

CII National Award for Excellence in Energy Management 2021

Great Place To Work[®]
Certified



JK PAPER Ltd, Unit: JKPM, RAYAGADA



- Surya
- Sudeep
- Soumya



J K PAPER *Creating Lasting Impressions*



Certificates

MANAGEMENT SYSTEM CERTIFICATE

Certificate No: 5609-2007-AQ-IND-AVA Initial certification date: 12, March, 1998 Valid: 12, March, 2019 - 11, March, 2022

This is to certify that the management system of

JK Paper Ltd.
Unit - JK Paper Mills
Works: Jaykaypur, Dist. Rayagada, Jaykaypur - 765 017, Odisha, India and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Quality Management System standard:
ISO 9001:2015

This certificate is valid for the following scope:
Design, development & manufacture of pulp, paper, paperboard & related products

Place and date:
Chennai, 25, March, 2019



The IAF is a signatory to IAF

MANAGEMENT SYSTEM CERTIFICATE

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JK Paper Ltd.
Unit - JK Paper Mills
Works: Jaykaypur, Dist. Rayagada, Jaykaypur - 765 017, Odisha, India and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Environmental Management System standard:
ISO 14001:2015

This certificate is valid for the following scope:
Design, development & manufacture of pulp, paper, paperboard & related products

Place and date:
Chennai, 25, March, 2019



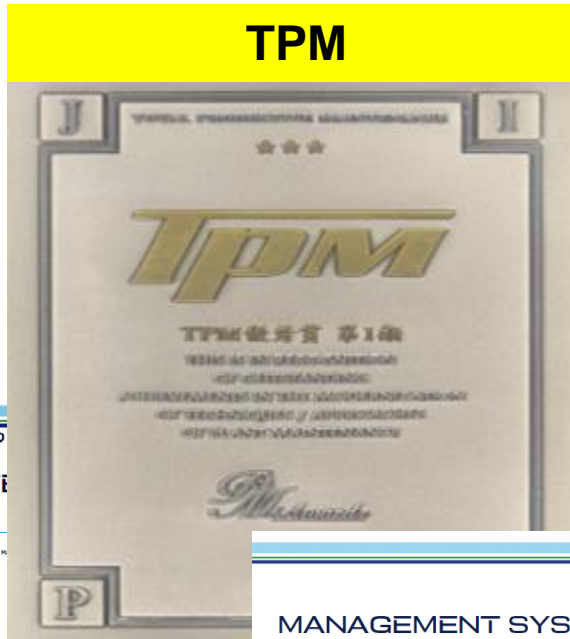
The IAF is a signatory to the IAF M.A.

For the issuing office:
DNV GL - Business Assurance
RMA, No. 10, 05F Road, Alibon, Chennai - 600 016, India

Swadesee Wadhyath
Management Representative

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV GL Business Assurance B.V., PO BOX 6708, 1116 CA, AMSTERDAM, NETHERLANDS. TEL: +31 (0)20 2385

TPM



SCS Global Services does hereby certify that an independent audit has been completed and conformity to the applicable standard(s) has been confirmed for:

JK Paper Ltd., Unit- JK Paper Mills

Jaykaypur, Rayagada, Odisha 765017, India

This operation meets all of the necessary qualifications to be certified for the following claim:

Well Managed Group Plantation Certification

JK Paper Ltd., Unit- JK Paper Mills has been shown to meet all of the necessary qualifications to be certified as a Well Managed Group Plantation in accordance with the Forest Stewardship Council's Principles & Criteria, as elaborated by the FCP Final Interim Standard for Forest Management Certification in India under the FSC (or 1.7).

For the following product(s):

Eucalyptus camaldulensis, E. tereticornis, E. urophylla, E. delgupta & their hybrids. / Eucalyptus

Certificate Code: SCS-FM/COC-005124 Trademark License Code: FSC-C123770

Valid from: 23 December 2014 to 22 December 2019

The audit program was conducted under the auspices of the Indian Forest Act 1927, and the FSC (or 1.7) Standard for Group Plantation. Please refer to the FSC (or 1.7) Standard for the details of the certification process and the obligations of the certificate holder. For more information, please refer to the FSC (or 1.7) Standard for the details of the certification process and the obligations of the certificate holder.



The mark of responsible forestry



Robert J. Winkler
Robert J. Winkler, Ph.D., Executive Vice President
SCS Global Services
3000 Powell Street, Ste. 400, Emeryville, CA 94608 USA

MANAGEMENT SYSTEM CERTIFICATE

Certificate No: 10000118009-MSC-AVA-IND Initial certification date: 19 March 2019 Valid: 14 November 2019 - 19 March 2022

This is to certify that the management system of

JK Paper Ltd. Unit - JK Paper Mills
Works: Jaykaypur, District: Rayagada, Jaykaypur - 765017, Odisha, India and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Occupational Health and Safety Management System standard:
ISO 45001:2018

This certificate is valid for the following scope:
Design, development & manufacture of pulp, paper, paperboard & related products

Place and date:
Barendrecht, 14 November 2019



The IAF is a signatory to the IAF M.A.

For the issuing office:
DNV GL - Business Assurance
Zandweg 1, 2904 LA Barendrecht, Netherlands

Eric Koek
Management Representative

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV GL Business Assurance B.V., PO BOX 6708, 1116 CA, AMSTERDAM, NETHERLANDS. TEL: +31 (0)20 2385

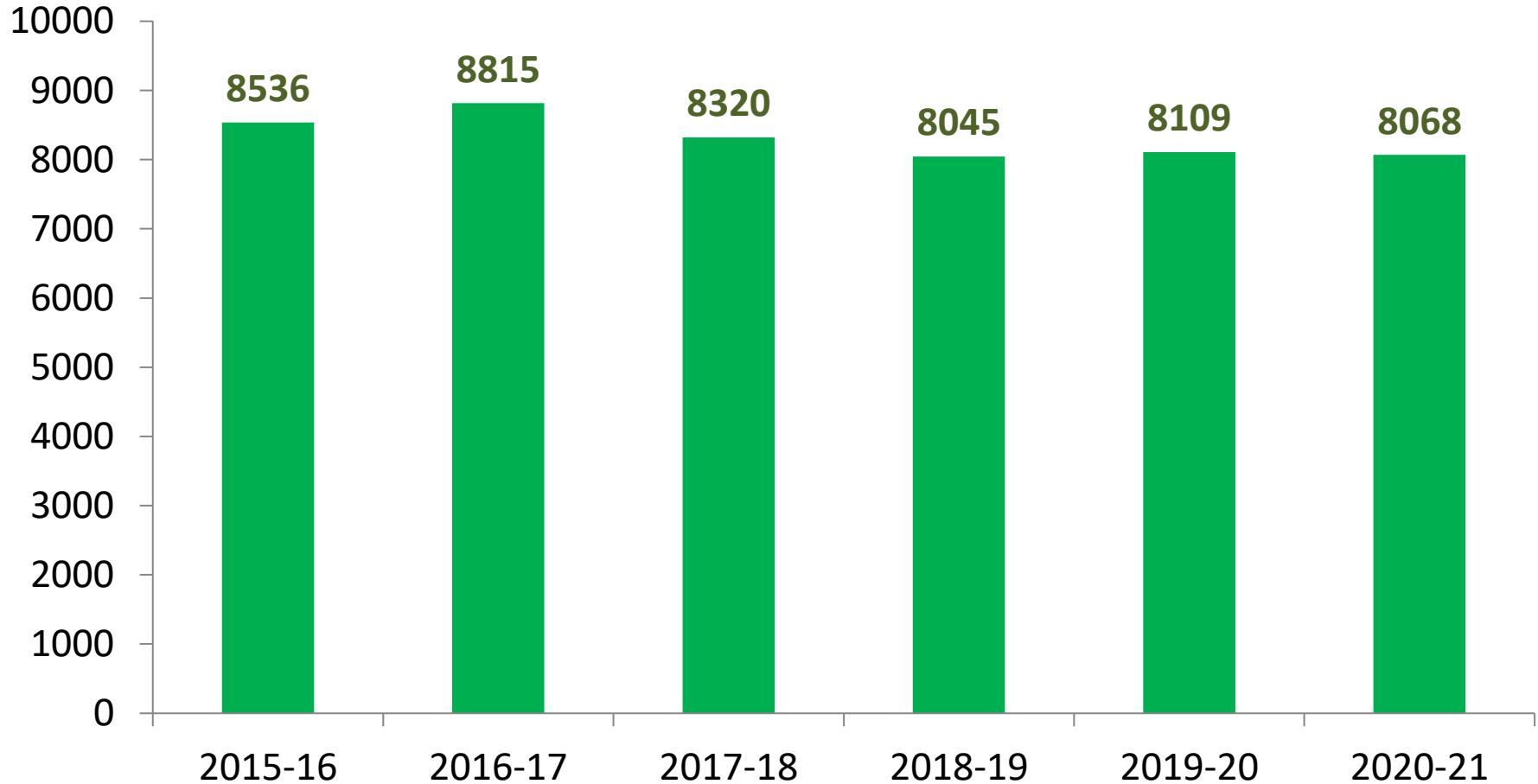
FSC

ISO 45001:2018



JKPM Plantation initiatives

Total Plantation area (Hect)



1. Brief introduction on Facilities

Pulp-Mill

2,30,000 TPA



- Continuous digester
- DD washers
- IIOT enabled
- Waste heat recovery system
- 320 KWh/ Ton of pulp

Five Paper machines

3,20,000 TPA

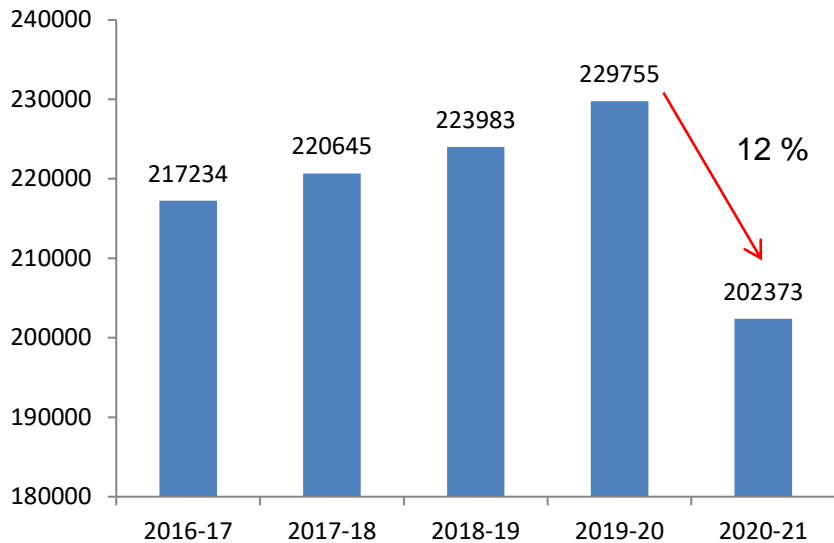


- PM 6
 - GSM (60 to 100)
 - 1200 MPM
 - 403 KWh/ Ton of paper
 - 1.7 Ton of steam/Ton of Paper
 - Turbo blower



JK Paper – Trend of Production

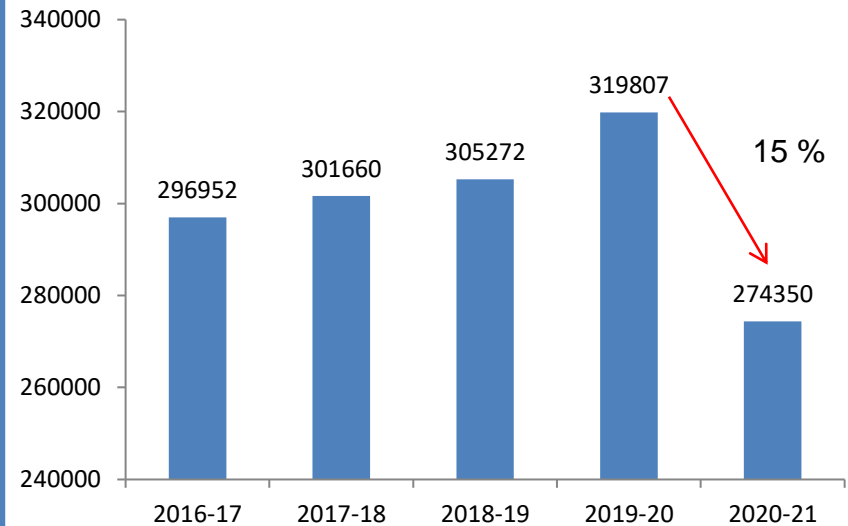
Pulp Production (Tons)



Impact of Covid

- Apart from lack of demand , to keep the plant running during pandemic, we were making pulp sheets (for internal use) and Special grades of very Low GSM.
- Could not take plant shuts due to lack of availability of manpower .

