24th National Award for Excellence in Energy Management - 2023

Enduring Value

ITC Limited

Agri Business Division

Karnataka Green Leaf Threshing Unit, Mysuru

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ITC LIMITED

GLANCE OF TRIPLE BOTTOM LINE PERFROMANCE

Enduring Value

Economic

₹69,481cr
Gross Revenue

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

25+
World-class Mother Brands

200+
Manufacturing Units

Social

60 Lakh
Sustainable Livelihoods Supported

e-Choupal:
40 Lakh
Farmers Empowered

Primary Education:
Over 11.2 Lakh
Children Benefitted

Skilling and Vocational Training:
Over 1.2 Lakh
Youth Enrolled

Over 50 Lakh Women
Benefitted through Multi-dimensional Programmes

Environment

Around 43%
of ITC's Energy is from Renewable Sources

Watershed Development:
Over 14.7 Lakh
Acres Covered

Afforestation:
Over 10.4 Lakh
Acres Greened

Biodiversity Conservation:
Over 2.9 Lakh
Acres Covered

40
Platinum-Rated Green Buildings

ITC BRANDS


AASHIRVAAD


Sunfeast


fiama


Farmland


Vivel


classmate


DERMAFIQUE
cell by cell


SUNBEAN


Savlon


MANGALDEEP


Kitchens of INDIA


Sunfeast
YiPPee!
noodles


nimyle


SUNRISE
PURE


Home lites


AIM


Paperkraft


BINGO!


ENGAGE


ITC
MASTER
CHEF


B
Natural


CANDYMAN


ITC HOTELS
RESPONSIBLE LUXURY
MEMENTOS
BY ITC HOTELS
WELCOMHOTEL
STORII
FORTUNE
Member ITC's hotel group
WH
WelcomHeritage
Palaces • Forts • Havelis • Resorts

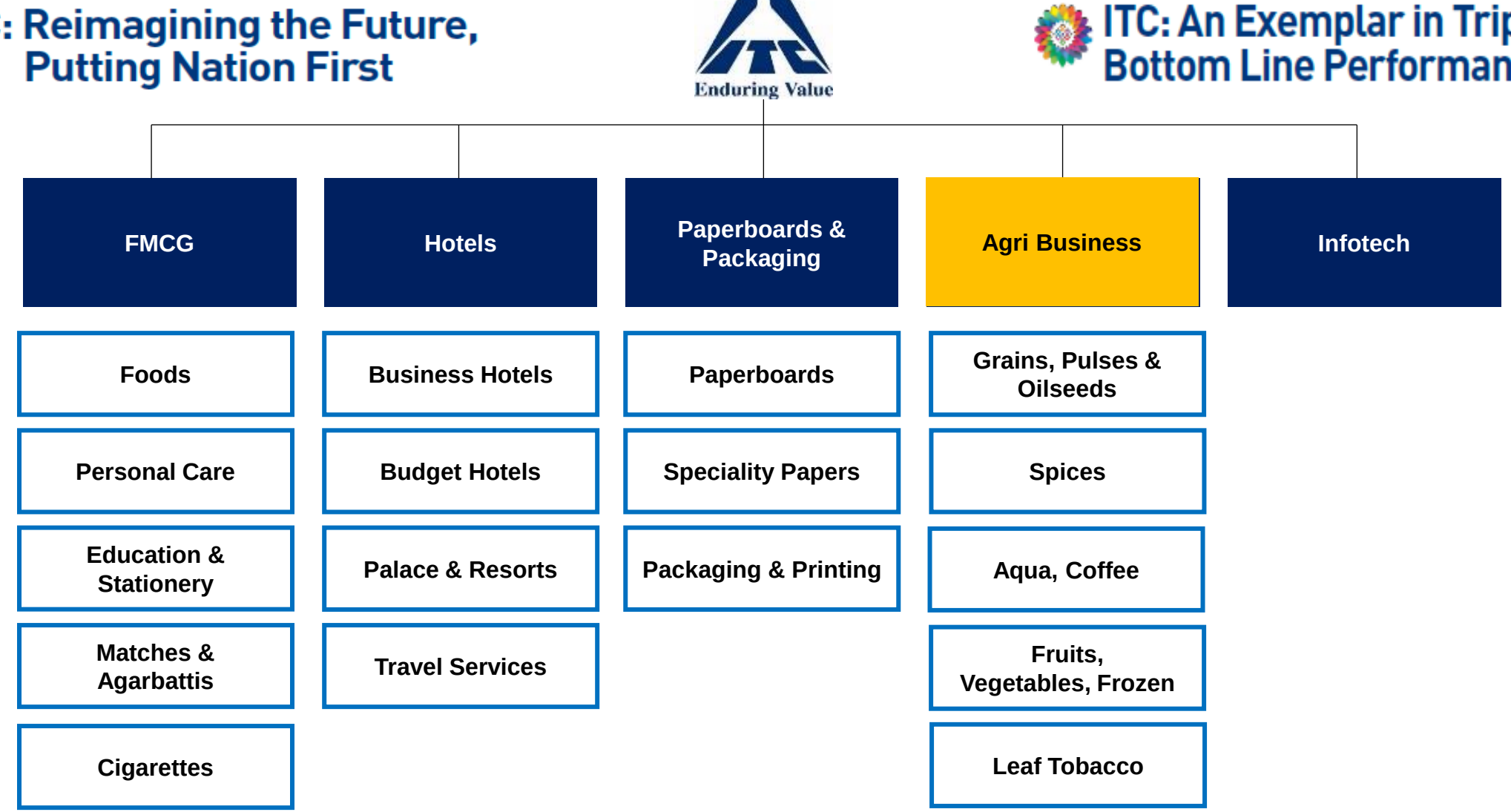

FABELLE
Exquisite
CHOCOLATES

ITC ORGANIZATION – MULTI BUSINESS

ITC: Reimagining the Future, Putting Nation First

Enduring Value

ITC: An Exemplar in Triple Bottom Line Performance



ITC's AGRI BUSINESS DIVISION (ABD)

