



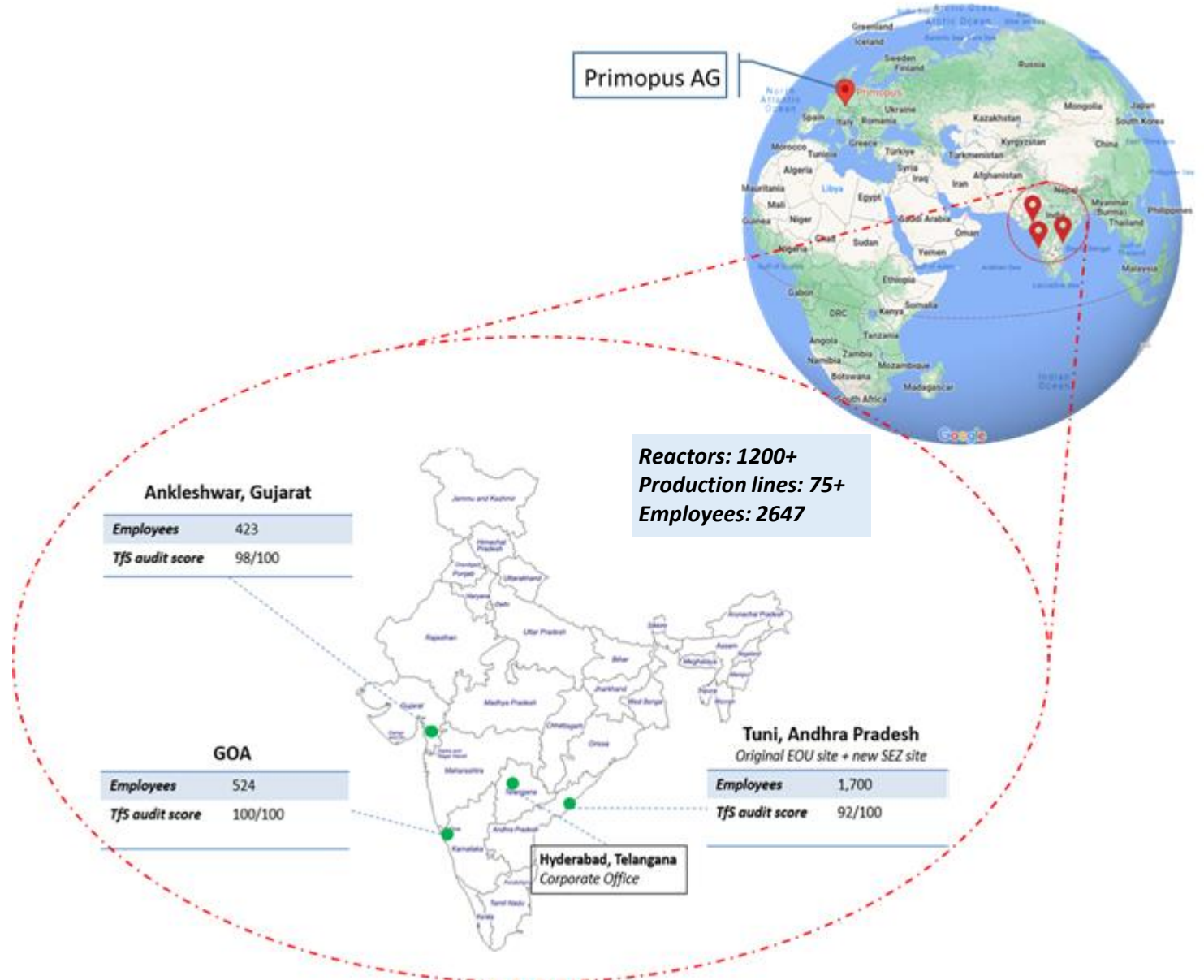
**PRESENTERS:**

- 1) *Mr. Manish Nesari, Head- Engg. & Projects, Ankleshwar*
- 2) *Mr. Chetan Pandya, Head- Utilities, Ankleshwar*
- 3) *Mr. Pawan Singh, Manager- Reliability & Project Quality, Ankleshwar*

## Deccan Fine Chemicals (India) Pvt.

### Limited

- Private limited company, started its operation in the year **2008**.
- We are in field of manufacturing of Agrochemicals and Advance Intermediates products.
- Ankleshwar site is an ISO 9001:2015, 14001:2015, 26000:2010(SR10) 45001:2018, 50001:2018, TFS & 5S certified as well as Responsible Care logo holding company.
- **TFS last audit score was 99%**



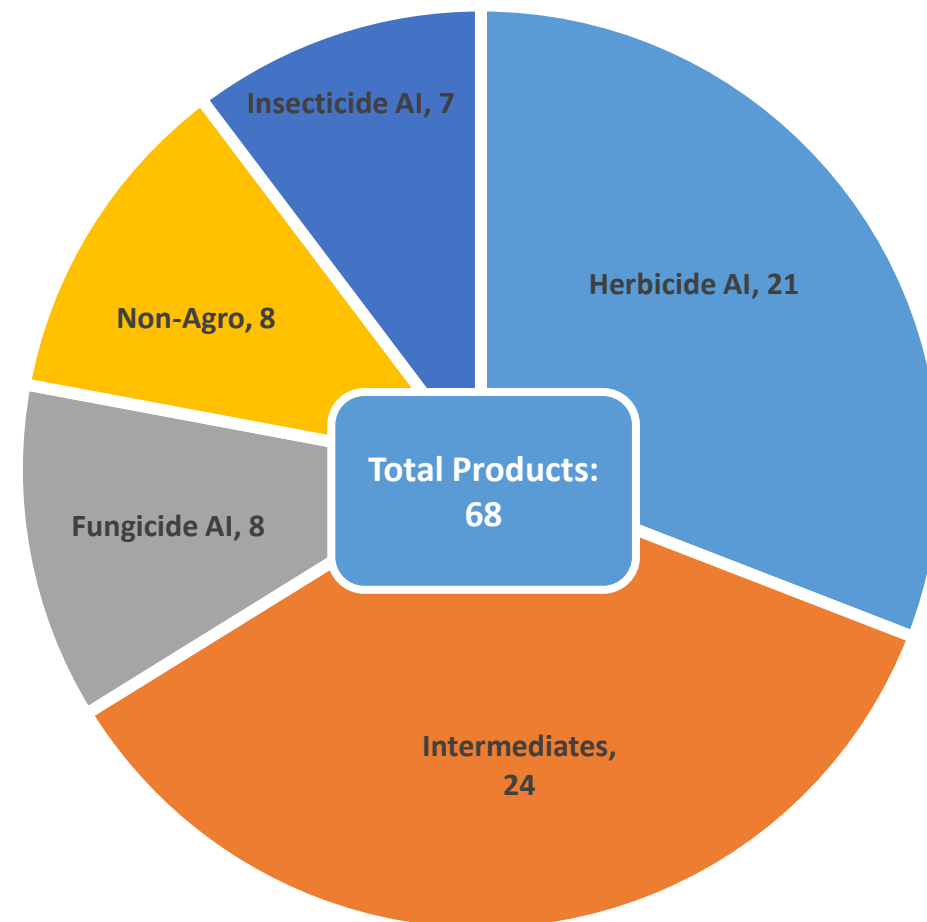
## Business Model

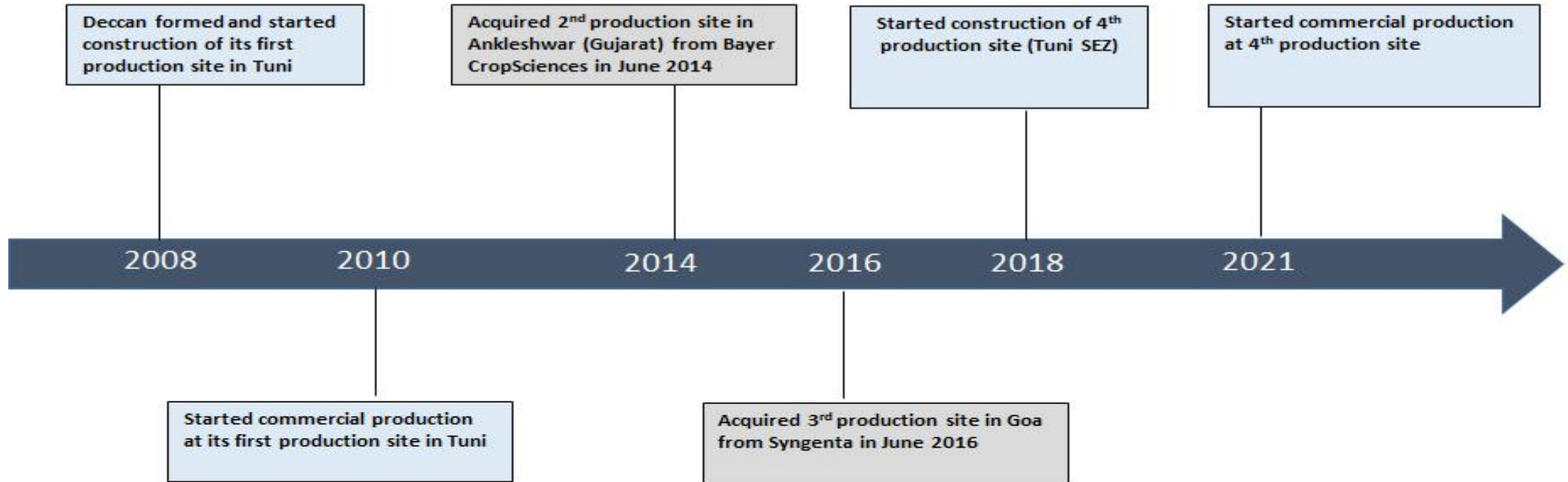
1. Work only with innovator R&D based companies.
2. Deccan is the world's number 1 Custom Manufacturer for Agro Chemical.
3. Deccan is the 2<sup>nd</sup> largest exporter of Agrochemicals out of India.
4. Exclusive focus on Custom Manufacturing – we do not have any product of our own.
5. One product-One customer – Deccan makes every product exclusively for a specific customer and never sells the same product to any other customer.

## Sustainability & Energy Management

- Working with Ernst & Young to prepare our baseline CO<sub>2</sub> and water assessment and will follow up with annual sustainability report
- Sharp focus and major actions taken to reduce carbon footprint for energy that we use.

## Deccan Products Portfolio





**Site 1 - Tuni EOU**



**Site 2 - Ankleshwar**



**Site 3 - Goa**



**Site 4 - Tuni SEZ**







## Ankleshwar Site

- Present power consumption of @ 8 MW.
- From Aug 2023, we switched over 50% of the power requirement on Hybrid Power ( Wind + Solar ) to decrease our Carbon footprint.
- Deccan does not incinerate organic waste residues on site. We send it to cement companies to use as a fuel .
- Incineration of organic waste at very high temperature cement kilns with high residence times has the lowest NOx and SOx emissions and also reduces usage of fossil fuel.



## Tuni site

- Significantly improved Cycle Thermal Efficiency from 36% to 65% after installation of the combined cycle power plant (Electricity + Steam); reducing coal usage.
- Reduced our Coal usage, CO2 and SO2 emissions by 32% using the combined cycle power/steam plant.
- Boiler is designed to use up to 20% biomass (rice husk) as fuel. Ash from boiler is used for making building bricks on site.
- Using of air cooled condensers in power plant so as to reduce water usage.
- Tuni site uses sea water and desalination plants to support 100% of the site water needs. Deccan's desalination plants help reduce the stress levels on fresh water availability to our production site and let them use all available fresh water to serve human, animal and agricultural needs.