Paper Production (Tons)



2. Brief introduction- Energy Scenario

Capacity	190 TPH
Present	175 TPH

LFB

65 Kg / cm²
1400 TDS /Day

TG-2

25 MW

TG-3

3.4 MW

Capacity	Present
25MW	24MW

Capacity	Present
3.4 MW	2MW

Capacity	165 TPH
Present	95 TPH

CFB

105 Kg/Cm²

TG-1

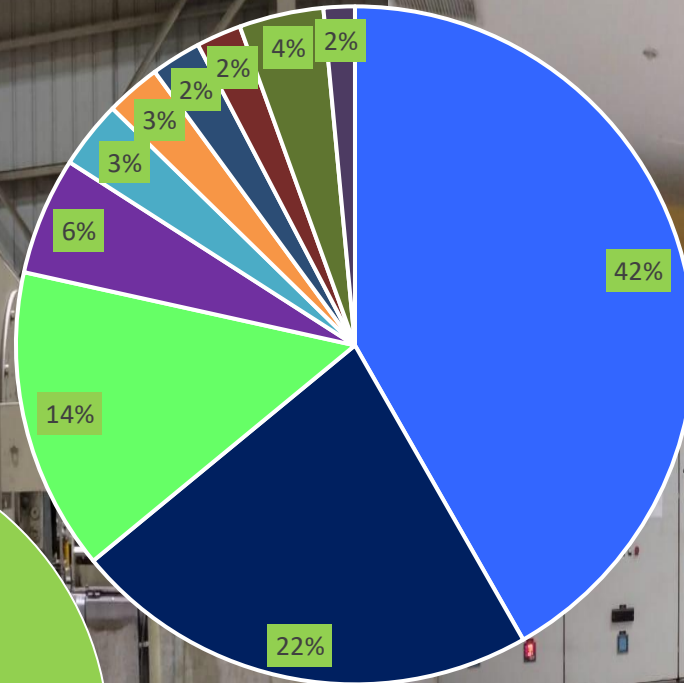
30 MW

Capacity	Present
30 MW	14MW

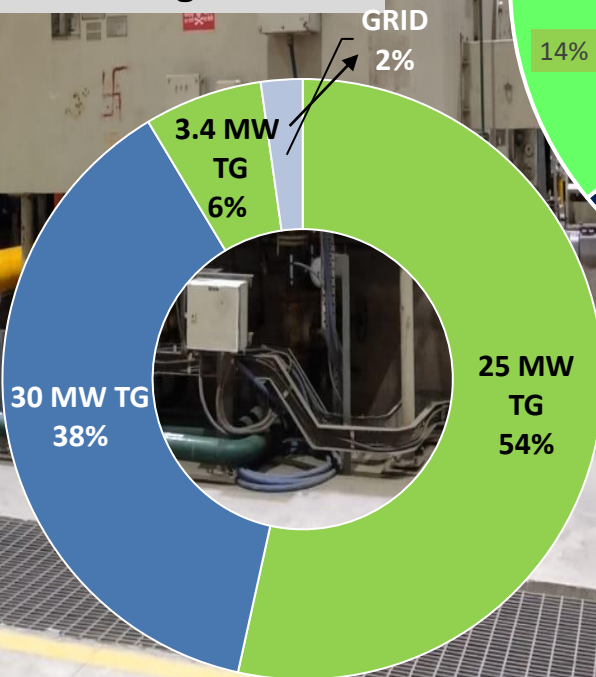
JKPM-Energy Scenario - Power

Electrical Power Distribution

- Paper Machine Section
- Pulp Mill
- Recovery Section
- POWER BOILER
- COMPRESSORS
- TG aux
- Coating Plant
- PCC PLANT
- E.T. PLANT & water
- Others



Electrical Power generation



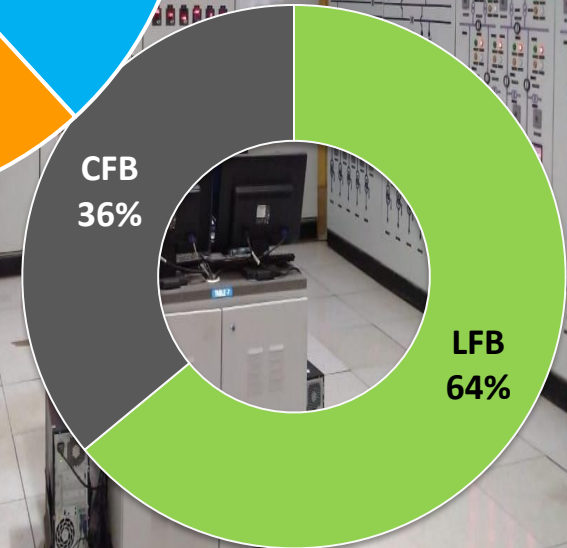
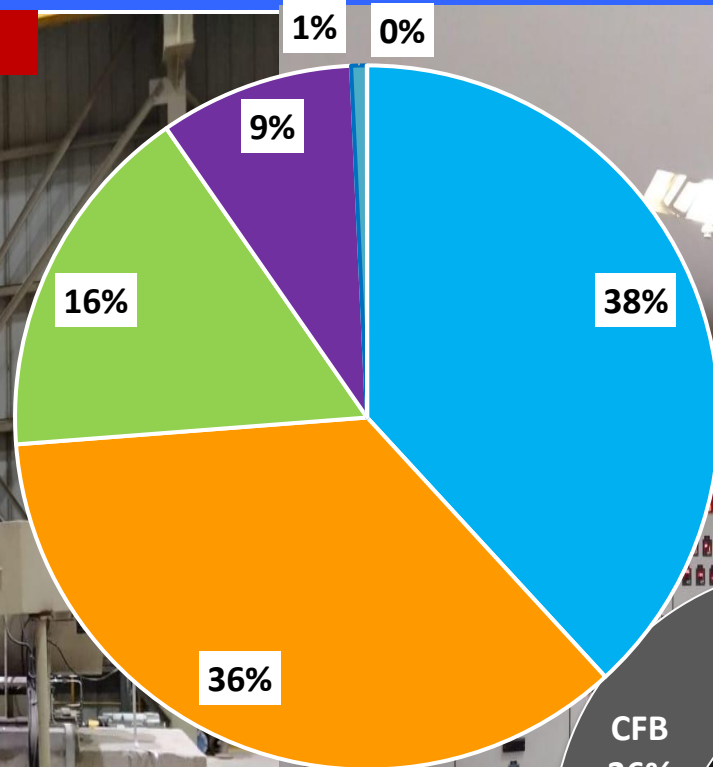
**** 60 %** of Power is contributed by Recovery Boiler steam



JKPM-Energy Scenario - Steam

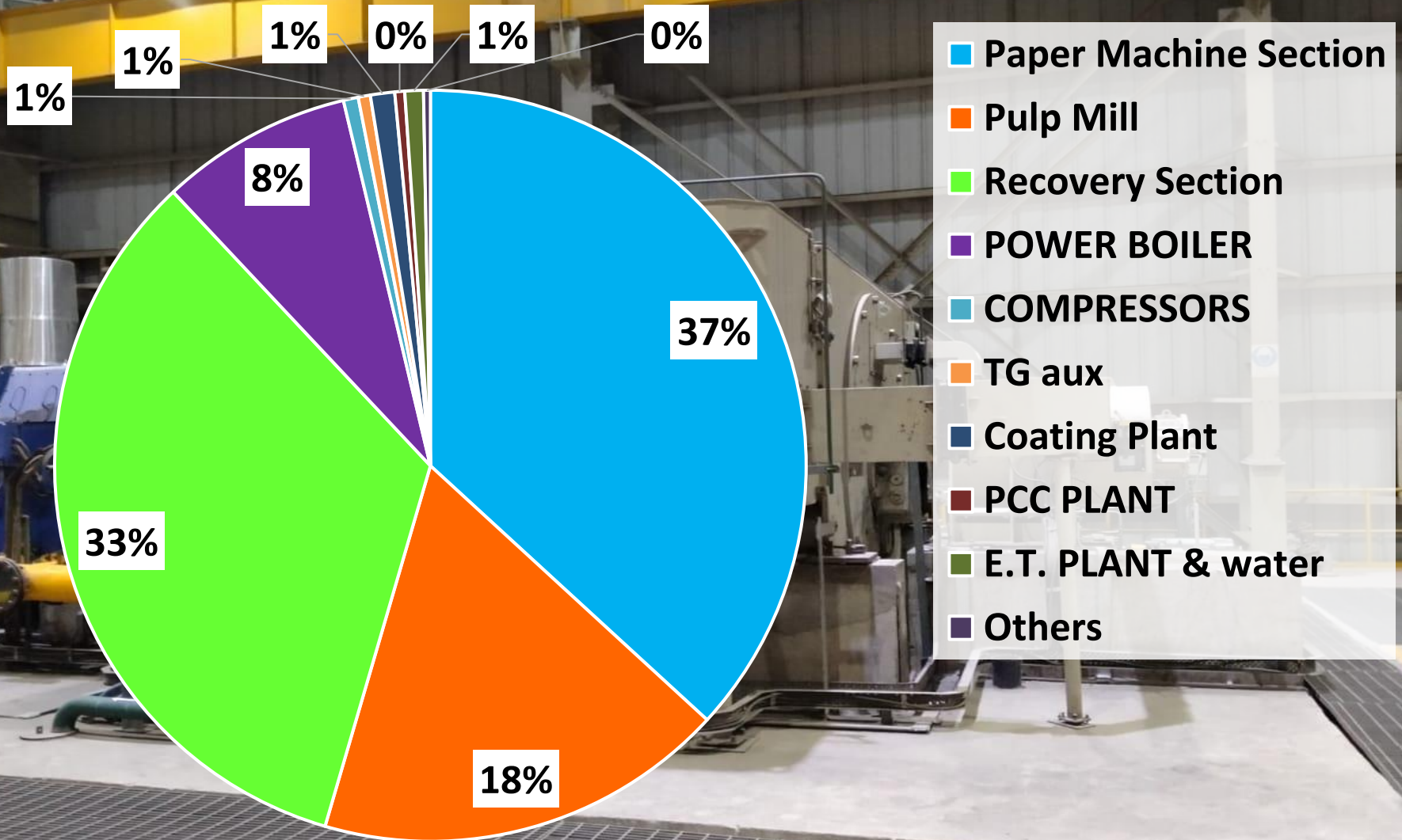
Steam Distribution

- Recovery
- Paper Machine Section
- Pulp Mill
- CFB INTERNAL USE
- Coating Plant
- STEAM BLOWN : CFB

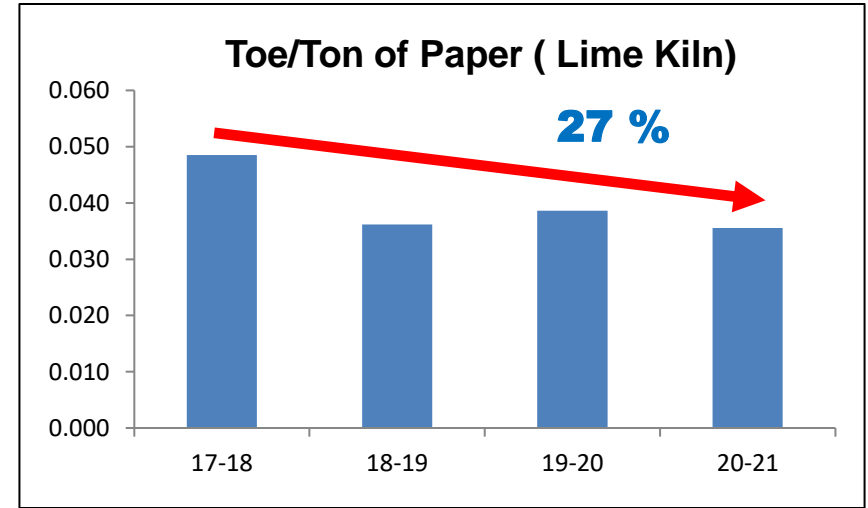
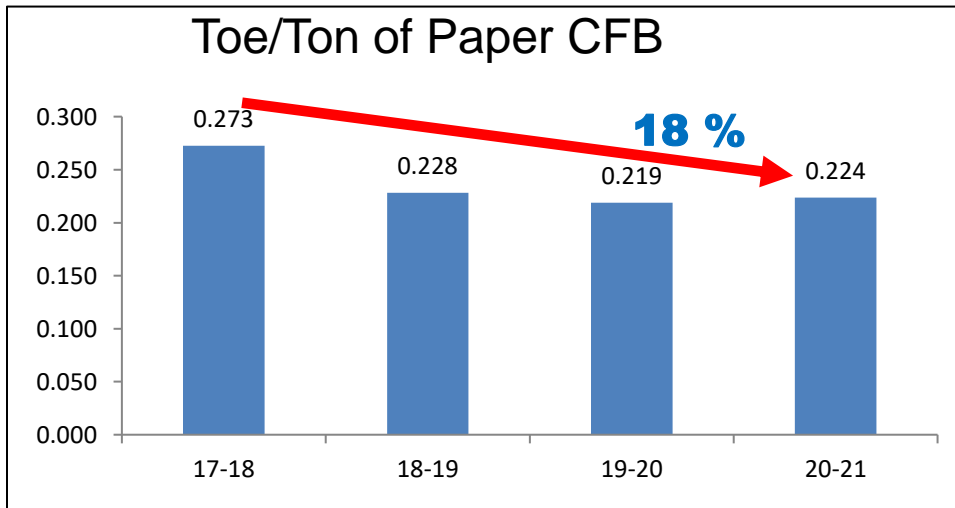
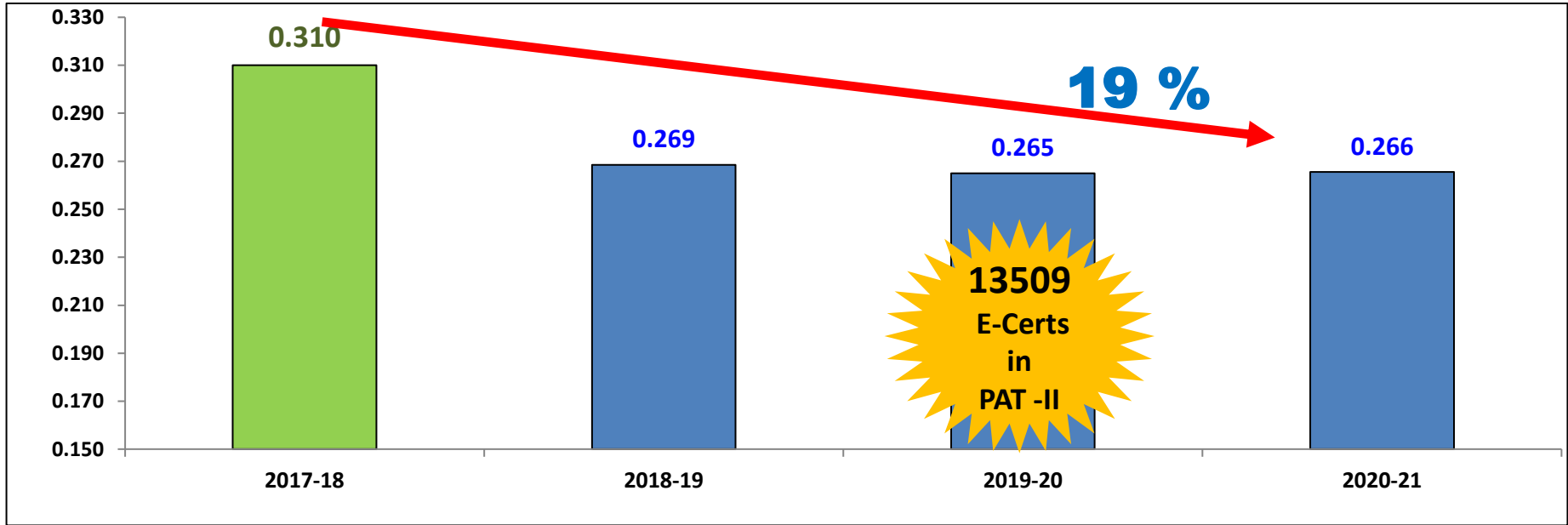


