0.19		0.193	0.621	38.61	
4	VVVF installation for packing bag filter	0.06	0.34		0.337	0.53	18.87	Venting volume reduced as suggested by CII Audit team
5	VVVF installation in recirculation water pump	0.05	0.26		0.261	0.53	24.37	Removed throttle valve in discharge line
6	VVVF installation in coal conveying blower to reduce conveying velocity and burner nozzle velocity	0.08	0.4	34.8	35.2	0.15	0.05	Burner pipe and HAG refractory failure was eliminated after reduction in velocity of coal nozzle .

Innovative projects

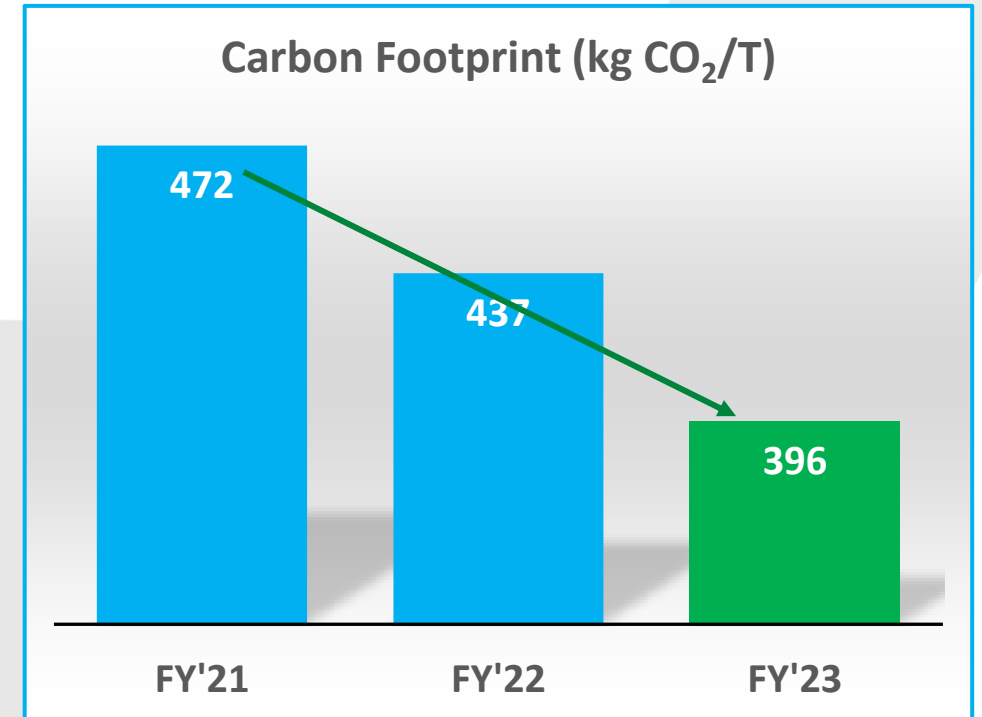
Name of the Project	Brief description on why innovative	Trigger for implementing the project	Select Project category (A/B/C/D)	Replicability	Impact on SEC	Year of Implementation	Annual Savings (Rs. In lakhs)	Investment (Rs. In lakhs)
Installation of high pressure blower	High pressure blower was installed to increase sufficient primary air and momentum .	With OEM design, burner was not getting sufficient air and fine coal is dropping in HAG and resulting in fusion of coal ash.	C	YES	NO	2023	50	12
Fixing of inhouse roller sealing arrangement	As per OEM design roller area sealing is supported from brush seal . Brush sealing is not adequate for false air ingress and material spillage.	7- 8 % of total false air is contributed from roller seal .	C	YES	YES	2023	44.77	2
BOXN Wagon tippler modification for unloading BOST & BOBYN Wagons	Due to shortage of BOXN wagons Railways asked to opt for BOST & BOBYN wagons' rakes else starve for raw materials	<p>Team has studied the dimensions and other design parameters of all three types of wagons BOXN,BOST and BOBYN wagons considering safety of the operation. With dismantlable attachments successfully unloaded the BOST & BOBYN rakes.</p> <p>With this flexibility, avoided stoppage of mill and produce about 18kt cement leading to contribution of Rs 1.25 crs</p>	C	YES	NO	2023	125	4

