



25<sup>th</sup> National Award for Excellence in Energy Management - 2024



# ITC Limited

## Agri Business Division

Karnataka Green Leaf Threshing Unit, Mysuru



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# ITC LIMITED

## GLANCE OF TRIPLE BOTTOM LINE PERFORMANCE



₹ **69,446 cr**  
Gross Revenue



**25+** World-class  
Mother Brands



**Among Top 3**  
Corporates in the Private Sector in Terms  
of Contribution to Exchequer over the Years



**ECONOMIC**

₹ **20,422 cr** PAT



**200+** Factories



**12** Future-ready Businesses  
across Agriculture,  
Manufacturing and Services



**50%** of ITC's Energy is from  
Renewable Sources



**Plastic Neutral:**  
Collecting and Sustainably  
Managing 70,000 MT of Waste



**Watershed Development:**  
Over **16** lakh Acres Covered



**ENVIRONMENTAL**

**12** LEED® Zero Carbon and  
**4** LEED® Zero Water  
Hotels



**Afforestation:**  
Over **11.6** lakh  
Acres Greened



**7** Alliance for Water  
Stewardship Platinum  
Certified Sites



**60** lakh Sustainable  
Livelihoods Supported



Over **60** lakh  
Women reached through  
Multi-dimensional Programmes



**ITCMAARS:**  
Over **15** lakh Farmers  
Served



**SOCIAL**



**Support to Education:**  
Over **15** lakh  
Children Benefitted



**Skilling:**  
Over **1** lakh Youth Trained



**Climate Smart Agriculture:**  
Over **10** lakh  
Farmers Covered

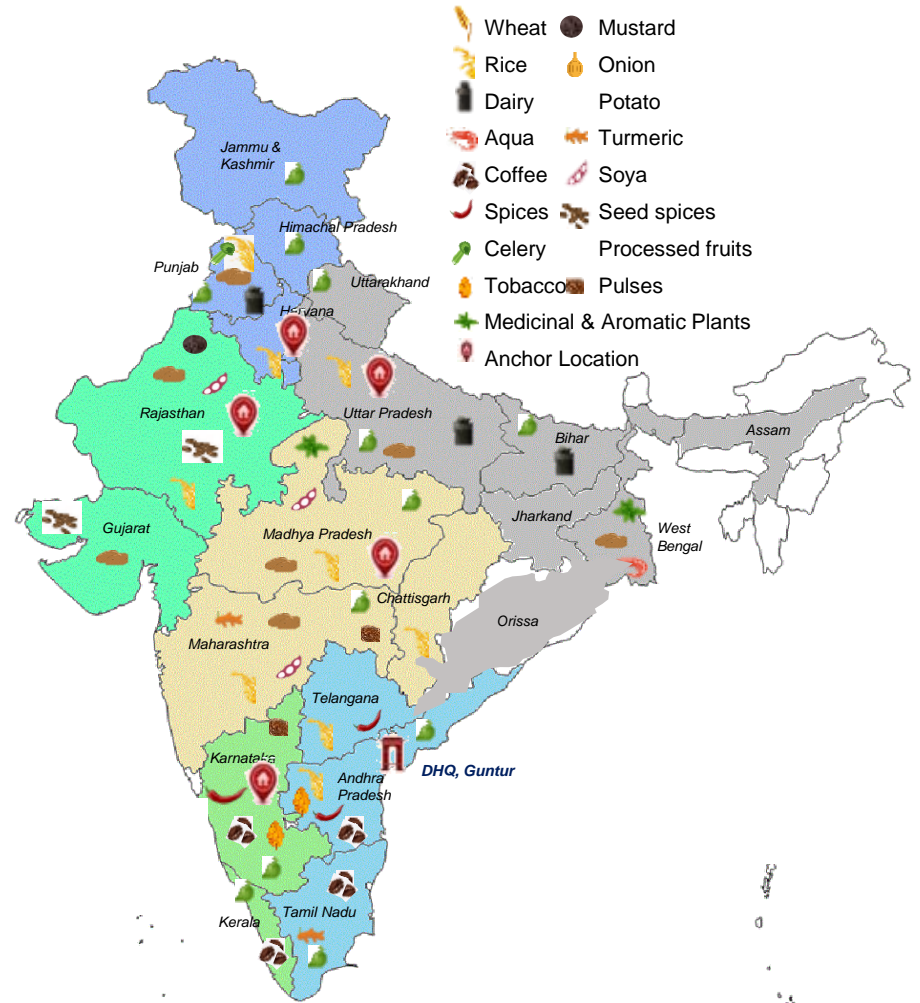
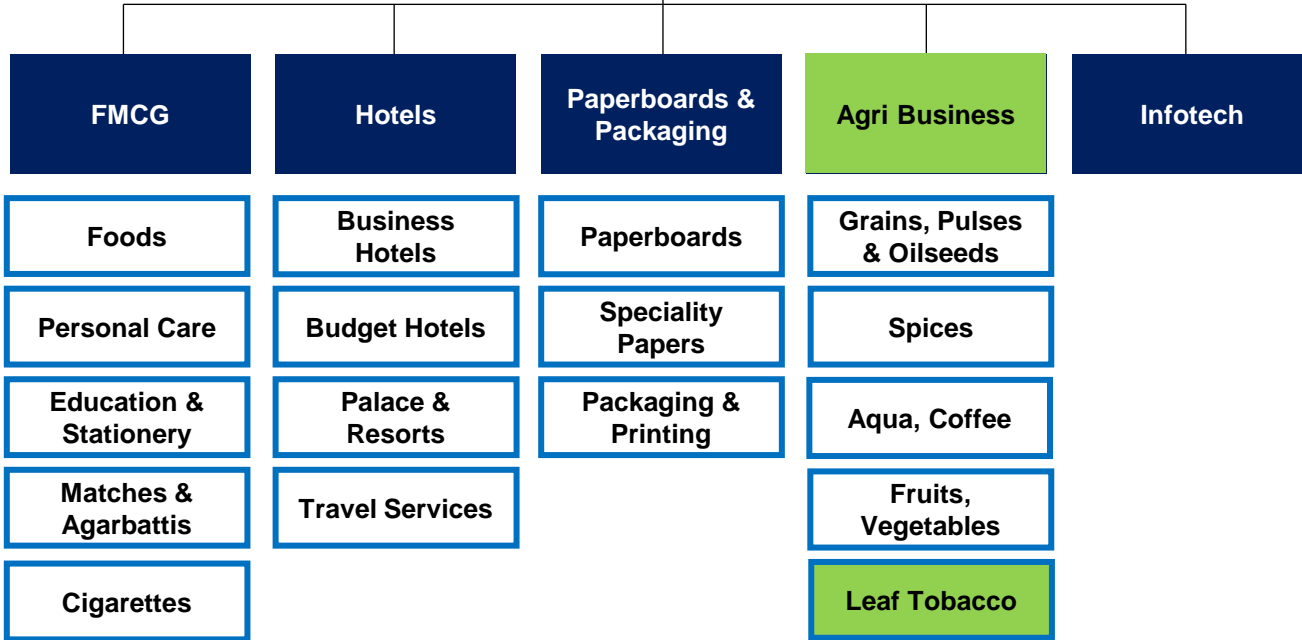


# ITC BRANDS





# ITC ORGANIZATION – MULTI BUSINESS



## Leaf Tobacco:

- Largest Buyer, Processor & Exporter of Leaf tobaccos in India
- Serving customers over 50 countries & 70 destinations
- Green Leaf Threshing factories in AP & Karnataka

**22**  
States

**20+**  
Agri- Commodities

**80+**  
Countries Export





	<b>1</b> M.Kg		<b>195</b> TPD
	<b>5</b> M.Kg		<b>731</b> Employees

**Green Field Project  
commissioned  
2011**

**Commercial  
Production  
2012**

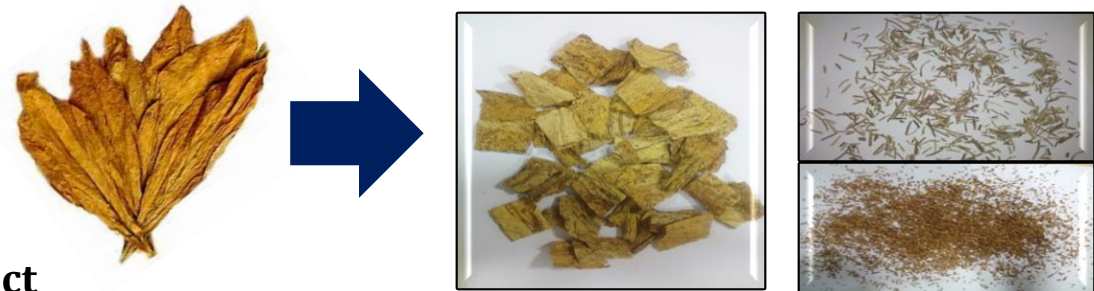
**Spread across  
80 Acres**

**Green Cover  
29 Acres (36%)**

**Plant Uptime  
97.5%**

**Tobacco processing is done for following value addition.**

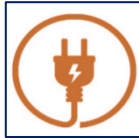
- ✓ Separation of Stem and lamina
- ✓ Improve the Shelf life of the product from 3 Months to 3 Years
- ✓ Separation of Non Tobacco Related Matter to ensure clean product



**Thermal**



**Electrical**



**Water**



**Roles & Responsibilities:**

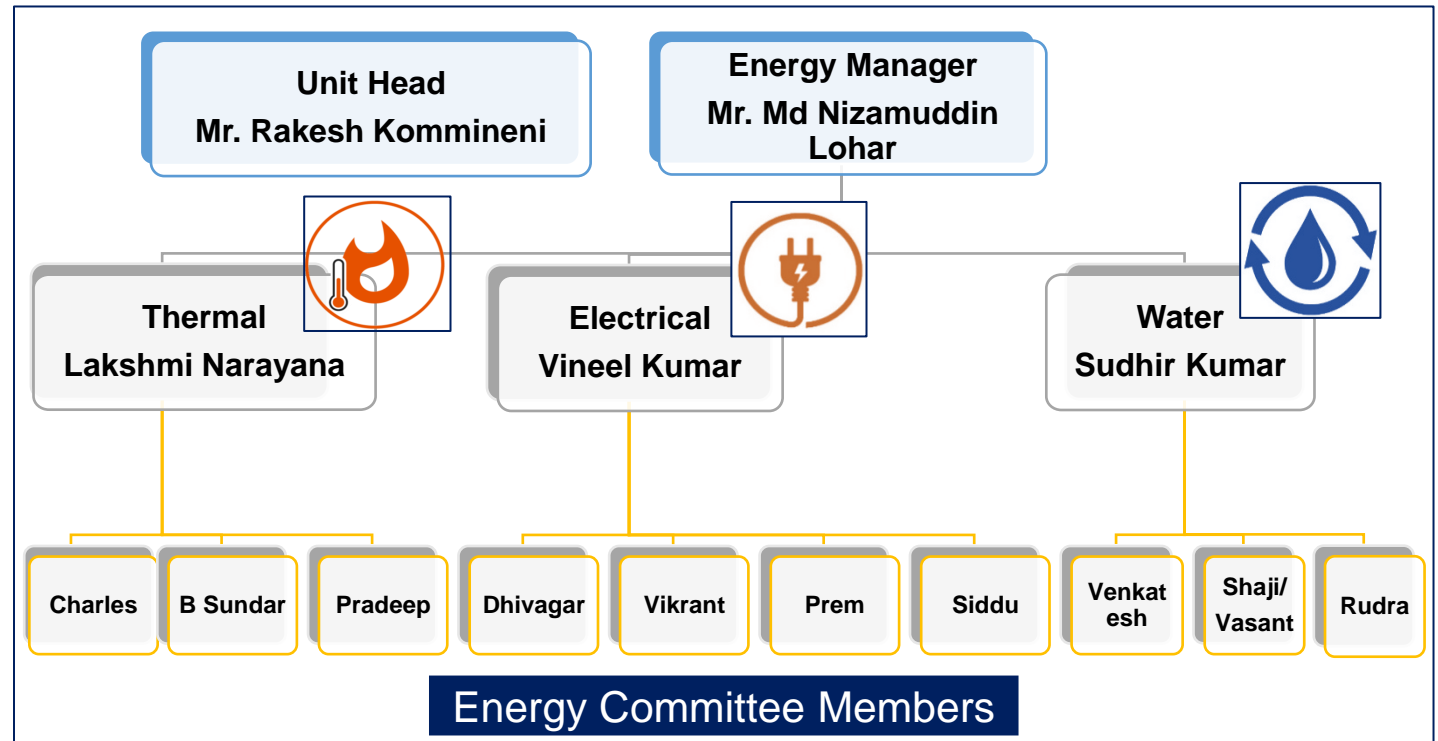
- Energy Management Plan and Execution
- Energy Audits and Assessments - Continual improvement
- Monitoring and Reporting
- Technology scan and faster adoption
- Education ,Motivation and Awareness
- Monthly Review Meetings and Completions