Steam Generation

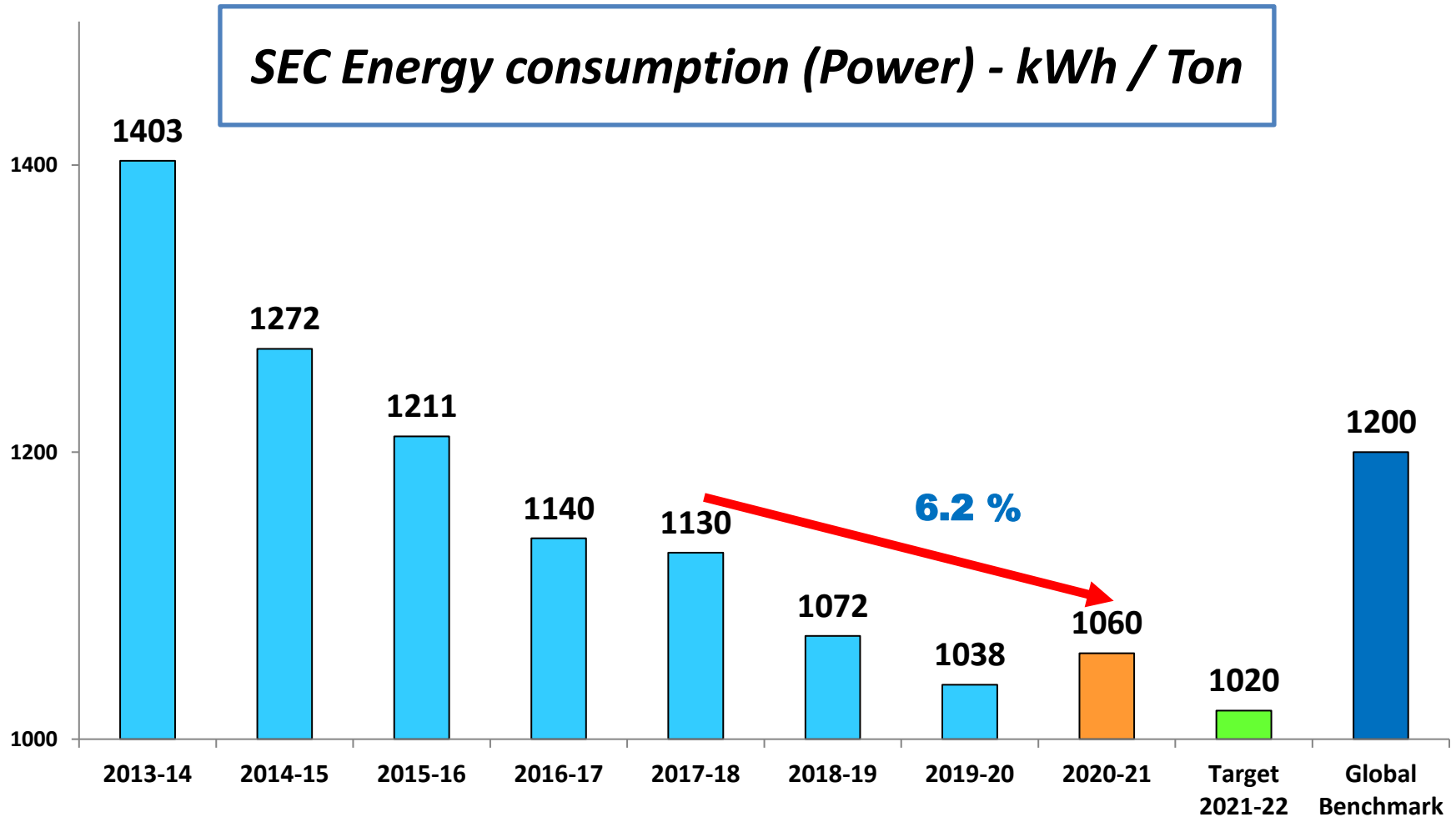
JKPM-Energy Scenario – TOE



3.SPECIFIC ENERGY CONSUMPTION - GTG

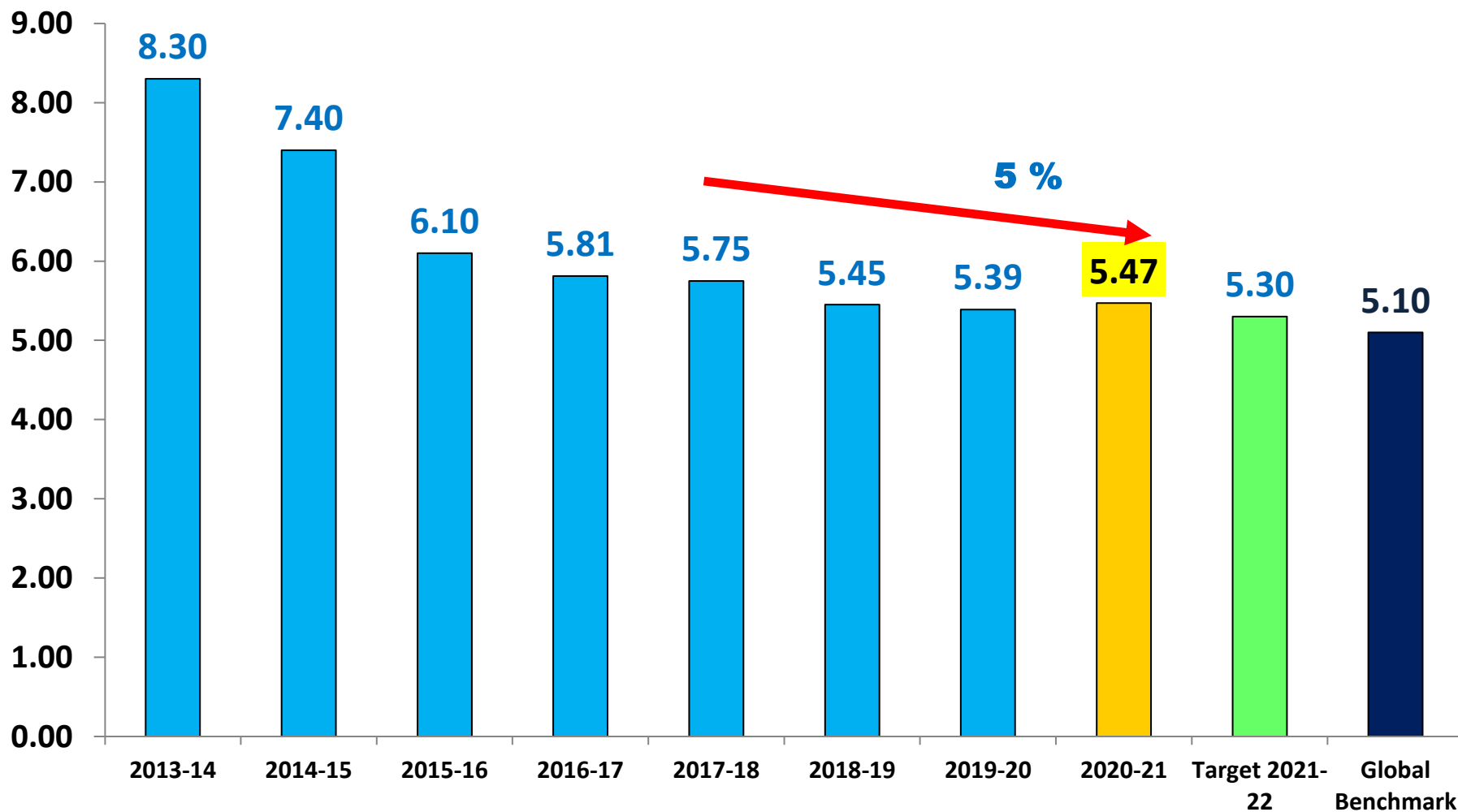


3.SPECIFIC ENERGY CONSUMPTION - POWER



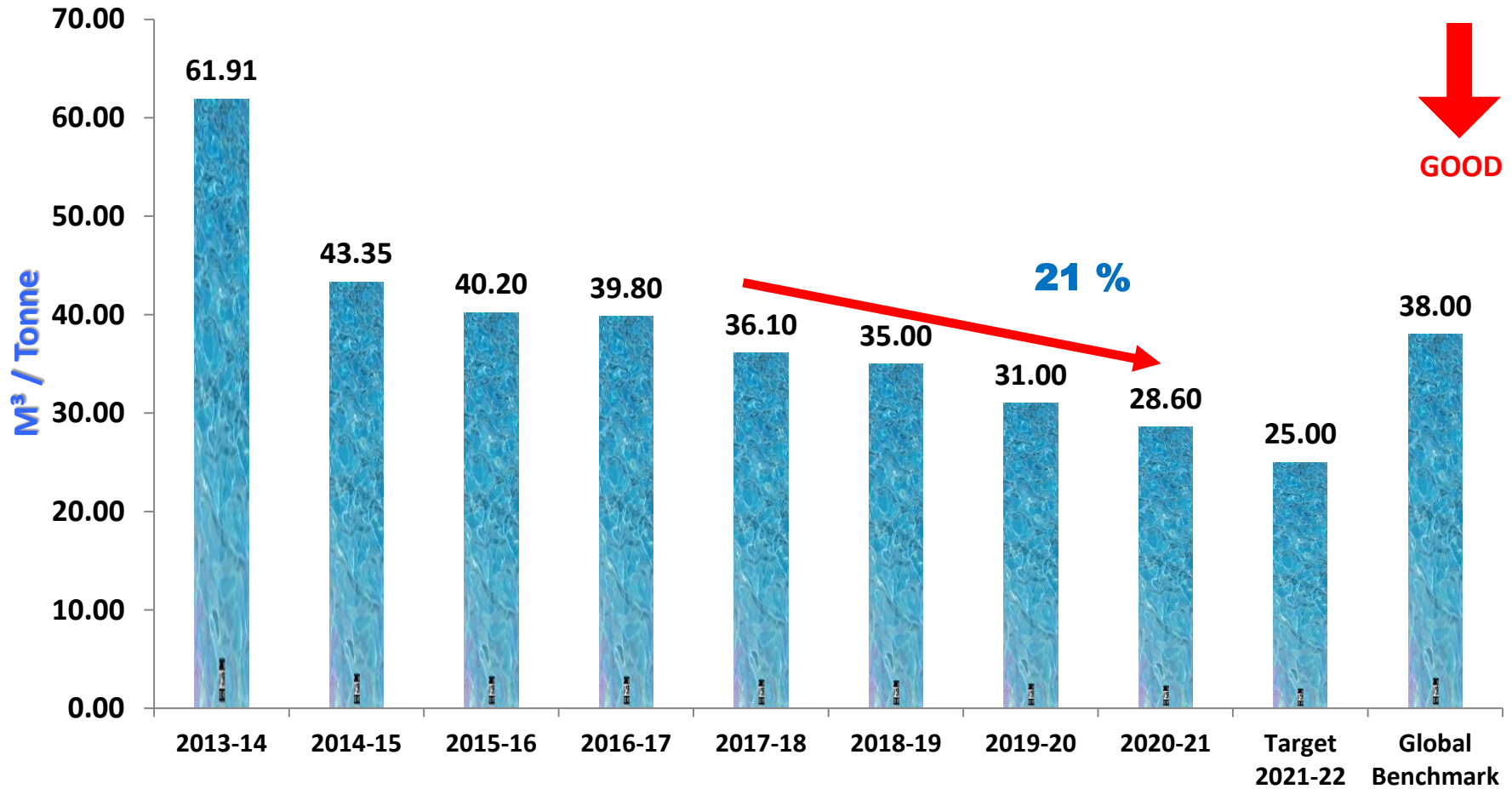
3.SPECIFIC ENERGY CONSUMPTION - STEAM

SEC Energy consumption (Steam)- Ton of Steam / Ton of paper



3.SPECIFIC WATER CONSUMPTION

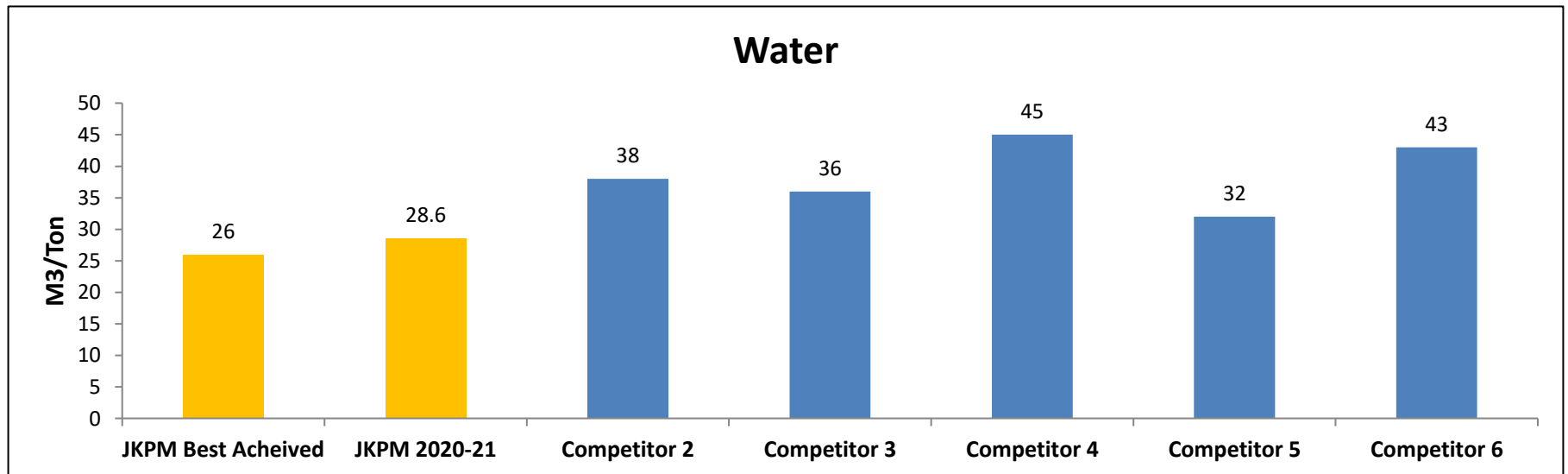
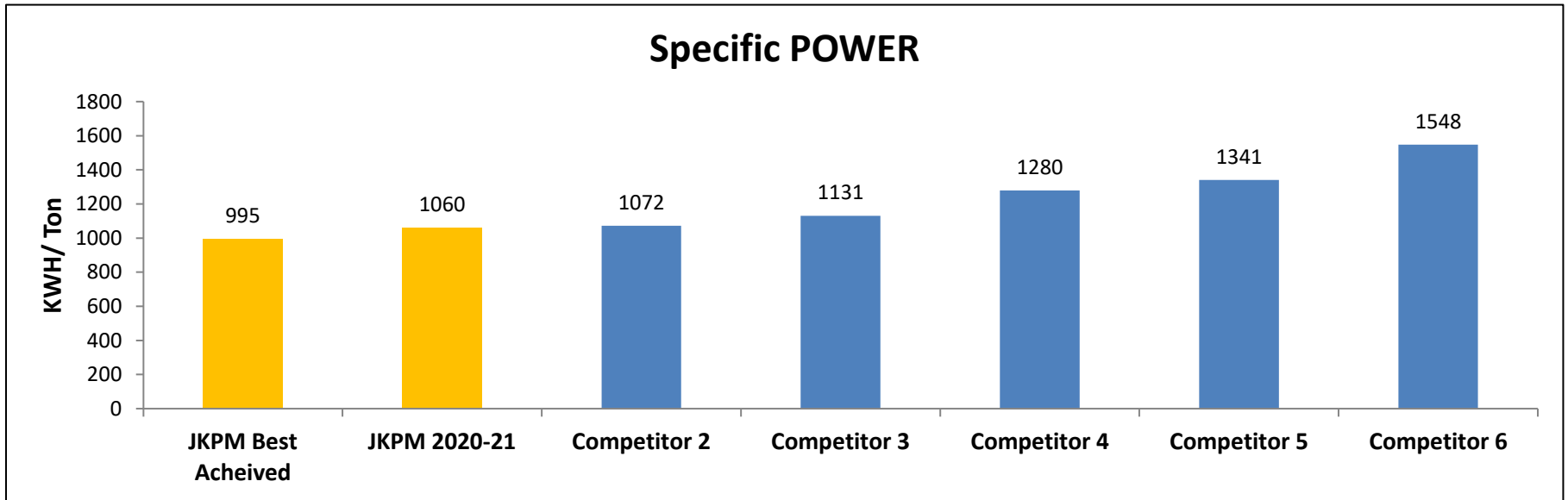
SPECIFIC WATER CONSUMPTION , M³ / Ton of Paper



Global bench marking source : CPPRI report on water conservation in Pulp and Paper Industry.



4. BENCHMARKING – Indian Paper Industry



4. Action plan to achieve Benchmark - Power

Power reduction target : >1200 KW

Sl. No.	Project	Target saving (KW)	Investment (lakhs)	Status
1	PM1 Refiner replacement	300	250	Completed in July'21
2	PM1 Centri cleaner up gradation	40	90	Completed in July'21
3	Compressor power reduction	90	5.5	Completed in July'21
4	Compressor power reduction	90	10	Completed in July'21
5	Energy management system and Data Analytics	1000	TBE	Target : Sep 22
6	VSD Compressor	150	TBE	Target : July 22
7	Through Employee engagement	500	Nil	150 KW achieved
		2170		

4. Action plan to achieve Benchmark - Steam

Steam reduction target : > 7 TPH

Sl. No.	Project	Target saving (TPH)	Investment (lakhs)	Status
1	Energy management system & Data Analytics	5	200	Target : Sep 22
2	PM 4 & 5 steam & condensate modification sysetm	0.8	80	Target : July -22
3	Through Employee involvement (TPM) & Encon Cell	2.4	Nil	0.5 TPH completed
		8.2		



ENCON PROJECTS : 2017 - 20



5. Energy Saving projects implemented in last three years

Year	No of Proposals			Investments (Rs. Million)	Savings (Rs. Million)			Payback (months)
	With funds	Zero fund s	Total		With funds	Zero fund s	Total	
2018-19	9	10	19	343.3	126.6	24.4	151	27
2019-20	12	10	22	116	58.1	48.9	107	13
2020-21	13	7	20	65	8.0	15.1	23.1	33
Total	34	27	61	524.3	192.7	88.4	281.1	73

In last three years we have invested 52 crores and is equal to 1.5 % of annual Turnover



