CII 22nd National Award for Excellence in Energy Management

24-27 August 2021

MP BIRLA GROUP

BIRLA CORPORATION LIMITED

RCCPL Pvt. Ltd.

Kundanganj Unit

(An Entity of MP Birla Group)

Presented by

Mr. P K Choudhary Mr. Jayant Kandpal

Mr. Amit Dixit Mr. Alok Verma

RCCPL Pvt. Ltd. - Kundanganj Unit

Slide Content

Brief Introduction of Company

Birla Corporation Limited is the flagship Company of the M.P. Birla Group. Incorporated as Birla Jute Manufacturing Company Limited in 1919.

The Cement Division of Birla Corporation Limited has 10 plants at seven locations, Satna & Maihar (Madhya Pradesh), Rae Bareli & Kundanganj (Uttar Pradesh), Chanderia (Rajasthan), Butibori (Maharashtra) and Durgapur (West Bengal).

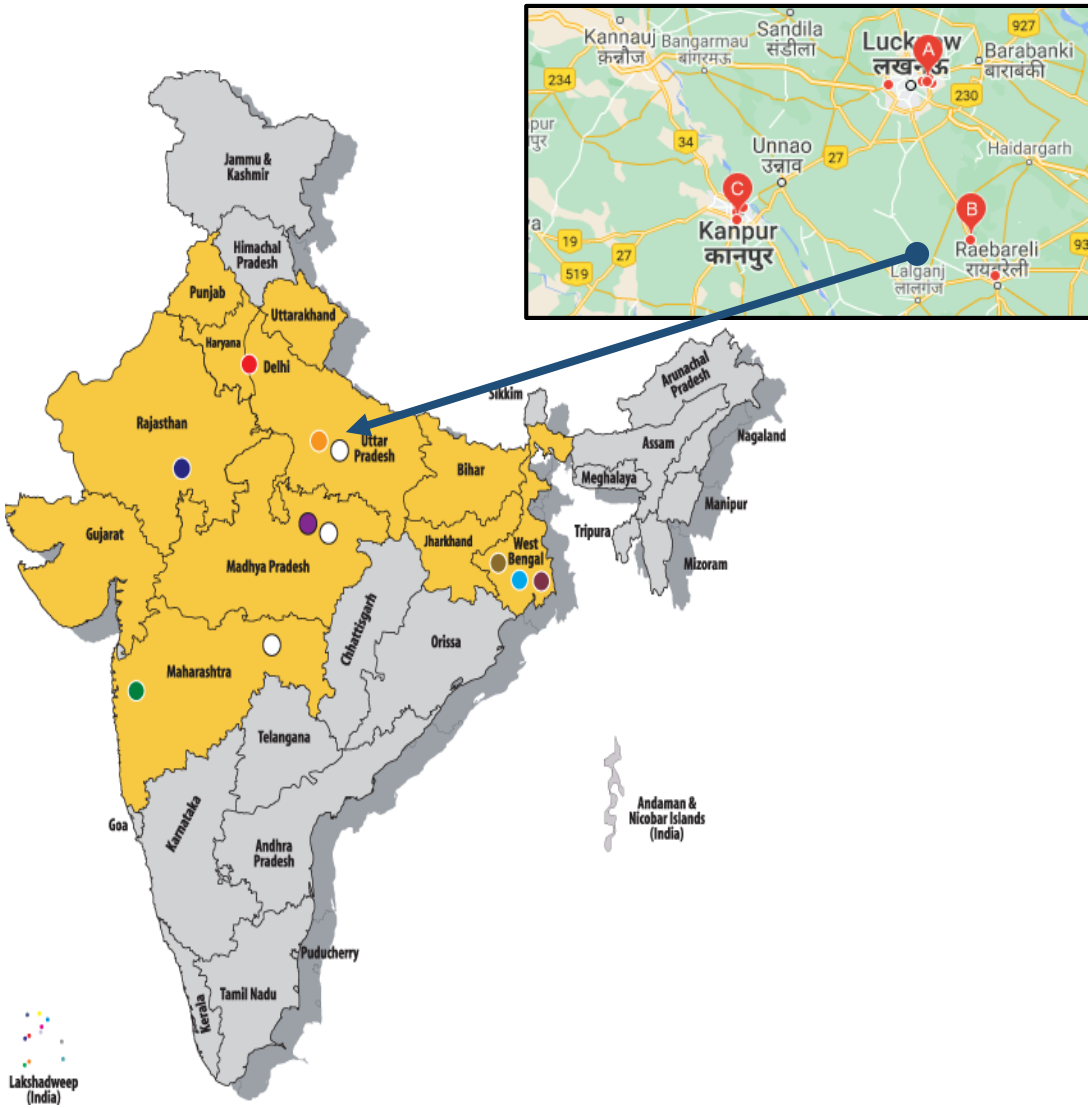
About the Unit

Kundanganj unit was established in 2014. Plant site is located about 54 Km from Lucknow on Lucknow- Prayagraj highway (SH-13).

Lucknow- Prayagraj railway line runs parallel and plant is located near Kundanganj railway station. Lucknow railway station is at a distance of 56 Km & Rae Bareli station is at distance of 29 km.

Plant is 55 km away from Chaudhary Charan Singh International Airport Lucknow.

Installed capacity of Kundanganj Unit in cement grinding is 2.4 MTPA.



- Certified with ISO: 9001:2015 , ISO 14001:2015 and OSHAS-45001:2018.
- International safety Awards by British Safety Council, U.K .
- Best CSR Impact Award by UBS Forum.
- National Safety Award in 2016 and 2019 by Ministry of Labor & Employment, Government of India (GOI), Environment Excellent Award-2019 from APEX foundation India
- Appreciation Letters received from District Administration for CSR works under health and infrastructure development

Technology/Specification of major sections

Equipment Details

- **Cement Mill**: Loesche Mill 46.2+2 CS ,2 Nos. of 160 TPH .
- **Packer:** FLS Ventomatic Roto-Packer 16 spout,3 Nos. of 240 TPH.
- **Wagon Tippler**: Matso- 1 Nos. with capacity 25 Wagons per hour
- **Wagon Loading System:** FLS- 12 wagon loading machine with capacity 120 TPH each
- **Cement Storage Silos** : 3 Nos. silo with capacity- 24000 MT(PPC), 1 Nos. Steel silo with capacity-1000 MT(OPC)
- **Clinker Storage Silo:** 30000 MT.
- **Gypsum Storage Yards:**10000 MT
- **Fly ash Storage Silo** : 6000 MT