PRESENCE ACROSS THE COUNTRY

22
States

20+
Agri- Commodities

80+
Countries Export

ITC's Agri Business Division is one of India's largest Processer & Exporter of Agricultural products.

- Grains, Pulses & Oil seeds
- Spices
- Coffee
- Aqua
- Processed Fruits & Vegetable
- Frozen foods
- Leaf tobacco

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

KARNATAKA GREEN LEAF THRESHING (KGLT) FACTORY

1
M.Kg

190
TPD

5
M.Kg

665
Employees

Green Field Project commissioned 2011

Commercial Production 2012

Spread across 80 Acres

Green Cover 29 Acres (36%)

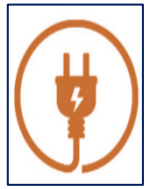
Plant Uptime 97.5%

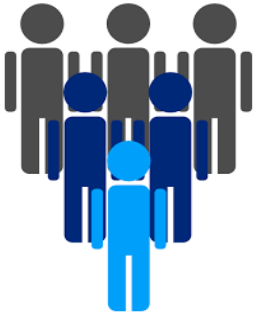
Tobacco processing is done for following value addition.

- ✓ **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**

ENERGY MANAGEMENT COMMITTEE

Thermal | Electrical | Water





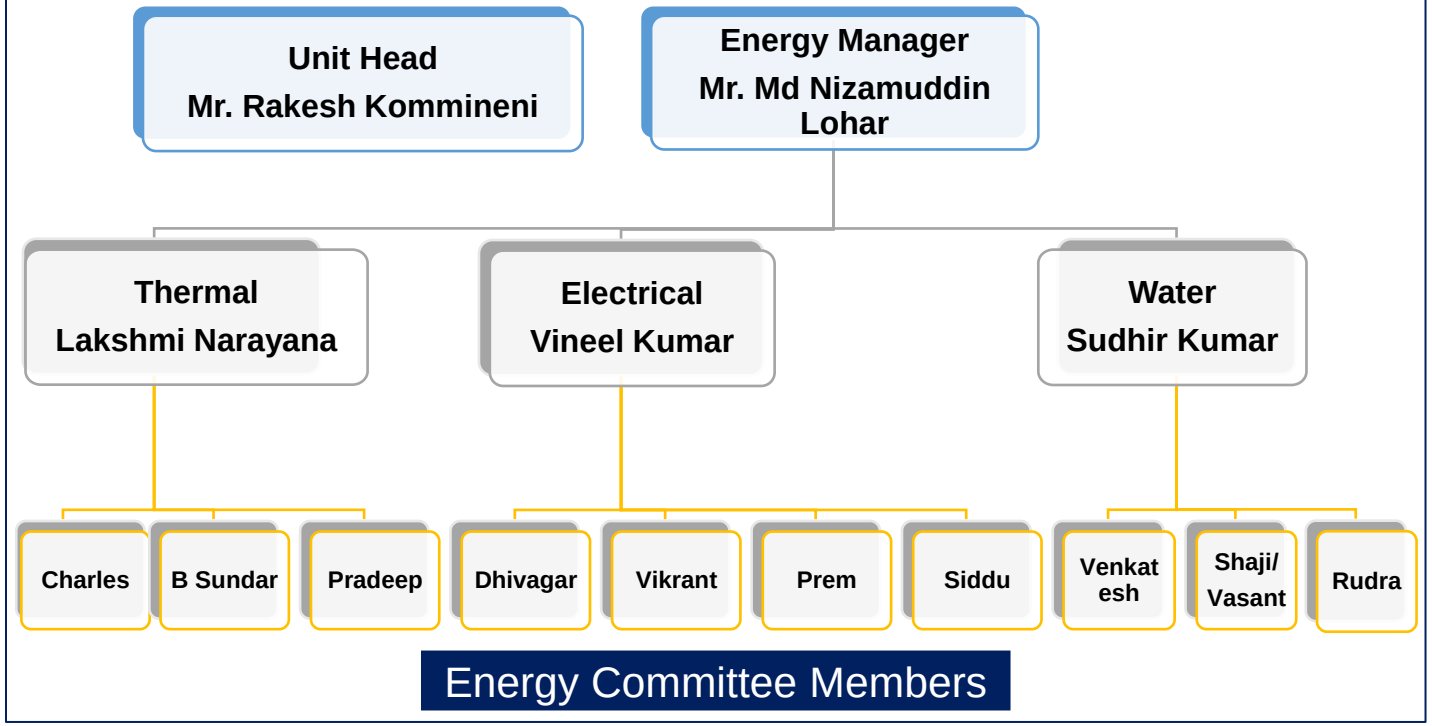
Roles & Responsibilities:

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

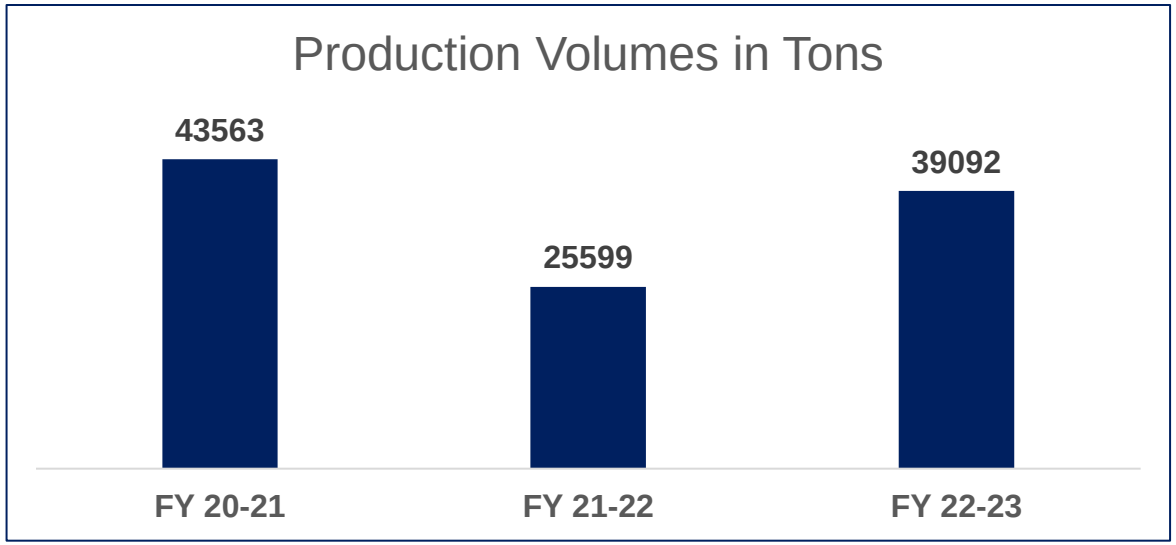
To achieve ESG 2.0 goals and ISO 50001 Certification

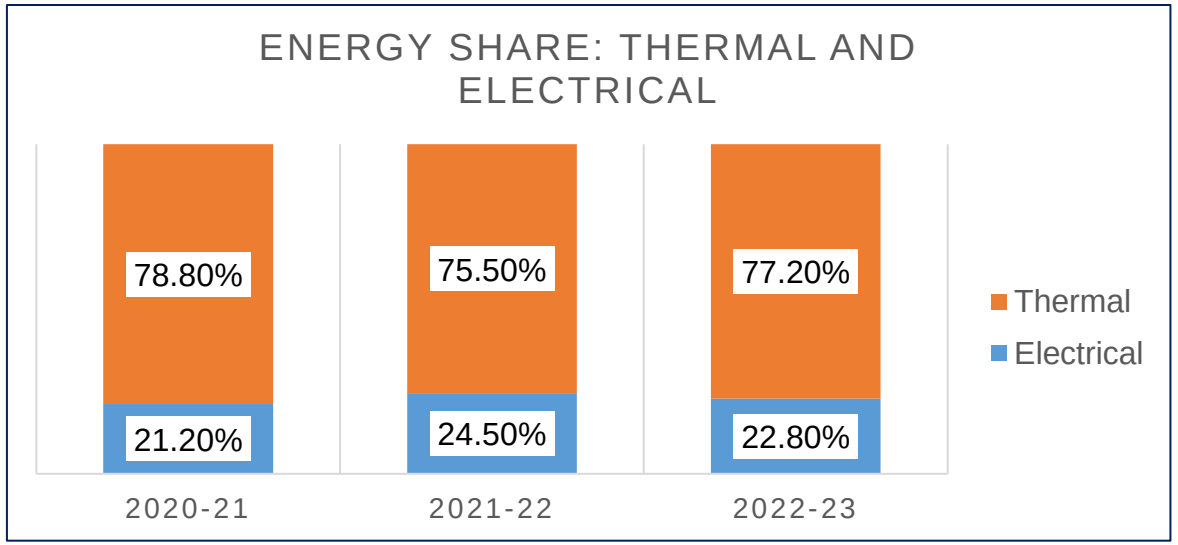
Best Energy Efficient GLT across the Globe

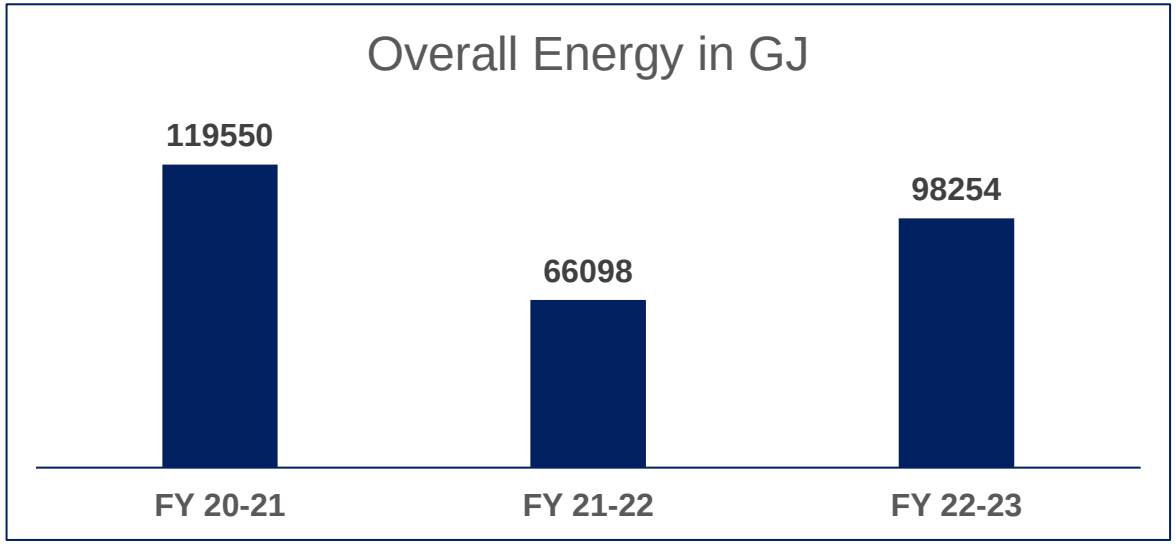
To have a structured approach & to focus on continual improvement towards conserving energy, tracking energy performance and lowering greenhouse gas emissions by educating on importance of effective utilization of energy.