To achieve ESG 2.0 goals and ISO 50001 Certification

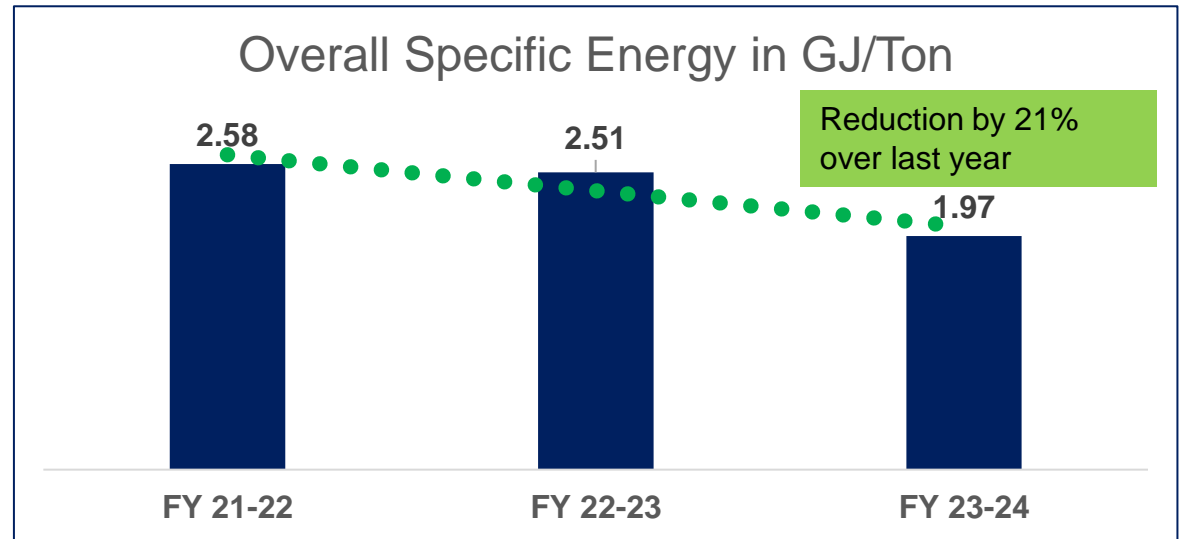
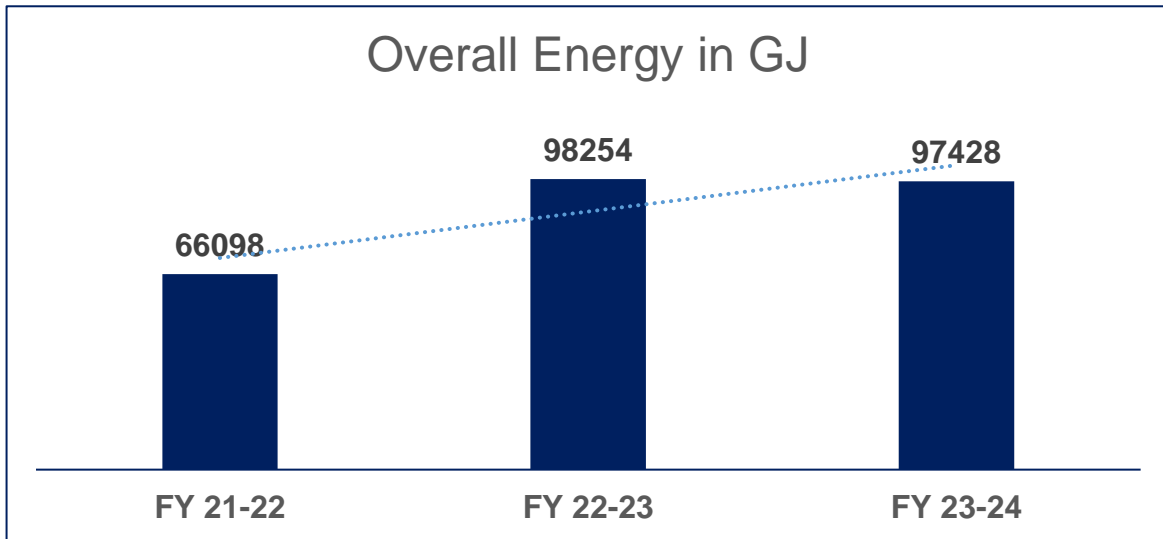
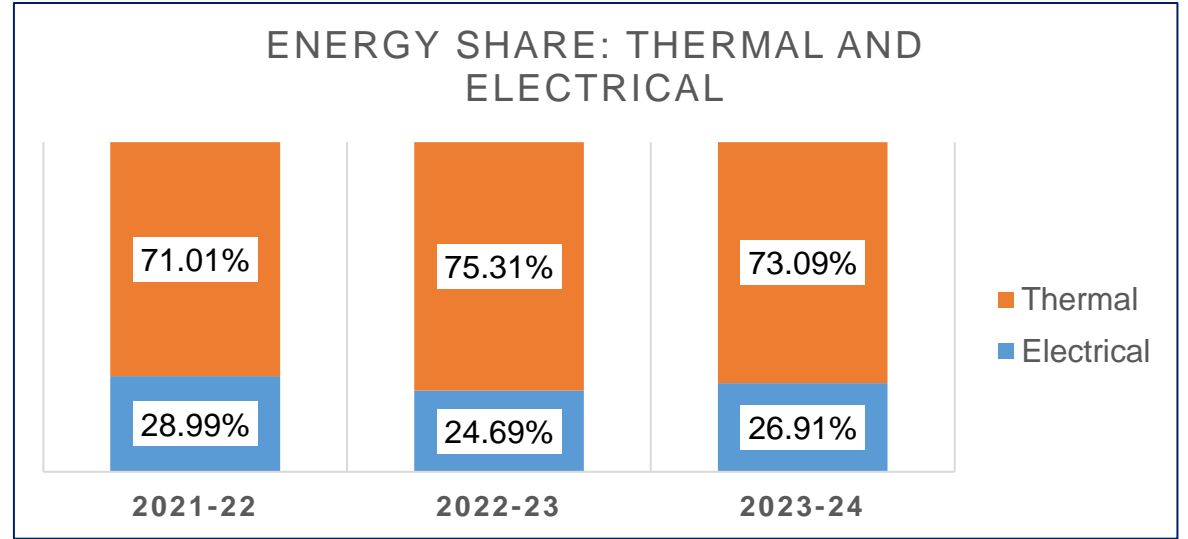
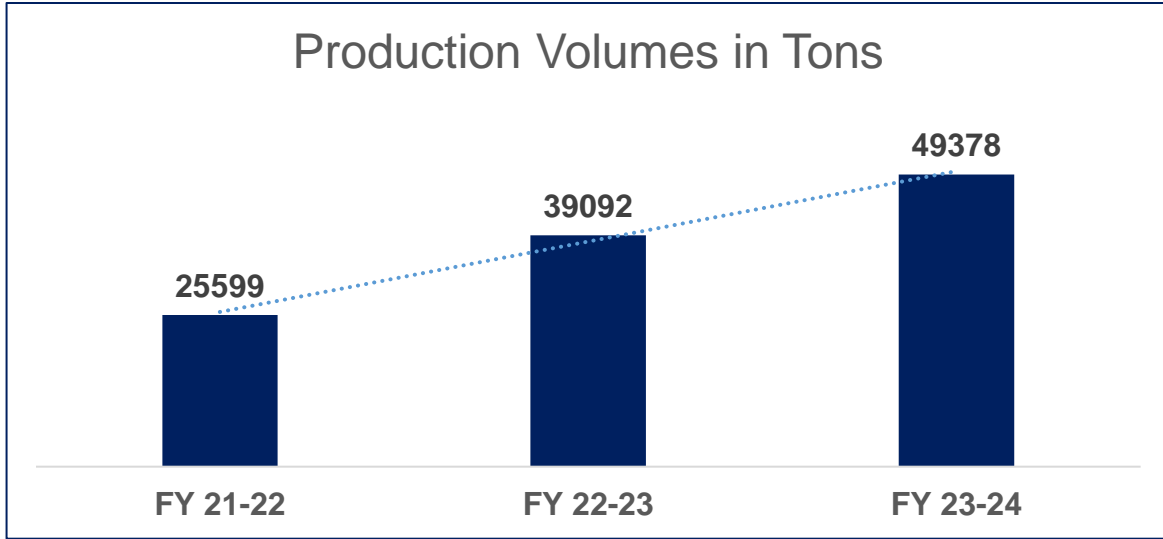


Best Energy Efficient GLT across the Globe

To have a structured approach & to focus on continual improvement towards conserving energy, tracking energy performance and lowering greenhouse gas emissions by educating on importance of effective utilization of energy.