Wagon Tippler

Clinker Silo

Gypsum Yard

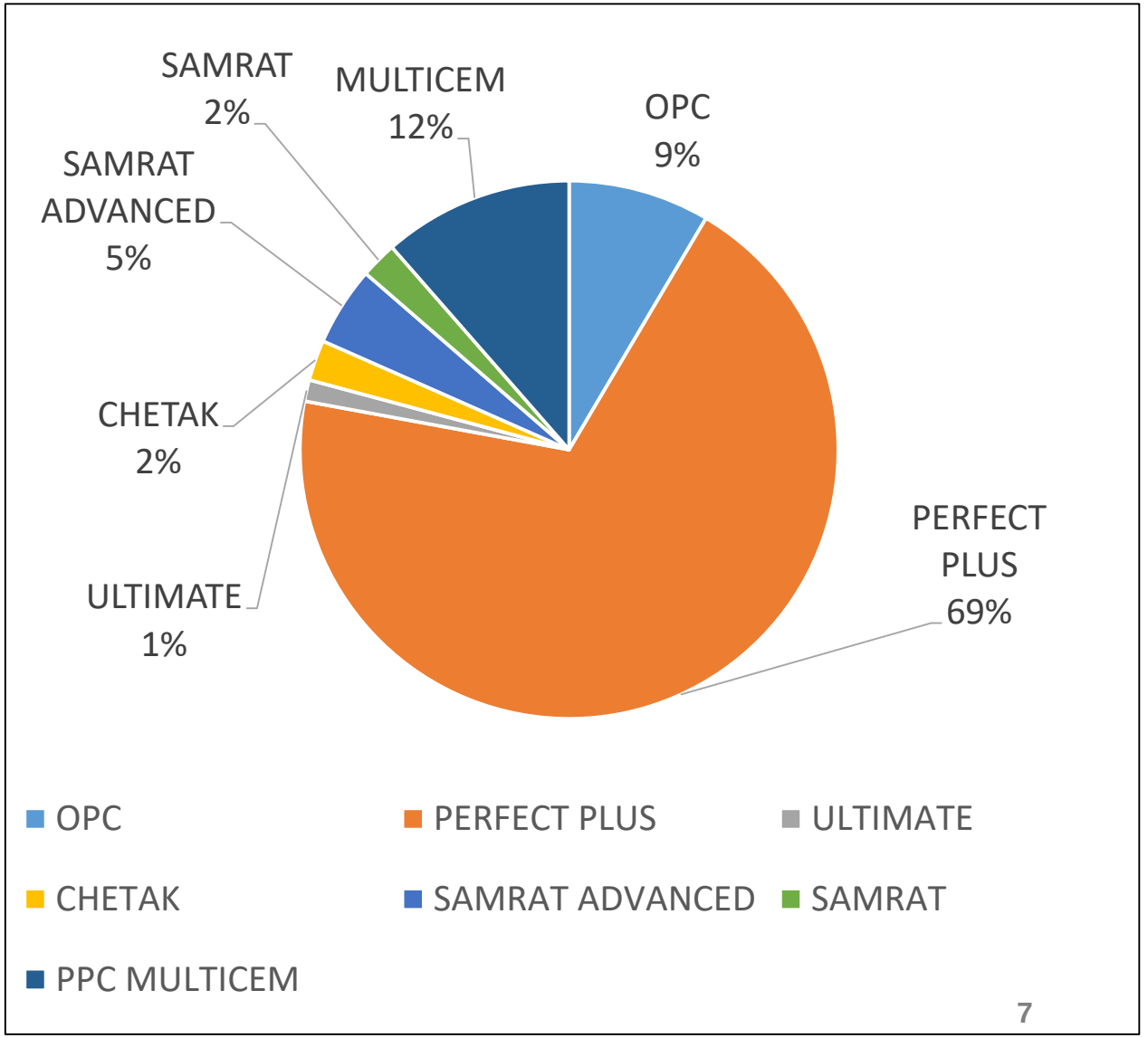
Flyash Silo

Cement Mill

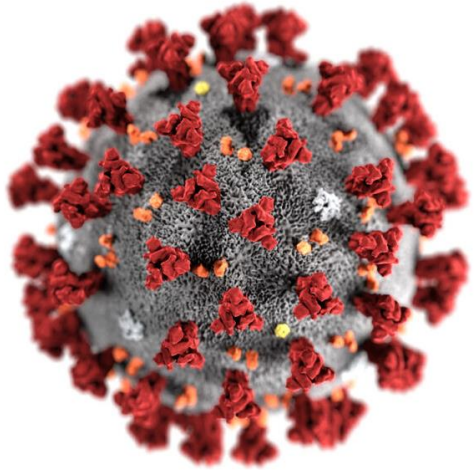
Packing Plant

Process/Products

- Type of Cement - PPC (91% of Total Production)
  - OPC (53 Grade)



Impact of COVID 19



- Impact on annual production performance: **5 % less production target due to Covid-19.**
- Impact on Specific energy consumption (SEC): In-spite of **less production, reduction in specific energy consumption by 7.5 %.**

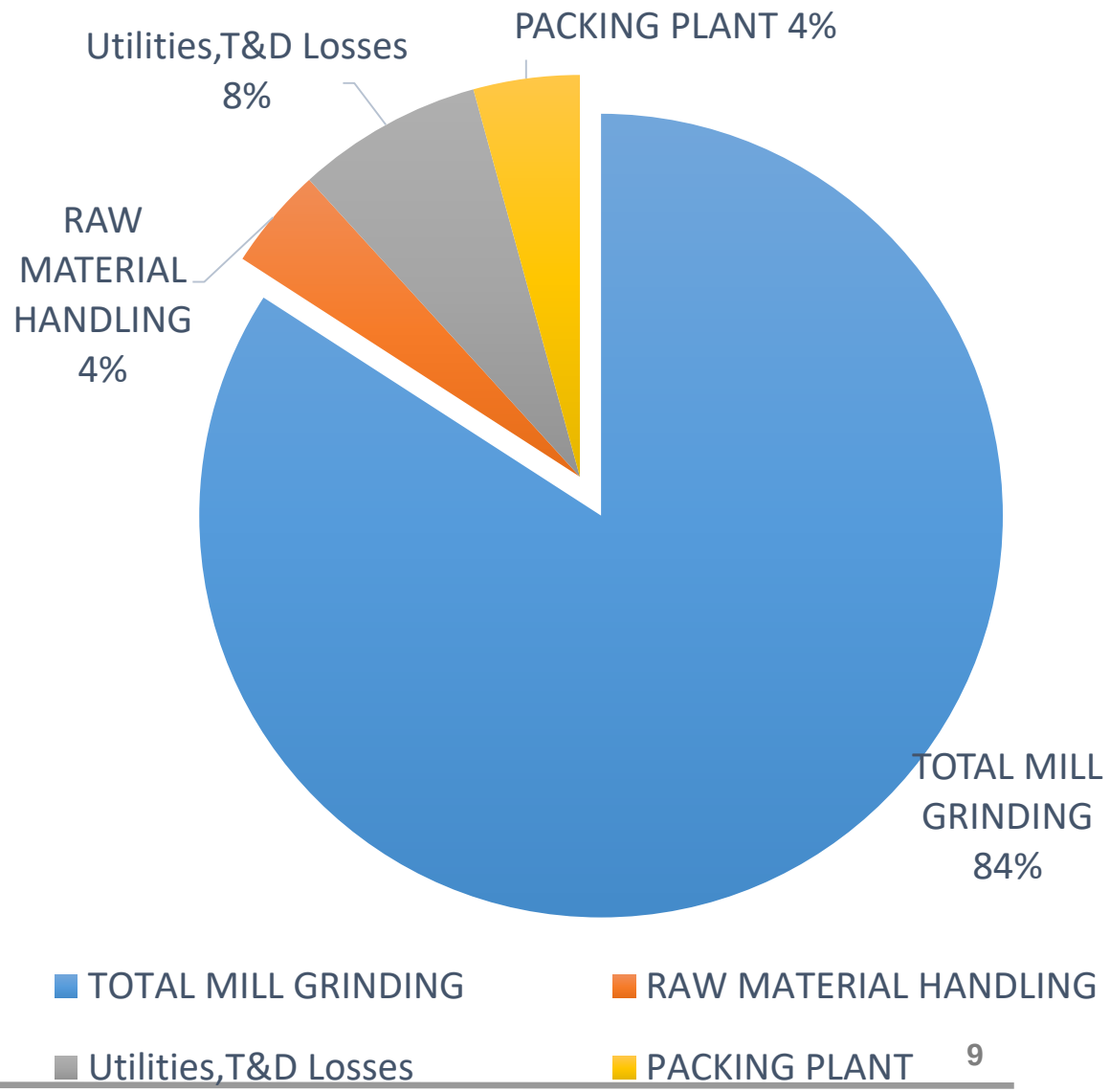
SAFETY OF ALL OUR EMPLOYEE IS PARAMOUNT TO US…….