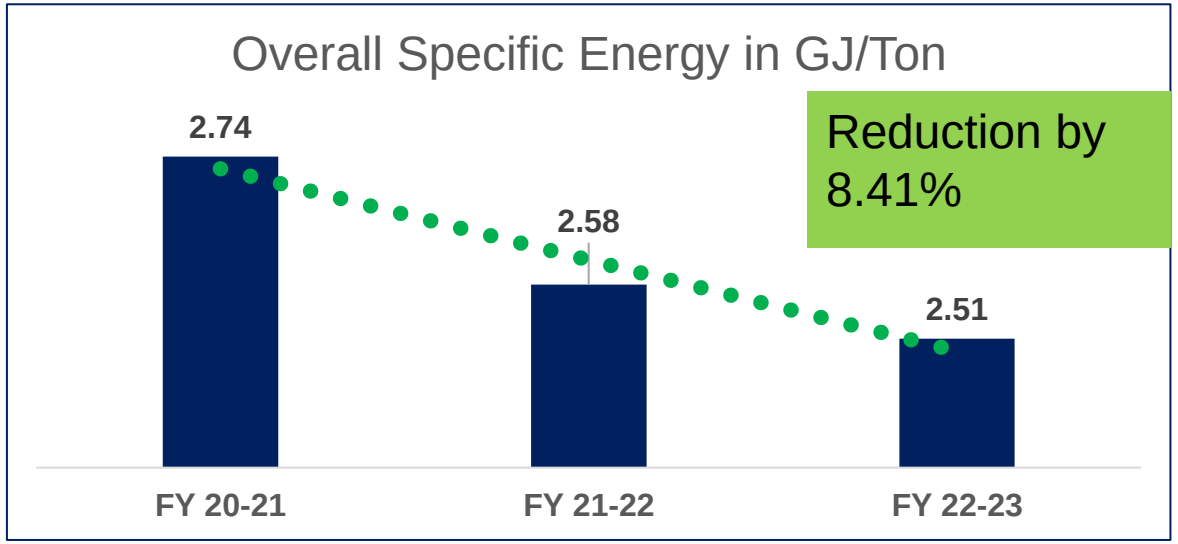


PRODUCTION - ENERGY CONSUMPTION - SEC



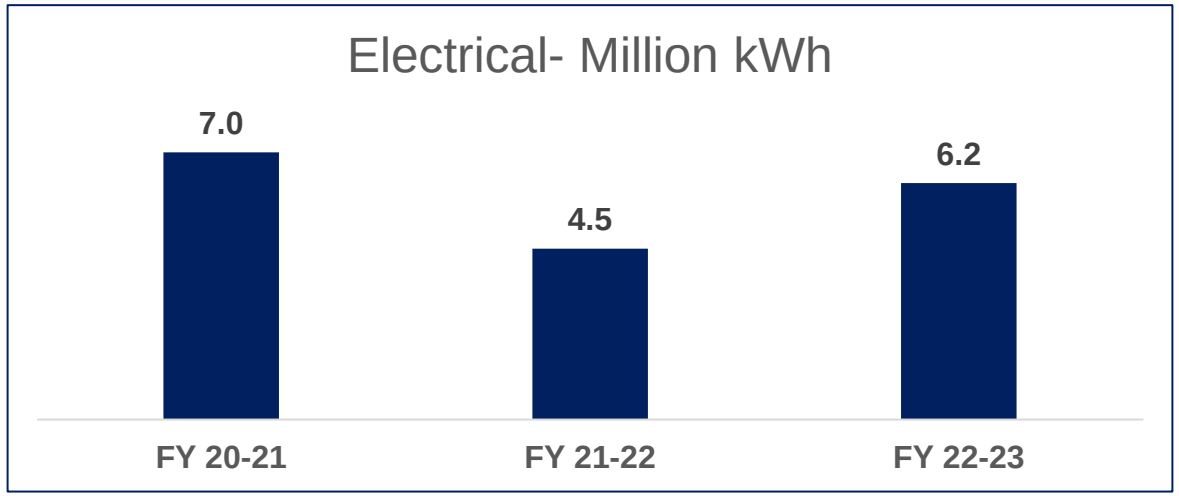




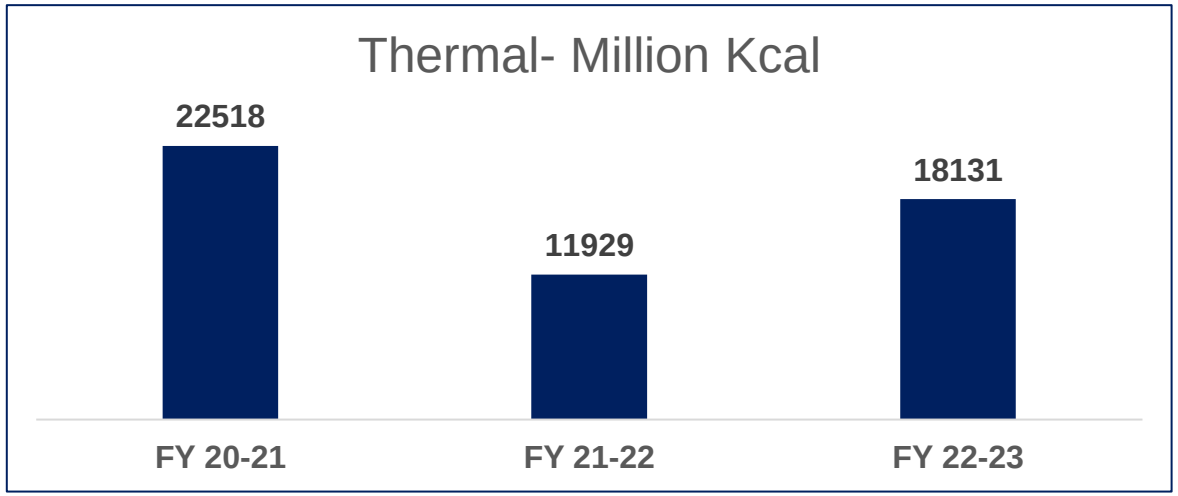


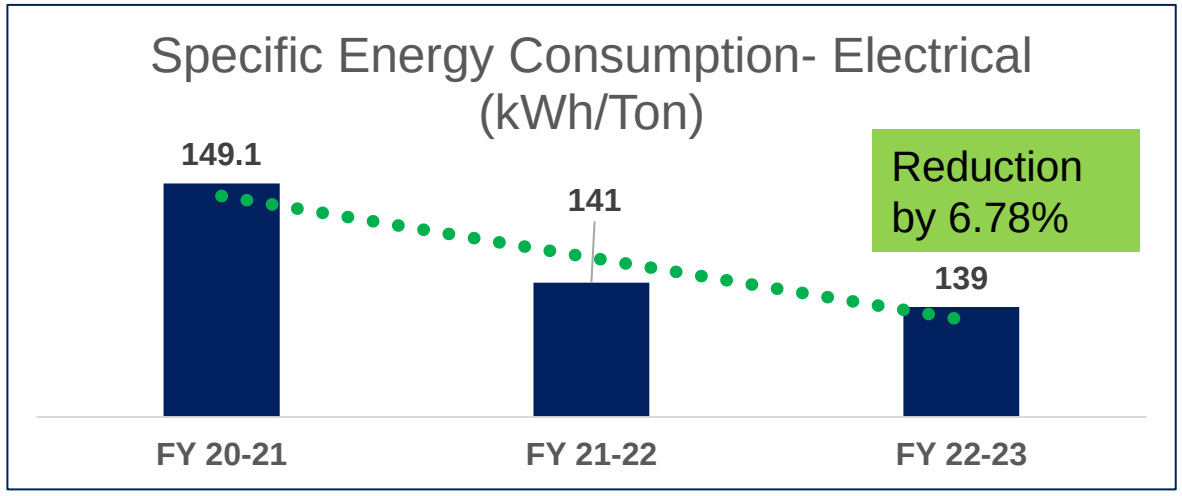
SPECIFIC ENERGY CONSUPTION – THERMAL & ELECTRICAL

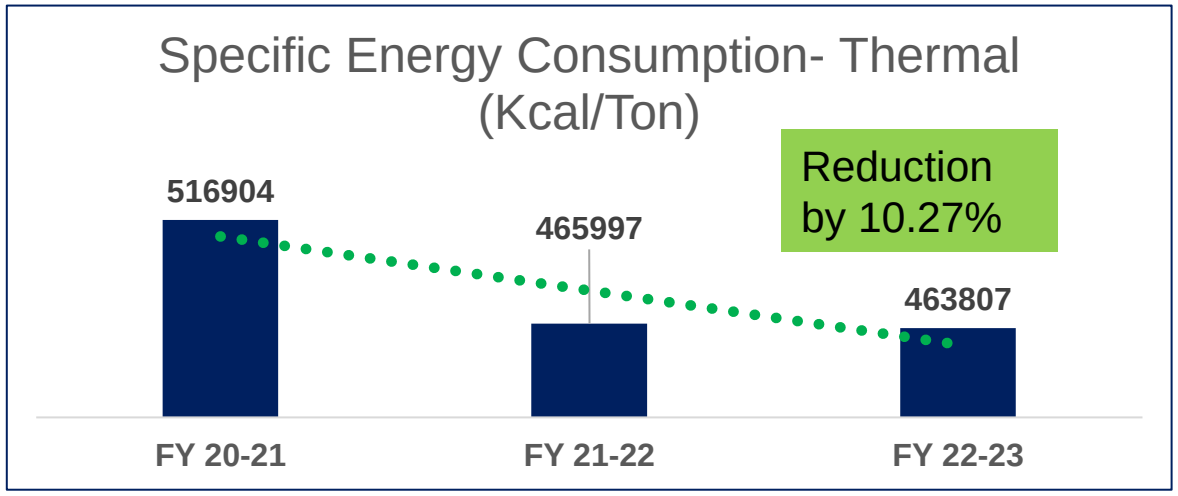
ELECTRICAL



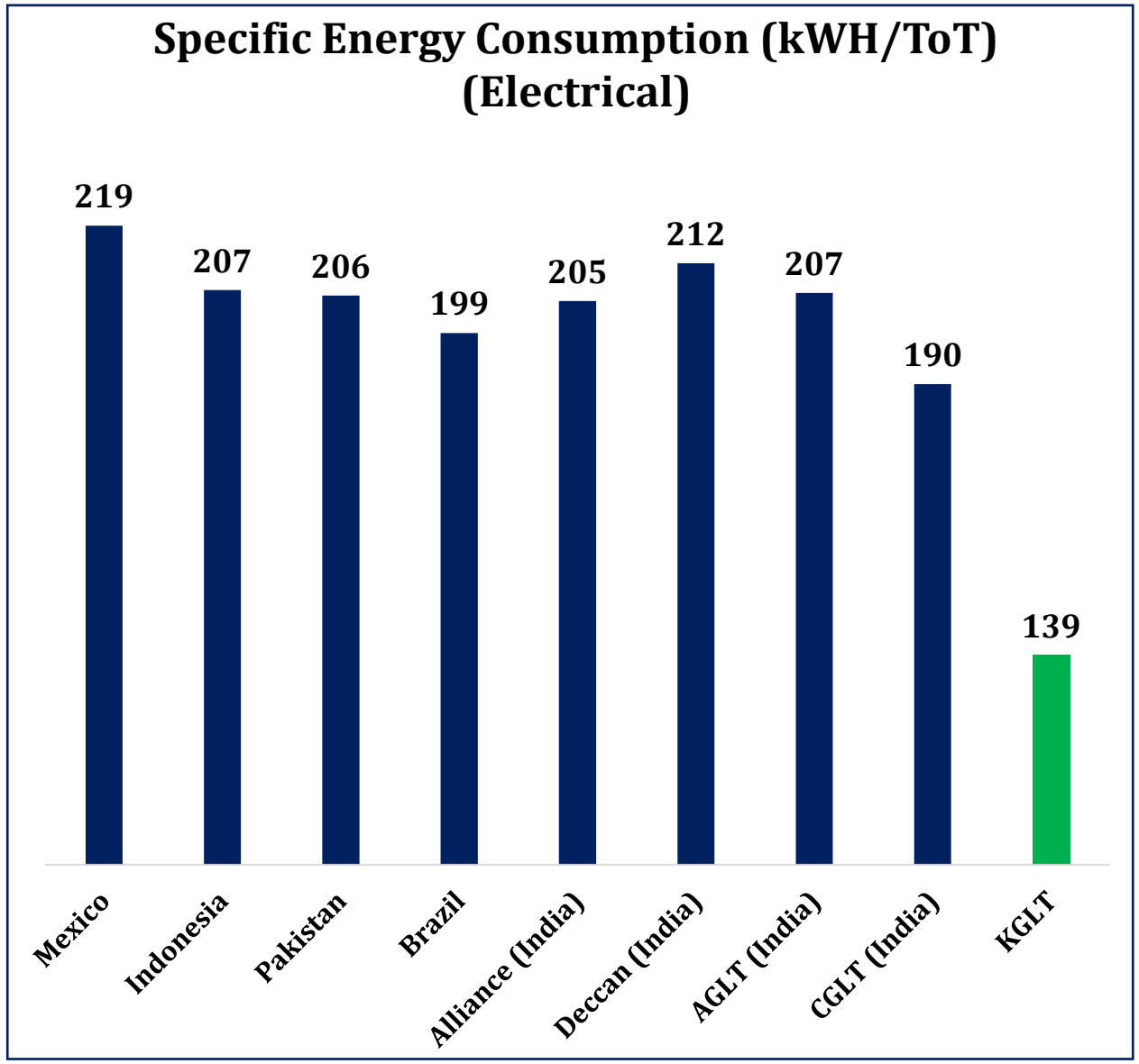