**Energy Committee Members**



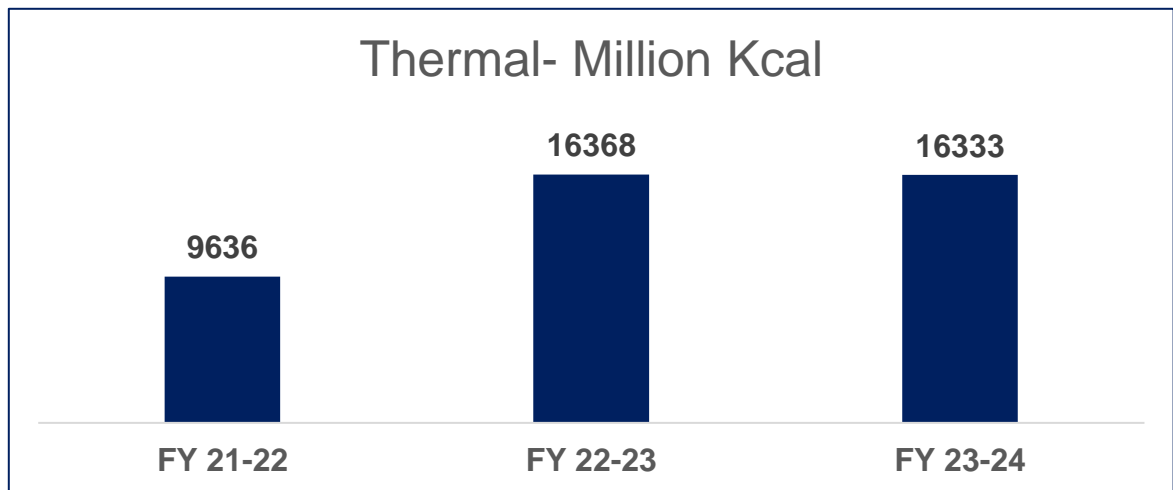
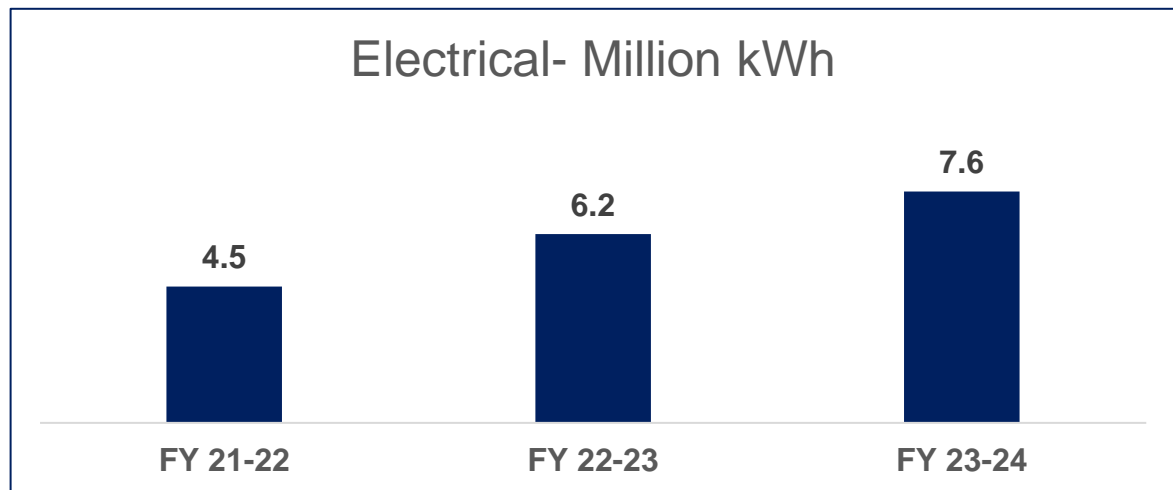
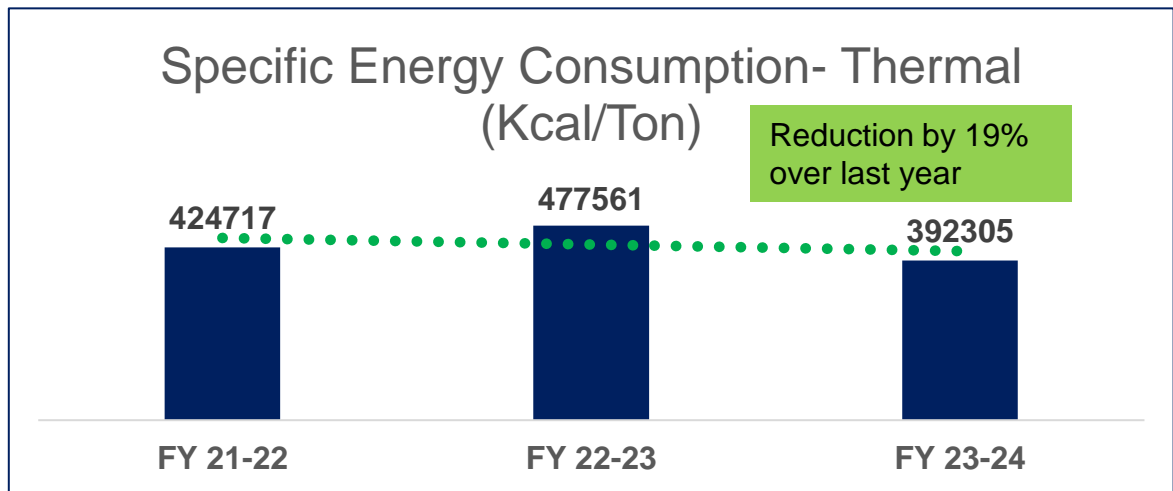
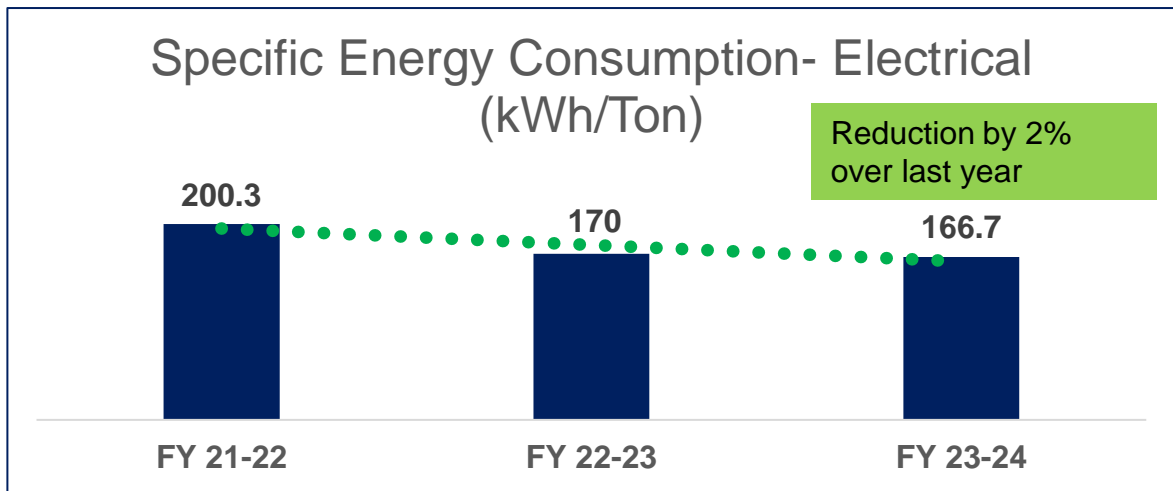


# SPECIFIC ENERGY CONSUMPTION – THERMAL & ELECTRICAL



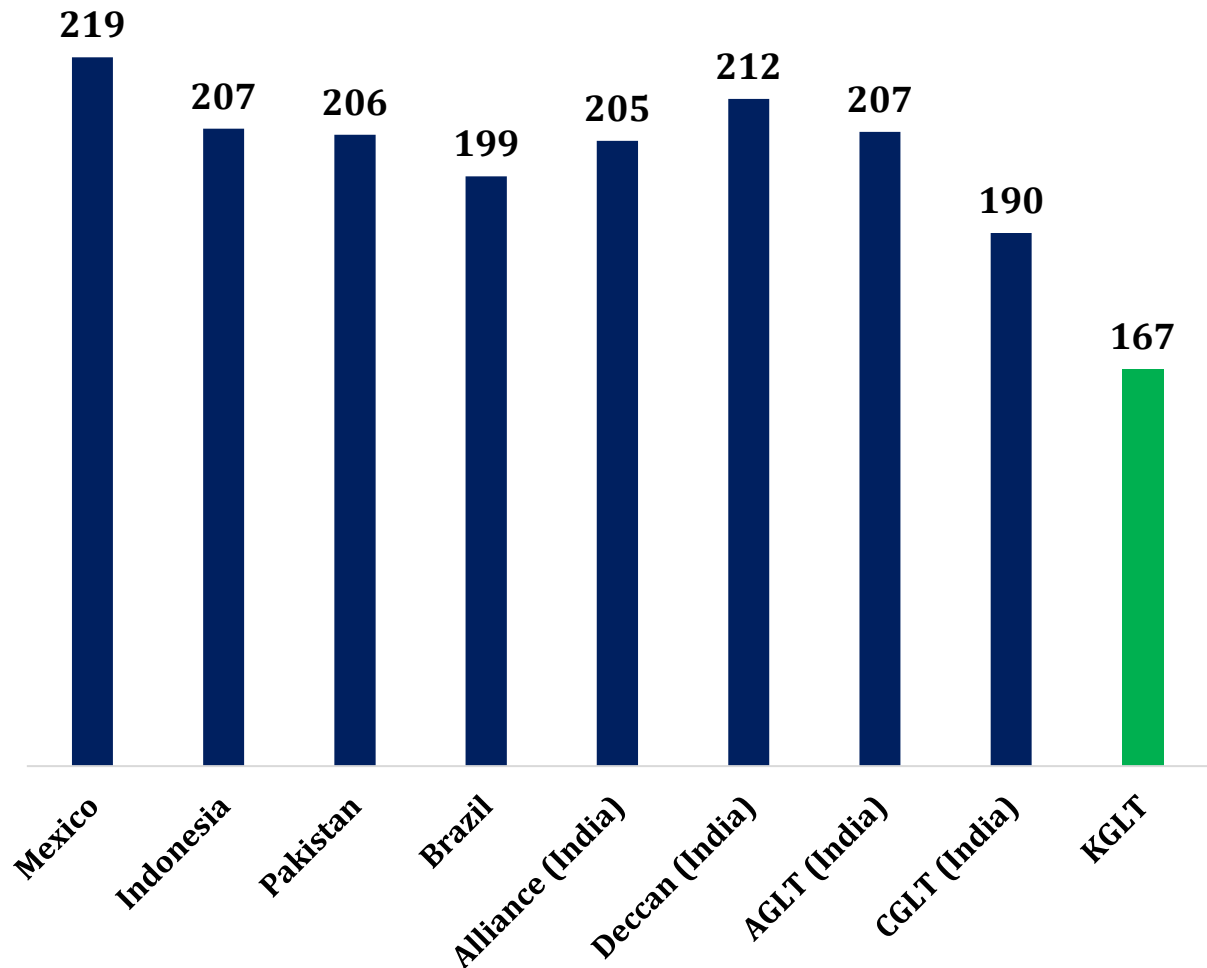
## ELECTRICAL

## THERMAL

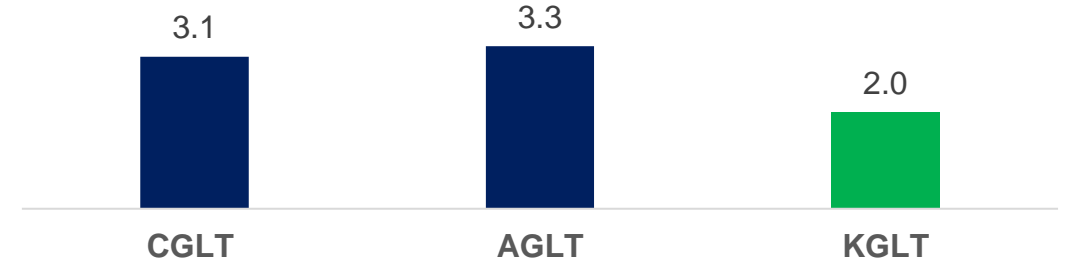




## Specific Energy Consumption (kWh/ToT) (Electrical)



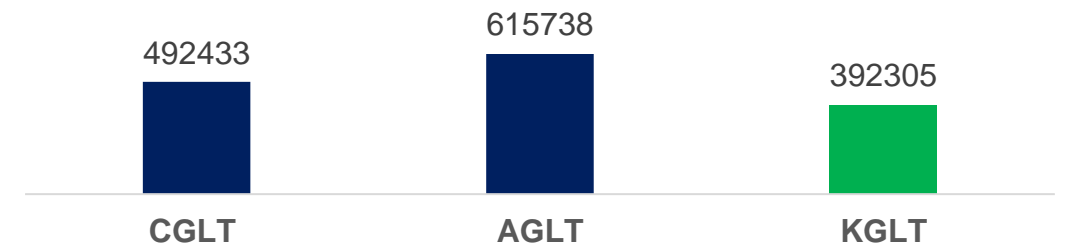
## Overall Specific Energy in GJ/Ton



## Electrical Energy in kWh/Ton



## Thermal Energy in kcal/Ton





# ITC ESG 2.0 GOALS : KGLT Road Map



ESG PILLARS	2018-19 (Baseline)	TARGET (2029-30) %	2022-23 %	2023-24 %	2024-25 %	2029-30 %
Renewable Energy Share (%)	29	50	32.7	62.6	97.5	97.4
Specific Energy Reduction (%)	2.82 (GJ/ToP)	30	5.9	20.3	33.3	39.1
Specific Emissions Reduction (%)	0.20 (TCO <sub>2e</sub> /ToP)	50	10.3	59.1	97.9	98.1
Specific Water Reduction (%)	1.28 (KL/ToP)	40	24.4	35.7	49.1	51.7

**MEETING ALL THE TARGETS BY 2024-25 (5 Years Sooner)**

**High Energy Efficient equipment and process layout modification**



 <p>Rs. 10 L</p> <p>Precision Air conditioners</p>	 <p>Rs. 5 L</p> <p>Inlet guide vanes</p>
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**252 kWh/Day**