## Goa Site

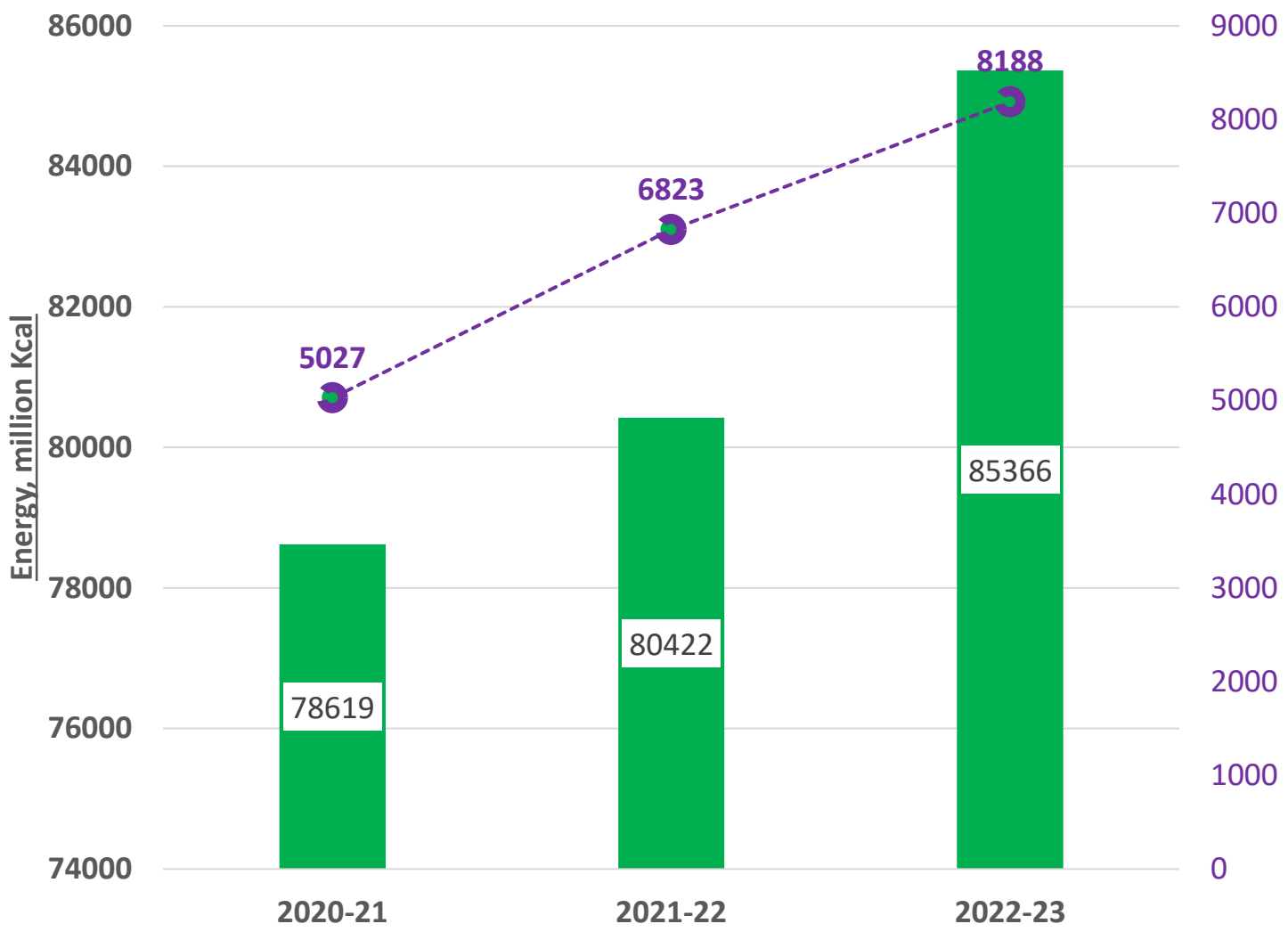
- In the process of installing 0.8 mw of Solar power generation on site.
- Commissioned a carbon neutral boiler which uses agricultural waste left over (Corn cobs, Groundnut shells, Soya husk etc.) to generate steam.
- Discontinued use of furnace oil for generation of steam at Goa, reducing Carbon footprint for steam generation at Goa by 75%.

- **Hydrogenation**
- **Bromination**
- **Nitration**
- **Chlorination**
- **All Production blocks are DCS operated.**

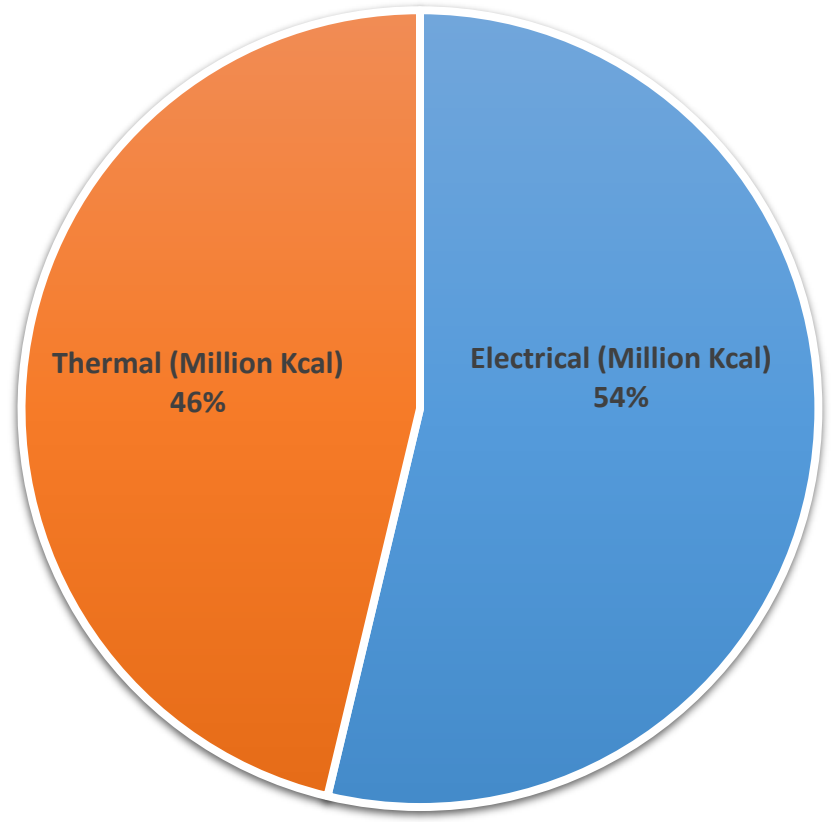




Energy Consumption (Million Kcal)  
with Production (MT)