THERMAL

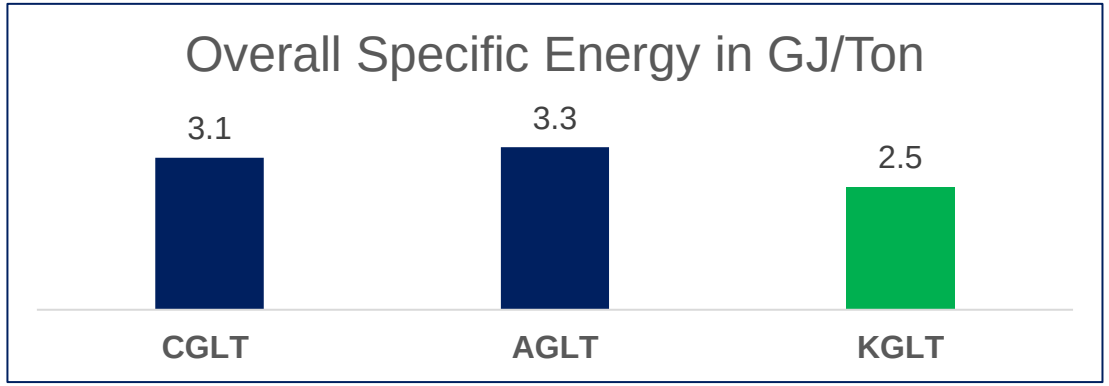


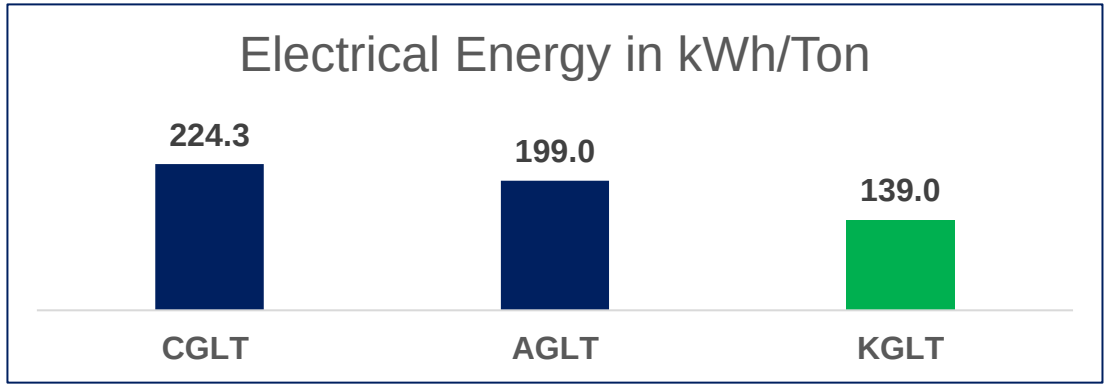


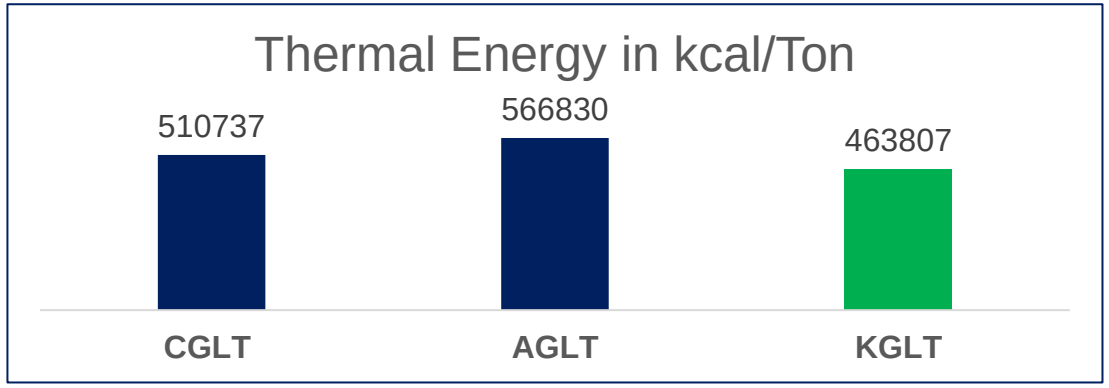


GLOBAL AND NATIONAL BENCHMARK









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**	32.8	79.2	**99.3**	99.4
Specific Energy Reduction (%)	2.82 (GJ/ToP)	**30**	18.1	28.2	**30.7**	35.9