**Introducing VFDs**





 <p>Rs. 25 L</p> <p>Variable Frequency Drives- Fans</p>	 <p>Rs. 8 L</p> <p>IE5 Motors</p>
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**610 kWh/Day**

**Intelligent Controller & BLDC fans and LEDs**

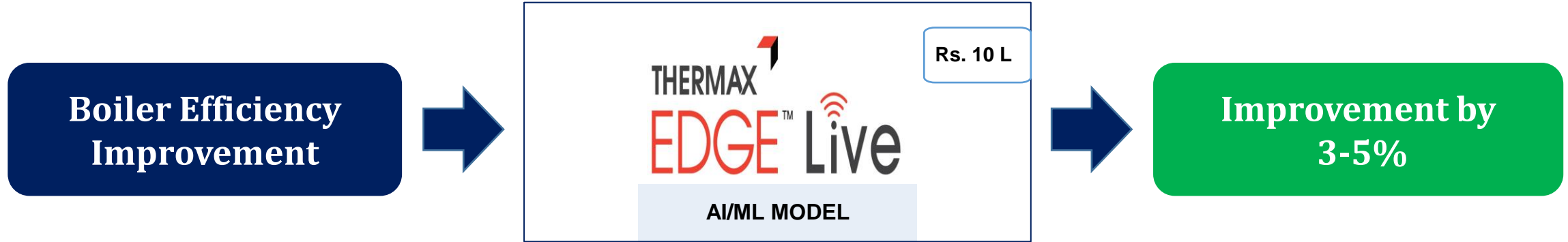


 <p>Rs. 3 L</p> <p>Smart FLT Battery Chargers</p>	 <p>Rs. 5 L</p> <p>Intelligent Air flow controller</p>
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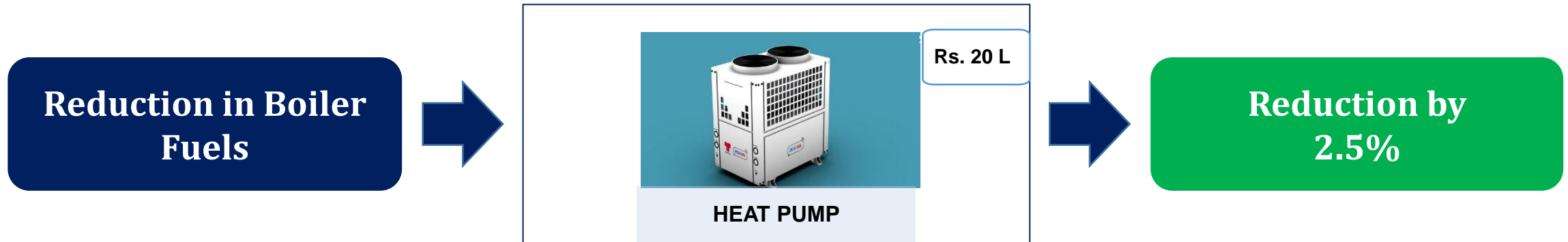


**155 kWh/Day**

# LIST OF ENCON PROJECTS PLANNED IN FY 24-25 (THERMAL)



Deploy AI/ML Model to give prescriptive actions to boiler operators to maintain all the critical parameters at optimum level to reduce gap between design and actual efficiency

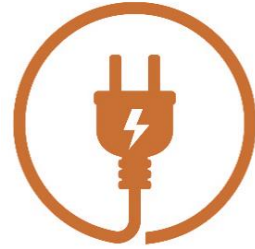


Feed water temperature currently at 80-85<sup>0</sup> C and there is potential to improve it further to 97<sup>0</sup> C for 750m altitude without much evaporation in tank.



# SUMMARY OF ENCON PROJECTS IMPLEMENTED- LAST 3 YEARS

## Electrical



## Thermal



Year	No of Energy saving projects	Investment (INR Million)	Electrical savings (Million kWh)	Thermal savings (Million Kcal)	Total Savings (INR Million)	Payback period (in months)
FY 2021-22	19	2.1	0.07	579	0.7	35
FY 2022-23	45	2.5	0.14	543	1.3	23
FY 2023-24	15	111.1	0.16	10260	23	58



# SUMMARY OF ENCON PROJECTS IMPLEMENTED- LAST 3 YEARS



## Electrical

With 77 Initiatives

0.37 M Kwh

In 3 Years

### High Efficiency Motors



279  
KWH/Day

No of  
Initiatives:  
14 Nos

### Introducing VFDs



659  
KWH/Day

No of  
Initiatives:  
4 Nos

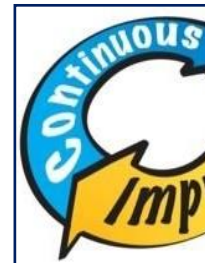
### LED lighting



516  
KWH/Day

No of  
Initiatives:  
46 Nos

### Process Modification



404  
KWH/Day

No of  
Initiatives:  
13 Nos



## Thermal

With 8 Initiatives

11,382

M.kCal

In 3 Years



3.84 M Kcal/Day

Heat Exchanger with SS  
Coil with Al Fins



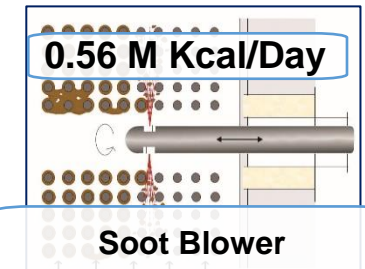
2.15 M Kcal/Day

Pressure Reducing  
Station



0.57 M Kcal/Day

Air Nozzle Design Better  
Combustion with SS and CI



0.56 M Kcal/Day

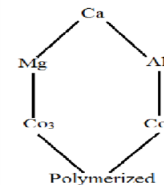
Soot Blower



33.58 M Kcal/Day

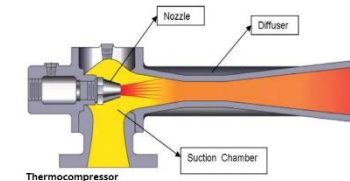
Twin Green Fuel Boilers

4.03 M Kcal/Day



Combustion Catalyst

1.32 M Kcal/Day



Thermo Compressor

0.52 M Kcal/Day



Start-up Traps



# LIST OF MAJOR ENCON PROJECTS IMPLEMENTED IN LAST 3 YEARS



**2021-22**  
Energy Saving – 2677 GJ

Type of Energy	No of Processing Days	Initiatives	Electrical savings Million kWh	Thermal savings Million Kcal	Investment Rs. L	Energy Savings (GJ)	Savings in Rs. L	Payback period (in months)
Electrical	131	Layout modifications & Drive rating optimization at identified locations	0.003	-	Nil	10	0.1	94
		Improvement in Energy Efficiency- Motors & Chiller	0.003	-	3.9	10	0.1	
		LED lighting	0.04	-	9.0	131	1.0	
		VFD for DRF system- I	0.03	-	2.1	104	0.8	
Thermal		SS Heat Exchanger at Conditioning cylinder- Steam reduction	-	503	4.0	2105	4.1	12
		Modified Air Nozzles- Improvement in Boiler Efficiency	-	76	2.00	317	1	21
<b>Total</b>			<b>0.07</b>	<b>579</b>	<b>20.88</b>	<b>2677</b>	<b>7</b>	



# LIST OF MAJOR ENCON PROJECTS IMPLEMENTED IN LAST 3 YEARS



**2022-23**  
Energy Saving – 2761 GJ

Type of Energy	No of Processing Days	Initiatives	Electrical savings Million kWh	Thermal savings Million Kcal	Investment Rs. L	Energy Savings (GJ)	Savings in Rs. L	Payback period (in months)
Electrical	200	Layout modifications & Drive rating optimization at identified locations	0.04	-	Nil	131	1.1	32
		Improvement in Energy Efficiency- Motors & Chiller	0.02	-	3.3	85	0.7	
		LED lighting	0.03	-	4.5	114	0.9	
		VFD for DRF system- II	0.04	-	3.0	158	1.3	
Thermal		Soot Blower for Boiler- Improvement in Boiler Efficiency	-	112	7.0	469	2.1	39
		PRS system for LRD system- Steam reduction	-	431	7.00	1804	8	11
<b>Total</b>			<b>0.14</b>	<b>543</b>	<b>24.74</b>	<b>2761</b>	<b>14</b>	



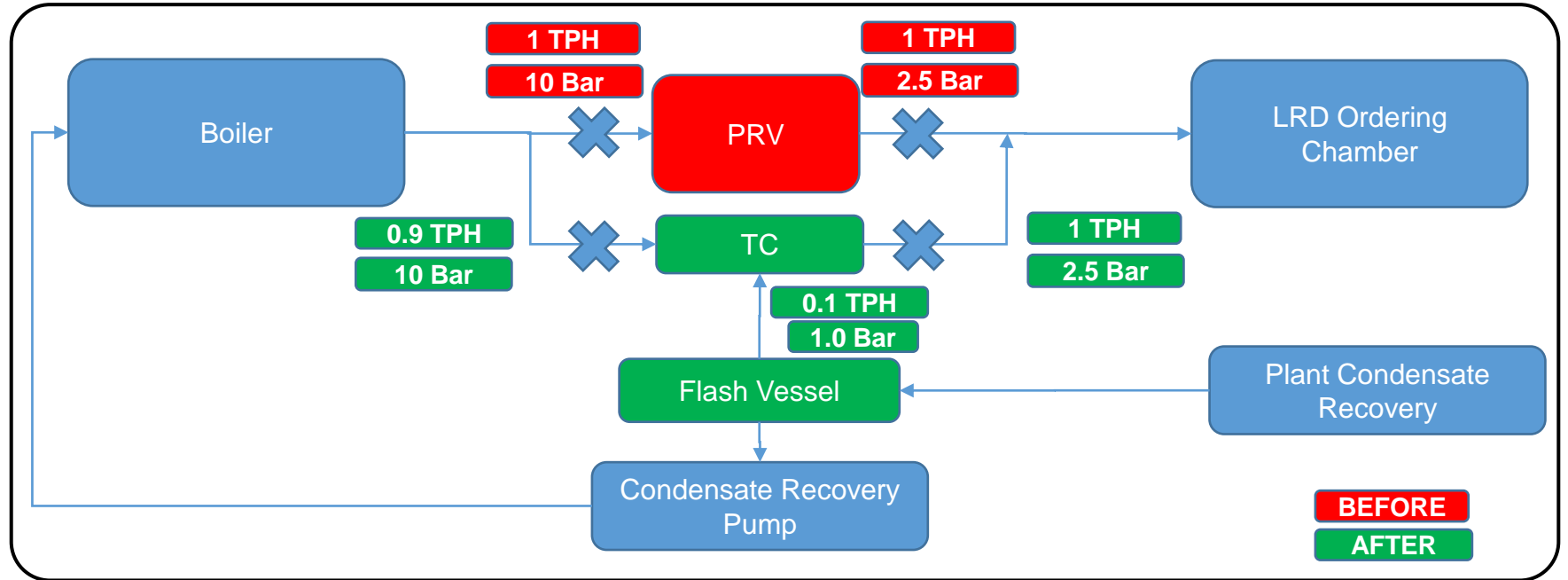
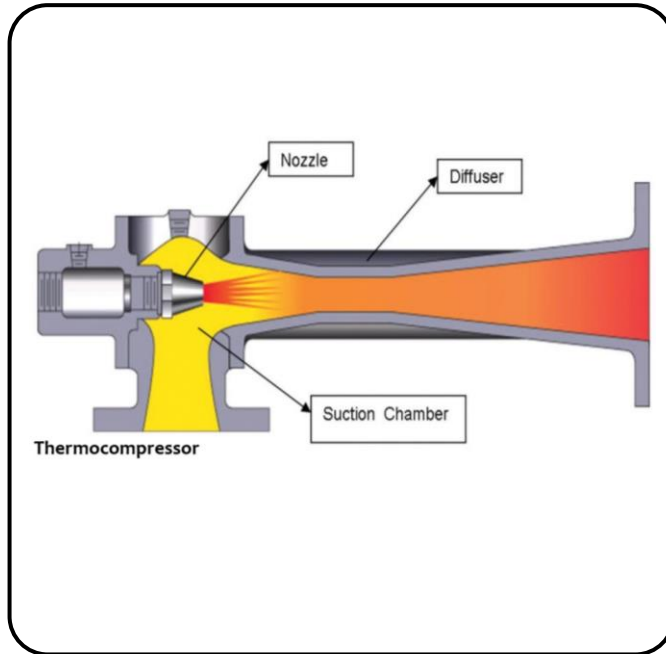