5. Major Energy projects (2018-20)

**Micro TG 3.4 MW
2018-19**



**Methanol Project
2018-19**

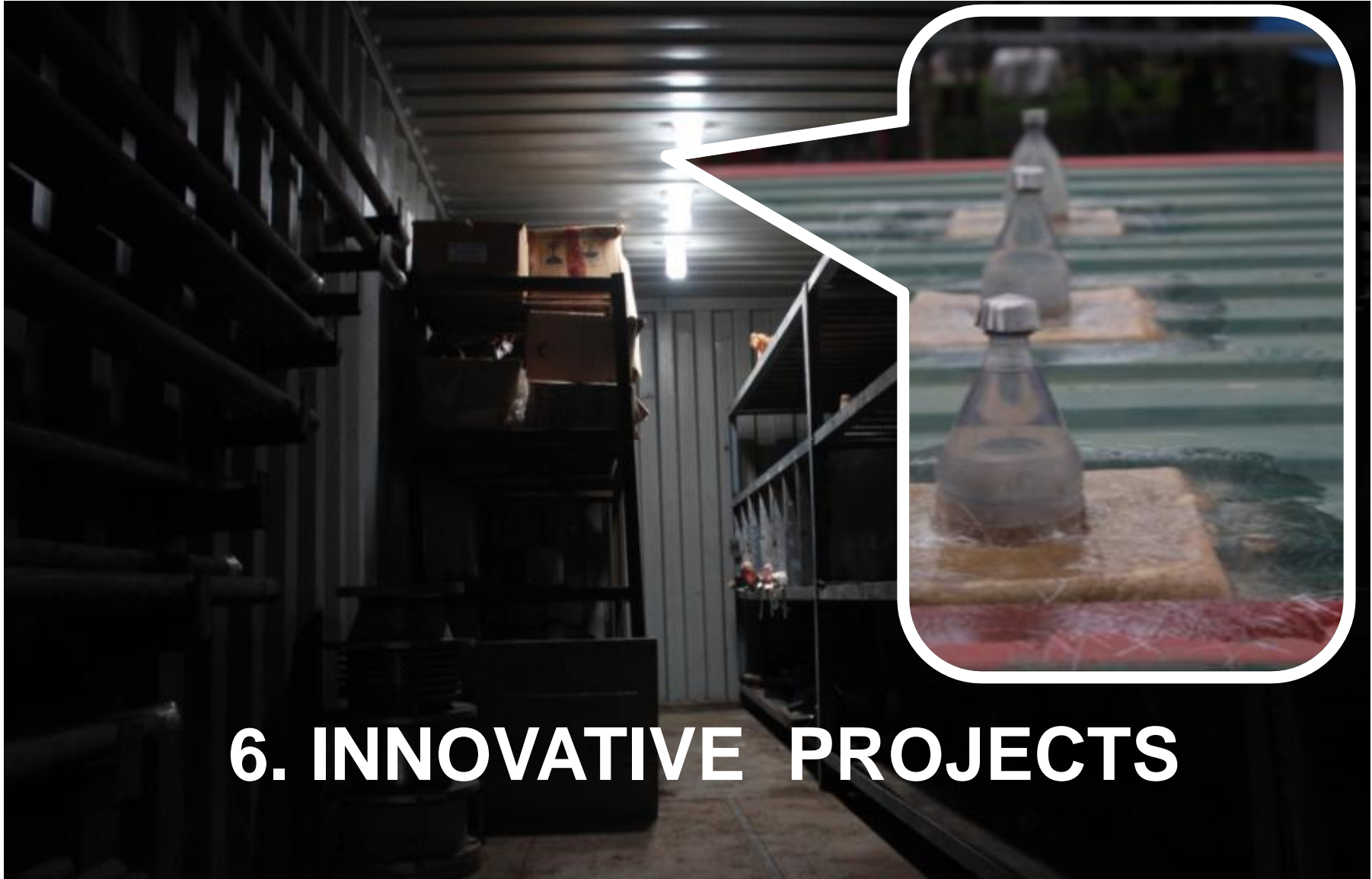


**PM 6 speed increase (1200 MPM)
PM1 silent drive & Stationary siphon
2018-20**



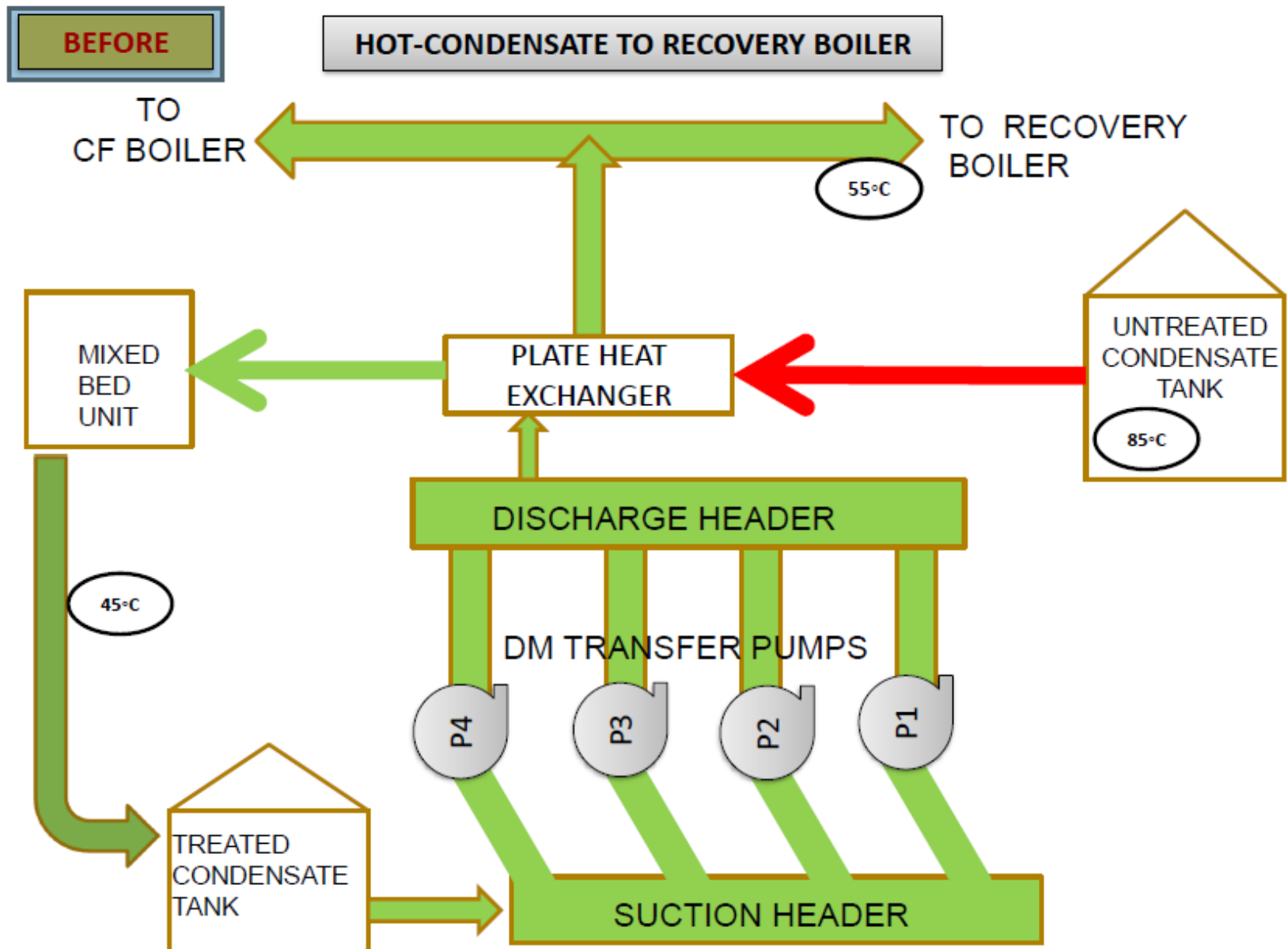
These Major projects were discussed in earlier years , hence not repeating again.



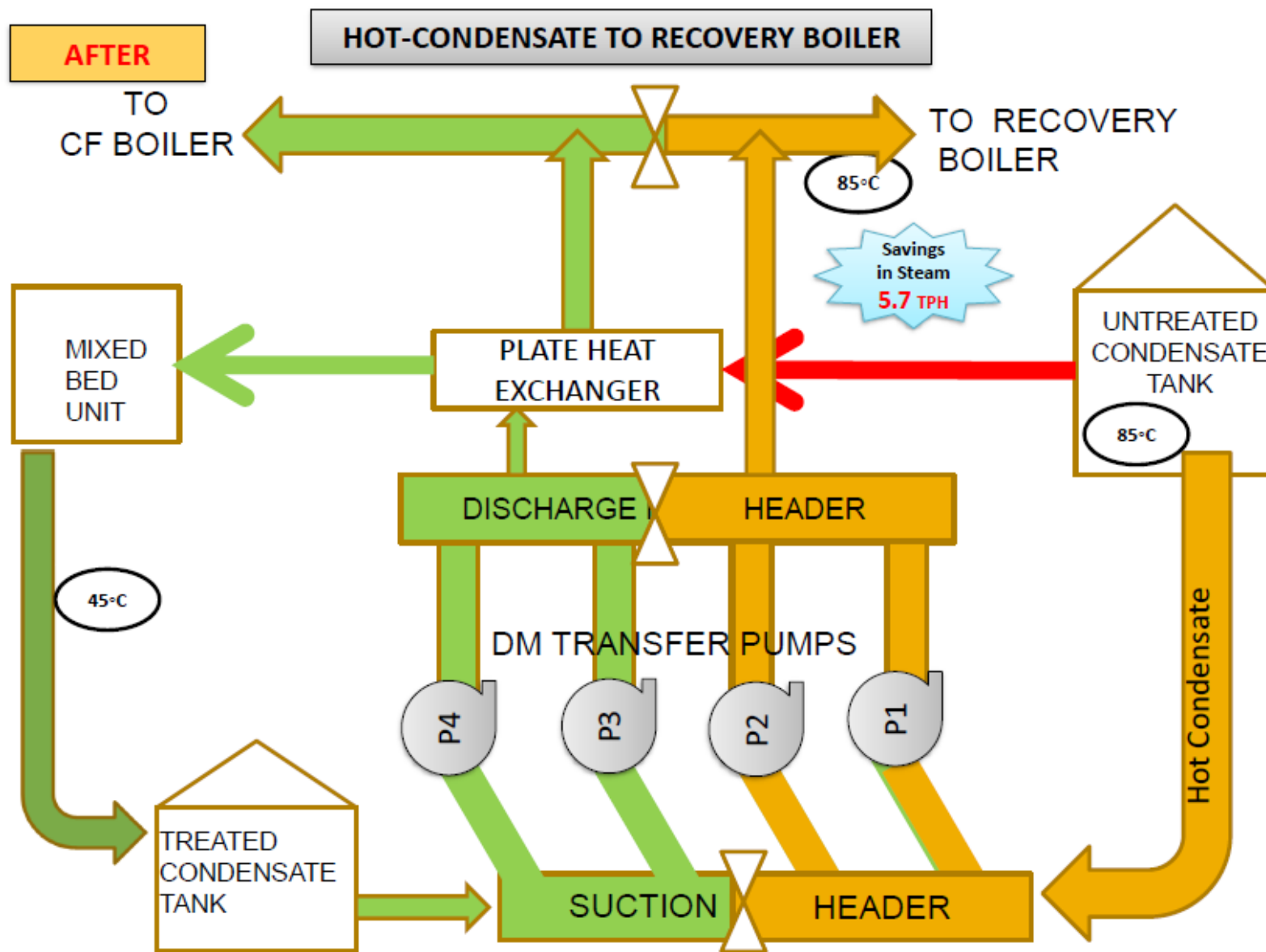


6. INNOVATIVE PROJECTS

DEAERATOR STEAM REDUCTION (1 / 2)

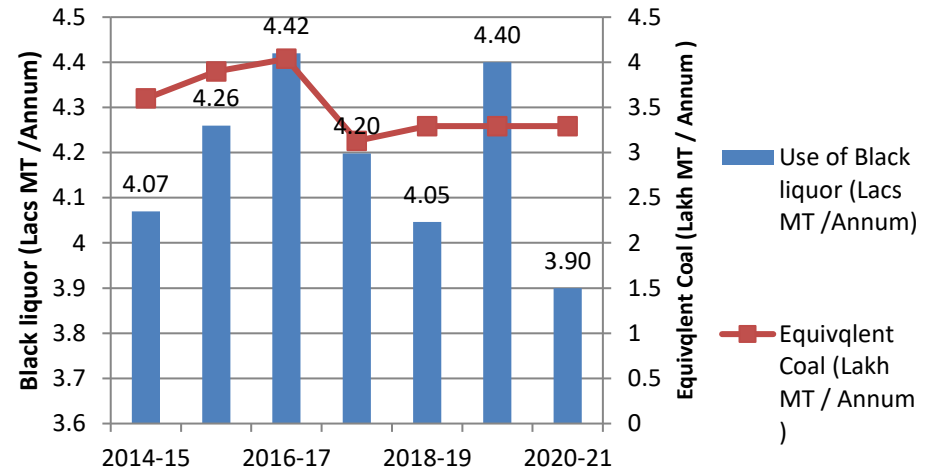


DEAERATOR STEAM REDUCTION (2/2)



7. Utilisation of Renewable sources

Renewable Energy source	Present Practice
Black Liquor	Burnt in Recovery boiler for chemicals recovery and to produce steam.
Solar street lights	Colony street lights were converted to Solar street lights

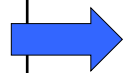
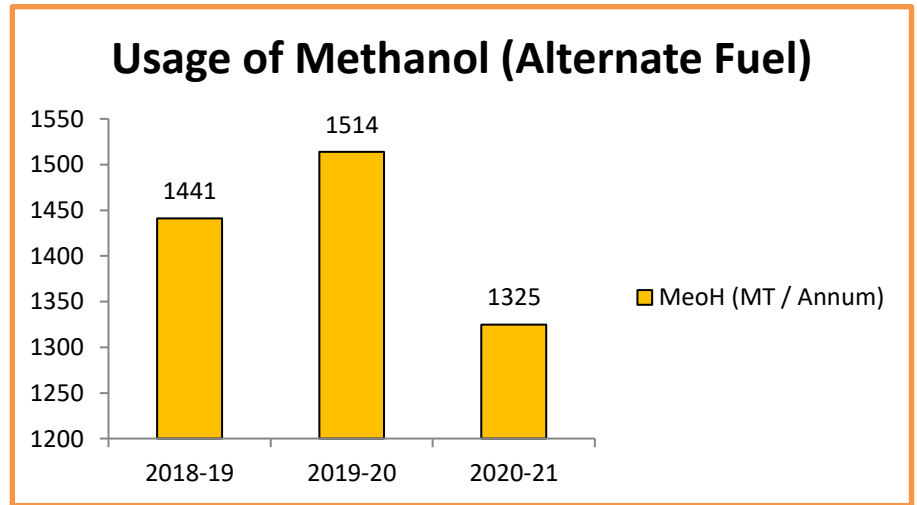
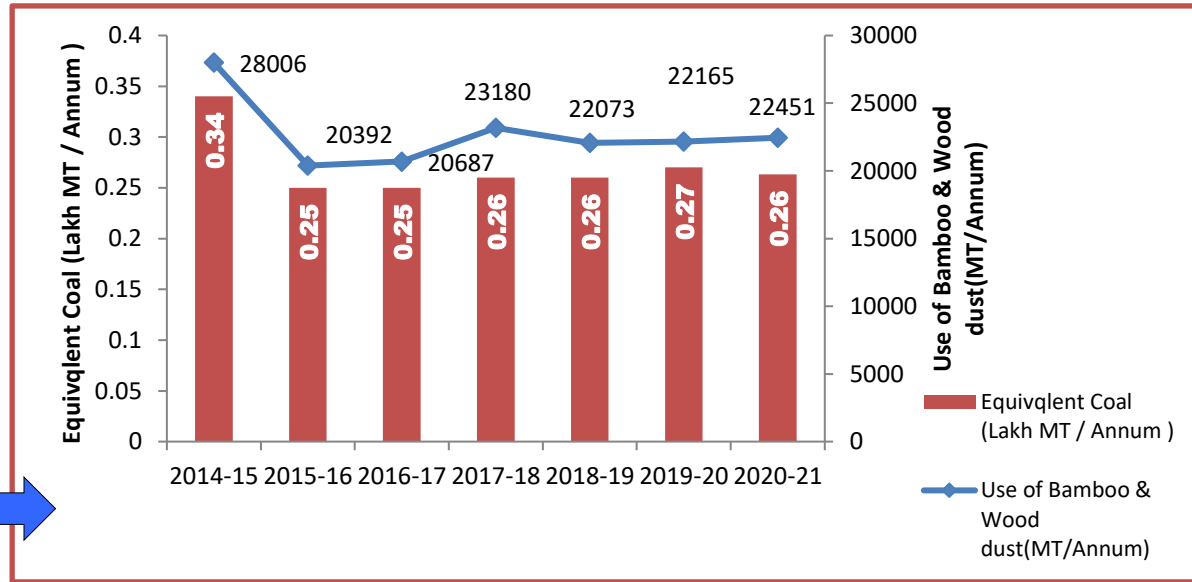