- *All measures taken in accordance with the guidelines issued by the government of India and local administration.*
- *Organized RTPCR and Antigen test check- up for all employee and contractual employees periodically with the help of local administration.*
- *Ensured free distribution of medicines, masks, sanitizer and Covid awareness posters, banners inside factory premises as well as surrounding villages for preventing spread of COVID. Regular monitoring of body temperature, oxygen levels, and COVID symptoms on daily basis for all employee entering into premises.*

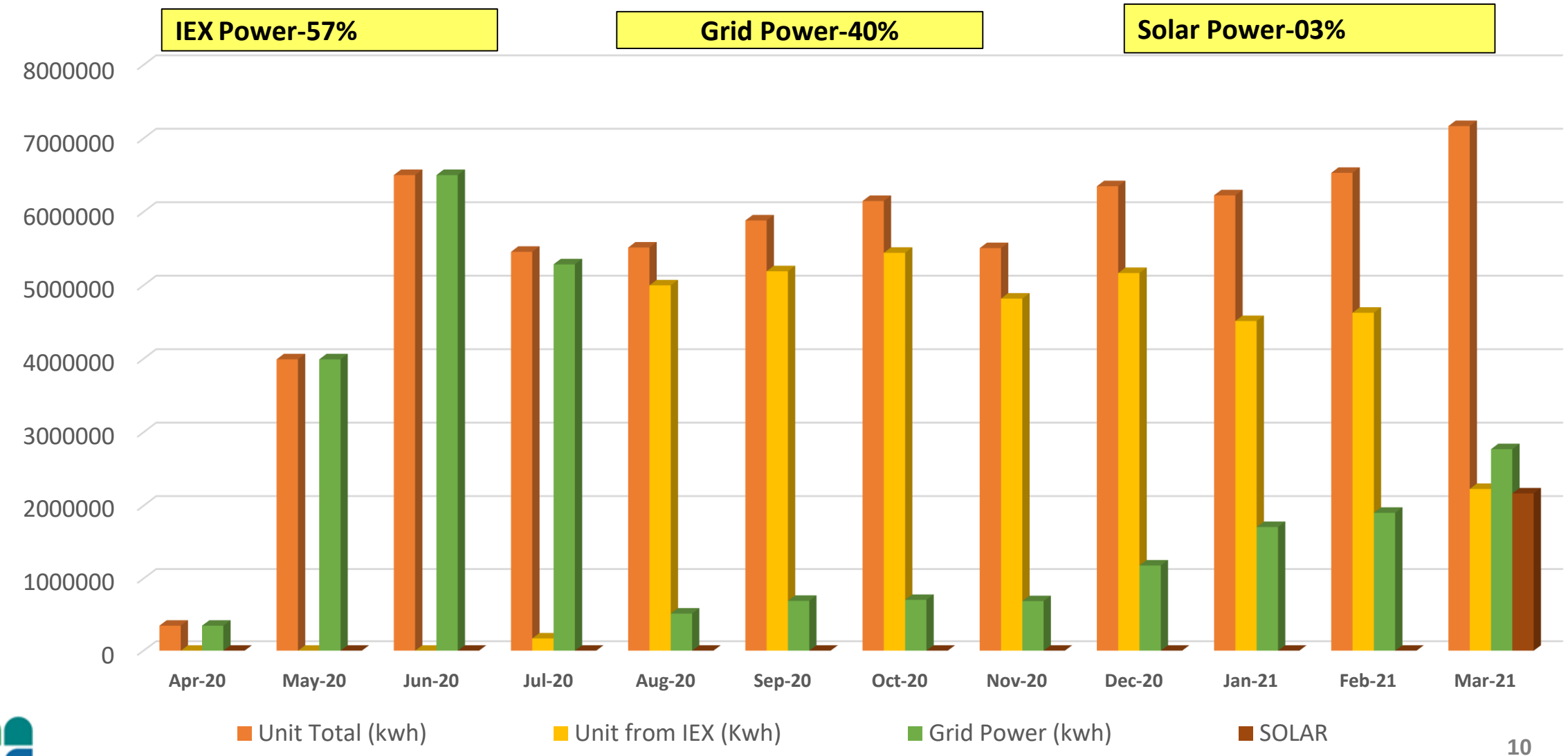
Over All Energy Consumption Details

- Electrical Energy (Grid+Solar)
  - Grinding Power
  - Raw Material Handling Power
  - Packing Power
  - Utilities, T&D Losses

❖ Thermal Energy- 0 Kcal/MT

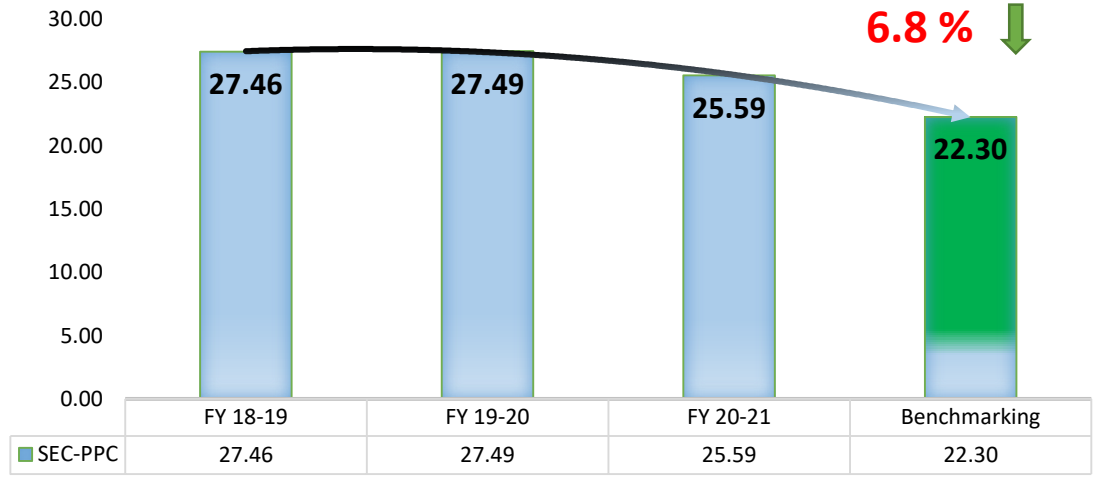


Over All Energy Consumption Details FY 20-21



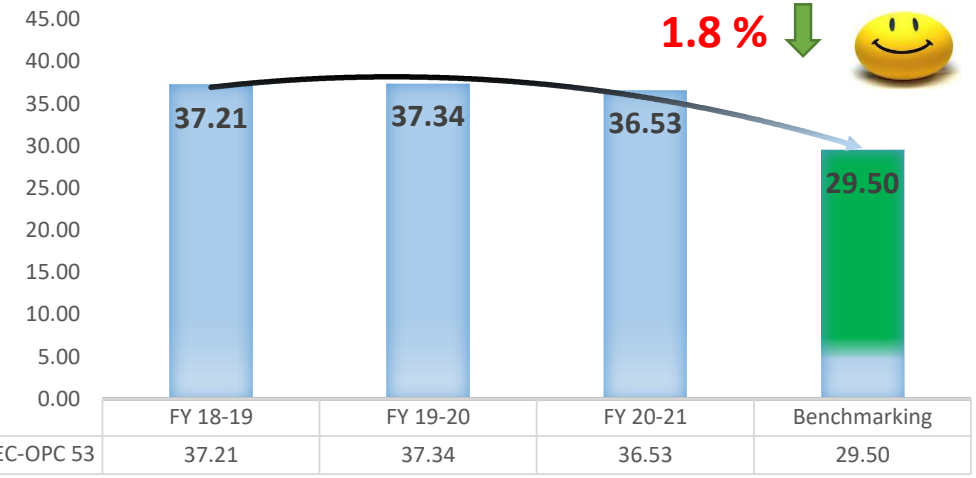
Specific Energy Consumption Details

SEC(KWH/MT)-PPC PRODUCTION



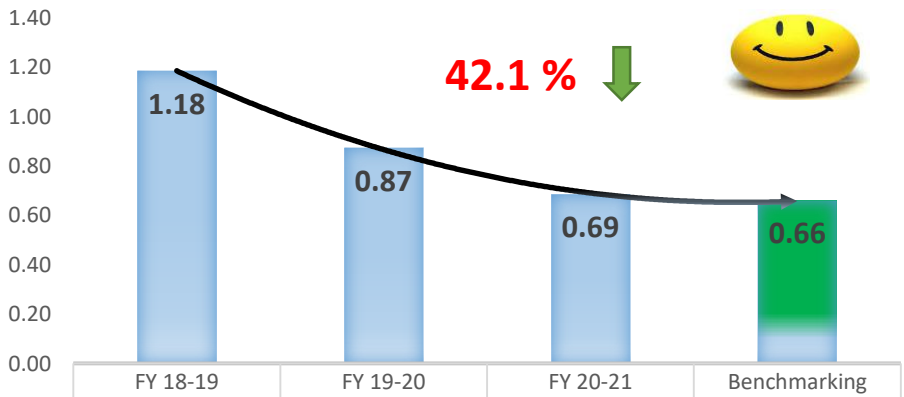
	FY 18-19	FY 19-20	FY 20-21	Benchmarking
SEC-PPC	27.46	27.49	25.59	22.30