# LIST OF MAJOR ENCON PROJECTS IMPLEMENTED IN LAST 3 YEARS



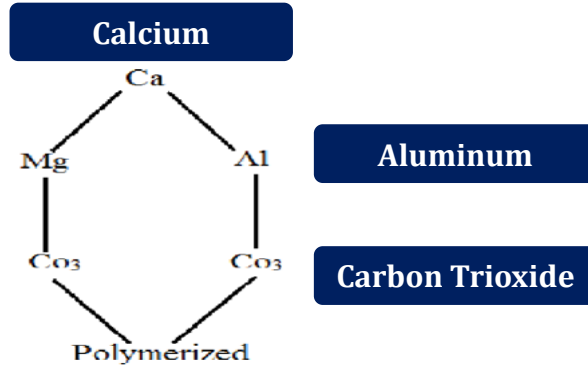
**2023-24**  
Energy Saving – 13700 GJ

Type of Energy	No of Processing Days	Initiatives	Electrical savings Million kWh	Thermal savings Million Kcal	Investment Rs. L	Energy Savings (GJ)	Saving in Rs. L	Payback period (in months)
Electrical	249	LED Replacement	0.04	-	2.8	188	1.5	94.8
		Drive Rating & Process Optimization and Load deletion	0.03	-	0.3	131	1.0	
		Energy Efficient Equipment	0.02	-	29.4	75	0.6	
		Introducing VFD for identified drives	0.04	-	5.3	205	1.6	
Thermal		Green Fuel Boiler	-	8736	1052	11973	196	57.2
		Start-up trap for Steam distribution network	-	136	0.6	570	3	
		Thermo Compressor – Lamina Re-dryer		344	14	144	6.6	
		Introducing Combustion Catalyst along with Biofuels		1048	8	438	20.1	
<b>Total</b>			<b>0.13</b>	<b>10260</b>	<b>1112</b>	<b>13700</b>	<b>230</b>	<b>58</b>



- KGLT consumes around 65-74 Tons of steam per day
- Condensate recovery stands at 45%.
- Condensate will have 6-10% of flash steam with flow of 0.1 to 0.15 TPH
- Uses flash steam from condensate recovery
- Increases pressure from 1 bar to 3-5 bar for localized consumption
- Saving **260 Tons of steam/Annum**

**Reduction in Specific Steam Consumption by 2%**



- Reduces **ignition temperature of carbon** from **454° C** to **320° C**
- **Calcium**: Extends the **fusion temp of ash** from **925-975° C** to **1152° C**
- **Magnesium**: Improves **heat transfer by forming magnesium film** on the **tubes** and this will **not allow soot depositions**
- **Aluminum**: Neutralize the **So2 and So3** by converting them into Aluminum Sulphates and **ionizes the air** whereby **air will act as efficient conductor** and act as transfer media.



**0.1% of dosing with fuel  
(1 Kg for 1000 Kg of Fuel)**

S No	Description	UOM	Without Catalyst	With Catalyst	Improvement	%
1	Fuel Qty	Kg	36,230	44,790		
2	Fuel GCV	Kcal/ Kg	3,800	3,800		
3	Steam Generation	Kg	1,73,329	2,27,619		
4	Steam Enthalpy @ 12 Bar (Saturated Steam)	Kcal / Kg	569	572		
5	Total Heat Input	Kcal	13,76,74,000	17,02,02,000		
6	Total Heat Output	Kcal	9,85,57,536	13,02,59,715		
7	<b>Boiler Efficiency</b>		<b>71.59%</b>	<b>76.53%</b>		
8	<b>SF Ratio</b>		<b>4.78</b>	<b>5.08</b>	<b>0.30</b>	<b>6.22%</b>

**Boiler efficiency improvement by ~5%**

## Electrical Consumption in KWH per Day

With DOL

With VFD

All Product Grades (Top, Medium & Low)

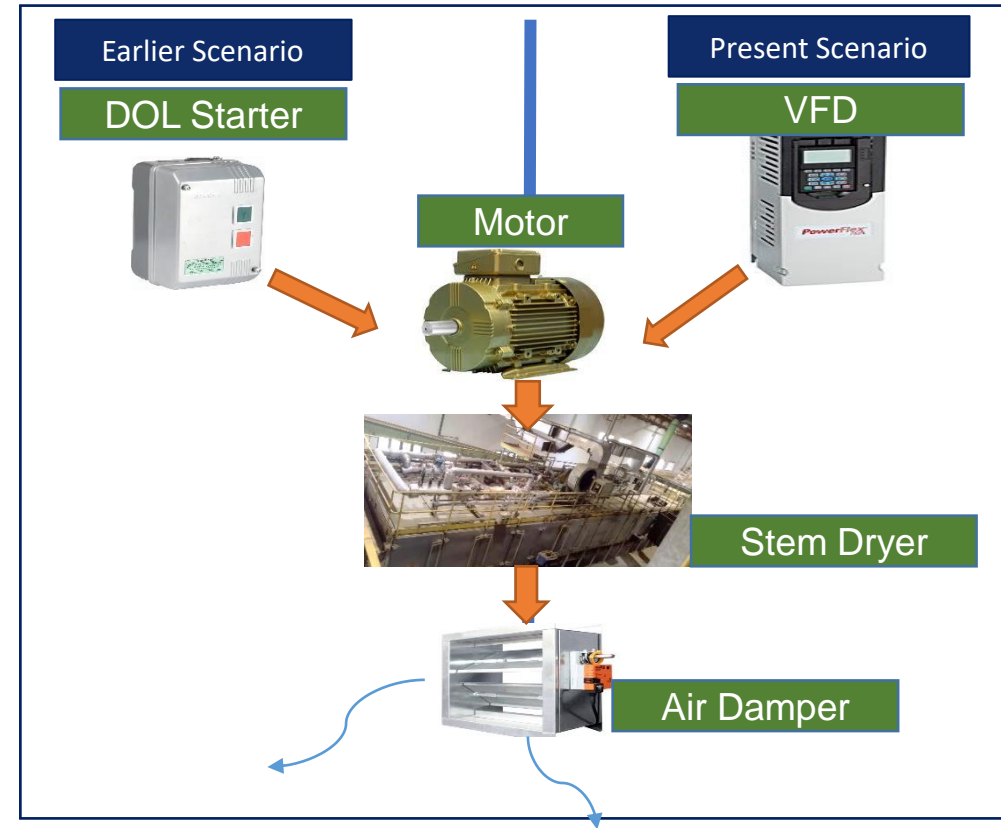
1196  
KWH/Day

Savings  
206  
KWH/Day

990  
KWH/Day

### Stem Dryer-

Erstwhile the air velocity inside the heating chambers are regulated through air dampers. By introducing the VFDs, the heating chambers are regulated under variable speed on basis of desired heating chamber temperature without effecting product integrity



Business  
Need

Energy Conservation Initiatives

Innovation  
Component

Introducing VFDs for all heating chamber fans – 8 Nos

Project  
Outcome

Energy Saving Potential– 53542 kWh  
Savings in Rs. – 1.61 Lakhs (Rs. 3 per kWh)  
Payback – 41 Months

Organization  
Benefit

Lower Energy & Maintenance Cost





Commissioned in 2013  
Mannikeri, Belgaum, Karnataka

Total Capital investment : 43.45 Cr.  
Total Installed Capacity : 8.75 MW  
No of WTGs : 7 Nos  
Capacity of each WTG : 1.25 MW

RPO OBLIGATION: NOT OBLIGATED  
Power drawn from DISCOM and Own Wind farm only

FY	Sum of Gross KWH in Lakhs	Sum of Net KWH in Lakhs	KGLT		
			Own Consumption KWH in Lakhs	RE Foot print	% Utilization
2021-22	164	146	44.5	99.0%	30.5
2022-23	171	151	58.2	93.1%	38.3
2023-24	163	150	74.9	98.5%	49.9
<b>Grand Total</b>	<b>498</b>	<b>443</b>	<b>173</b>	<b>97%</b>	<b>39.7</b>