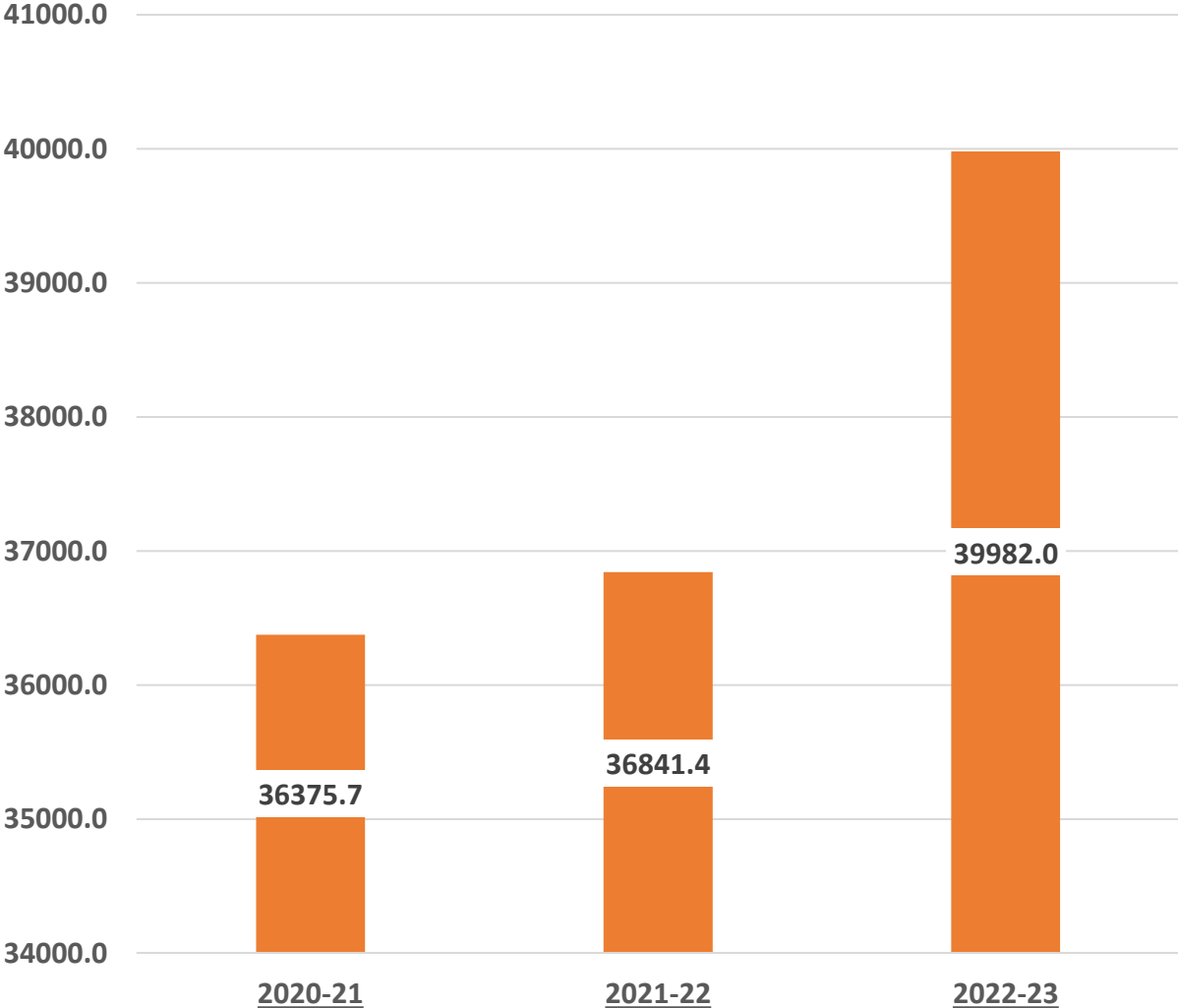


Energy Consumption Source: 2022-23

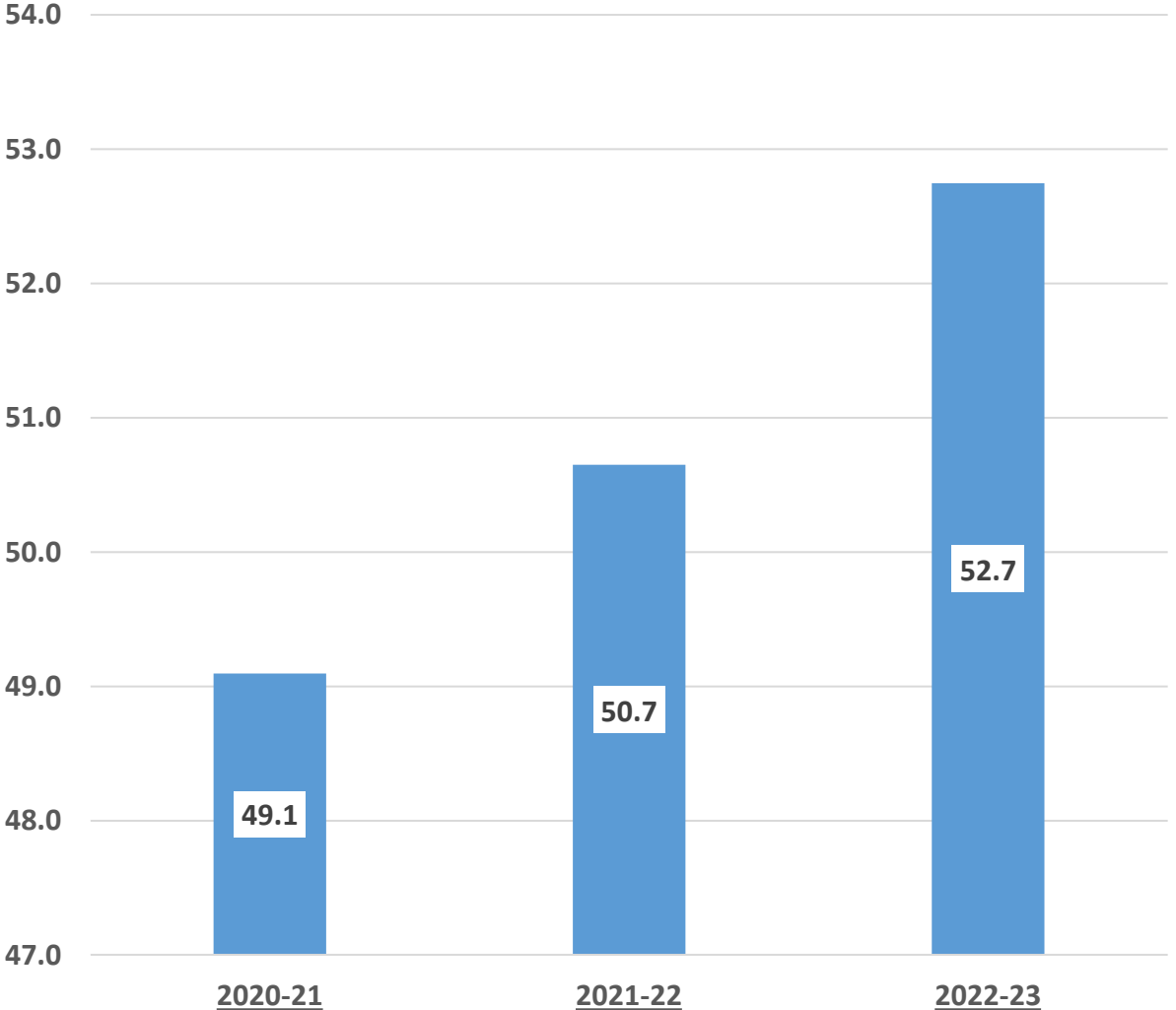




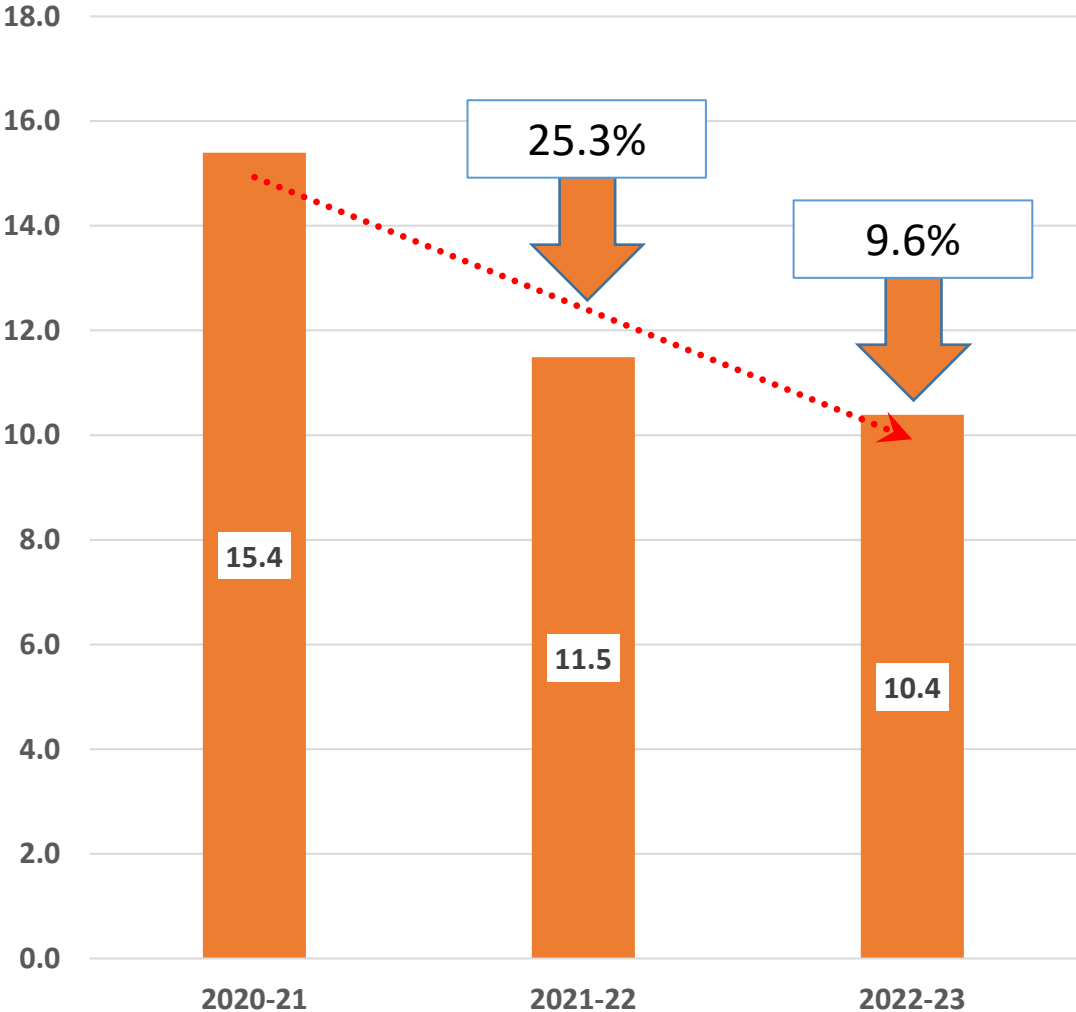
Annual Thermal Consumption  
(Million Kcal)



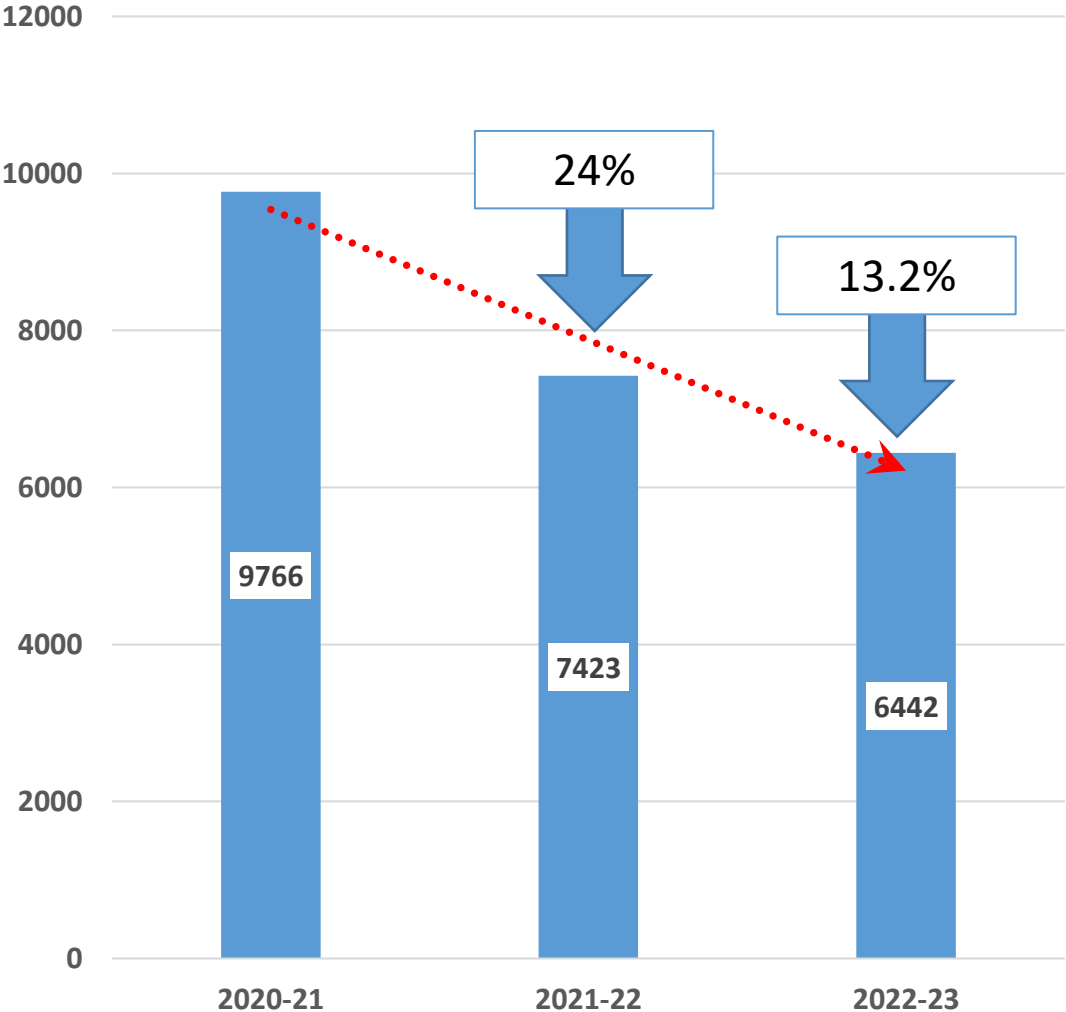
Annual Electrical Consumption  
(Million kwh)



