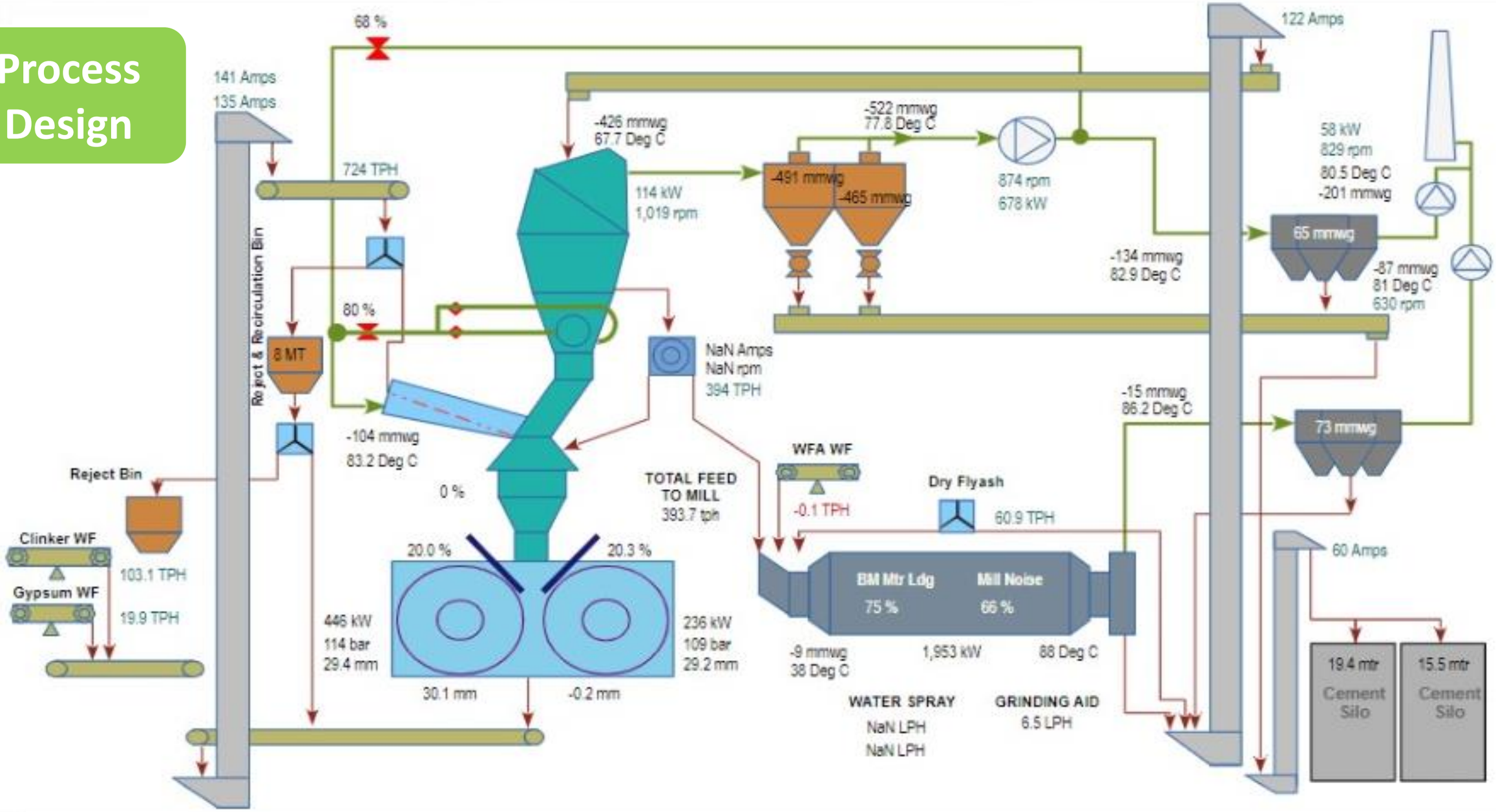
Gaurav Kr Gupta (Process Head- Jharli GU)

J K Cement Works , Jharli

Establishment	2014
Plant Area	291374 m2
Plant Capacity	1.5 Millions MT (Designed)
Major Sections	Grinding Section, Packing Plant and Wagon tippler
Location	Jharli, Jhajjar
Market	Delhi, U.P., Uttarakhand, Himachal, Punjab & Haryana