SEC(KWH/MT)-OPC PRODUCTION



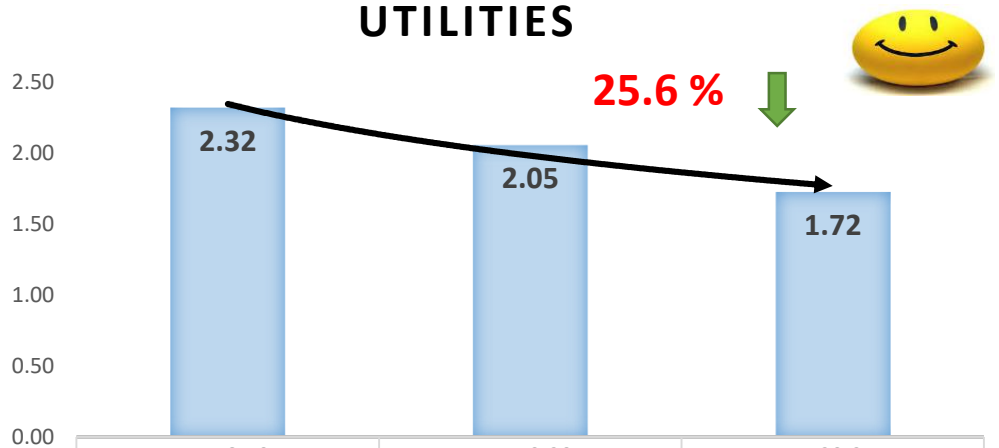
	FY 18-19	FY 19-20	FY 20-21	Benchmarking
SEC-OPC 53	37.21	37.34	36.53	29.50

SEC(KWH/MT)-COMPRESSOR



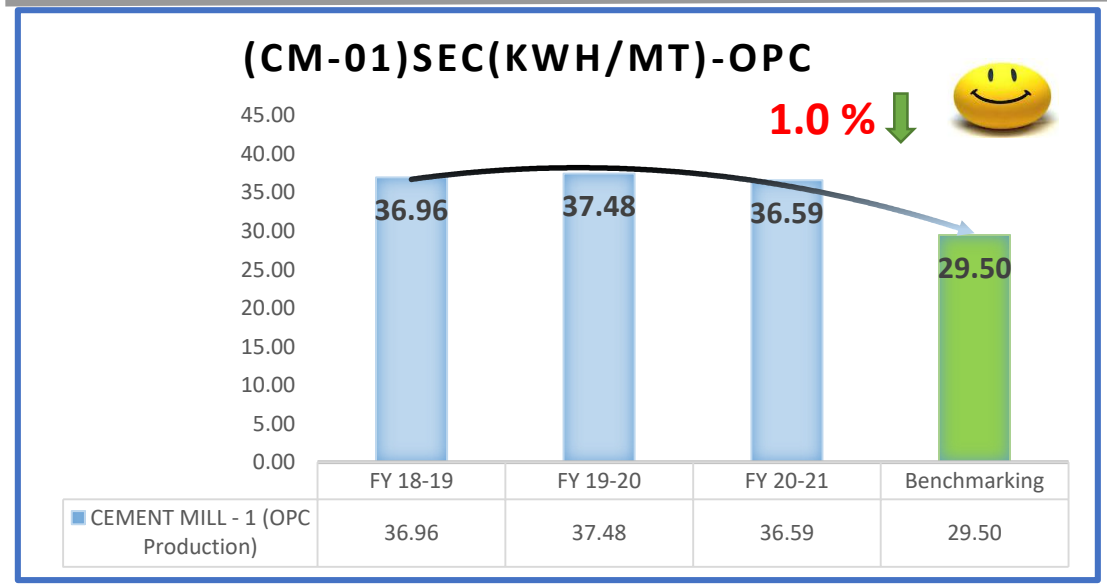
	FY 18-19	FY 19-20	FY 20-21	Benchmarking
SEC-COMPRESSOR	1.18	0.87	0.69	0.66