Black-Liquor

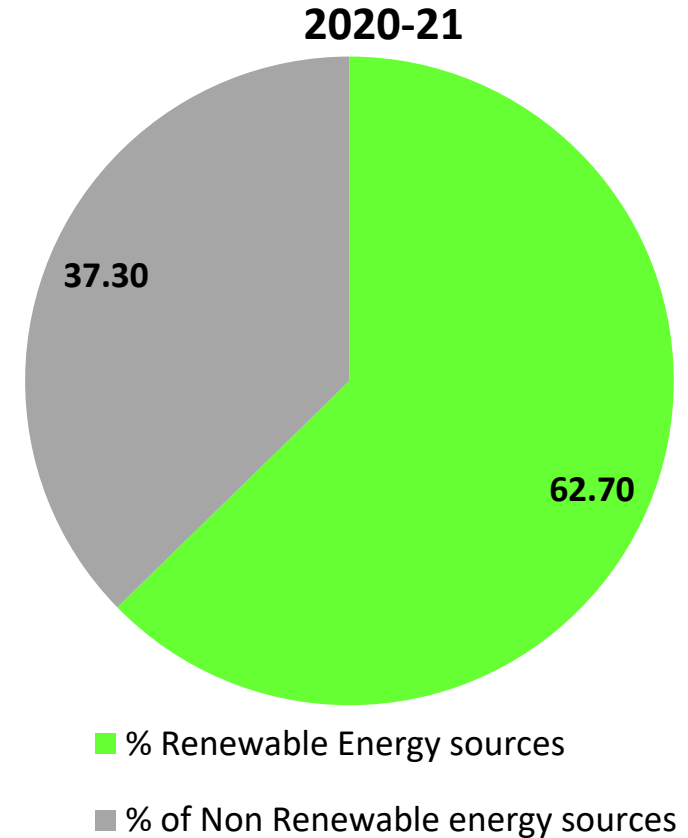
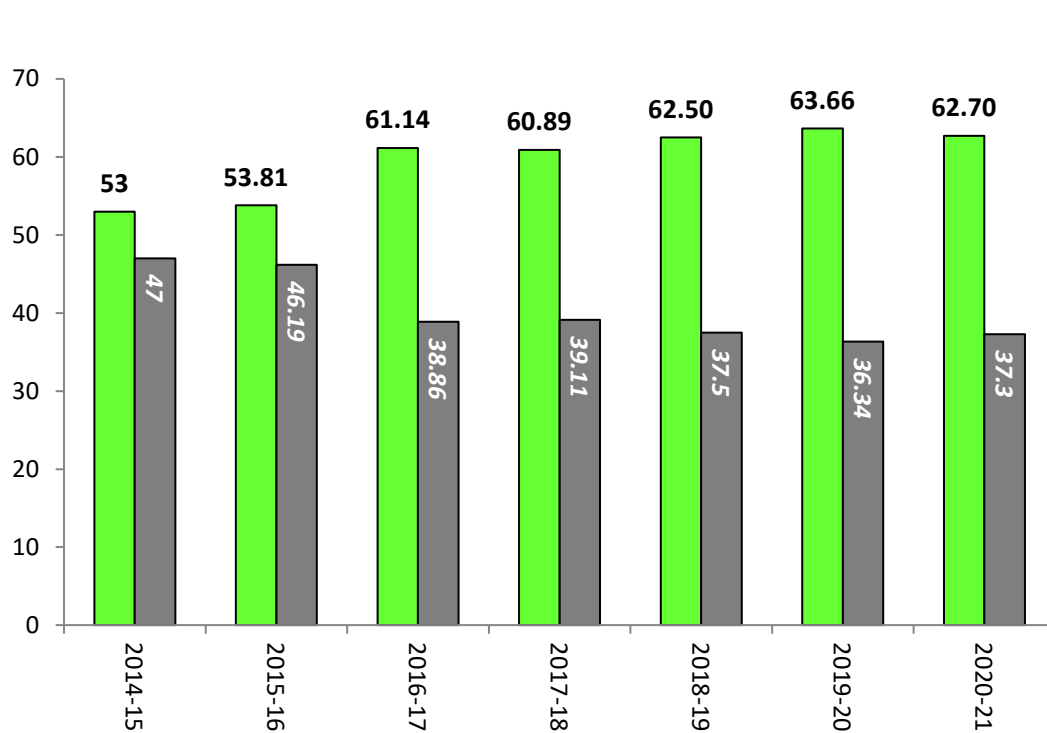


8. Utilisation of Waste sources

Renewable Energy source	Present Practice
Bamboo & Wood Dust	100 % Used as fuel in Boiler.
Methanol (MeOH)	Used as alternate Fuel at Lime Kiln



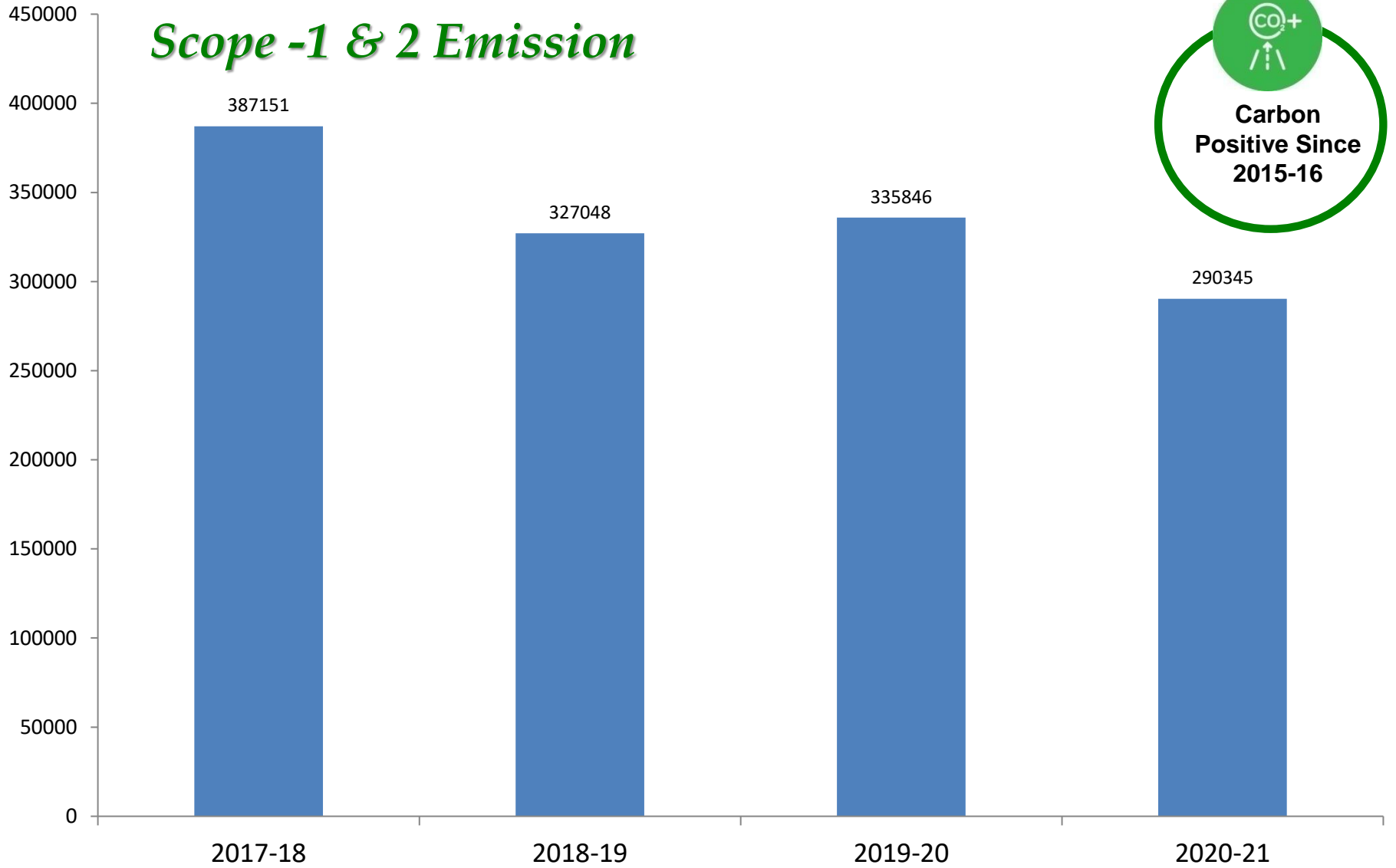
8. Utilisation of Green/Renewable Energy sources



renewable energy usage
increased in last 5 years

9. Absolute GHG emissions (Tons)

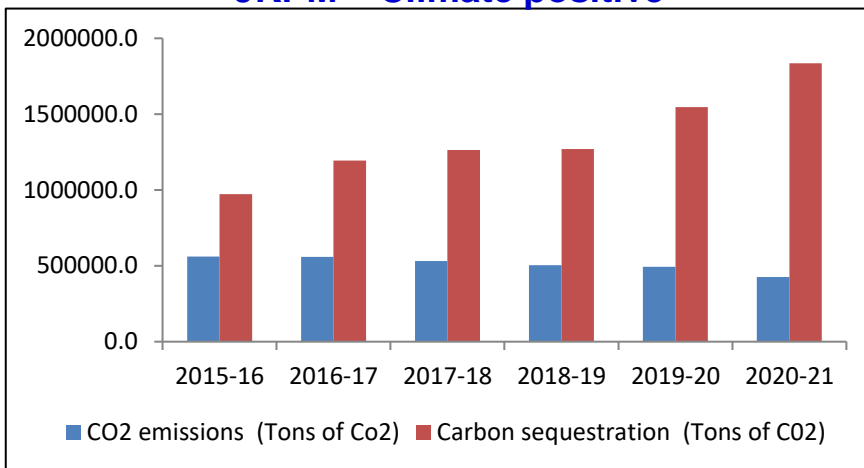
Scope -1 & 2 Emission



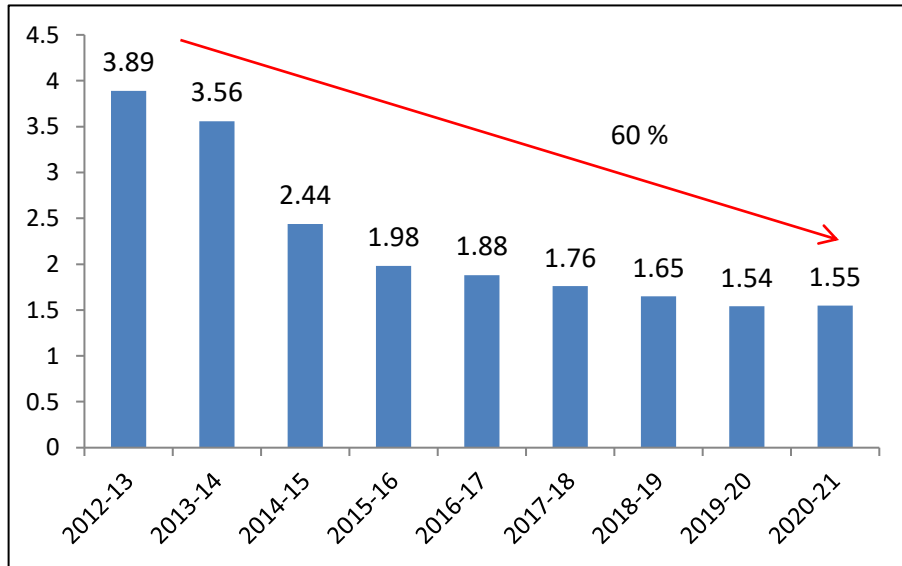
9.INDIA'S CLIMATE CHANGE COMMITMENTS



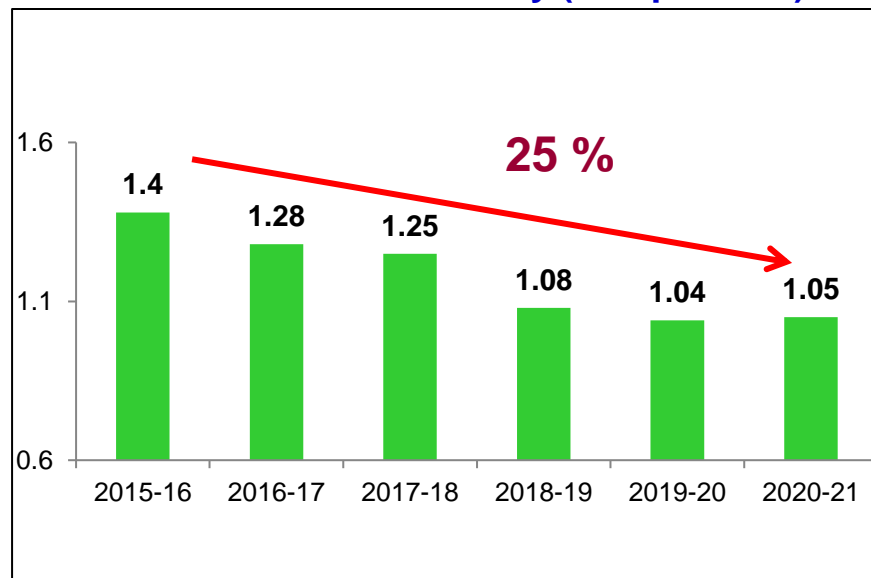
JKPM – Climate positive



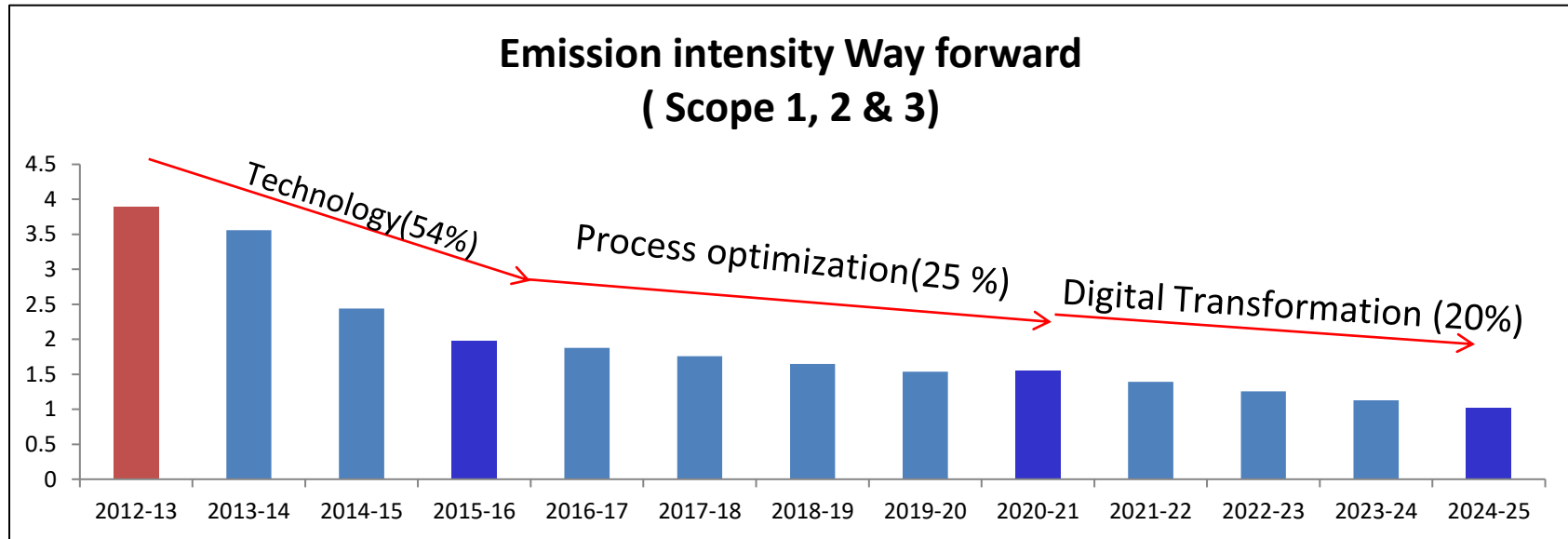
JKPM Emission intensity (Scope 1, 2 & 3)