**96%**  
Machine Uptime

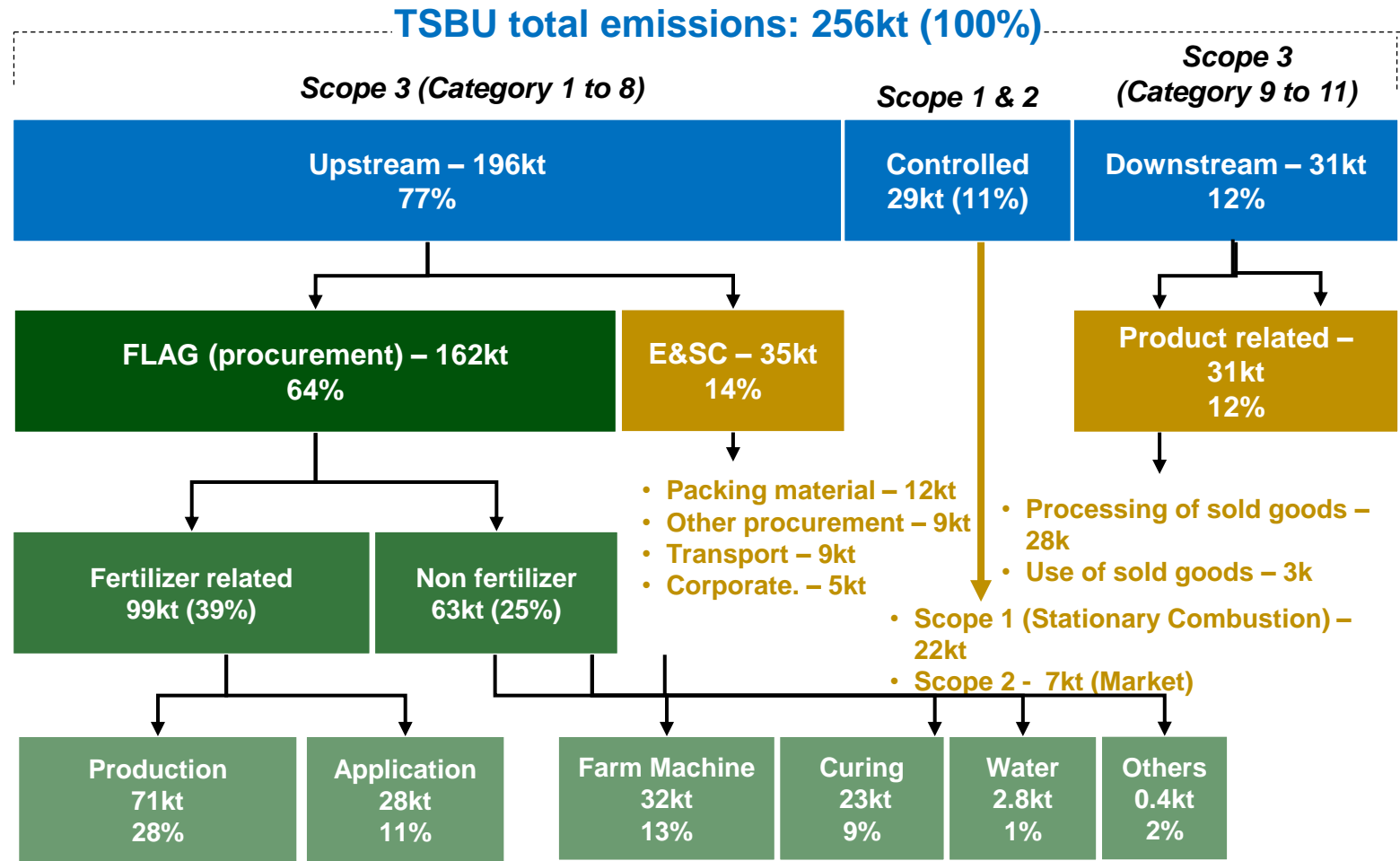
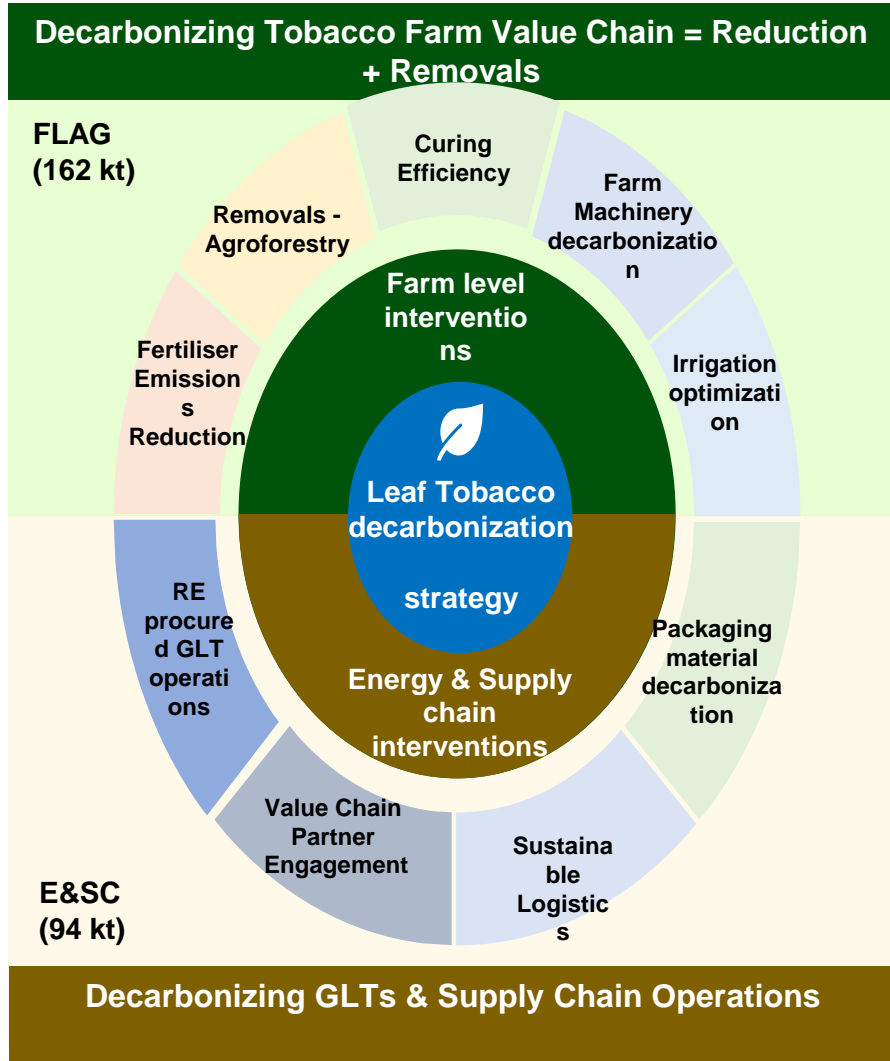
**98%**  
Grid Uptime

**21%**  
PLF

The Captive Wind Farm has net generation of 150 Lakh units per Year. 60% of Energy is wheeled to other Units and Businesses basis on profitability ranking.



# TSBU's GHG Inventory aligned to SBTi



**TSBU's emissions are dominated by Scope 3 (89% - 227 kt)**  
**FLAG emissions are significant contributors, followed by E&SC**



# UNIT - GHG INVENTORISATION



## GHG Inventorization & Public Disclosure

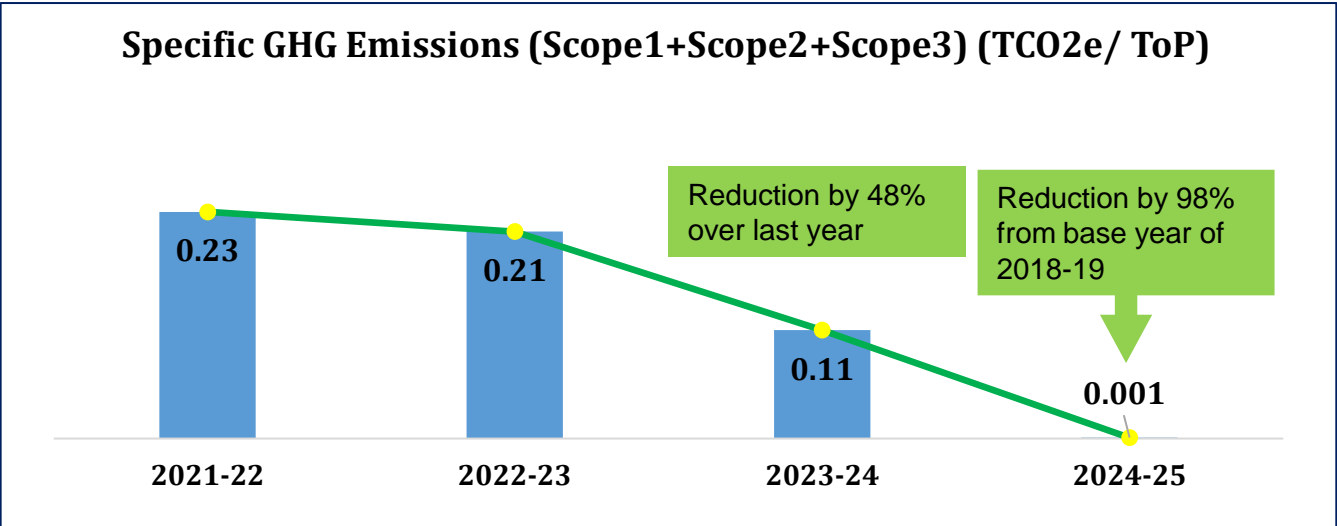
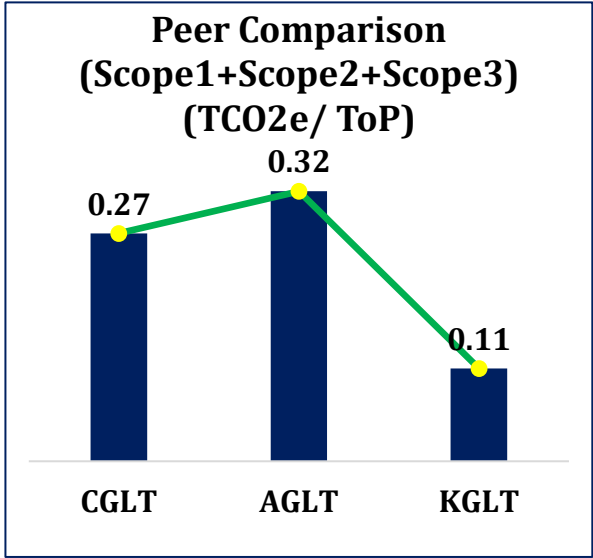
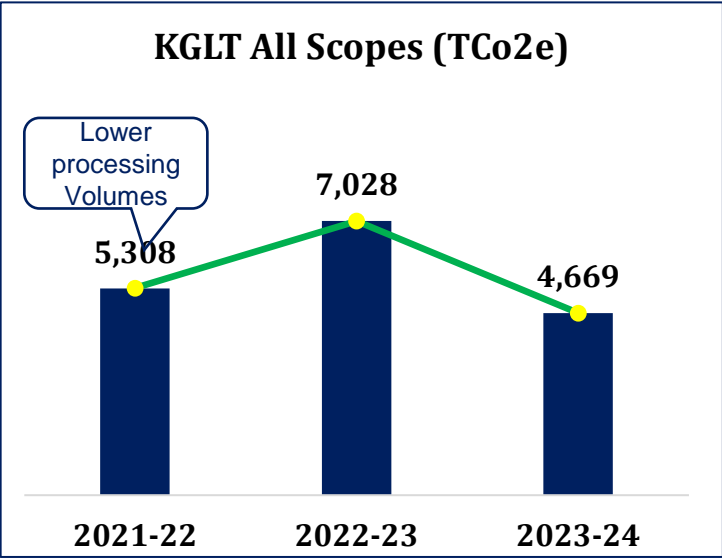
All Scope 1, 2 & 3 emissions being captured and disclosed to public on ITC Portal.

link:

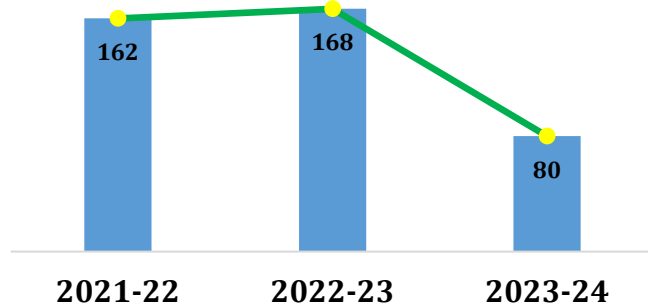
<https://www.itcportal.com/sustainability/sustainability-reports.aspx>

## 2023 Target for Emission Reduction

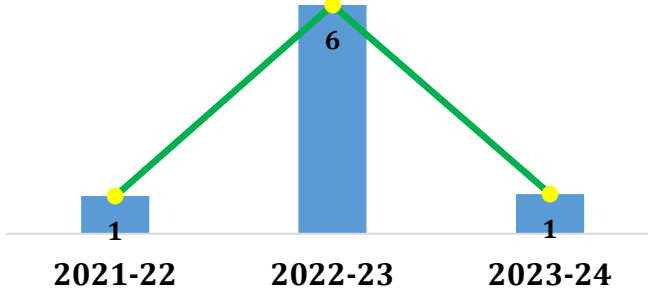
- Target : 50% reduction from baseline year 2018-19 (Scope1+Scope2) by 2030
- By 2024-25, Unit is achieving 99.5% reduction through planned initiatives



**Scope1 (Kg CO2/ToP)**

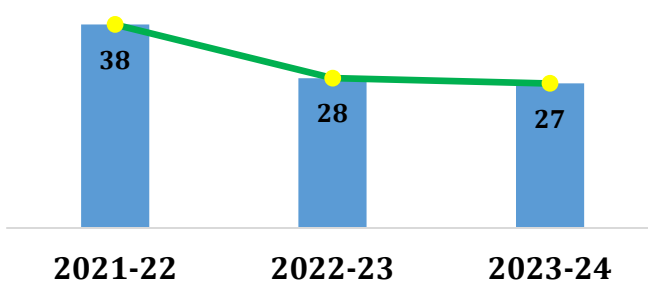


**Scope2 (Kg CO2/ToP)**



	Wind	Grid	DG
2020-21	98.84	0.88	0.28
2021-22	98.98	0.61	0.41
2022-23	93.00	6.58	0.40
2023-24	98.50	0.7	0.80

**Scope3 (Kg CO2/ToP)**



Year	2021-22	2022-23	2023-24
Inward - Kms/Ton	1347	357	242
Outward - Kms/Ton	417	350	443

## Initiatives towards GHG emission reduction



- Bio Fuel fired Boiler 9.0 TPH



- Improve renewable energy utilization to 99.5% by setting up 3.5 MWp On-site Solar PV system



- Optimizing Travel KM of raw material by avoiding intermittent storage



- Continuous improvement- Energy conservation initiatives



- Minimize DG operation thru increase in Grid availability



Commissioned in 23-24 : 9 TPH (2 x 4.5 TPH) Boiler (Investment- Rs 10.59 Cr)