Specific Emissions Reduction (%)	0.20 (TCo2e/To P)	**50**	11.8	76.8	**99.5**	99.5
Specific Water Reduction (%)	1.28 (KL/ToP)	**40**	22.4	40.9	**41.5**	44.6

MEETING ALL THE TARGETS BY 2024-25

LIST OF ENCON PROJECTS PLANNED IN FY 23-24 (ELECTRICAL)

Enduring Value

High Energy Efficient equipment

Rs. 5 L

Air Conditioning

Rs. 25 L

UPSs

150 kWh/Day

Introducing VFDs

Rs. 65 L

Variable Frequency Drives

Rs. 10 L

IE5 Pumps with VFD

730 kWh/Day

Intelligent Controller

Rs. 5 L

Smart FLT Battery Chargers

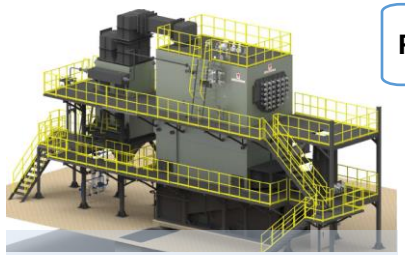
Rs. 5 L

Intelligent Air flow controller

180 kWh/Day

LIST OF ENCON PROJECTS PLANNED IN FY 23-24 (THERMAL)

9 TPH Twin Boiler

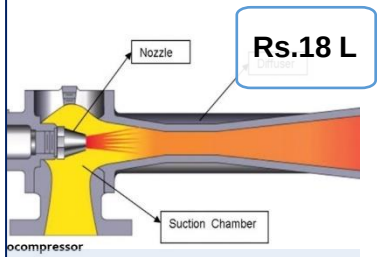


Rs. 10.5 Cr.