### Specific Thermal Consumption (MT/MT)

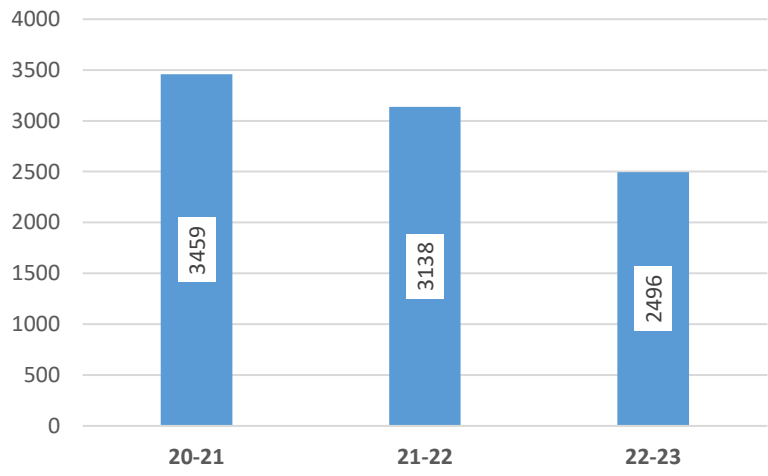


### Specific Electrical Consumption (KWH/MT)

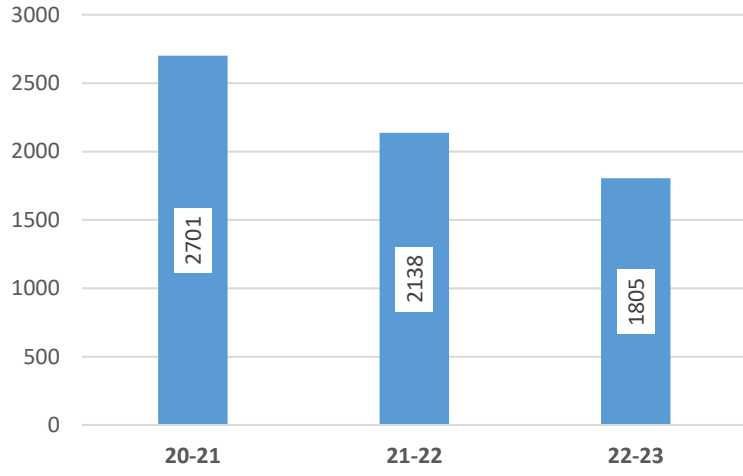


# Product wise specific Energy Consumptions

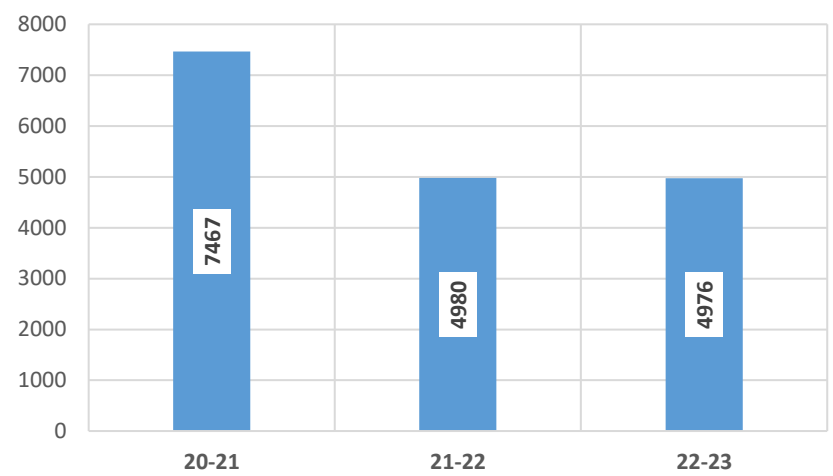
Power consumption- PYMA, KWH/MT



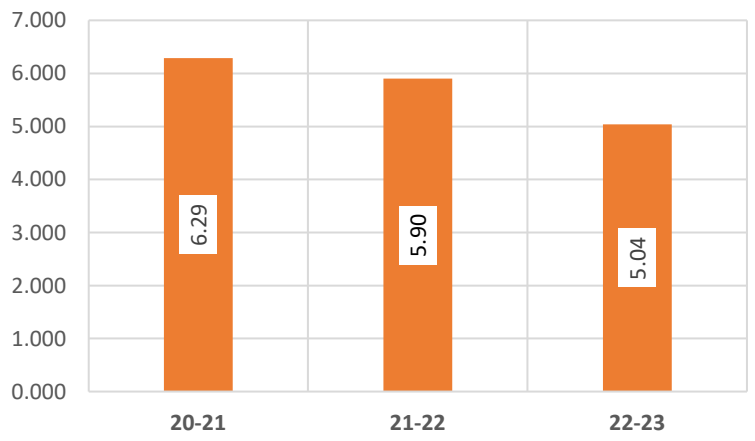
Power consumption- PBQ, KWH/MT



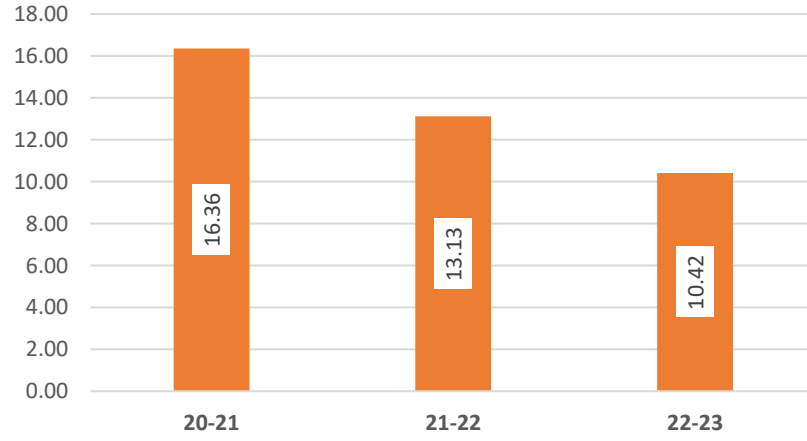
Power consumption- ABA, KWH/MT



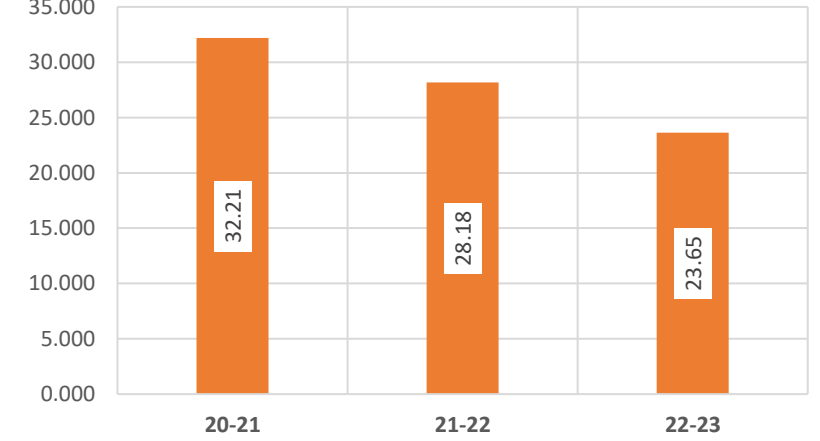
Steam consumption- PYMA, MT/MT



Steam consumption- pBQ, MT/MT



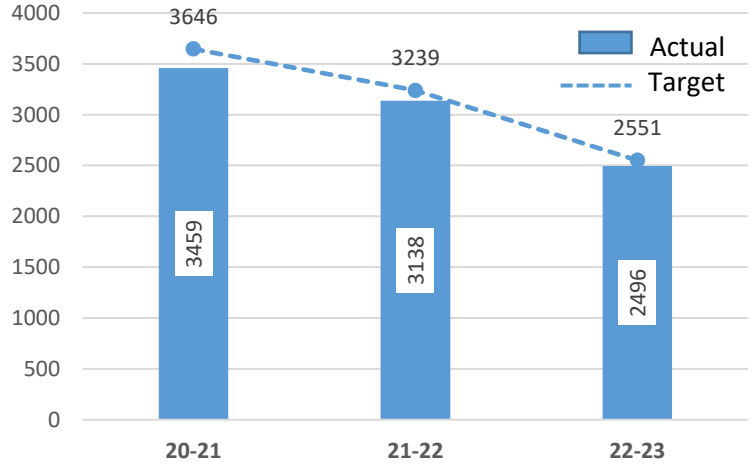
Steam consumption for DS38 (MT/MT)



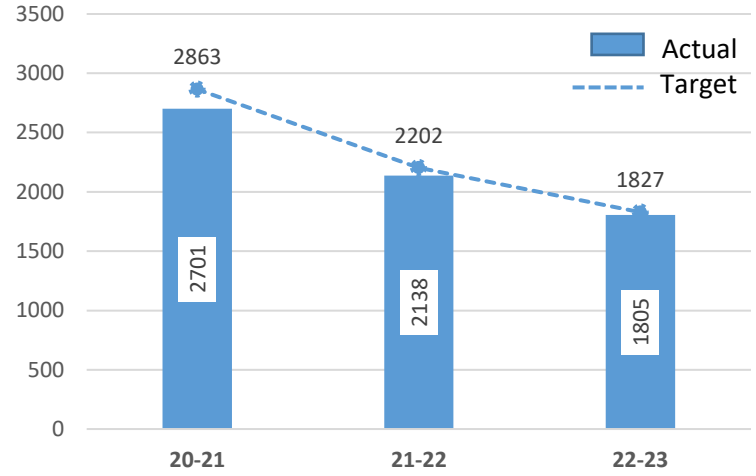
# Internal Benchmarking- Product wise specific Energy Consumptions