JKPM – Emission Intensity (Scope 1 & 2)



Long term Vision



- Targeting for 75 % renewable energy by 2025.
- Digital Transformation journey.
 - Pilot project started in 2018 -19 , covering Pulp mill, Recovery and Power block.
 - This year it is expanded to entire JKPL across value chain.



10. Green Supply chain

Green Supply chain policy is integrated with our Environment Management Policy

Green Supply chain

Procurement

- IE3 motors
- BEE star rated
- Critical supplier visits
- Local Procurement

Logistics

- Inbound
- Outbound
- Internal

Manufacturing

- Energy efficient technology
- Continuous improvement through TPM

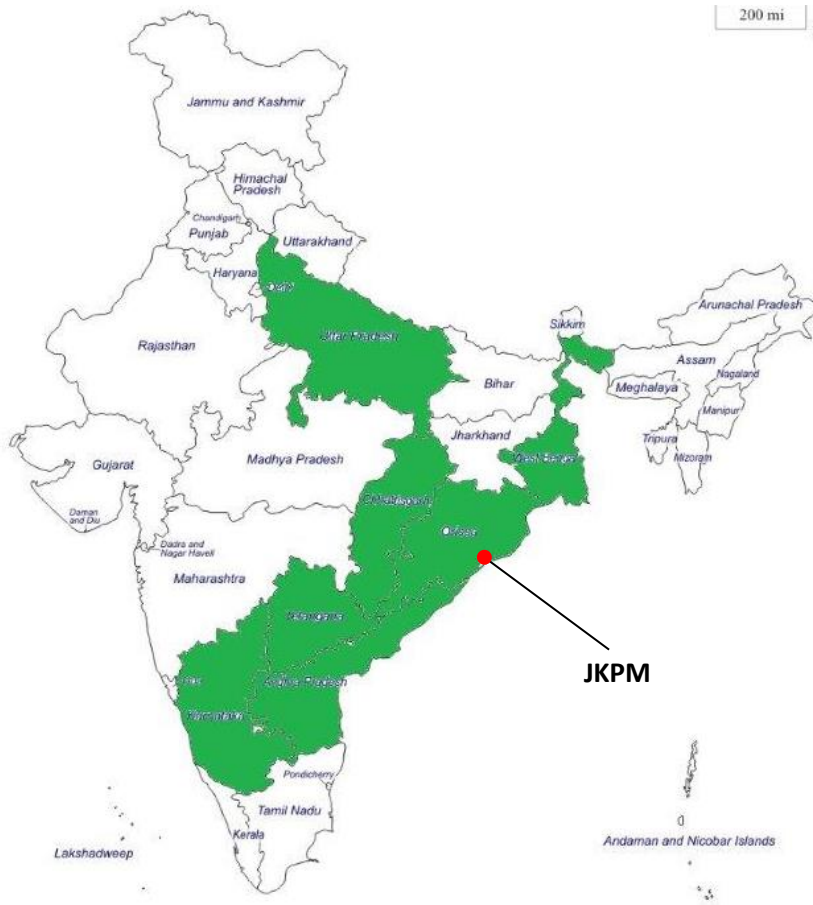
Products to replace plastic

- Straw paper
- Cup stock paper
- Carry bag paper

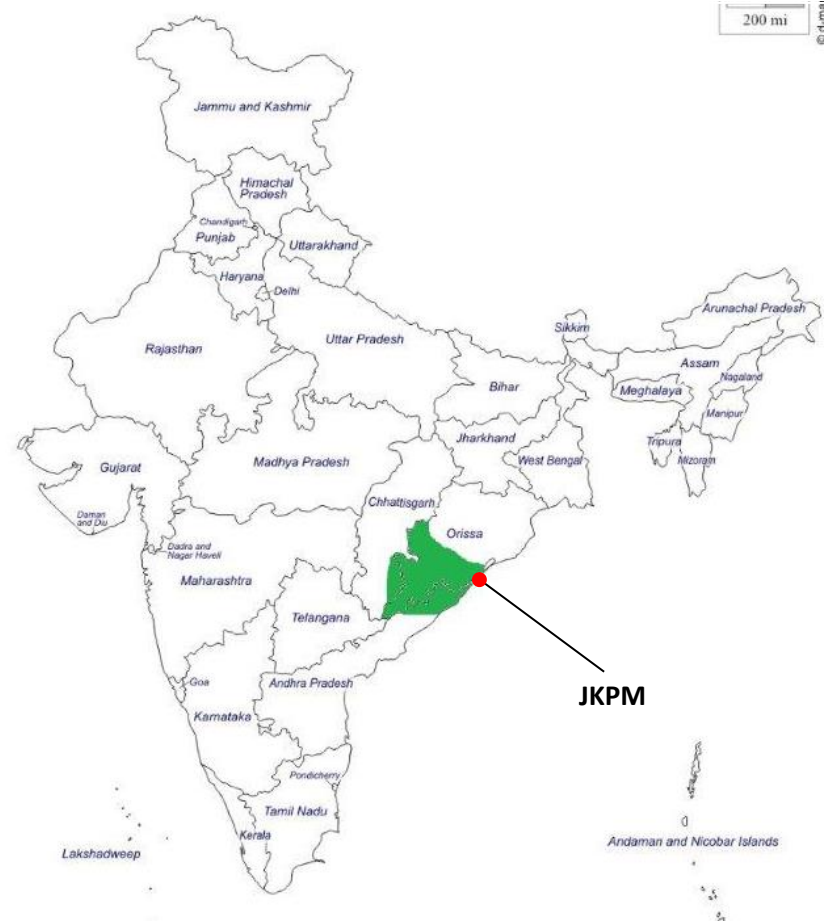


10. Green Supply chain- Raw Material Procurement

2016-17



2018-19 & 2019-20



- Average Truck distance has come down from 700 KM to 150 KM.
- GHG emission reduction by **18413** MT CO₂ per year.

10.Green supply chain –New Product development



(Ecosip Paper for Straw)



(Carry Bag Paper)



(Cup Stock Paper)

J K PAPER*Creating Lasting Impressions*



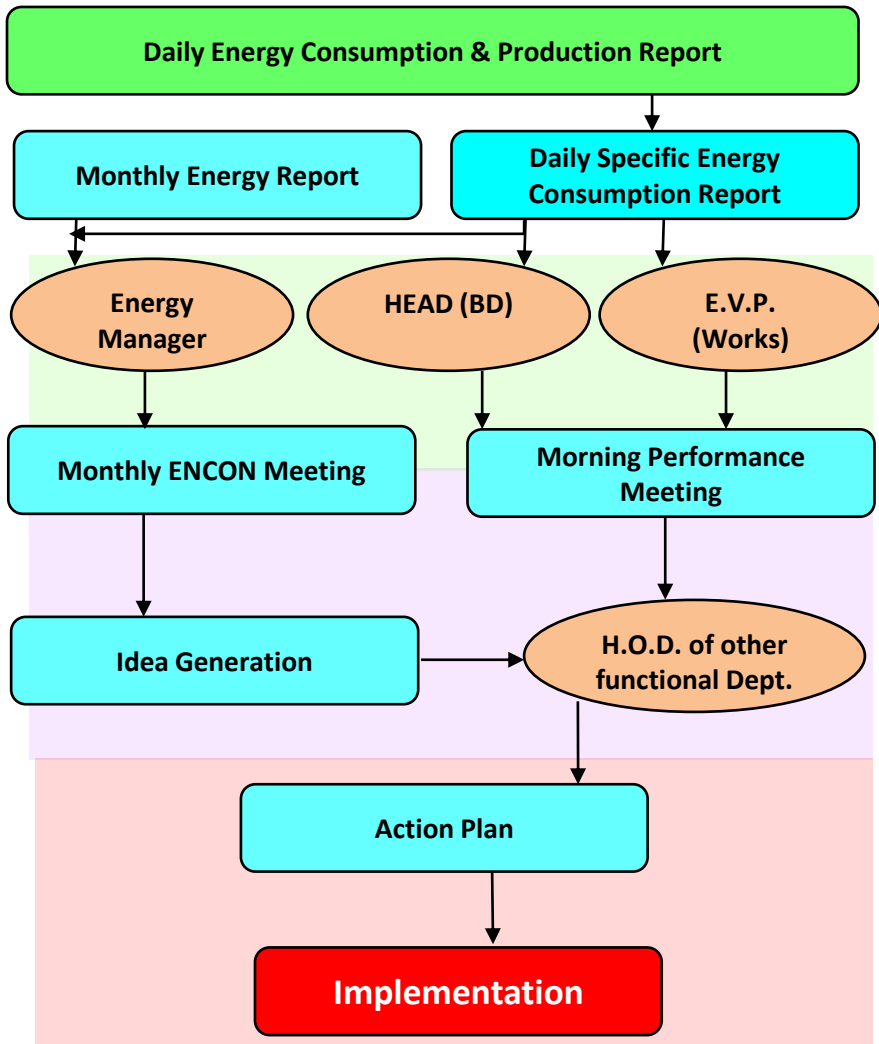
11. Teamwork, Employee Involvement & Monitoring

ENCON METHODOLOGY



ENCON CELL STRUCTURE

Energy Conservation Monitoring Approach



Energy Conservation Cell Structure

APEX Gr.



Constituting the organization Chief and General Managers

CORE Gr.



DGMs and Line Managers of Process, Electrical & Instrumentation

WORKING Gr.

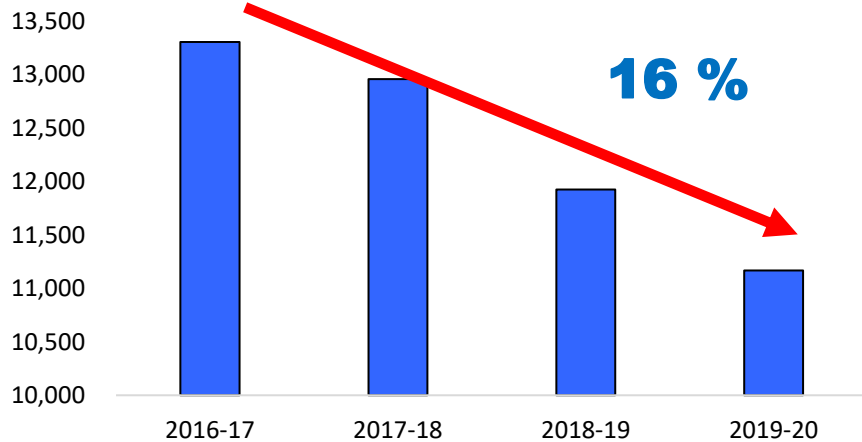


Dy. Mgrs. / Asst. Mgrs. / Supervisors / workmen

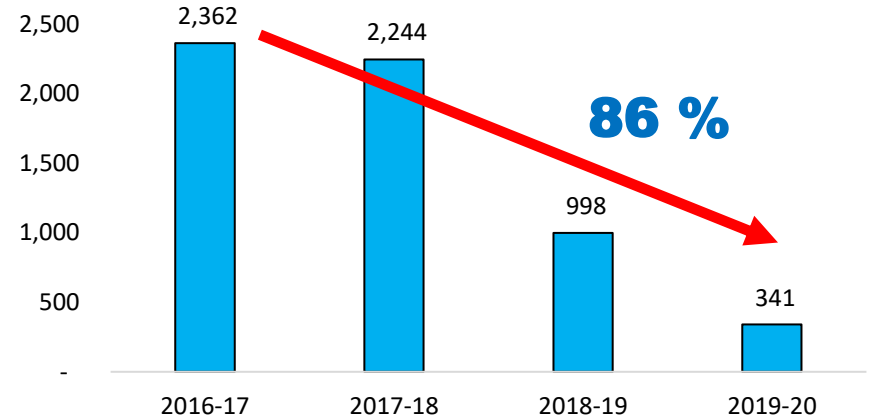
ENCON CELL FOCUS AREAS

- Coal Yard management
- Boiler Efficiency
- Electricity Conservation
- Renewable energy improvement
- Compressed air efficiency
- Steam conservation
- Lime Kiln Energy efficiency
- Water Reuse
- Equipment efficiency improvement
- Venting reductions