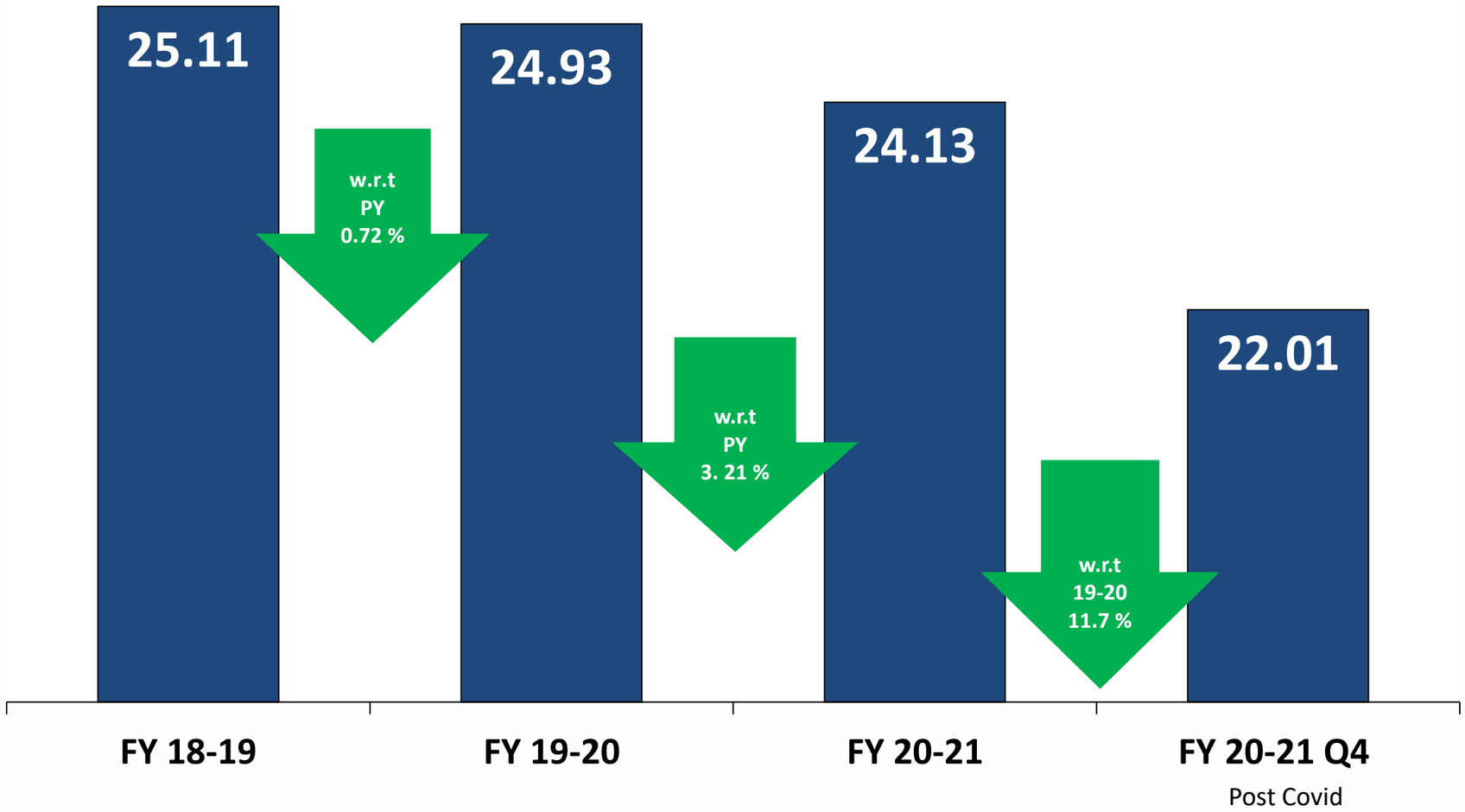
Process Design



Covid-19 Impact

Production	• Reduction by 20% due to low demand • Targeted 1.5 Million Mt vs Achieved 1.2 Million MT
Specific Power Consumption	• Increase by 10% due to Covid-19 guidelines • Major maintenance got delayed by 9 Months • Targeted 25.5 Kwh/ Mt vs Achieved 28.1 Kwh/MT

Grinding Power (kWh/T)