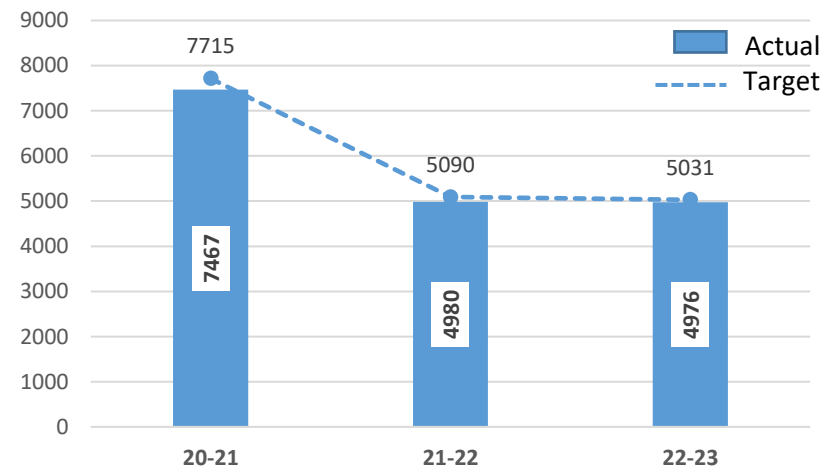
Power consumption- PYMA, KWH/MT



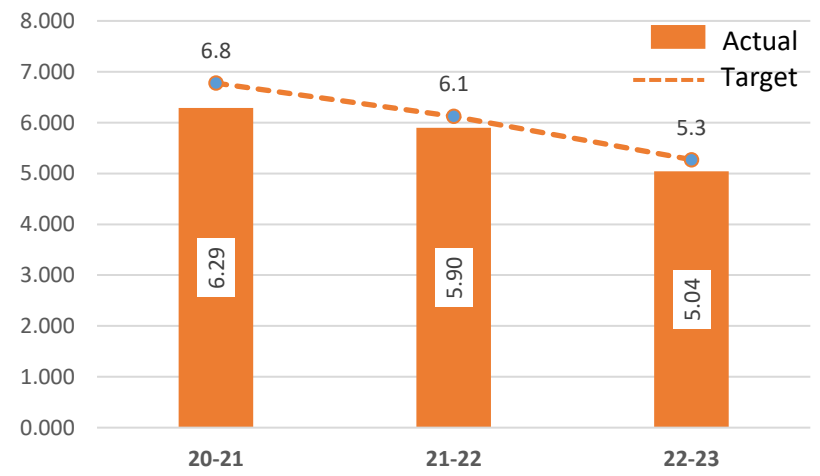
Power consumption- PBQ, KWH/MT



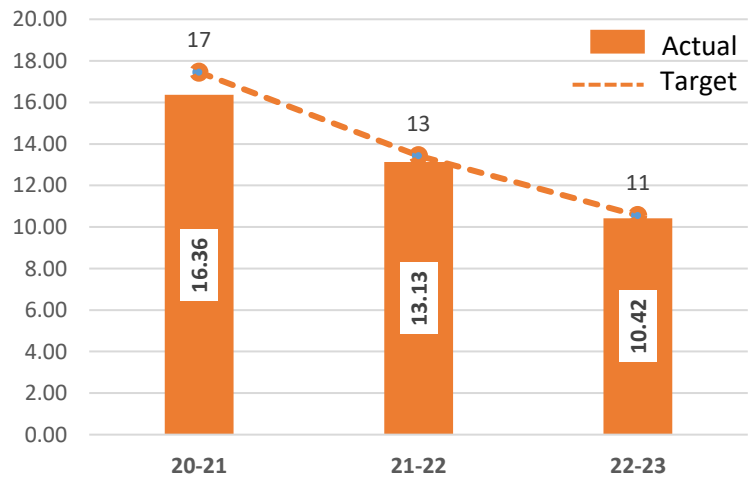
Power consumption- ABA, KWH/MT



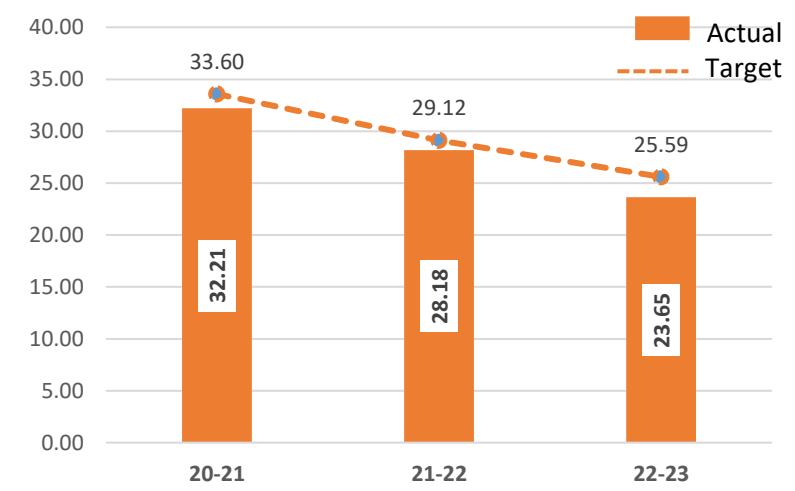
Steam consumption- PYMA, MT/MT



Steam consumption- pBQ, MT/MT



Steam consumption- DS38, MT/MT





# Major Encon Projects planned in 2023-24 (Annual Savings)

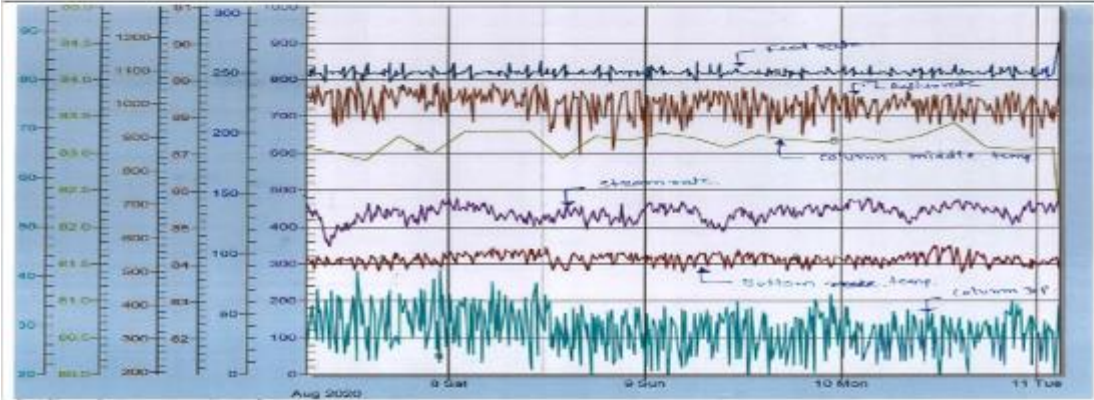
Sr. No.	Title of Project	Electrical Saving ( Million Kwh)	Thermal Saving ( Million Kcal)	Investment (Rs in Million)
1	Reduction in N2 consumption in DS38 & THQA by installation of PRV & BPRV systems for nitrogen blanketing	0.10		0.70
2	Reduction in power consumption by replaced Cooling tower FRP fan to E-glass epoxy FRP fan in AC2 Plant.	0.04		0.05
3	Reduction in power consumption of air compressors by installation of pressure switch on surge tank of PSA plant.	0.11		0.1
4	Reduction in power saving of Hot oil sytem by automisation of electrical heater cut-off based on tempreature.	0.5		0.3
5	Reduction in power consumption of air cooled chiller by applying mist cooling system in condenser coils.	0.23		0.3
6	Installation of Solar Roof panel shed in car parking area	0.042		1.7
7	Replacement of age old AC units of 3 star rating units with 5 star rating.	0.07		2
8	Reduction in specific steam consumption (Kg/MT) by 1.5% in DS38 process via replacing steam trap type from float type to pumping trap.		65	1.10
<b>TOTAL PROJECTS: 8</b>		<b>1.092</b>	<b>65</b>	<b>6.25</b>



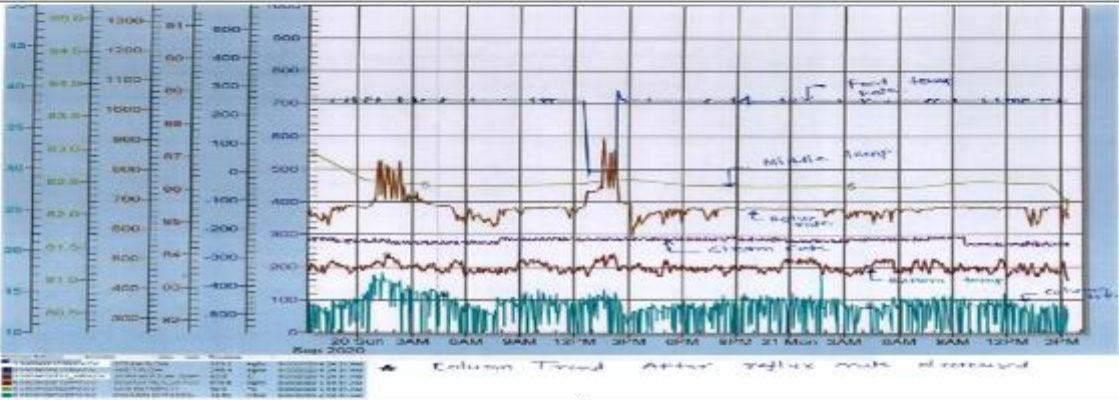
### Energy Conservation Programme

<b>Description of Energy Conservation Programme</b>		Reduction in steam consumption in 5503K02 by optimizing column operation and design data optimization		
<b>Plan start date</b>	01.06.2020	<b>Plan completion</b>	18.08.2020	<b>Energy saving project no.:</b> DFC/ENR/20-16
<b>Actual start date</b>	31.08.2020	<b>Actual Completion</b>	20.09.2020	
<b>Team Leader : Hiren Patel</b>		<b>Team Members : Ashvin Varde, Vishal panchal, Piyush Lad, Shirish Bhatt.</b>		

Picture/Data before Programme (if available)



Picture/Data after Programme



**Technical Evaluation**

A. Energy consumption/day - before implementation	-	11328
B. Energy consumption/day - after implementation	-	6960
D. Energy saving (A-B) Per day	-	4368
C. Energy saving (A-B) Per annum= D X (campaign running days or 350 days)	-	1528800
E. Energy saving in (Rs/year)	-	3057600
F. Other cost saving (Rs/Year)	-	0
G. Total Cost saving (E+F) in (Rs/year)	-	3057600
H. Proposed investment (Rs.)	-	0
I. Payback period (Month)	-	0
<b>TOTAL COST SAVINGS FROM PROJECT (Rs/Yr)</b>	<b>3057600</b>	

Electricity KWH	Steam Kg
-	11328
-	6960
-	4368
-	1528800
-	3057600
-	0
-	3057600
-	0
-	0
<b>3057600</b>	

**Inference : 5503K02 T-butanol moisture removal column was running at 1100 Kg/Hr reflux per hour. It was reduced and optimized to 580 to 600 Kg/Hr. So steam consumption was also reduced as total boilup was reduced to 650 to 700 Kg/Hr instead of 1100 to 1150 Kg/Hr without affecting quality parameters.**





## Energy Conservation Programme

**Description of Energy Conservation Programme**

**Reduction in power consumption by replaced Cooling tower FRP fan to E-glass epoxy FRP fan (Changed in 08 Nos. of CT fans) in Central Energies & AC5 Plant.**

**Plan**                      **15.01.2021**

**Plan completion**                      **03.03.2021**

**Energy saving project no.:**

**Actual**                      **17.04.2021**

**Actual Completion**                      **18.06.2021**

**DFC/ENR/21-09**

**Team Leader : Chetan Pandya**

**Team Members : Navnit Raiyani, Mayank Kher, Pragnesh Upadhyay, Dipak Parmar, Hiren Patel.**

**Picture/Data before Programme (if available)**

**Picture/Data after Programme**



MOC : FRP fan blades



MOC: E-Glass Epoxy fan blades

Technical Evaluation	Electricity	Steam
	KWH	Kg
A. Energy consumption/day - before implementation	1584	
B. Energy consumption/day - after implementation	1188	
D. Energy saving (A-B) Per day	396	
C. Energy saving (A-B) Per annum= D X (campaign running days or 350	138600	
E. Energy saving in (Rs/year)	1203048	
F. Other cost saving (Rs/Year)	0	
G. Total Cost saving (E+F) in (Rs/year)	1203048	
H. Proposed investment (Rs.)	1475600	
I. Payback period (Month)	15	

**TOTAL COST SAVINGS FROM PROJECT (Rs/Yr)**

**Inference :Reduction In power consumption by replacing MOC of fan blade of cooling tower located in central energies & AC-5, earlier it was FRP fan blade which was replced with E glass epoxy fan blade. Hence, power consumption reduce up to 2.06 (Avg.) kw/hr in each fan among total 8 Nos. of fan. Total power saving was 2.06\*8\*24\*350=1,38,600 KWH.**

deccan		<b>Energy Conservation Programme</b>																				
<b>Description of Energy Conservation Programme</b>		To reduce the Utility load of CHB in pBQ section by 10%.																				
<b>Plan start date</b>	10-01-2021	<b>Plan completion</b>	10-03-2021	<b>Energy saving project no.:</b> DFC/ENR/21-03																		
<b>Actual start date</b>	16-12-2021	<b>Actual Completion</b>	11-04-2022																			
<b>Team Leader</b> Shubham Verma		<b>Team Members</b> Pratik D Pathak, Pawan Singh																				
<b>Picture/Data before Programme (if available)</b>		<b>Picture/Data after Programme</b>																				
<p style="text-align: center;"><b>Technical Evaluation</b></p>		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>Power : KWH/MT of pBQ</b></p> <table border="1"> <caption>Power Consumption Data (KWH/MT of pBQ)</caption> <thead> <tr><th>Month</th><th>Power (KWH/MT)</th></tr> </thead> <tbody> <tr><td>Dec-21</td><td>1.80</td></tr> <tr><td>Jan-22</td><td>1.70</td></tr> <tr><td>Feb-22</td><td>1.60</td></tr> <tr><td>Mar-22</td><td>1.50</td></tr> <tr><td>Apr-22</td><td>1.60</td></tr> <tr><td>May-22</td><td>1.60</td></tr> <tr><td>Jun-22</td><td>1.60</td></tr> <tr><td>Jul-22</td><td>1.60</td></tr> </tbody> </table> </div> </div>			Month	Power (KWH/MT)	Dec-21	1.80	Jan-22	1.70	Feb-22	1.60	Mar-22	1.50	Apr-22	1.60	May-22	1.60	Jun-22	1.60	Jul-22	1.60
Month	Power (KWH/MT)																					
Dec-21	1.80																					
Jan-22	1.70																					
Feb-22	1.60																					
Mar-22	1.50																					
Apr-22	1.60																					
May-22	1.60																					
Jun-22	1.60																					
Jul-22	1.60																					
		<b>Electricity</b> KWH	<b>Steam</b> Kg																			
A. Energy consumption/day - before Implementation		5818	-																			
B. Energy consumption/day - after implementation		5368	-																			
D. Energy saving (A-B) Per day		450	-																			
C. Energy saving (A-B) Per annum= D X (campaign running days or 350 days)		157500	-																			
E. Energy saving in (Rs/year)		1275750	-																			
F. Other cost saving (Rs/Year)		0	-																			
G. Total Cost saving (E+F) in (Rs/year)		1275750	-																			
H. Proposed Investment (Rs.)		354000	-																			
I. Payback period (Month)		3.33	-																			
<b>TOTAL COST SAVINGS FROM PROJECT (Rs/Yr)</b>		<b>1275750</b>																				
<p><b>Inference :</b> By taking improvement steps in changing the charging procedure, increasing operating temperature limits, provided not only energy saving but, reduction in operations &amp; increasing production capacity. The saving of 3.04 hrs of BCT &amp; high impact in the usage of CHB saved approx 33728 KWH Power/Month; equivalent 18.87% Power reduction in pBQ section.</p>																						





## Energy Conservation Programme

Description of Energy Conservation Programme

Reduction In power consumption by Air-Nitrogen leakages monitoring survey.