Compressor Power (MWh)



Steam Vent (TPA)



ENERGY MONITORING SYSTEM

PMS-Power Management System



Off-line Power analyzer



Daily Power Report

J.K.PAPER LTD.(UNIT -JKPM)				QF/100/EO/02			
ELECTRICAL DEPARTMENT				Date	16-Aug-18		
DAILY ELECTRICAL ENERGY UTILISATION REPORT							
SLNO	DEPARTMENT NAME	POWER CONSUMPTION					
		TODAY		TODATE		AVERAGE / DAY	
(A) CONSUMPTION		KWH	MW	KWH	MW	KWH	MW
1	COMPRESSORS	34672	1.44	552746	23.03	34547	1.44
2	POWER BOILER-VI	52467	2.19	902474	37.60	56405	2.35
3	LF BOILER-VI	55371	2.31	843408	35.14	52713	2.20
4	EVAPORATOR+COOLING TOWER	50575	2.11	787511	32.81	49219	2.05
5	RECAUSTISIZER	15327	0.64	229364	9.56	14335	0.60
6	LIME KILN	10117	0.42	166477	6.94	10405	0.43
7	PCC PLANT	21732	0.91	378671	15.78	23667	0.99
8	CHIPPER HOUSE	2865	0.12	51203	2.13	3200	0.13
9	CHIPS WASHING	5015	0.21	87107	3.63	5444	0.23
10	NEW FIBRE LINE	100985	4.21	1593590	66.40	99599	4.15
11	CLO2	101706	4.24	1555530	64.81	97221	4.05
12	O2 PLANT	10455	0.44	162615	6.78	10163	0.42
13	PAPER MACHINE-VI	215822	8.99	3275508	136.48	204719	8.53
14	NEW ET PLANT	6568	0.27	107757	4.49	6735	0.28
15	25MW TG AUX	12437	0.52	183227	7.63	11452	0.48
16	30MW TG AUX	15432	0.64	267144	11.13	16697	0.70
17	3.4MW TG AUX	0	0.00	1	0.00	0	0.00
18	WATER SUPPLY-I & II	11697	0.49	204175	8.51	12761	0.53
19	COMPRESSOR & AUX	0	0.00	0	0.00	0	0.00
20	SEWAGE TREATMENT PLANT	3652	0.15	55584	2.32	3474	0.14
21	MCC-7 (OLD PMC STOCK)	3823	0.16	53485	2.23	3343	0.14
22	CHIPPER HOUSE (Old)	7292	0.30	114520	4.77	7158	0.30
23	PET COKE	916	0.04	12476	0.52	780	0.03
24	PAPER MACHINE - I	36834	1.53	574984	23.96	35937	1.50
25	PAPER MACHINE - III	40235	1.68	627664	26.15	39229	1.63
26	PAPER MACHINE - IV	28231	1.18	458405	19.10	28650	1.19
27	PAPER MACHINE - V	27102	1.13	433192	18.05	27075	1.13
28	TDR+DDR	56947	2.37	913682	38.07	57105	2.38
29	COATING PLANT	17216	0.72	318225	13.26	19889	0.83
30	P D PLANT	14144	0.59	159630	6.65	9977	0.42
31	E.T. PLANT	14740	0.61	243340	10.14	15209	0.63
32	WATER RECLAMATION	3500	0.15	56000	2.33	3500	0.15
33	ADM. BUILDING & TECH BUILD	740	0.03	11780	0.49	736	0.03
34	COLONY	9880	0.41	169980	7.08	10624	0.44
35	DM PLANT (NEW)	3805	0.16	62046	2.59	3878	0.16
36	GRID EXPORT	150	0.01	11200	0.47	700	0.03
	TOTAL	992450	41.35	15624701	40.69	976544	40.69
(B)	GENERATION				TODAY R/H	TODATE R/H	
1	30MW GENERATOR	410000	17.08	6340000	16.51	24	384
2	25MW GENERATOR	528000	22.00	8966000	23.35	24	384
3	3.4MW GENERATOR	53500	2.23	307100	0.80	23.33	104.33
4	SUB TOTAL	991500	41.31	15613100	40.66		
5	GRID	950.00	0.04	11600	0.03	24	384
6	750 KVA LT DG	0	0.00	0	0.00	0	0
7	TOTAL	992450	41.35	15624700	40.69		
(C)	POWER FACTOR						REMARKS
1	30MW GENERATOR	0.911	0.911				RUNNING
2	25MW GENERATOR	0.946	0.939				RUNNING
3	3.4MW GENERATOR	0.904	0.934				5.40 PM TO 6.20 PM SHUT FOR CHECKING WORK
4	GRID	0.655	0.455				RUNNING
5	750KVA DG	0	0.00				SHUT
(D)	GRID MD IN MVA	3.376					
(E)	SPECIFIC POWER	TODAY		TODATE			
1	PAPER UNITS	957413		15088014			SPECIFIC POWER -(TOTAL POWER(A) - COATING(SL-28)-PD PLANT(SL-29)-COLONY(3677 KWH)) / TON OF PAPER CONSIDERING 9% FINISHING LOSS
2	TOTAL PAPER PRODUCTION	932		15292			
3	PAPER SPECIFIC POWER	1129		1084			
4	COATING UNITS	17216		318225			
5	COATING PLANT PRODUCTION	130		3043			
6	COATING SPECIFIC POWER	146		115			
7	PD PLANT PRODUCTION	4		4			



CELEBRATION of ENERGY CONSERVATION DAY



ENCON THROUGH TOTAL EMPLOYEE INVOLVEMENT



4 Steps to build employee engagement

ENCON Quiz



EnCon Awareness program among Home Makers



Build

Educate

Engage

Measure

Contd.



Energy Conservation Awareness sessions in Nearby Schools



covered 955
students
from class
3rd to 12th



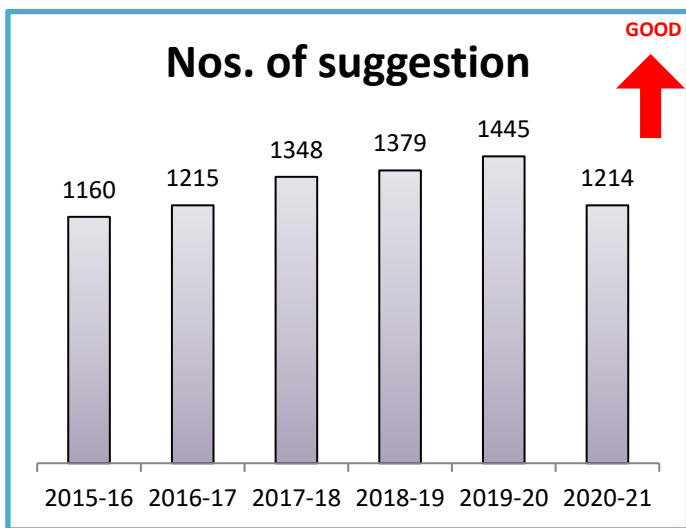
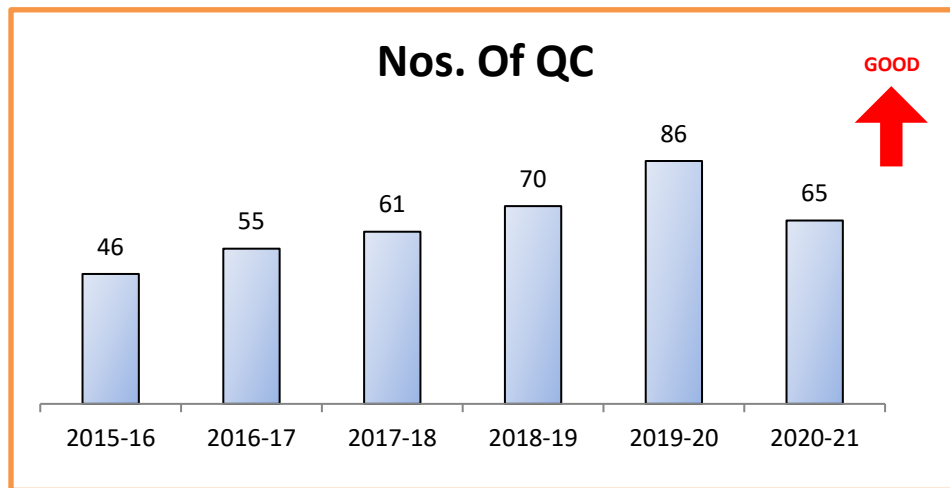
Environment Day Celebrations

On occasion of World Environment Day, we always conducting awareness and Promotional Activities on Environment.

- Total Sapling done about 3000 nos. at two places (Inside Mill Premises and Outside Old Fly Ash Dumping area) on 5th June 2020.



ENCON THROUGH TOTAL EMPLOYEE INVOLVEMENT

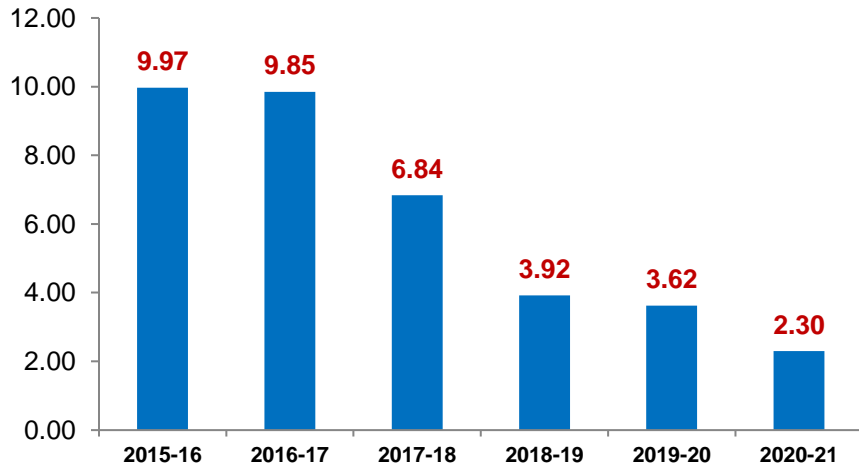


Impact of QUALITY CIRCLES on Energy Efficiency

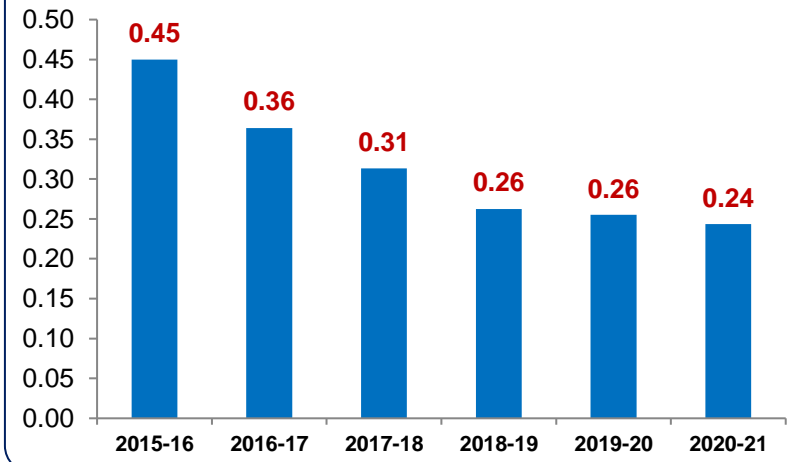


COATING PLANT QC team – Won several Accolades

Water-M³ / MT



Steam-MT / MT



13 . Learning from CII

- We took part in following CII initiatives
 - Water mission
 - Energy Mission
- We implemented 4 capital projects from the learning of Energy award program in last two years.
- Networking with other Energy managers has improved and it is helping to reduce the time gap.
- Greenco document is of great help to implement best practices.



RECENT AWARDS



JKPM recd. "Certificate of Appreciation" at the "National Energy Conservation Award 2018" in Pulp and Paper Sector

National Safety Award Winner for Accident Free Year. Mr Santosh Kumar Gangwar (Hon'ble Minister Labor & Employment, Govt of India) is presenting award to Mr PK Suri.



IPMA Paper Mill of the Year Award – recd. From Union Minister



Pollution Control Excellence Award-2019

This award is for all industries in Odisha.



Finalist for young & emerging leader award-2019



Our Latest Recognition



We're **Carbon Positive!**

Proud and humbled to receive the
**21st National Award in Excellence
in Energy Management, 2020**

“Energy efficiency addresses Economical,
Social and Environment issues at the same time.”



Vinay Dwivedi,

Executive Vice President, JKPM