Roller replacement

Both rollers were replaced in jan'21

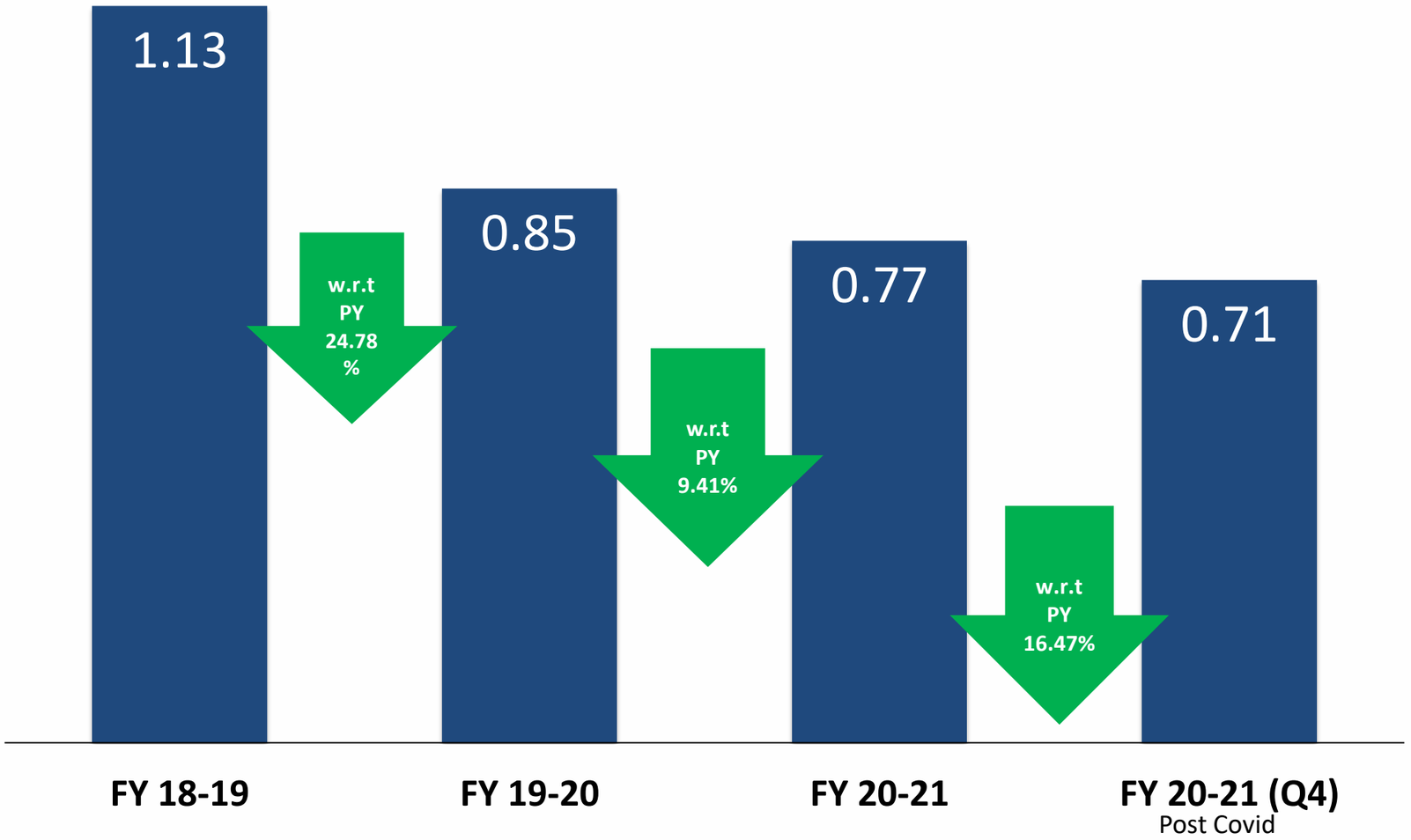
Roller Gap was reduced from 48 mm to 30 mm.

Ball Mill shell Liner replacement

Ball Mill Shell Liner was replaced from conventional one to Light weight T shape liner.