Plan start date 03.04.2021

Plan completion 31.08.2021

Energy saving project no.: DFC/ENR/22-14

Actual start date 01.09.2021

Actual Completion 31.03.2023

Team Leader : Chetan pandya

Team Members : Pavan singh, Navnit Raiyani, Mrugesh Trivedi, Mayank Kher.

Picture/Data before Programme (if available)



Picture/Data after Programme



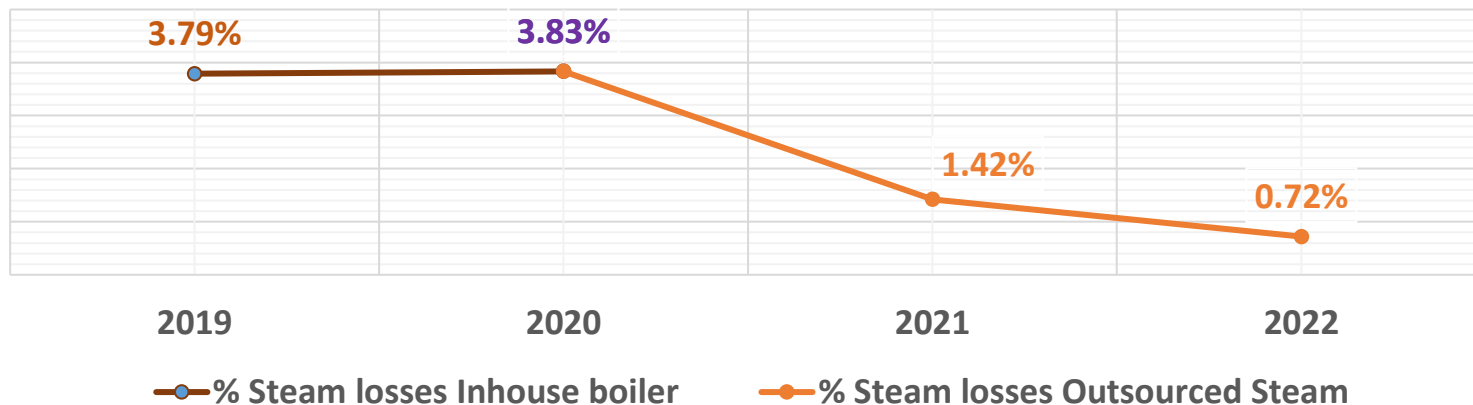
Technical Evaluation

	Electricity KWH	Steam Kg
A. Energy consumption/day - before implementation	21707.13	
B. Energy consumption/day - after implementation	20101.27	
D. Energy saving (A-B) Per day	1605.86	
C. Energy saving (A - B) Per annum= D X (campaign running days or 350 days)	578109	
E. Energy saving in (Rs./year)	5145197	
F. Other cost saving (Rs./Year)	0	
G. Total Cost saving (E+F) in (Rs./year)	5145197	
H. Proposed Investment (Rs.)	275000	
I. Payback period (Month)	1	
<b>TOTAL COST SAVINGS FROM PROJECT (Rs./Yr)</b>		<b>5145197</b>

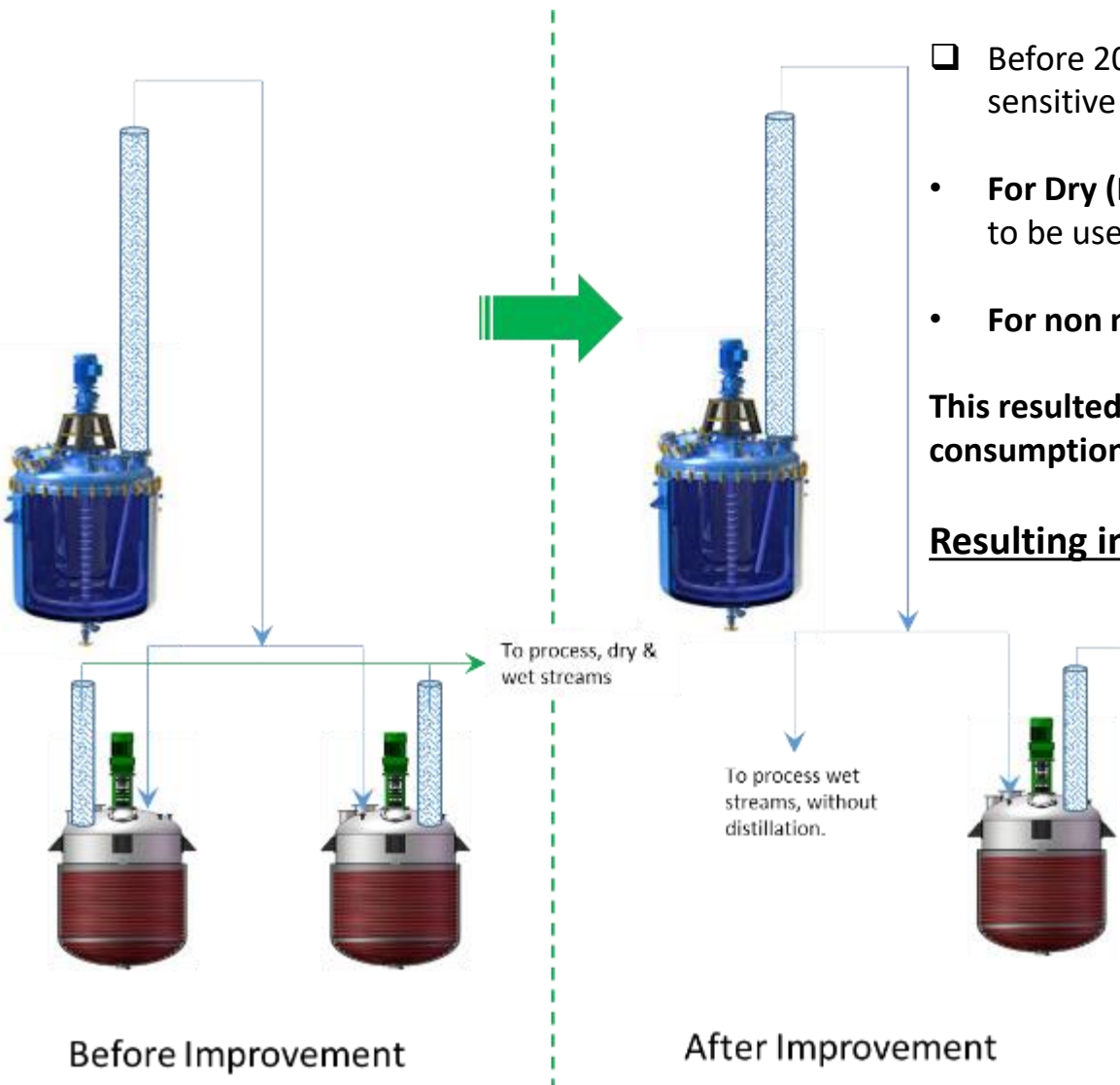
Inference : Reduction in power consumption by monitoring survey of air & nitrogen leakage, after arresting leakages total saving of power was found 48,176 KWH/month. Hence total power saving achieved is 48,176\*12\*8.9 Rs.- 51,45,197 Rs./Year.

deccan Energy Conservation Programme			
Description of Energy Conservation Programme		Reduction in steam consumption by decreasing steam losses from 3.8% to less than 1%.	
Plan start date	01.04.2020	Plan completion	18.11.2020
Actual start date	30.04.2020	Actual Completion	08.01.2021
Team Leader : Parag Shah		Team Members : Bahvesh Rami, Manish Nesari, Chetan Pandya, Rajesh V	
Picture/Data before Programme (if available)		Picture/Data after Programme	
Technical Evaluation		Electricity KWH	Steam MT
A. Energy consumption/day - before implementation		-	95
B. Energy consumption/day - after implementation		-	94
D. Energy saving (A-B) Per day		-	2
C. Energy saving (A-B) Per annum= D X (campaign running days or 350 days)		-	548
E. Energy saving in (Rs/year)-Cr.		-	11.22
F. Other cost saving (Rs/Year)		-	0
G. Total Cost saving (E+F) in (Rs/year)-Cr.		-	11
H. Proposed investment (Rs.)		-	0
I. Payback period (Month)		-	12
TOTAL COST SAVINGS FROM PROJECT (Cr -Rs/Yr)		11.22	
Steam losses were reduced from 3-4% to less than 1%; resulting in 11.21 Cr Rs benefit/yr (including losses & steam generation cost).			

### % Steam Distribution Losses/Year



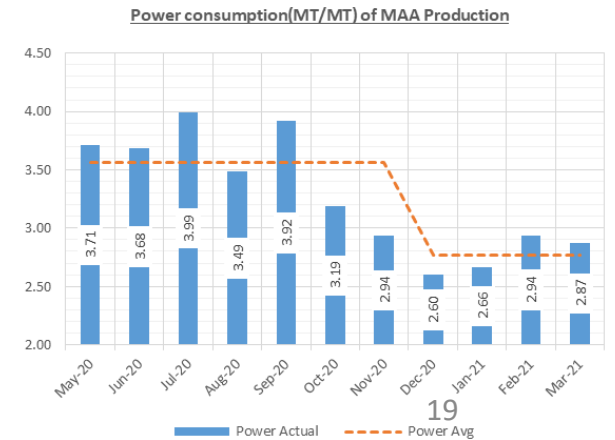
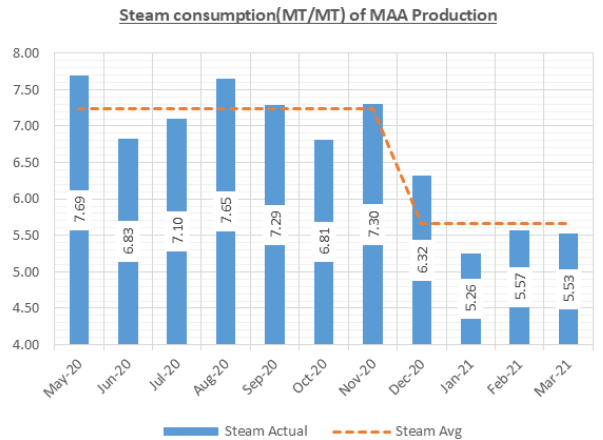
- ✓ **Up to year 2019, the steam condensate losses were accounting to @ 4%.**
- ✓ **To reduce these losses further, we decided to go with superheated steam up to individual plant inlet.**
- ✓ **Steam inlet at 16 BAR at PRV and outlet at 12 BAR for steam distribution. ( Major consumption is @ 3.5 Bar)**
- ✓ **Steam losses reduced to less than 1%; resulting in 11.22 Cr Rs benefit / yr (including losses & steam generation cost).**



- ❑ Before 2020, Solvent use to be treated & distilled in 2 reactors for use in process (both moisture sensitive & wet streams).
- **For Dry (Moisture sensitive) stream:** Solvent is treated & distilled for complete moisture removal to be used in process.
- **For non moisture sensitive streams,** solvent is directly reused in process without distillation.