### New Boiler Advantages

- **Effective load management with Twin Boiler design**
- **Multi Fuel (Solid) Boiler with Reciprocating Grate can go with 100% bio fuels**
- **Efficiency improvement 45% vs 75%**




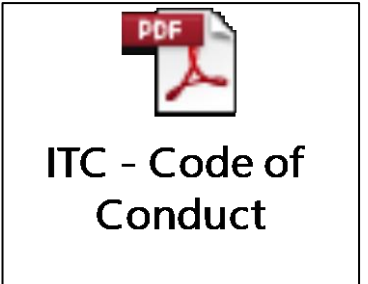

### NEW 3.5 MW SPV PLANT



### Need for improving RE Generation:

1. **Banking facility- Annually to Monthly basis**
2. **Low wind season**
3. **Due to increase in Energy demand**
4. **Excess energy sharing with other ITC units**

Type	Solar - Ground Mounted
Investment in Rs. Crores	27
Year of Implementation	2025-26
Total Generation	56.7

Initiative	Investment (Rs. Million)	Benefits	Concept
 <ul style="list-style-type: none"> <li>Loose Leaf - Smart Curing Barns in place of traditional barns</li> </ul>	60.6	<b>54%</b> Fuel Savings (384.34 M Kcal)	PID Controlled Temperature and RH
 <ul style="list-style-type: none"> <li>Energy Conservation in Tobacco Curing Barns</li> </ul>	15.1	<b>29%</b> Fuel Savings: (5345.61 M Kcal)	Introduced turbo ventilators for improving heat utilization
 <ul style="list-style-type: none"> <li>Installation of Solar PV Plant in Godowns</li> </ul>	21.3	<b>70%</b> RE Foot print with generation KWH: 5.1L	Introduced 421 kWp SPV system at Raw Material Godown
 <ul style="list-style-type: none"> <li>Supplier code of conduct - Environment</li> </ul>	As a practice, we take a declaration "ITC-Code of Conduct" from all its key / major vendors on complying laws of all environment and adopt environment friendly technologies		



## Energy Monitoring System

1. **Energy Dashboard Review with different frequencies**
2. **Monthly EMC meeting**
3. **Competitions**
4. **Data Analysis**
5. **Reviews with Senior Management at Unit, Division and Corporate**

### Challenges:

- Combined energy monitoring system not available
- Manual noting of energy consumption at some areas

### Upgradation Planned:

- **Piloting of Historian in CGLT planned in 23-24** for combined energy monitoring system
- **Replication at unit by 24-25**

## Energy Management System



Step 1: Initiated process for certification and started preparations for initial audit

Step 2: Final Certification Audit during FY 25-26

## Learnings from CII Energy Awards

- Recognition for accomplishments and exposure to new ideas, and opportunities to refine skills
- Insights into best practices, benchmarking against industry leaders
- Enhance organizations process and strategies
- Gain credibility and expand professional network

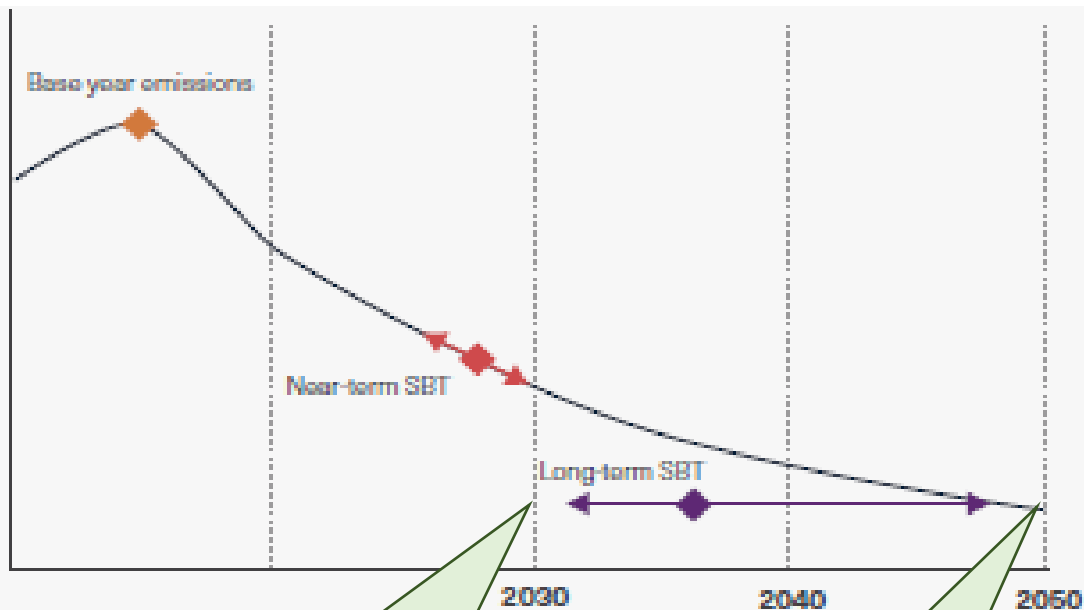
**25<sup>th</sup>**  
**National Award for**  
**Excellence in Energy Management 2024**  
 10 - 12 September 2024 HICC, Hyderabad



SCIENCE  
BASED  
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

## SBTi- Reducing scope 1, 2, and 3 emissions - 1.5°C



Carbon Neutrality

Net Zero

## ESG 2.0

ITC has published its ESG2.0 goals publicly for near term goals. Accordingly goals for individual divisions assigned, which are to be achieved by 2030 and 2050.

## Low Carbon Transition Plan

Baselining and inventorisation of total emissions (Scope1, Scope2 and Scope 3) was done by TERI and deployed Accenture for preparing low carbon transition plan using SBTi FLAG guidelines



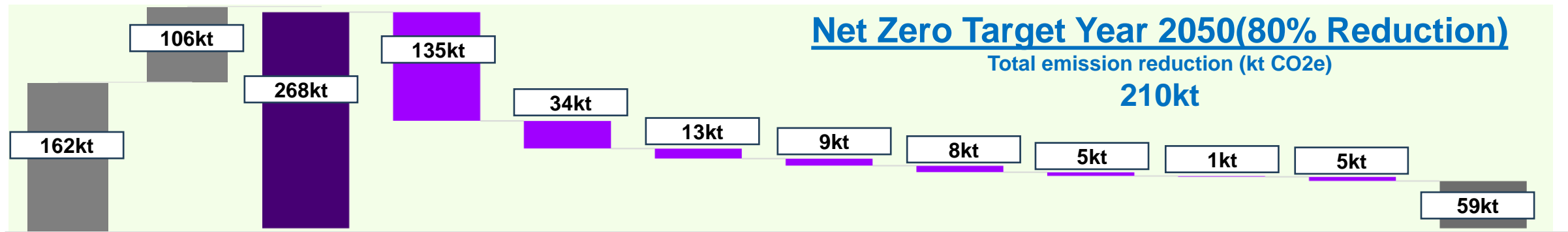
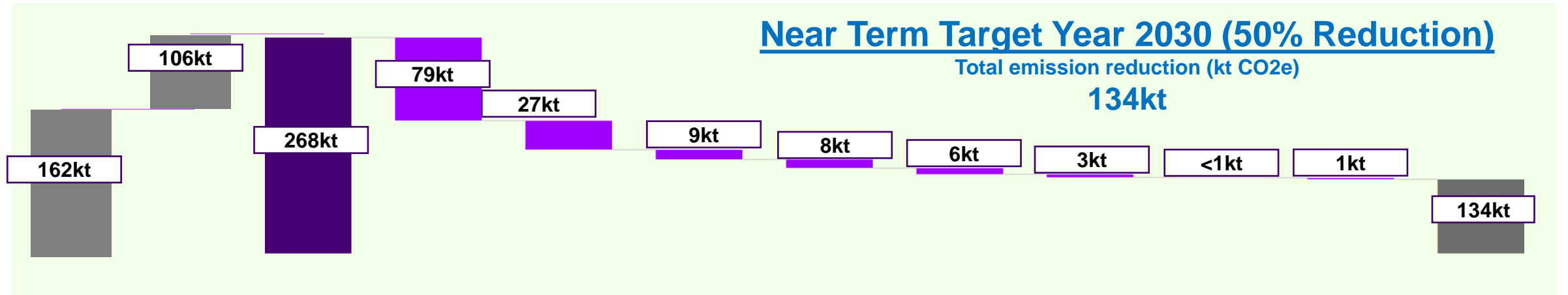
Baselining &  
Inventorisation



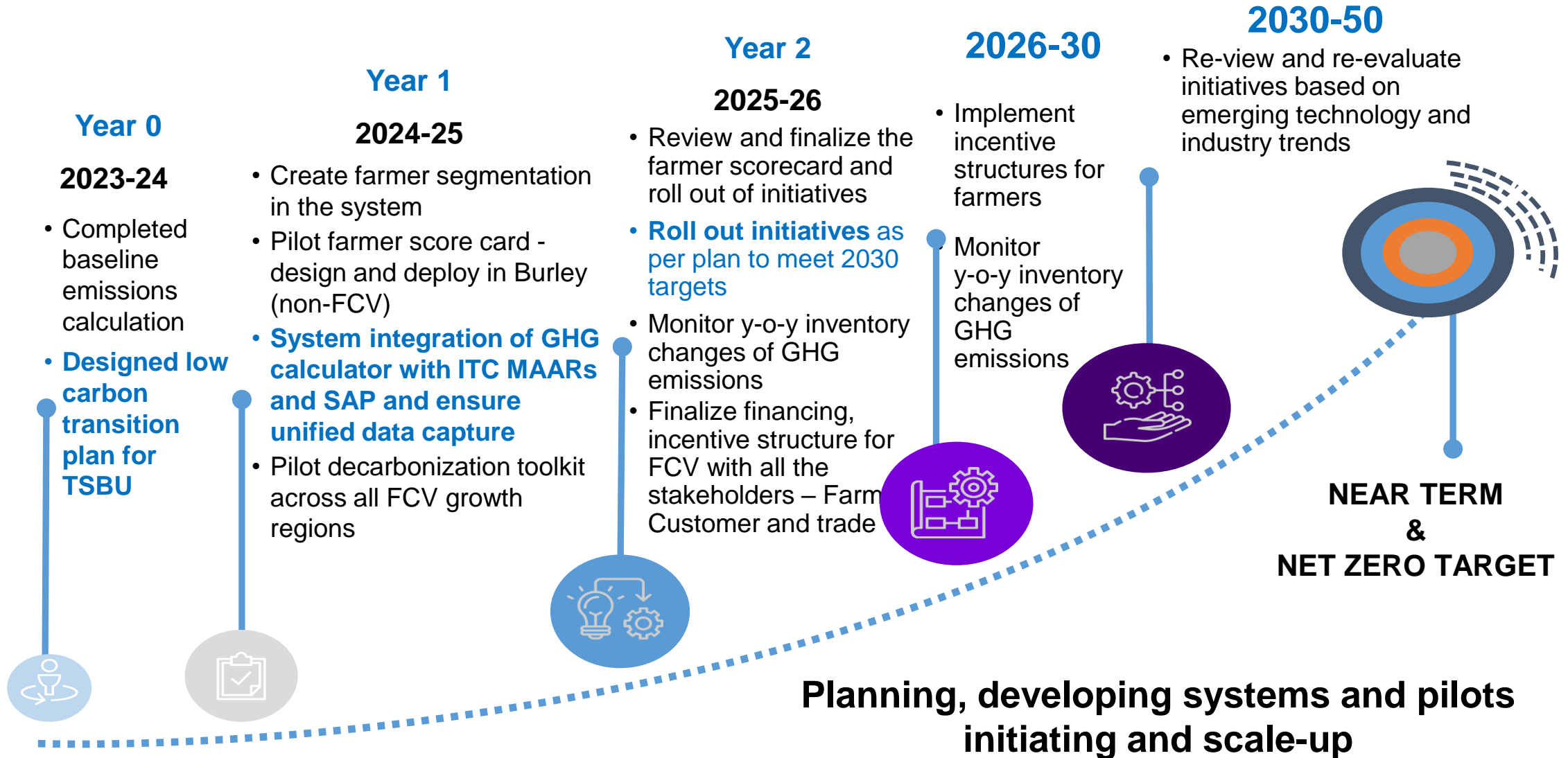
Low carbon transition plan for all the  
emissions covering all ABD operations