EMS Systems & Other Requirements

Existing energy monitoring system / IOT system	Yes
Level of monitoring	MCC wise energy meters are connected to DCS
Challenges and upgradation	We have up to date energy monitoring system in place.
Frequency of DEA and implementation status of recommendations of last energy audit	CII audit carried out and all feasible recommendations implemented
Learnings from CII energy award or any other award program	Various Energy Savings suggestions implemented
Any Life Cycle Assessment(LCA) conducted	GHG Inventarization & PAT Cycle 6 completed

GHG Inventorisation

Year	Scope 1 Emission	Scope 2 Emission	Scope 3 Emission	Total Emission
FY'21	16.00	27.59	428.24	472.34
FY'22	16.63	28.49	391.88	436.98
FY'23	14.97	28.61	352.66	396.26



GHG Emission Intensity (Kg CO₂ / Ton of Product) of peers/competitors (Scope 1+2)

Plant 1 - 69

Plant 2 - 39.8

Nuvoco PCP – **43.6**

Roadmap for GHG reduction

- ❖ **5% reduction of Heat consumption by FY'24 over last year**
- ❖ **5% reduction of Power consumption Optimization in FY'24 over last year**
- ❖ **Consistent efforts are put to reduce clinker factor of cement by 1% over last year**
- ❖ **Exploring feasibility of replacing HAG fuel coal by CBM by Dec'23**
- ❖ **Implemented 15 nos of Aluminum body cement trucks of 280 dedicated trucks on trial basis**
- ❖ **Increased dispatch by rail from 40% to 65% in FY'24**
- ❖ **Increase Solar Energy from 0.035MW to 5.035MW (5 MW Off-site installation)**
- ❖ **Study and optimize vehicular movement in side plant for diesel consumption reduction**
- ❖ **Migrate to EVs for company passenger vehicles fleet FY'25**
- ❖ **Review car loan policy for employees : Electric Vehicles only**
- ❖ **10,000 Tree plantation in FY'24**

Digitally Enabled Nuvoco



- ❖ Mill Planetary gearbox online condition monitoring with OEM Flender Germany
- ❖ “Site Connect App” for Plant Engineers for real time update on critical parameters
- ❖ Spectrum analysis of critical equipments’ Health in DCS for quick decisions
- ❖ QR code based equipment history cards accessible with mobile
- ❖ Autonomous Maintenance/ walk by inspection observations logging through mobile in One drive
- ❖ Nuvo Nirman interactive App for customer for “ Building Needs”
- ❖ Auto Plant- Cement Truck management by RFID based paperless transaction
- ❖ GPS based truck management for reduction of TAT till customer end
- ❖ Vendor & Dealer portal/ App for transparency and better service
- ❖ Digital Nuvoco University for nurturing Talent

Utilisation of Renewable Energy sources

Technology	Year	Installed capacity (in MW)	Consumption (in Million kWh)	% Utilization
SOLAR	2020-21	0.03591	0.0578	100
SOLAR	2021-22	0.03591	0.0473	100
SOLAR	2022-23	0.03591	0.0429	100



Road map :

1. Additional 5 MW Solar plant will be installed in FY'24
2. Location of Solar project has been finalized and vendor visited the designated place.
3. Detailed project report preparation is under process.



Success Story – Innovation : BOST Wagon Unloading

❑ **Background:**

- Clinker/ Slag transportation was limited due to unavailability of BOXNHL and BOXN Rake

❑ **Challenges Faced:**

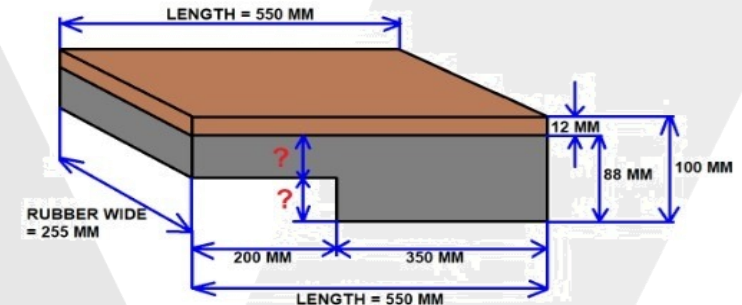
- Plant Stoppages due to unavailability of Clinker/Slag (FY'23- 293 hours)
- BOST Wagon dimensions is not suitable for PCP Wagon Tippler (Make- ThyssenKrupp). For holding the Wagon by top clamp, Wagon height should be 3160 mm (Min) but BOST Wagon height is 3080 mm.