This resulted in reduction of specific power consumption from 3.56 to 2.77KWH/Kg & Steam specific consumption from 7.24 to 5.67 Kg/Kg of Product.

**Resulting in saving of approx. 59.5 Lac Rs in power & 83.3 lac Rs in steam consumption.**



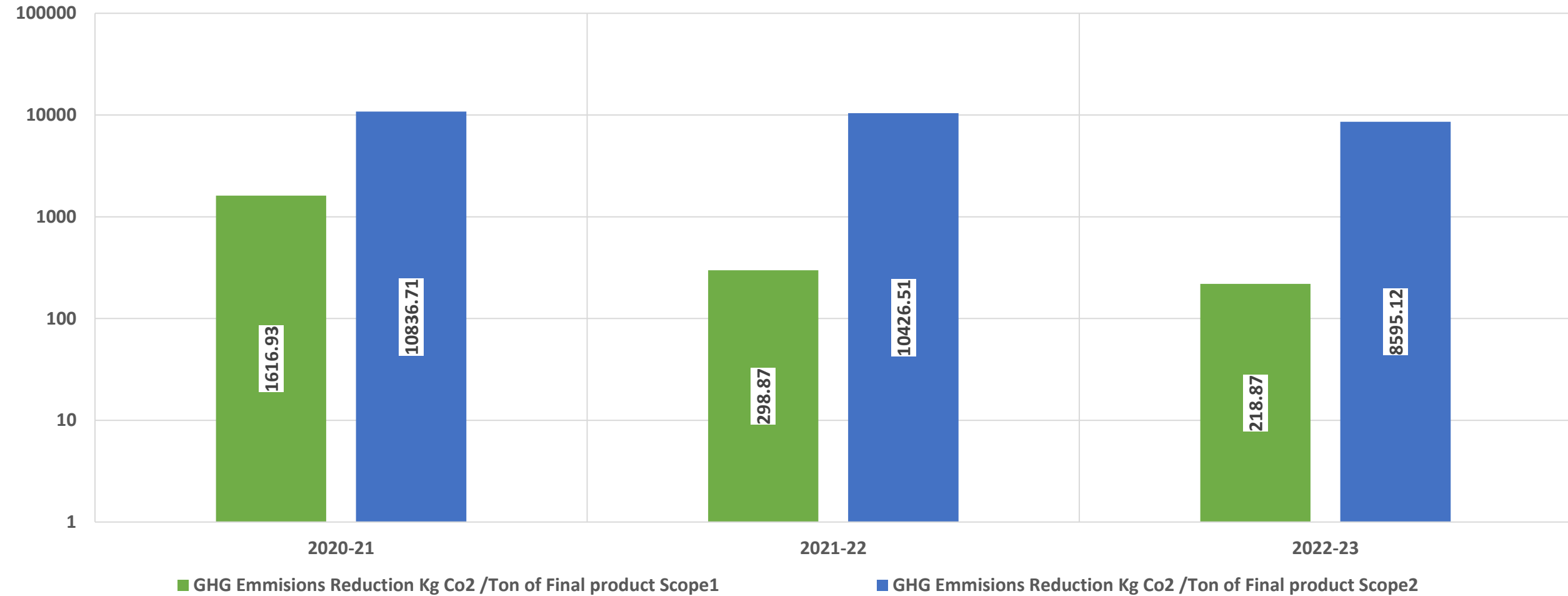


- Deccan has invested & commissioned a hybrid power generation plant near Rajkot, Gujarat with 5.4 MW capacity.
- Actual Power generation started from July-23.



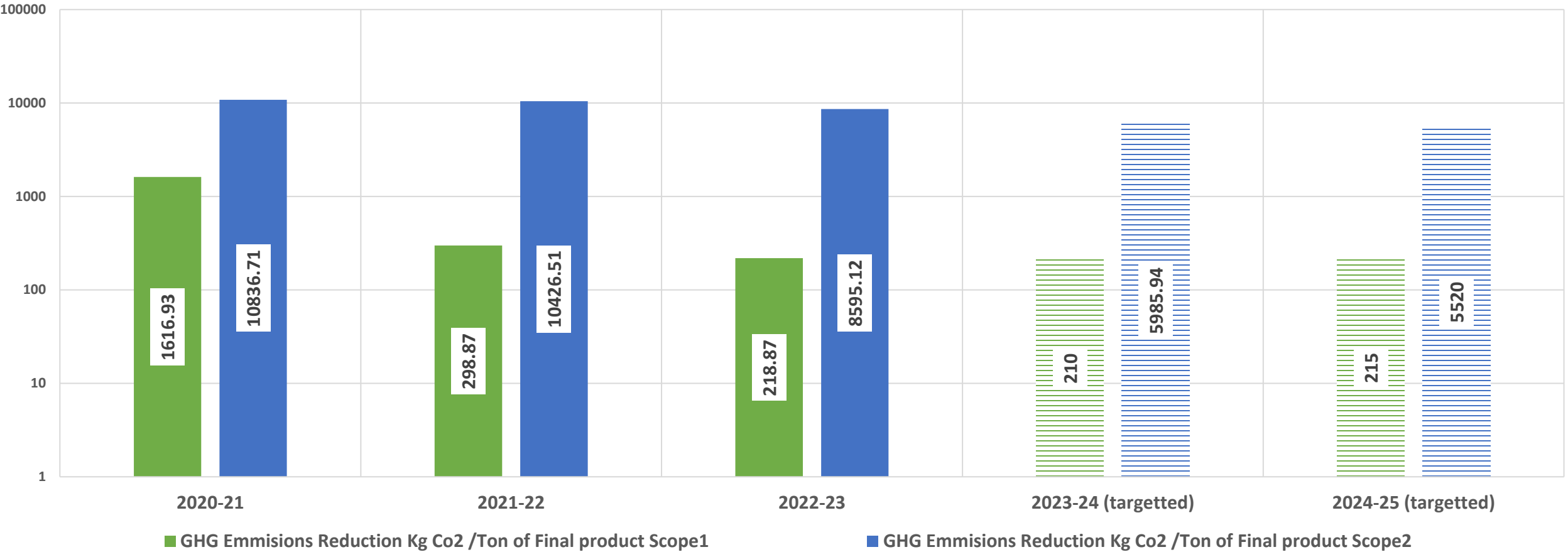


## GHG Emissions Reduction (Kgs of CO2 emissions/MT product)



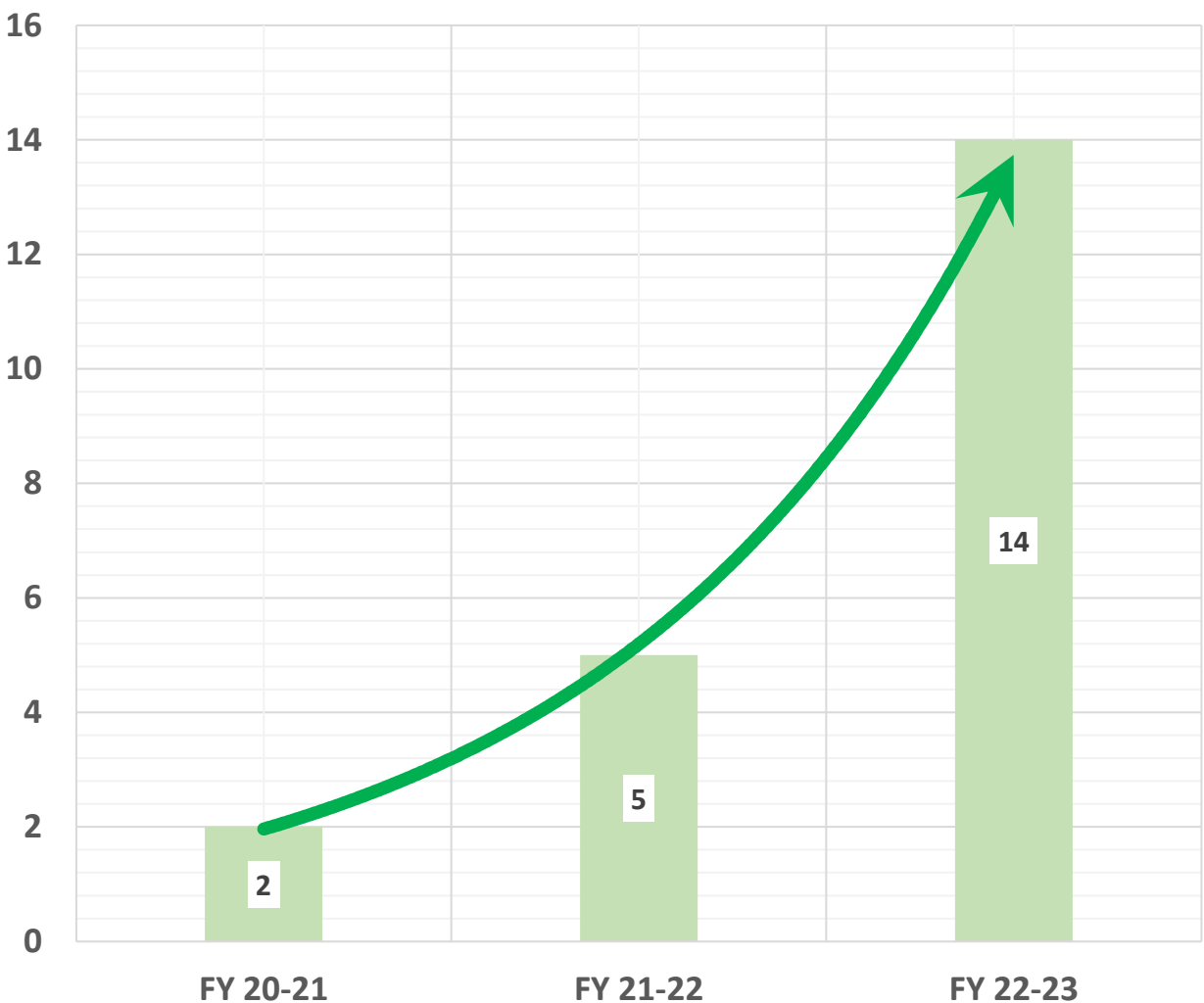
*Deccan has committed to reduce its carbon emission up to 25% by 2025.*