Grinding Media Pattern was changed

Packing Power (kWh/T)



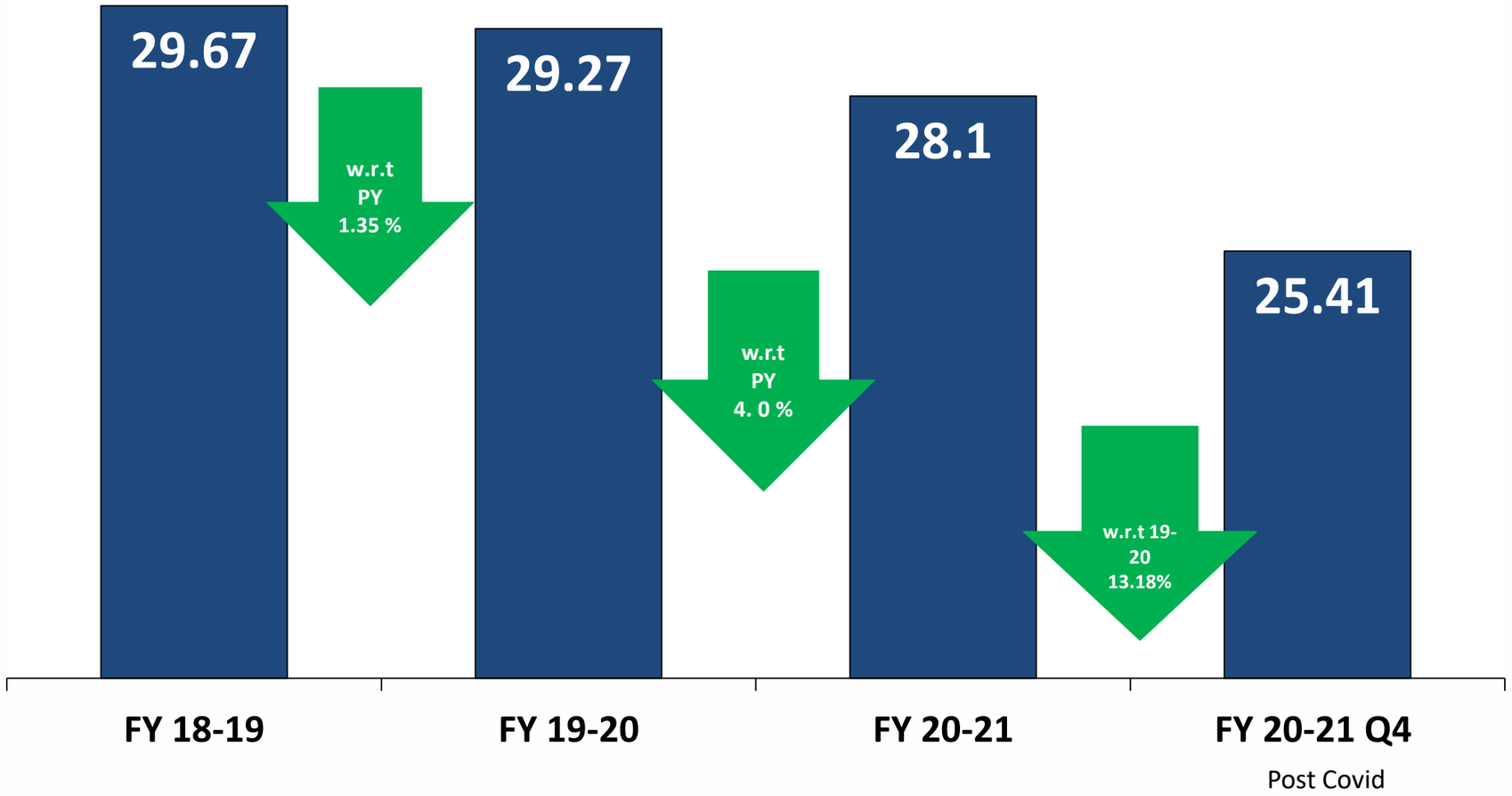
Packer Optimization

As per the dispatch requirement, Packers have been optimized.

Compressor Air requirement

Compressor air requirement has been optimized.

Total Plant Power (kWh/T)



Compressor Power Optimization

Compressors running matrix modified . And saved around 55 kW per hour.

Reduction in Idle Running

Raw circuit Idle running has been reduced by educating the ground staff

JK Cement ,Jharli performance w.r.t National and International Benchmarking

Parameters	Plant 1	Plant 2	Plant 3	Plant 4	Jharli FY 2020-21	Jharli Q4 2020-21	Target FY 2021-22
Mill drive (Ball mill)	6.30	8.27	12.6	11.00	9.01	8.61	8.61
Separator - Vent fan	2.66	3.33	3.35	3.20	3.24	3.06	3.06
Ball mill - Separator	0.95	-	-	-	0.82	0.68	0.68
HPRG drive	10.50	6.60	6.68	7.20	8.07	7.06	7.06
Dry Fly ash unloading	2.45	-	-	2.45	0.35	0.33	0.33
Auxiliary	3.50	3.78	3.17	3.50	2.99	2.83	2.83
Overall SEC (Data Ref : CII Benchmark	**24.05**	**24.90**	**25.70**	**26.58**	**24.48**	**22.34**	**22.34**