❑ **Modification done :**

- Top clamp PAWS (6 nos) modified with addition of Extra Fixture (Inter- Changeable, size :- 550mm x 100mm) as per BOST Wagon.
- Positions of Side Arm Charger changed as per BOST Wagon length -
 - A) Waiting position
 - B) Manual decoupling position
 - C) Wagon center position
 - D) side arm charger forward end
 - E) Arm rail position
- Positions of Puller cum pusher changed for Forward end and Reverse end position.
- Safety switches relocated as per BOST wagon length and height

❑ **Benefits:**

- Total Savings through Unloading of BOST Wagon (One Rake) is Rs **15.6** lac



Success Story: Horizontal HAG Optimization

❑ **Background:**

- Replacement of Imported coal with Indigenous coal to reduce the fuel cost

❑ **Challenges Faced:**

- Improper burning of coal due to insufficient flame momentum.
- Blockage of HAG outlet with ash at HAG outlet
- Fusion of ash in HAG

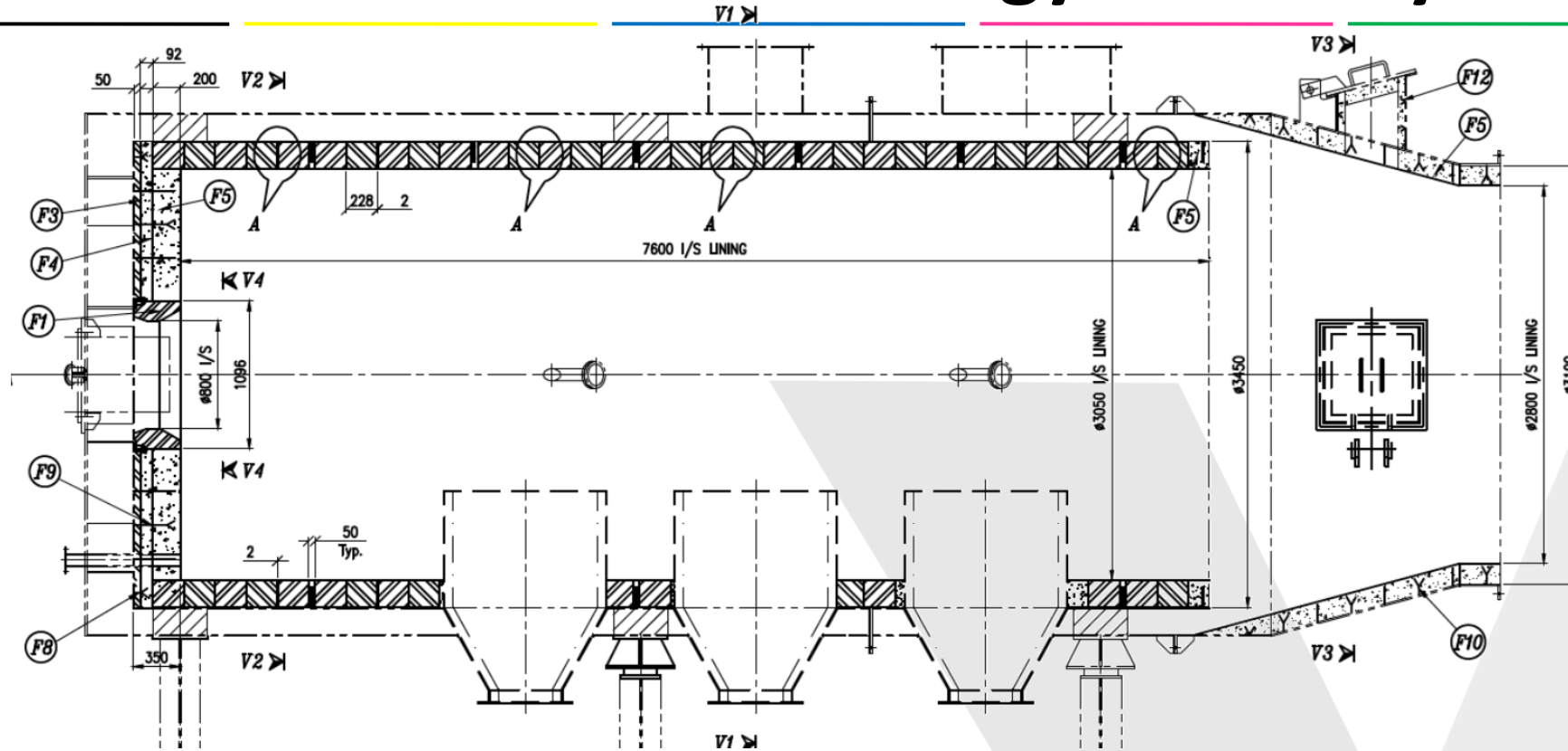
❑ **Modification done :**

- Primary Air quantity increased in main burner by 2% with modification in combustion air line (*CA fan duct area partially blocked - a dedicated high pressure blower installed in July'23 shutdown, this helped to strengthen flame and increase indigenous coal consumption*)
- Additional Ash discharge Flap installed at low pressure zone to evacuate ash accumulation