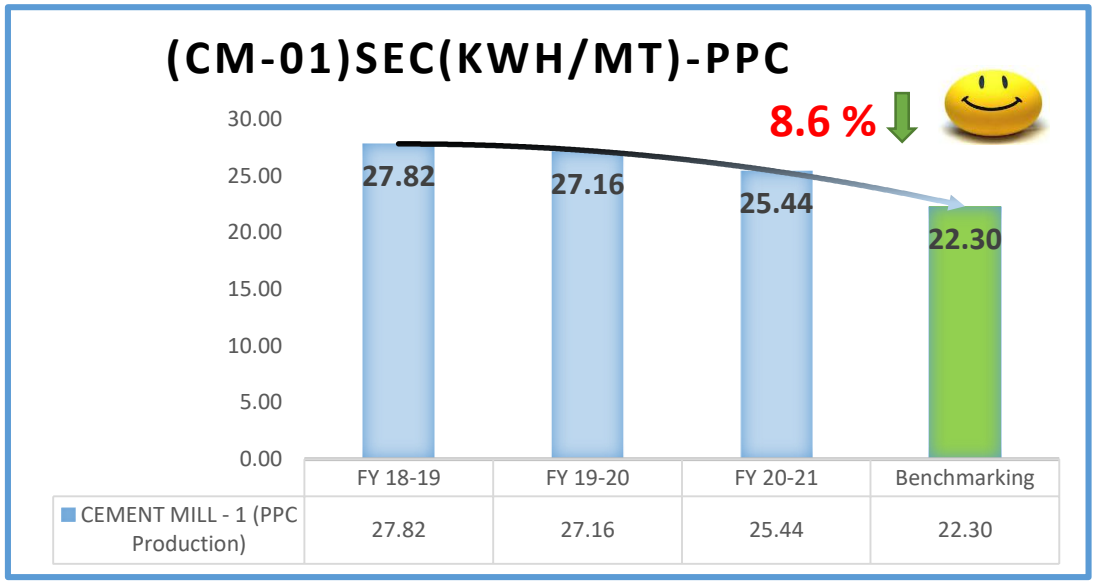
UTILITIES

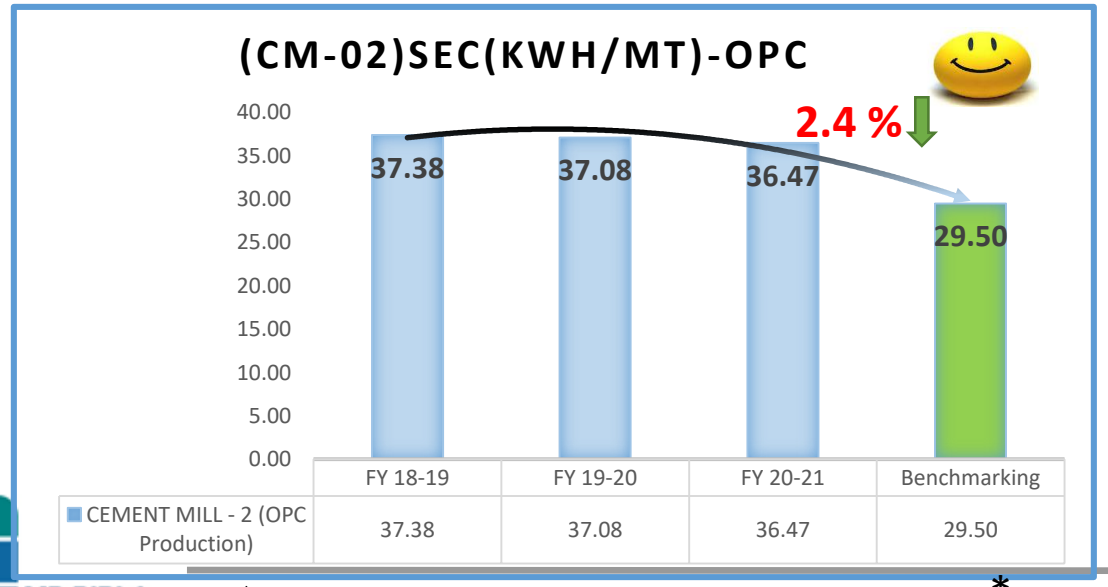


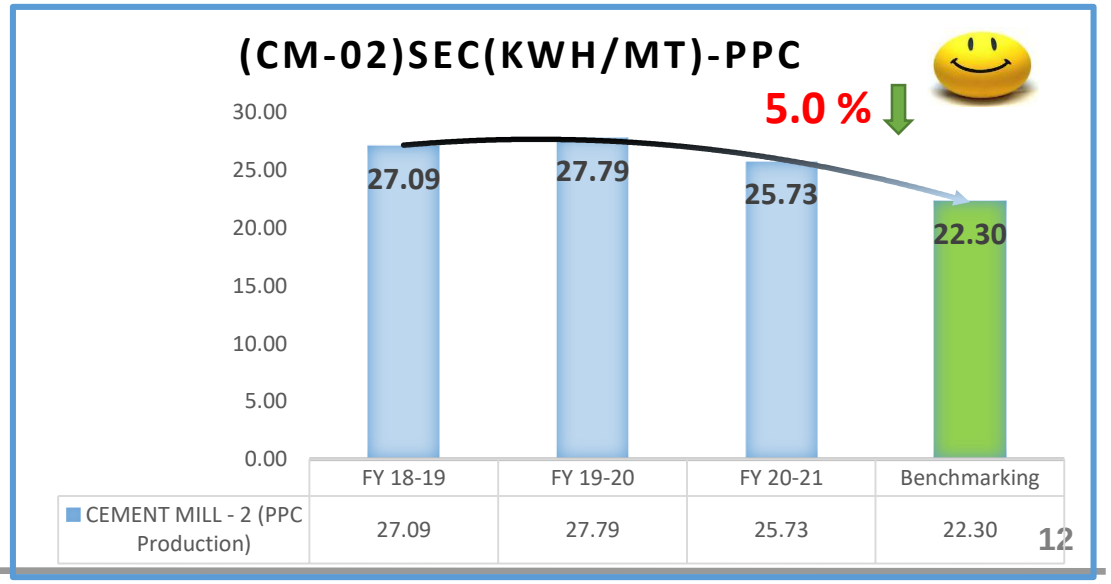
	FY 18-19	FY 19-20	FY 20-21
Utilities	2.32	2.05	1.72

Specific Energy Consumption Details









*Energy Benchmarking for the Indian Cement Industry, May 2021 Version-5.0

Encon Projects Planned for FY 2021-2022

Sr. No.	Project Title	Investment (INR Million)	Annual Saving (INR Million)	Payback (Months)
1	Replacement of impeller of process bag house fan with High Efficiency impeller to improve the efficiency from 72% to 82.5%.	9.0	9.08	12
2	Power factor enhancement : Installation of Capacitor bank (LT/HT) to improve the power factor from 0.990 to 0.998 .	1.3	1.11	14
3	Installation of VFD in Auxiliary bag filter (9 nos.) fans running currently with 50%-60% load by throttling the damper.	1.6	1.60	12
4	Optimization of fly ash bulker unloading time and reduction in power consumption of compressor	2.2	1.20	21.4
	Total Investment planned	14.1	12.99	

List of Energy Saving projects implemented in last three years

Year	No. of Energy saving projects	Investment (INR Million)	Electrical saving (Million Kwh)	Saving (INR Million)	Impact on SEC (Electrical Kwh/MT of Cement)
2018-2019	2	3.0	0.11	0.69	0.26
2019-2020	4	7.0	0.04	0.28	0.24
2020-2021	11	11.11	5.09	36.48	2.28

5.24 Million Unit conserved in last three year.

Encon Projects Implemented

Sr. No.	Project Title	Investment (INR Million)	Annual Saving (INR Million)	Payback (Months)
1	Modification of inlet Y-piece duct of process fan to reduce the pressure drop to optimum level.	1.5	8.06	2.2
2	Cement mill LDC Separator Optimization.	0.3	8.02	0.4
3	Modification of fly ash feeding arrangement in both mills from 2 points feeding at 180 degree to 4 point feeding at 90 degree.	1.0	6.68	1.8
4	Optimization of compressed air system.	0.5	6.50	0.9
5	Optimization of VRM -swing out S roller.	0.6	4.50	1.6

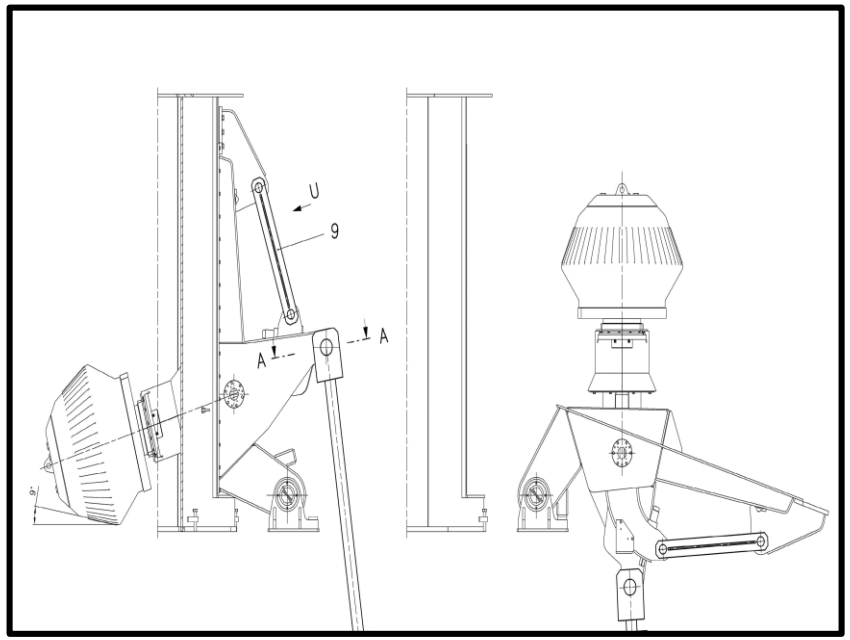
Encon Projects Implemented

Sr. No.	Project Title	Investment (INR Million)	Annual Saving (INR Million)	Payback (Months)
6	Replacement of all conventional high pressure sodium vapor lamps with LED lamp.	4.6	1.68	32.9
7	Replacement of belt conveyor 491 BC 2, (22 kw rated motor capacity) with Diverting gate.	0.5	0.32	18.8
8	Replacement of standard motor with high efficiency motor	2.05	0.25	98.4
9	Reduction of LT voltage in distribution transformer	0	0.21	0
10	Replacement of timer based auto drain valve with level sensor based valve for compressed air receivers	0.03	0.18	2.0

Encon Projects Implemented

Sr. No.	Project Title	Investment (INR Million)	Annual Saving (INR Million)	Payback (Months)
11	Installation of trans vector nozzles for cleaning air requirement	0.02	0.06	4.0
12	Optimization of mill reject circuit - to stop conveyor belt	0	0.28	0.0
13	Optimization of mill circuit – Reduction of false air entry in circuit.	0.1	0.69	1.7
	Total Investment	11.2		

Innovative Projects Implemented



Area of work : Cement mill performance improvement.