Note - UOM - Kwh / Mt of CMT

Planned Energy Saving Projects – 2021-22

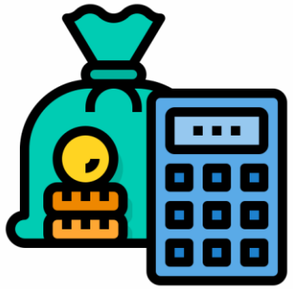
Project	Capex Value (Rs in Lacs)	Target FY 21 - 22	Comment
700 kw solar power plant	270	270	To increase renewable energy consumption
P&V for compressor room	12	12	To increase the Compressor Efficiency
VFD Drive 1 Nos complete panel 90 KW for Packing Plant Bag Filter Fan	6	6	To reduce the power consumption of packing Plant

Ball Mill shell liner Replacement

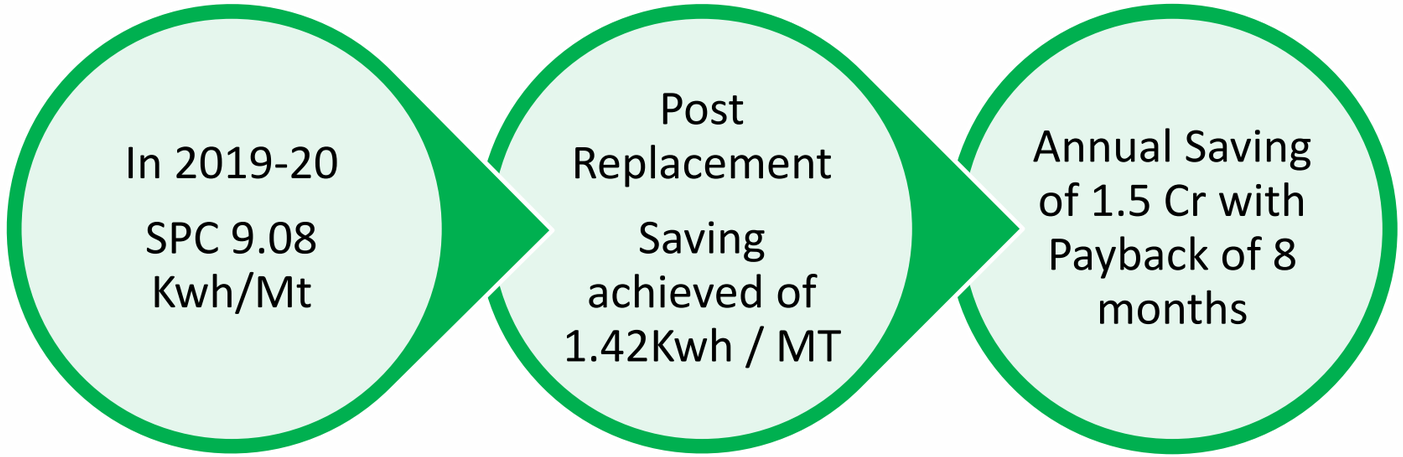
- ✓ Jharli Plant started in 2014 has Polysius make containing Polycom + Ball mill circuit. Entire liners need to be replaced for smooth running of mill as life of existing is completed.

- ✓ Jharli team replaced conventional bolted shell liners with special T-Shaped classifying liners.

- ✓ These replaced liners have additional benefit of reduction in specific power consumption by 1.42 kwh/MT.



Savings Ball mill shell liners replacement



- Annual Production – 1.5 Million MT
- Cost of Power – Rs 7 Per Kwh
- Annual Saving - **Rs 1.49 Cr on saving @ 1.42 Kwh / MT**
- Liner Cost - Rs 0.95 Cr

Energy Saving Projects FY 2018 - 21

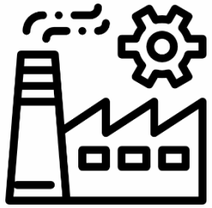
Year	No.of energy saving Project	Investment (INR Million)	Electrical Energy Savings(Million kWh)	Saving (INR Million)	Impact on SEC (kWh/T cement)
FY 18-19	3	1.00	0.39	2.72	0.26
FY 19-20	1	1.30	0.30	2.12	0.20
FY 20-21	3	13.20	2.67	18.74	1.78