## GHG Emissions Reduction (Kgs of CO2 emissions/MT product)

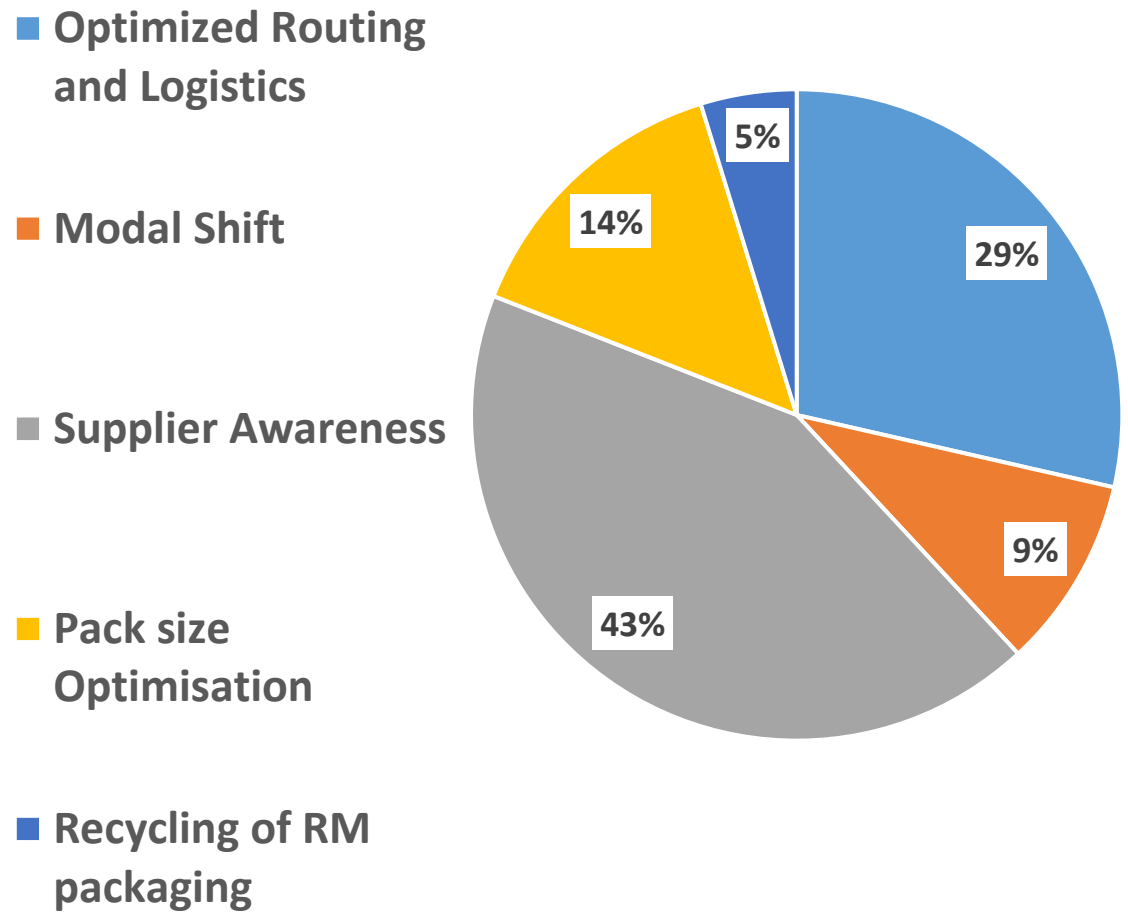


*Expected increase of 2.5 MW Electricity consumption in the year 2023-24 due to commissioning of new plant. Considering 50% generation of Electricity through Renewable energy Scope 2 Carbon Emission kg CO2/Ton of final product is target to 30% reduction*

Nos. of Suppliers enrolled in Green vendor development programme.



Projects implemented & Evaluated



## Action plan & planning to expand the "Green Supply Chain"

### Assessment and Goal Setting

- Conduct a comprehensive assessment of the current supply chain to identify environmental impacts, inefficiencies, and areas for improvement.
- Set clear and measurable sustainability goals, such as reducing carbon emissions, minimizing waste, and promoting eco-friendly practices.

### Supplier Engagement and Selection

- Prioritize suppliers with strong environmental and ethical practices, ensuring they align with your sustainability goals.
- Develop supplier guidelines that emphasize sustainable sourcing, waste reduction, and energy efficiency.
- Collaborate with suppliers to find innovative ways to reduce the environmental impact of their processes and products.

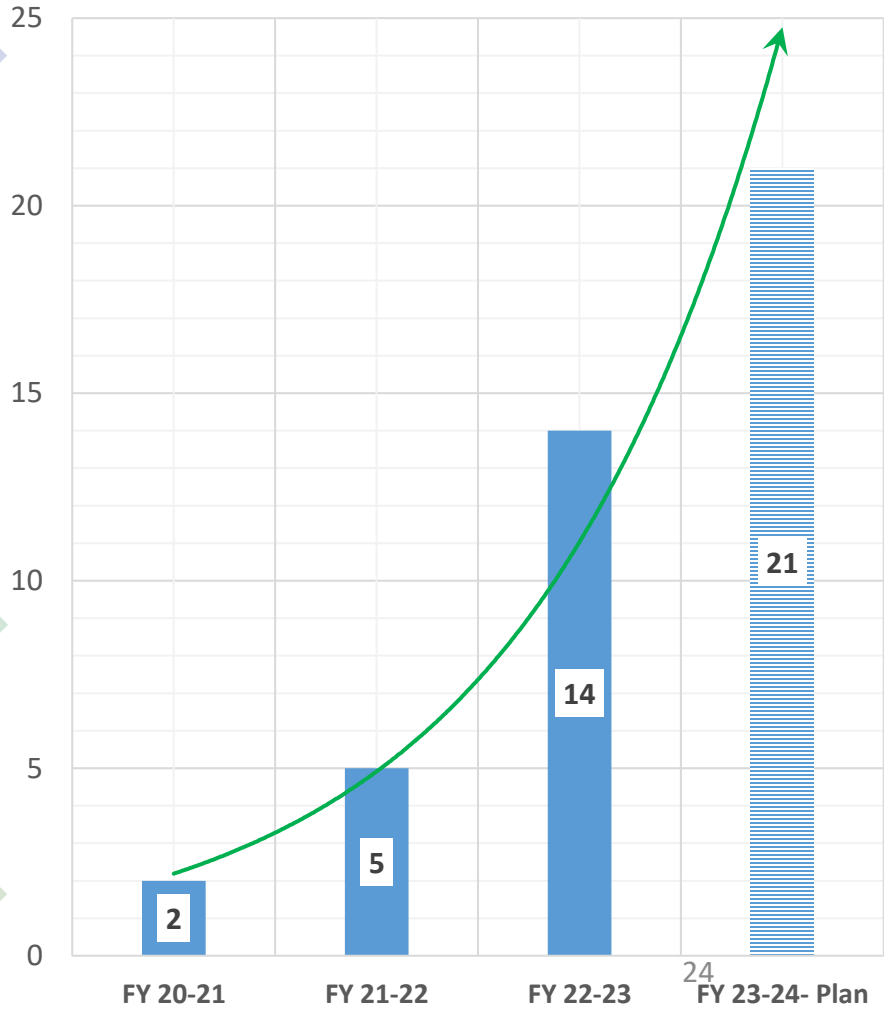
### Logistics and Transportation

- Opt for low-impact transportation methods, such as using electric or hybrid vehicles, and prioritize rail or sea freight over air freight.
- Consolidate shipments and use route optimization software to reduce transportation-related emissions.

### Employee Training and Awareness

- Train employees at all levels about the importance of sustainability in the supply chain and how their actions contribute to the broader goals.
- Promote a culture of environmental responsibility by encouraging employees to suggest and implement green initiatives.

### Nos. of Suppliers enrolled in Green vendor development programme.





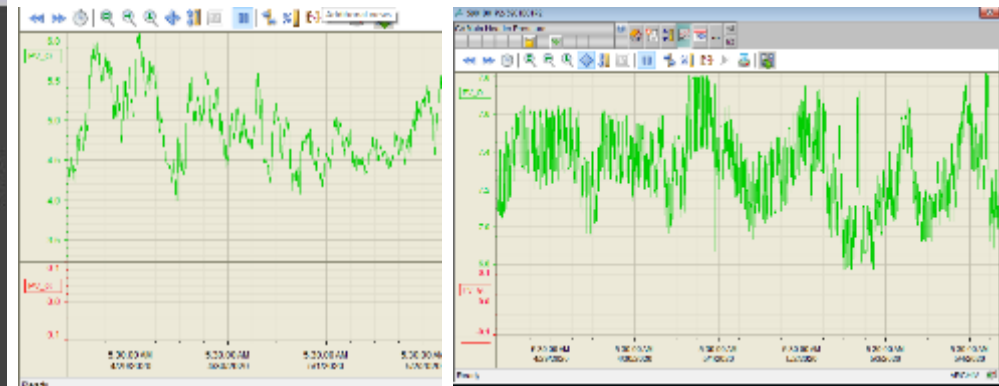


- Central Utility Monitoring System**

- Plant wise Utility Monitoring System**



- Plant wise Utility Monitoring System**





# Team work, Employee Involvement & Monitoring

**KNOW YOUR ENERGY FACTS**

**Air leakages (at 7.0 Bar pressure)**

Escalated hole diameter (mm)	Quantity of air leakage (liters/min)	Energy waste (kWh/hr)	Energy waste (Rs./hr)
0.5	6.95	0.11	1
0.6	2.43	0.29	3
1.0	3.60	0.48	4
1.5	8.58	1.03	10
2	15.21	1.93	18
2.5	23.77	2.85	26

**Nitrogen leakages (at 5.0 Bar pressure)**

Escalated hole diameter (mm)	Quantity of air leakage (liters/min)	Energy waste (kWh/hr)	Energy waste (Rs./hr)
0.5	0.68	0.33	3
0.6	1.74	0.83	8
1.0	2.72	1.38	13
1.5	6.11	2.99	29
2	10.88	5.21	51
2.5	18.99	8.15	79

**Steam leakages (at 12.0 Bar pressure)**

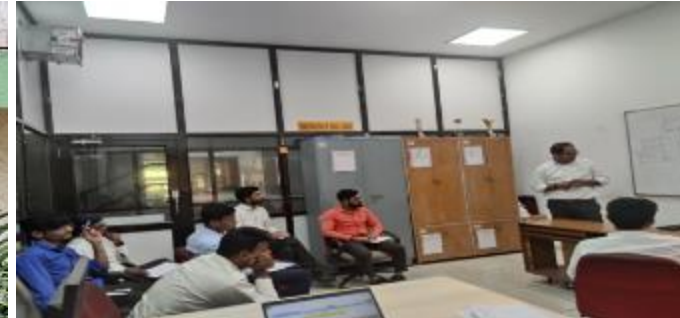
Leak hole size (mm)	Steam loss (kg/hr)	Steam loss (Rs./hr)	Energy waste (Rs./hr)
0.5	1	8.6	25429
1.0	3.6	32.3	96496
1.5	6.8	74.3	222912
2.0	15.2	131.3	393988
3.0	38.3	286.4	899255
4.0	61	527.3	1581120

**KNOW YOUR ENERGY FACTS**

**DO YOU KNOW ?**

**Utility Cost / Unit**

Power Cost	Rs./unit	3.75
Natural Gas Cost	Rs./SM <sup>3</sup>	67.54
Steam Cost	Rs./Kg	3
Compressed Air Cost	Rs./MM <sup>3</sup>	1.17
Instrument Air Cost	Rs./MM <sup>3</sup>	1.20
Nitrogen Cost	Rs./MM <sup>3</sup>	4.88
Raw Water Cost	Rs./M <sup>3</sup>	68.73
Process Water Cost	Rs./M <sup>3</sup>	89
DM Water Cost	Rs./M <sup>3</sup>	194
Chilled Water Cost	Rs./TR	11.67
Chilled Brine (-15) Cost	Rs./TR	33.89
Cooling Brine (-18) Cost	Rs./TR	23.18
Chilled Brine (-25) Cost	Rs./TR	27.10





# Deccan is ISO 50001:2018 CERTIFIED UNIT BY ISOQAR





2014: Winner Of AIA Anandpura Trophy For BEST EXPORT Performance Amongst Large Industrial Units In GIDC Ankleshwar



2020: Platinum award (Rotary club of Dahej) for environment excellence.



2020: Safety Excellence award (Rotary club of Dahej)



2021: Best CSR initiatives (by Hon'ble ministry of state environment, consumer affairs, food distribution & forestry)



2022: Winner Of AIA Anandpura Trophy For BEST EXPORT Performance Amongst Large Industrial Units In GIDC Ankleshwar



2023: Best CSR brand of the year (Global Smart built summit, Lucknow)



2023: Corporate Environment Responsibility Award (presented by the Southern Gujarat Chamber of Commerce and Industry and Gujarat Pollution Control Board)

# Thank You

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