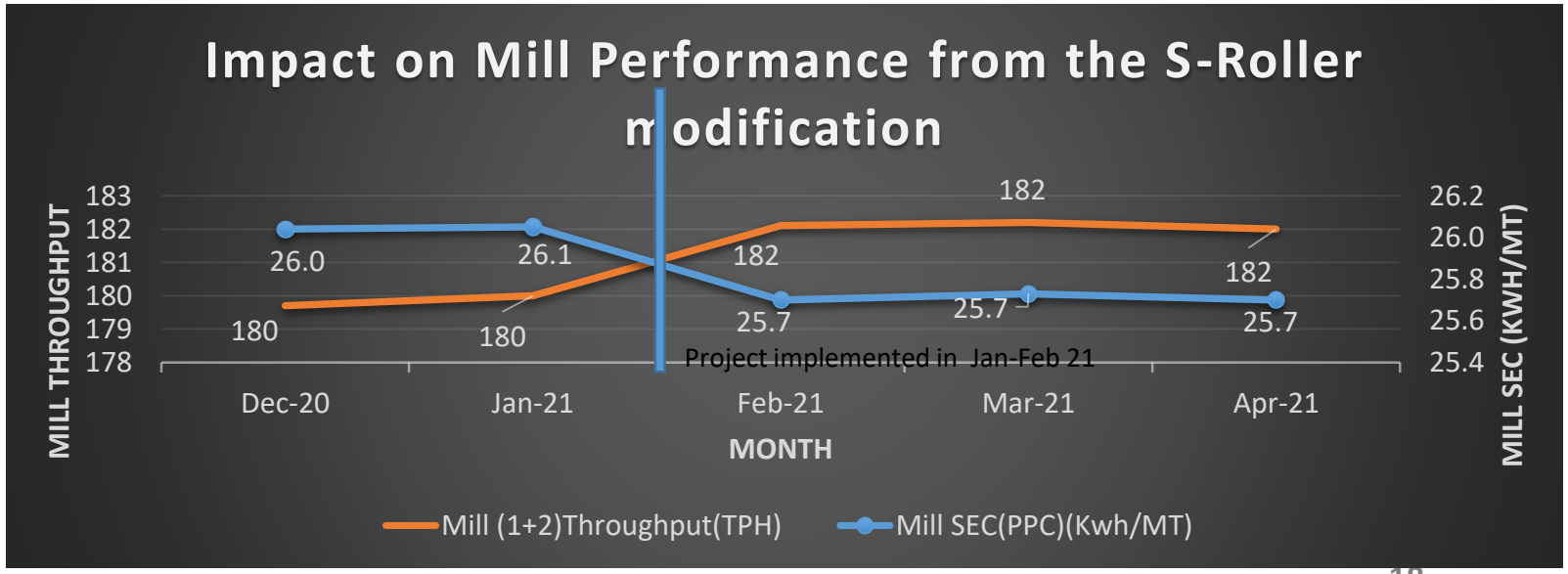
Project : Removal of the S-Roller and fixing of wear plate in place of roller opening in mill body.

About the project: S-Rollers are utilized for making of uniform grinding bed for master roller but it exerted some force on main drive and restricted air flow inside mill. After implementation, both grinding bed formation and grinding are done by master roller.

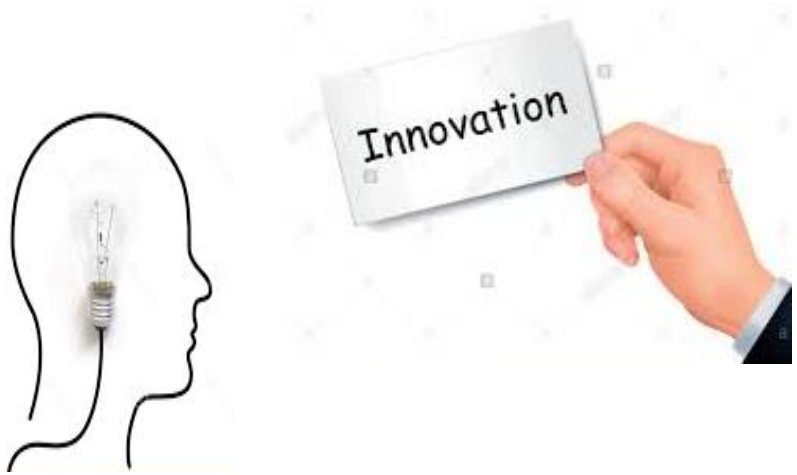
Impact: Power Saving of 0.71 Million KWH per annum with impact of 0.34 kwh/MT.

Investment: Rs. 0.6 Million

Saving: Rs. 4.5 Million per annum.



Innovative Projects Implemented



Area of work : Cement mill performance improvement .

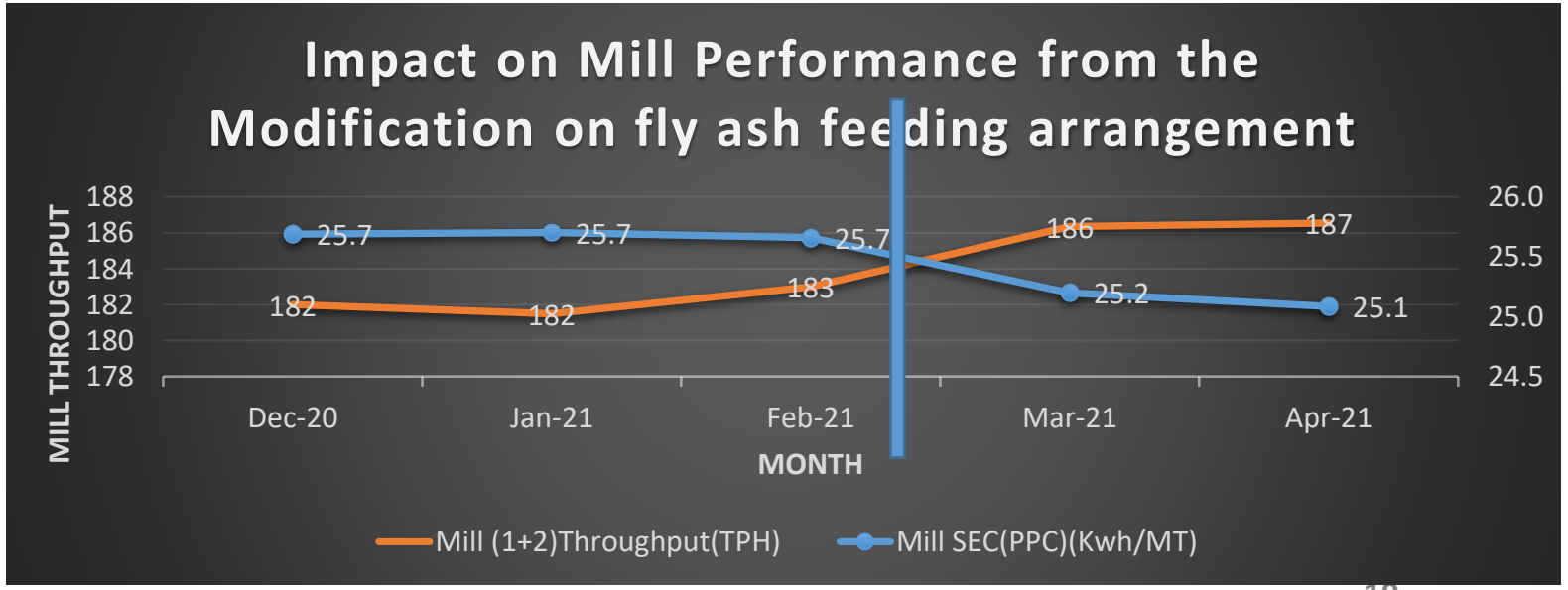
Project : Modification of fly ash feeding arrangement in mill from 2 points feeding with 180 degree to 4 point feeding with 90 degree gap.