Utilization of Renewable Energy Sources

Year	No of Project	Investment (In Millions)	Capacity Enhancement (in MW)	Technology (electrical)	Type of Energy	Onsite / Offsite	Installed Capacity (MW)	Generation (Million kWh)	% of overall electrical energy consumption
FY 18-19	1 (Oct 18)	15.20	0.3	PV Cell	Solar	Onsite	0.30	0.16	0.36%
FY 19-20	0	0	0.0	PV Cell	Solar	Onsite	0.30	0.38	0.87%
FY 20-21	0	0	0.0	PV Cell	Solar	onsite	0.30	0.37	1.06%

RPO Obligation – Yes

GHG Inventorization



SPM Value

Ball Mill Bag House stack Monitor (In mg/Nm3)

CO2 Value

(Including Clinker CO2 Emission)

Jharli Plant

(Kg Co2 / MT of CMT)

Year	SPM	CO2
FY 18-19	2.0	490
FY 19-20	1.9	480
FY 20-21	2.1	468
		Targeted 450 for FY 22

Public Disclosure - Currently we are disclosing the data publicly but we are in process to use digital board for the general public.

Initiatives for Carbon capture and reduction in FY 2021-22

- By reducing clinker factor.
- By using rack instead of truck for gypsum.
- By Developing green belt in 2 acre of plant area.

Green Supply Chain Management

Company has green purchase policy ,and Evaluation has been done by CII which awarded company gold category in 2018 . We have applied for Platinum Category in FY 21

S.No.	Projects Implemented	Investment Made (Rs in million)	Benefits achieved	Description	Action Plan
1	Conversion of fleet from BSIV to BSVI and Conversion of Diesel truck to CNG operated truck.	No capital investment	Reduction in GHG through TAT	as per the green transport policy we have instructed our transporter for Conversion in BSIV fleet to BSVI fleet and diesel fleet to CNG fleet.	Informed to all the transporters to take necessary actions
2	RFID (GPS Tracking) implemented for all outbound logistics to reduce TAT time.	5	Reduction in TAT from 10.5 Hrs to 3.5 Hrs	We are tracking all outbound trucks through GPS system and we also managed weigh bridge , MRP , scheduling through RFID system only	Implemented
3	Focus on Maximizing the Fly ash and Pond ash, which are waste products of power Plant	5	Reduction in waste and water consumption	We have started using pond ash and dry fly ash consumption. Through pond ash consumption we are able to reduce water consumption	We are in planning to install HAG to dry pond ash in system.

Team Work ,Employee Involvement & Monitoring

- At our Jharli grinding unit Daily SEC consumption is monitored by review committee , which consists members of all departments.
- Daily review meeting is chaired by our Plant Head.
- We have a separate budget allocation of Rs 3 crore.
- Company always engages its employees in training program conducted by CII related to Specific energy consumption.
  - ✓ **Supervisor Level**

    Gave an idea to connect the 2 blowers' line so that only one blower can be run for air slides' aeration instead of 2 blowers.
  - ✓ **Workmen Level**

    Started reporting in CCR, whenever any group or system runs idle.

Implementation of ISO 50001 / Green CO

- **Company is ISO 50001 :2018 certified**
  - ✓ Develop a policy for more efficient use of energy.
  - ✓ Fix targets and objectives to meet the policy.
  - ✓ Use data to better understand and make decisions about energy use.
  - ✓ Measure the results.
  - ✓ Review how well the policy works.
  - ✓ Continually improvement
- Company is awarded in Gold Category by CII in 2018 and aspiring for Platinum Category in FY 21
- Company allocated 0.23 % of total turnover in FY 2020-21 for energy saving projects.

Any Other relevant Information

1. **Reduction in CF% -** Various trials were taken by team to reduce CF% after identifying the following areas
   - ❑ R-45 , Residue reduction from 8% to 6%
   - ❑ Use of Anhydrite Gypsum in form of Mould Gypsum
   - ❑ Optimization of various Grinding Aids

2. **Reduction in Grinding Power by 3 Kwh / MT of Cmt**.
   - ❑ Special metallurgy Shell liner replacement from conventional to T-Type liners
   - ❑ Grinding media pattern optimization
   - ❑ Roller replacement
   - ❑ Installation of oil free compressor for fly ash unloading

Thank You

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