- Poking Holes made at both side of HAG at 3 O'clock & 9 O'clock positions to dislodge ash

❑ **Benefits:**

- Increased indigenous coal usage from 3% to 49% in FY'23 (At present operating at 70%)
- Approx. **INR 1.37/-** Cr saving in FY'23 @ **INR 6.35/T** of Cement

HAG Modifications for Energy Efficiency



SI No.	Modification	Reason	Year
1	HAG burning zone bricks changed with ISO alumina bricks 60% in place of ISO alumina 40%	To enhance refractory life	2019
3	FO was replaced with diesel for pilot ignition	Recommended by OEM in 2018 for hag jamming problem	2019
4	Mix use of imported & indian coal starts @ 1: 1 ratio	To reduce fuel cost	2022
5	VVFD installed in coal firing PD blower	To optimise coal conveying velocity	2022
6	Installation of separate PD blower for HAG burner	Air shortage in burner was identified	2023

HAG Condition improvement



- ❖ Developed Rain water harvesting facility with potential of 3000 m³ inside Plant to collect roof top water
- ❖ Water from rain water harvesting pond used for Process & fire fighting purpose

- ❖ Domestic waste water from Truck parking yard treated at Sewage Treatment Plant
- ❖ Treated water from STP used for Greenbelt & Horticulture purpose

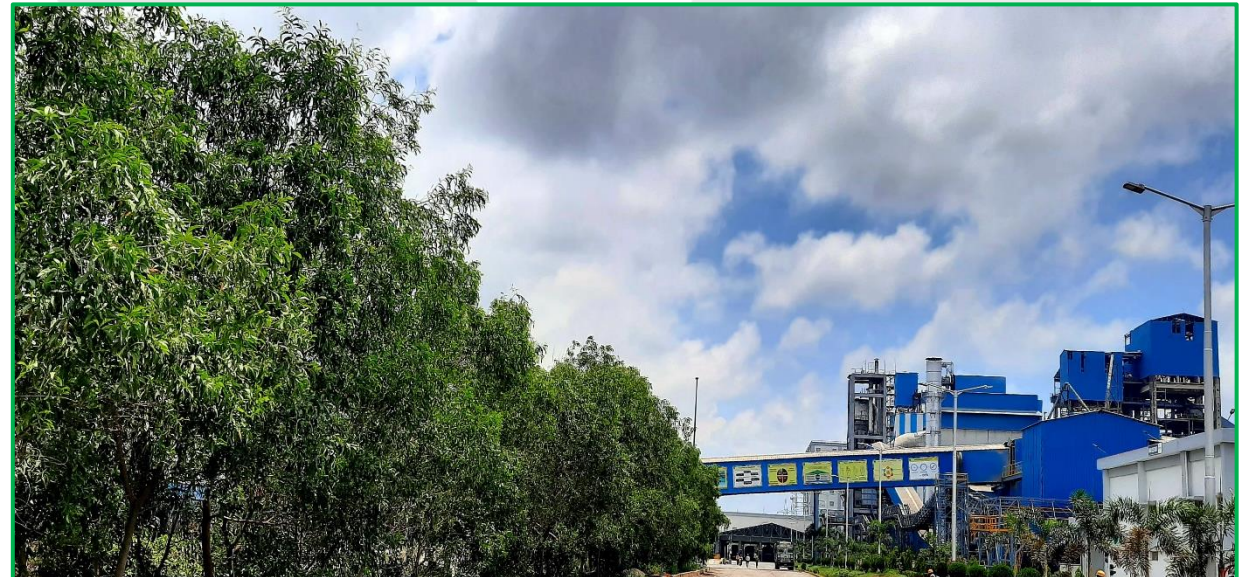
Rainwater Harvesting System	Capacity (KL)
RWH Pond	3,150