About the project: In earlier arrangement, the fly ash feed into separator was bifurcated into two branches. The same has been diversified into four branches for proper/uniform distribution of material over the dynamic separator (VRM-LDC).

Impact: Power Saving of 1.05 Million KWH per annum with impact of 0.5 kwh/MT.

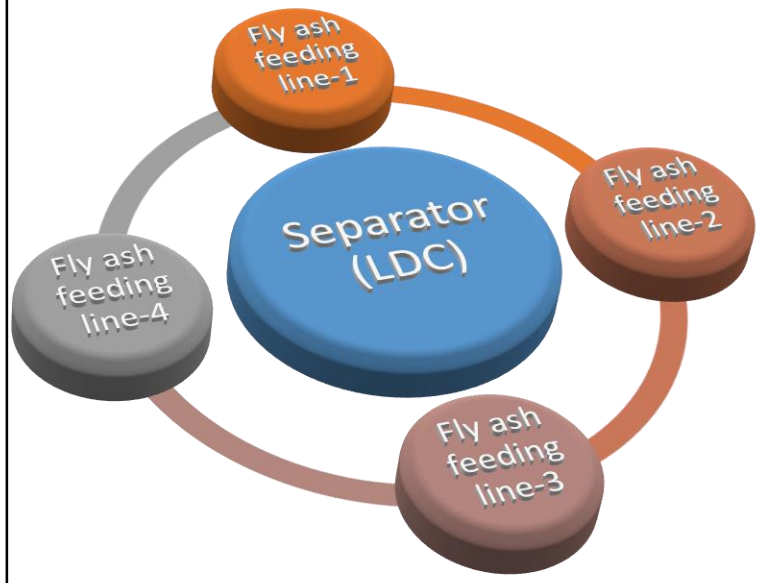
Investment: Rs. 1.0 Million

Saving: Rs.6.68 Million per annum



Innovative Projects Implemented

Proposed Arrangement-four point feeding system



Utilization of Renewable Energy sources

Year	Technology	Type of Energy	Onsite/Offsite	Installed Capacity (MW)	Generation (Million Kwh)	% of overall electrical energy
2020-21	Solar	Electrical	Offsite	20*	2.16	03 %
2021-22	Solar	Electrical	Offsite	20*	25.18	34 %

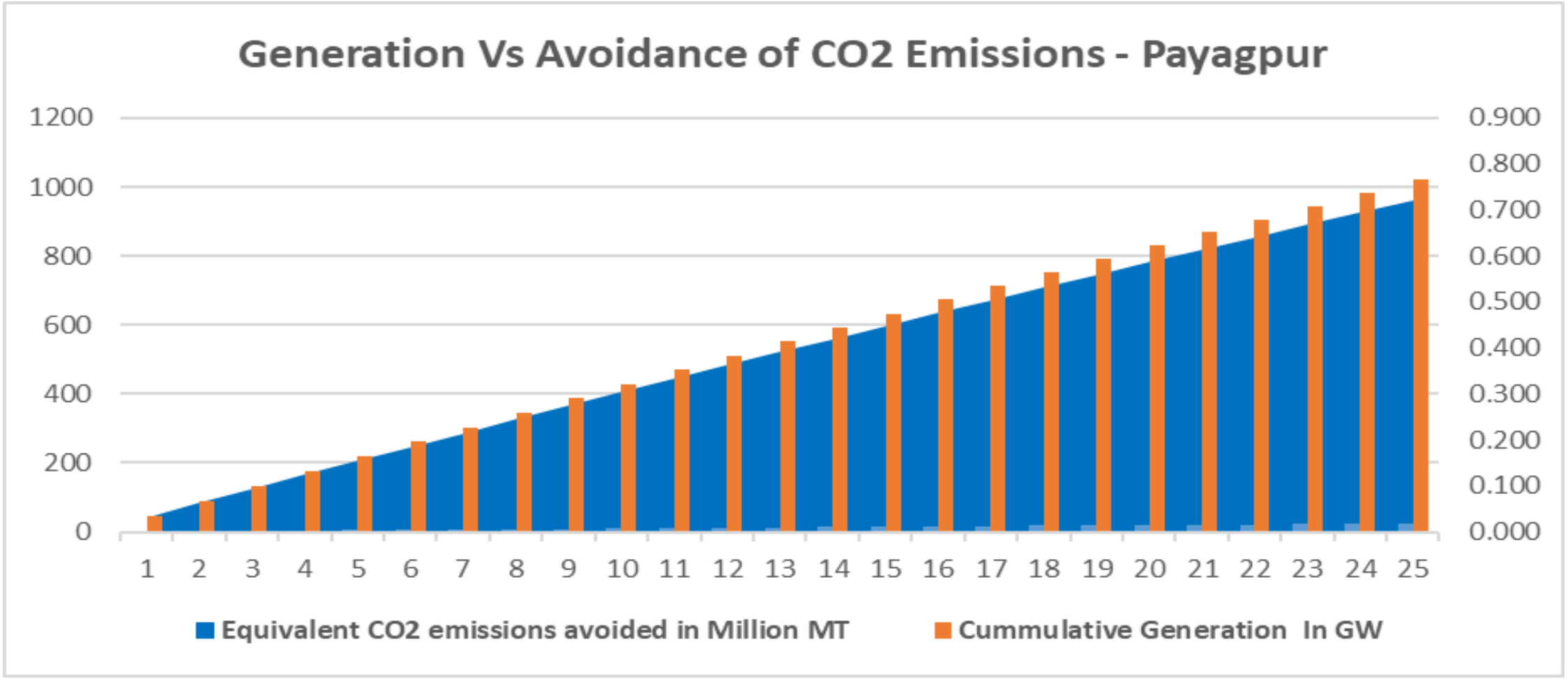
*Total 20 MW installed , 14 MW for Kundanganj unit & balance 6 MW for our sister unit located at Rae Bareli. Solar Power Plant commissioned on March'21.Details are given below:

Project Name	AMP Solar Clean Power Pvt. Ltd.
Capacity	20MWAC/28 MWDC
PPA Tenure	25 years
Location	Payagpur, Bahraich, Uttar Pradesh
Off-taker	MP Birla Group
Total area covered	98.11 Acre
Evacuation	33kV
CO2 emission reduction	31330 Metric Ton CO_2/year

Utilization of Renewable Energy sources

GHG Inventorisation

Electricity generation during plant life cycle will save 7,83,312 MT of CO2 and emissions equivalent to the following.