# DECARBONISATION STRATEGY - Farm



FLAG Emissions in 2021	Leaf procurement volume growth	BAU Emissions in 2030	Source of fertilizer	Fertigation, Fertidrill, green manuring, crop rotation	Site-specific nutrient mgt.	EC Barns and Lose leaf barns	Specialty fertilisers	Biodiesel and Electric tractor	Irrigation related initiatives	Other FLAG initiatives	Residual Emissions 2050
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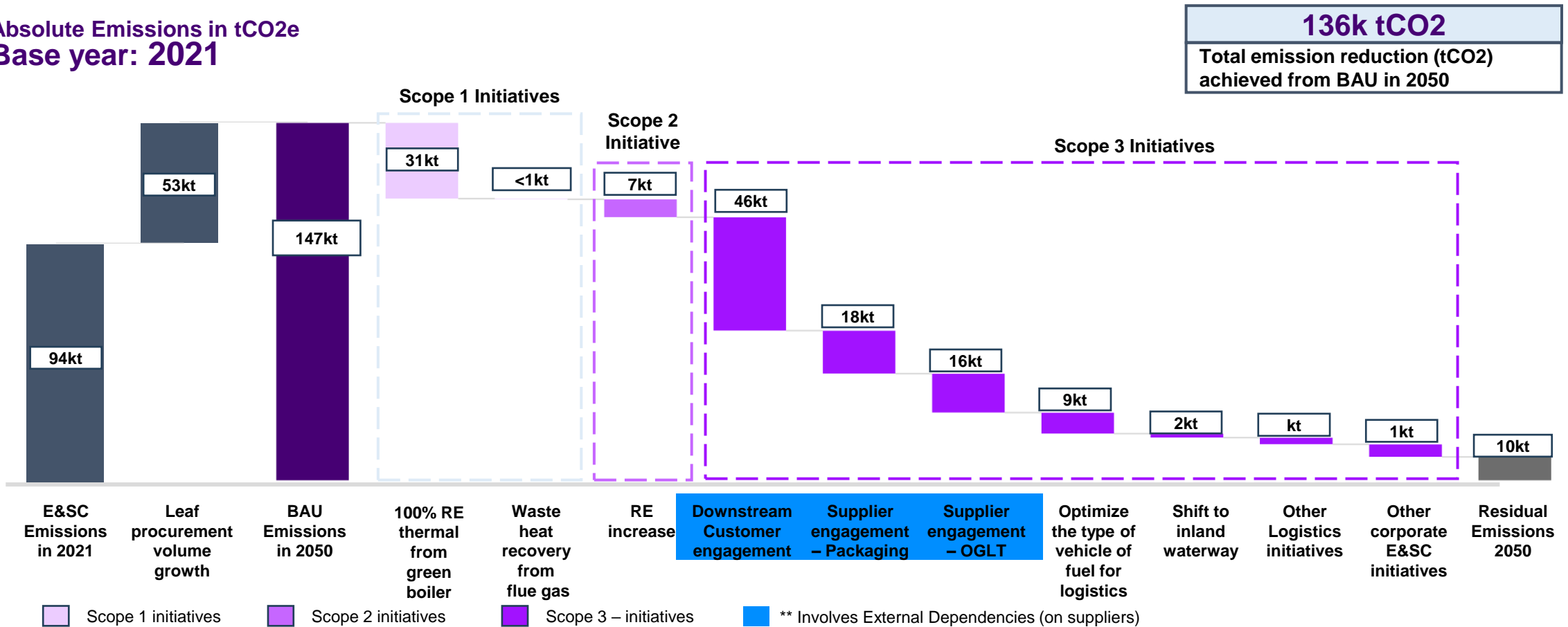
# DECARBONISATION STRATEGY - Energy and Supply Chain



Net Zero Target year: 2050

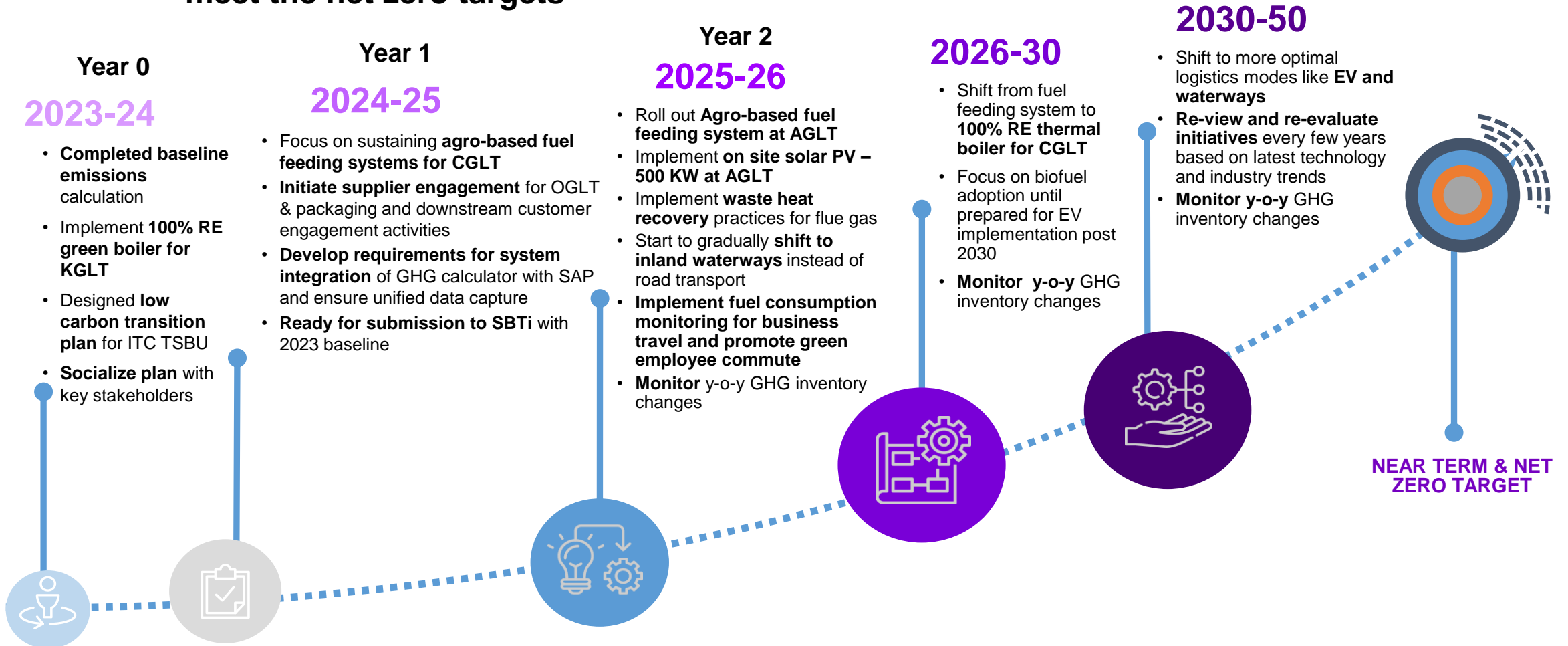
## Potential reduction of ~ 93% of total E&SC emissions

Absolute Emissions in tCO<sub>2</sub>e  
Base year: 2021



## Execution strategy

... and continue to evaluate the latest technologies available beyond 2030 to meet the net zero targets







# Handling Balance through Agroforestry- Removal



Farm level abatement is 80% and Energy & Supply Chain abatement is 93% through **reduction of emission**

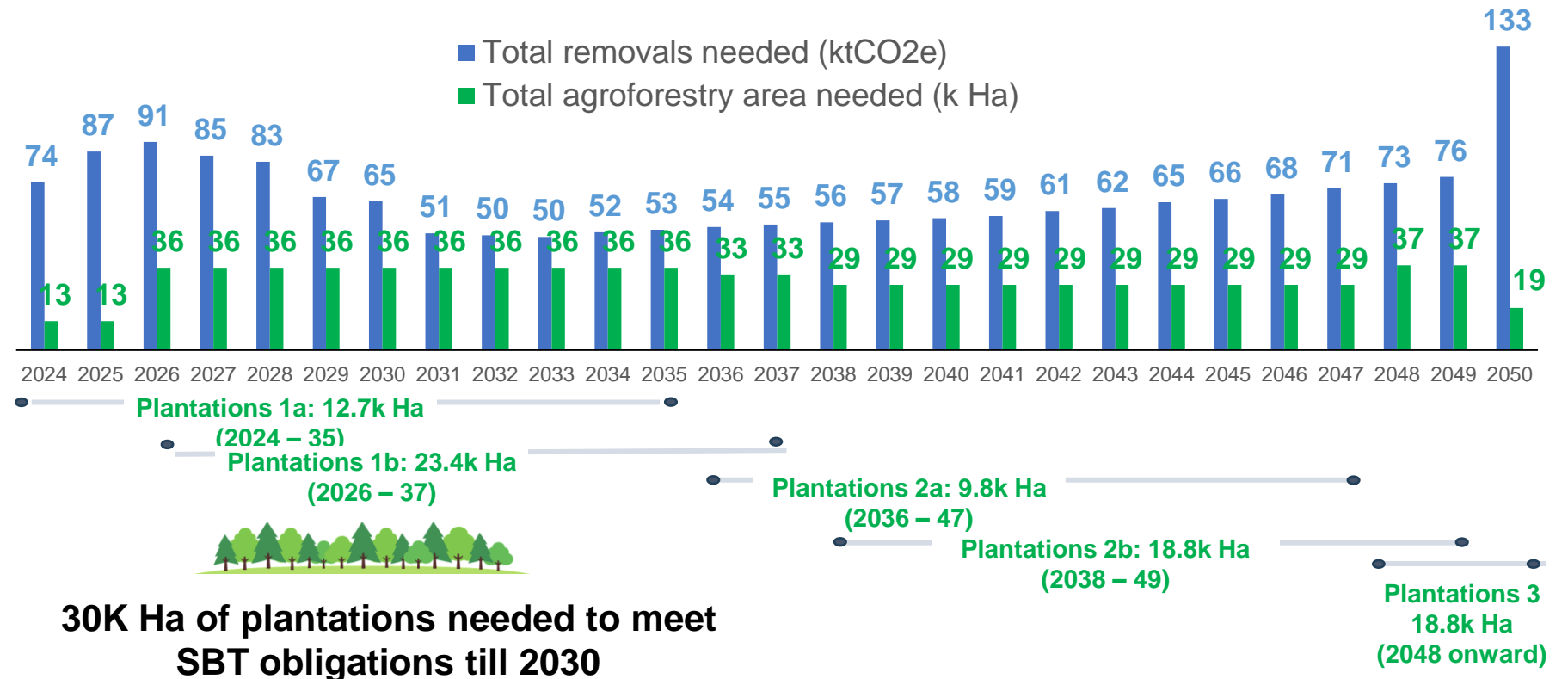
Balance 20% in Farm and 7% emissions will be removed through **removal process by enhancing agroforestry**

Removals needed = Gap between yearly SBT and emissions after abatement

Area based on CSP of plantations (Eucalyptus = 7 to 37 MT/Ha/Yr)

All cultivation cycles of 12 years with pruning every 4 years → Results in reversal of removals for previous years has been accounted

116 Cr is the net cumulative costs till 2030





# Awards and Accolades



ISO 9001  
ISO 14001  
ISO 45001



ISO 17025



Only GLT in the World to get Platinum Level - AWS certification 2023



ICQCC – Gold Award CAQ, China 2023



CII Energy Efficient Unit 2023



Best Performing Wind Farm IWPA 2023



CCQC – 2 Gold Awards 2023



3rd Place in ITC For Water Stewardship 2023



THANK YOU