Domestic Waste water Treatment	Capacity (KLD)
Sewage Treatment Plant	25





Greenbelt at Plant Area





Bio Diversity at Plant





Awareness & Brainstorming



Certification & Accreditations



CERTIFICATE

Management system as per
ISO 9001 : 2015

The Certification Body TÜV NORD CERT GmbH hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

NU VISTA LIMITED
Plot No.B5 A, B6 & B8, Panagarh Industrial Park of WBIDC,
Block - Aushgram : II, Village Kota, Dist. Purba Bardhaman,
Panagarh - 713 148, West Bengal,
India



operates a management system in accordance with the requirements of ISO 9001:2015 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope -

Manufacture and Dispatch of Cement.

Certificate Registration No.44 100 18391974
Audit Report No.2.5-8647/2018

Valid from 05.01.2022
Valid until 13.10.2024
Initial certification 14.10.2018



Certification Body
at TÜV NORD CERT GmbH

Mumbai, 05.01.2022

TÜV NORD CERT GmbH Langemarckstrasse 20 45141 Essen www.tuev-nord-cert.com

TUV India Pvt. Ltd., 801, Raheja Plaza – 1, L.B.S. Marg, Ghatkopar (W), Mumbai - 400 086, India www.tuv-nord.com/in



CERTIFICATE

Management system as per
ISO 14001 : 2015

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India



operates a management system in accordance with the requirements of ISO 45001:2018 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope -

Manufacture and Dispatch of Cement.

Certificate Registration No. 44 126 22393440
Audit Report No. 2.5-8647/2018

Valid from 05.01.2022
Valid until 13.10.2024
Initial certification 2022



Certification Body
at TÜV NORD CERT GmbH

Mumbai, 05.01.2022

TÜV NORD CERT GmbH Langemarckstrasse 20 45141 Essen www.tuev-nord-cert.com

TUV India Pvt. Ltd., 801, Raheja Plaza – 1, L.B.S. Marg, Ghatkopar (W), Mumbai - 400 086, India www.tuv-nord.com/in



Certificate of Appreciation

*WBSEDCL conveys its appreciation to M/s. N. U. Vista Limited
for its premier achievement in fulfilling desired standards and designates it as
Bulk Consumer in Centralized (132 kV) category in Financial Year 2021-2022.
We look forward to your continued association in the future.*


Director (Distribution)


Chairman & Managing Director



WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED
(A Govt. of West Bengal Enterprise)

CIN : U40109WB2007SGC113473, www.wbsedcl.in

Awards



- ❖ Manufacturing Water repellent cement with internal modifications
- ❖ Innovative solutions for Horizontal HAG improvement
- ❖ Reduction of water consumption
- ❖ Highest MTBF of Cement Mill

Awards



**Most Preferred Workplace in
Manufacturing Industry
FY 2022-23**



**Best All Round Performing
Grinding Unit of Nuvoco**



**Best Brand in Construction and
Building Materials at the 'Pride
of India Brands' conference by
Exchange4media, for setting
new standards of innovation and
excellence in products, processes,
and marketing practices.**

THANK YOU