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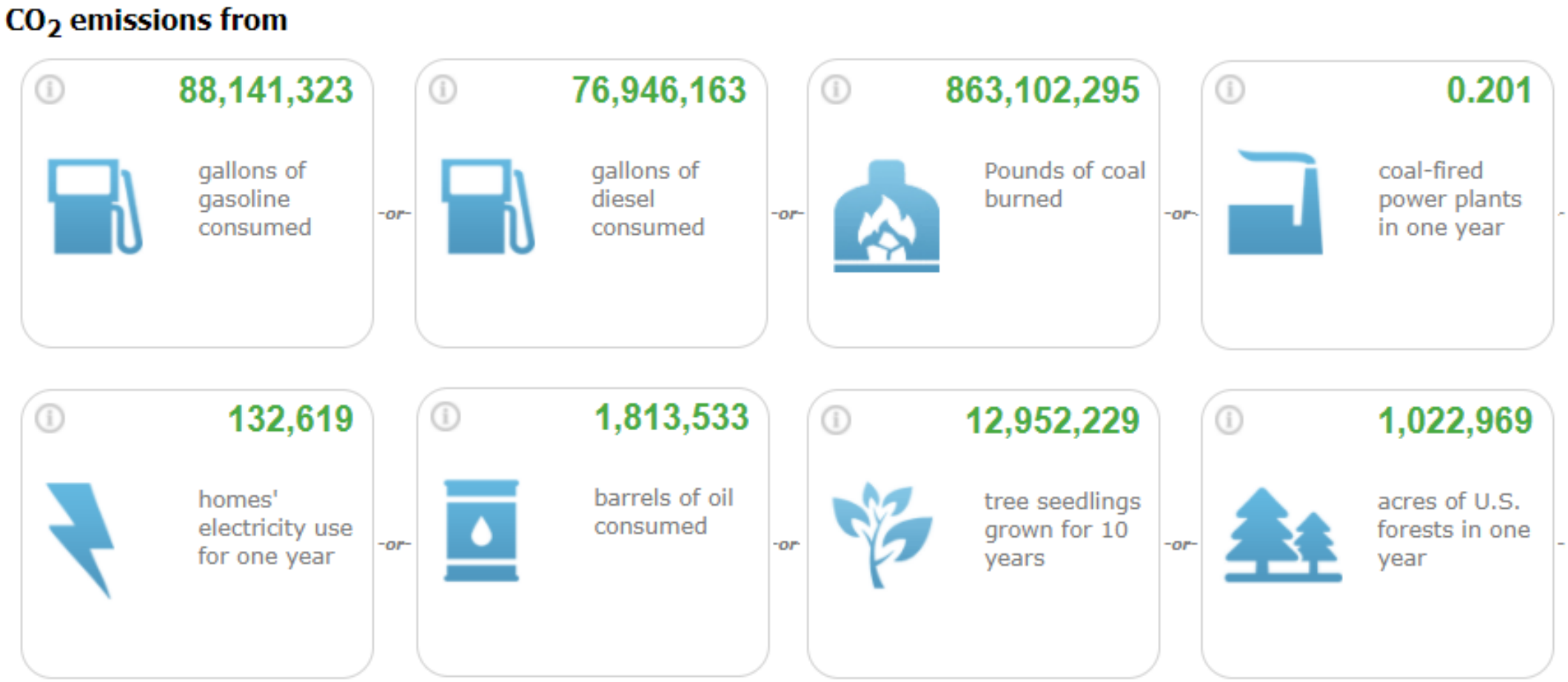

Green Supply Chain Management

Plastic Waste Management :

Cement bags co-processing in cement kilns for complete recovery of material & energy value present in the plastic waste. Following action plan has been submitted to CPCB for their review & approval :-

a. Coverage Area: We will cover entire area, in which the products are sold, to ensure collection of empty bags through our distribution channel.

b. Waste collection: Plastic waste management through Urban Local Bodies or (Producer Responsibility Organization (PRO).

c. To fulfil the gaps between buy back and estimated quantity, we will engage the ULBs / PRO for collection of other plastics to make up the gaps of equivalent quantity.

d. Waste quantity: Estimated quantity of plastic waste generated. (Preferably equivalent of the quantity sold)

e. Waste Recycling: we have to ensure that all collected bags are to be sold to recyclers or co – processed in cement kilns and the documentary proof of will be submitted to CPCB and SPCB.

Teamwork, Employee Involvement & Monitoring

Power report prepared on daily basis and shared to the top management & all concerns HOD's.

Developed energy management cell which is led by Technical Head & best energy saving ideas is awarded in monthly gate meeting.

Energy conservation budget allocated along with Capex budget.

Energy efficiency training program is conducted on monthly basis by internal or external parties i.e. NCCBM,CII.

Energy audit by authorized external energy auditors is conducted in every 3 years. Previous audit conducted by CII in 2019

Projects implemented through Kaizens

Sl. No.	Description	Action Taken	Benefits
1.	Air conditioning units are running almost all day long.	Installed AC energy saver.	Saving of 6.5 Kw or Annual saving Rs. 0.6 Lacs.
2.	Usage of compressed air for cloth & body cleaning at packing plant.	Installation of cleaning blower at packing plant for cloth cleaning.	Saving in compressed air & avoid the hazard of compressed air usage.
3.	Run time error of diverting gates due to rusting over the cylinder was affecting the cylinder operation & its life.	Relocated the cylinder on opposite direction so the piston movement is same but now during mill running, piston is inside cylinder .	Diverting gates stoppage reduced.
4.	Air loss from stand by fans due to interconnection of delivery lines.	NRV installation in all fans & stand by fans.	Avoided air loss from all fans & blowers.
5.	Lifting and positioning of hose by two persons with their shoulders, approx. weight of hose – 100 Kg during fly ash bulker unloading.	Installation of manual worm gear winch with wire rope.	Manual lifting avoided & reduced the time required for fixing the hose.

Awards

Gold Award at Apex India Environment Excellence Award 2019

Best CSR Impact award given by CEO of Bharti Airtel Limited in UBS forum in 2019.

Awards

Bureau Veritas Certification

RCCPL PRIVATE LIMITED
KUNDANGANJ PLANT

VILLAGE KARANPUR, TEHSIL: MAHARAJGANJ, NEAR KUNDANGANJ RAILWAY STATION, RAEBARELLI – 229 303, UTTAR PRADESH, INDIA.

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organization has been audited and found to be in accordance with the requirements of the Management System standards detailed below.

Standards

ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018

Scope of certification

MANUFACTURING AND DESPATCH OF PORTLAND POZZOLANA CEMENT AND ORDINARY PORTLAND CEMENT (53 GRADE)

Original cycle start date For ISO 9001: & ISO 14001:	**22 September 2016**
Original cycle start date For ISO 45001:	**09 September 2020**
Expiry date of previous cycle For ISO 9001: & ISO 14001:	**21 September 2019**
Expiry date of previous cycle For ISO 45001:	**Not Applicable**
Recertification Audit date For ISO 9001: & ISO 14001:	**08 August 2019**
Recertification Audit date For ISO 45001:	**31 August 2020**
Recertification cycle start date For ISO 9001: & ISO 14001:	**10 September 2019**
Recertification cycle start date For ISO 45001:	**09 September 2020**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **21 September 2022**

Certificate No. **IND.19.12275/U** Version : **2** Revision date: **09 September 2020**

Signed on behalf of BVCH SAS – UK Branch
Jagdheesh N. MANIAN
Head – CERTIFICATION, South Asia
Commodities, Industry & Facilities Division

UKAS MANAGEMENT SYSTEMS 0008

Certification body address: 5th Floor, 66 Prescot Street, London, E1 8HG, United Kingdom.

Local office: Bureau Veritas (India) Private Limited (Certification Business) 72 Business Park, Marol Industrial Area, MIDC Cross Road "C", Andheri (East), Mumbai – 400 093, India.

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization. To check this certificate validity please call +91 22 6274 2000.

ISO 14001:2015, ISO: 9001:2015 and OSHAS-450001:2018 from Bureau Veritas

NATIONAL SAFETY COUNCIL OF INDIA

GREEN TRIANGLE FOR SAFETY

SAFETY AWARDS - 2020

Manufacturing Sector
Group-D : Engineering, Cement, Steel, etc.

CERTIFICATE OF APPRECIATION

This Certificate is awarded to

RCCPL Pvt. Ltd.,
Maharajganj, Raebareli, Uttar Pradesh

in recognition of appreciable achievement in Occupational Safety & Health during

the Asseessment Period of three years - 2017-2019

LALIT R. GABHANE
DIRECTOR GENERAL

Navi Mumbai: 5th March, 2021

Certificate of Appreciation received in the year 2020 by NSC

BIRLA CORPORATION LIMITED

MP BIRLA GROUP

CONTACT INFORMATION

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