Bio Fuel Boiler

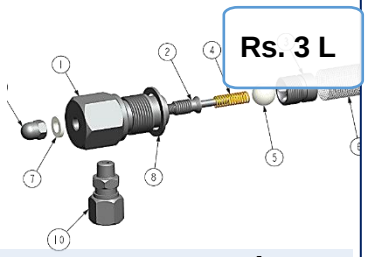
- Efficiency ↑ 30%
- Bio Fuel – 100%

Thermo Compressor & Water Extraction Valve



Rs.18 L

Thermo Compressor

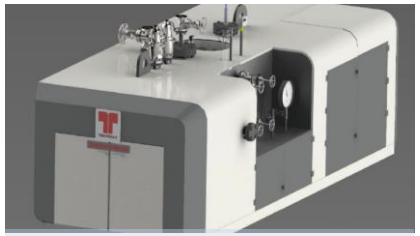


Rs. 3 L

Water Extraction Value

2% Reduction in SSC

Electrical Boiler at Canteen



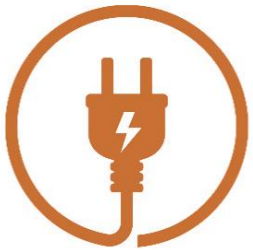
Rs. 10 L

Electrical Boiler

Reducing Wastages and Improving RE

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 2020-21	19	1.6	0.20	60	0.5	37
FY 2021-22	19	2.1	0.07	579	0.7	35
FY 2022-23	45	2.5	0.14	543	1.3	23

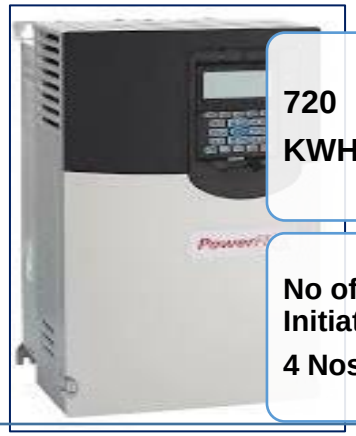
SUMMARY OF ENCON PROJECTS IMPLEMENTED- LAST 3 YEARS

High Efficiency

250 KWH/Day

No of Initiatives: 15 Nos

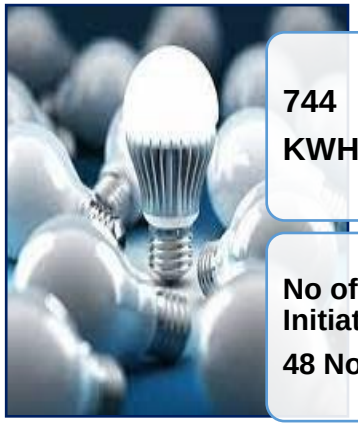
Introducing VFDs



720 KWH/Day

No of Initiatives: 4 Nos

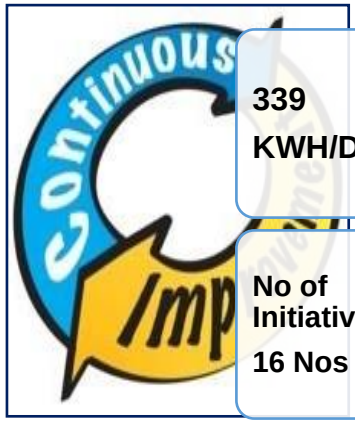
LED lighting



744 KWH/Day

No of Initiatives: 48 Nos

Process Modification



339 KWH/Day

No of Initiatives: 16 Nos

Reduction in Steam Consumption

2.15 M Kcal/Day

Pressure Reducing Station

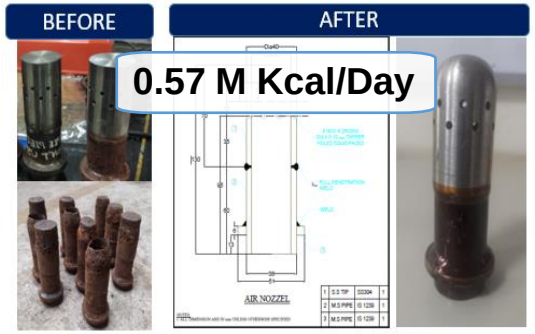
3.84 M Kcal/Day

Heat Exchanger with SS Coil with Al Fins

Boiler Efficiency

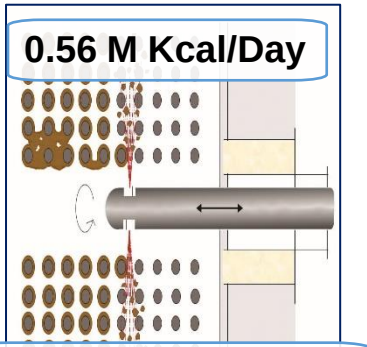
0.25 M Kcal/Day

Waste Heat Recovery



0.57 M Kcal/Day

Air Nozzle Design Better Combustion



0.56 M Kcal/Day

Soot Blower

LIST OF MAJOR ENCON PROJECTS IMPLEMENTED IN LAST 3 YEARS

2020-21

Energy Saving – 973 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	240	Layout modifications & Drive rating optimization at identified locations	0.03	-	Nil	118	0.8	41
		Improvement in Energy Efficiency-Motors & Chiller	0.03	-	4.2	96	0.6	
		LED lighting	0.07	-	7.9	266	1.7	
		VFD for Identified drives	0.07	-	3.6	242	1.5	
Thermal		Heat recovery at Stem Dryer exhaust	-	60	0.2	251	0.5	5
Total			**0.20**	**60**	**15.90**	**973**	**5**	

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
Total			**0.07**	**579**	**20.88**	**2677**	**7**	

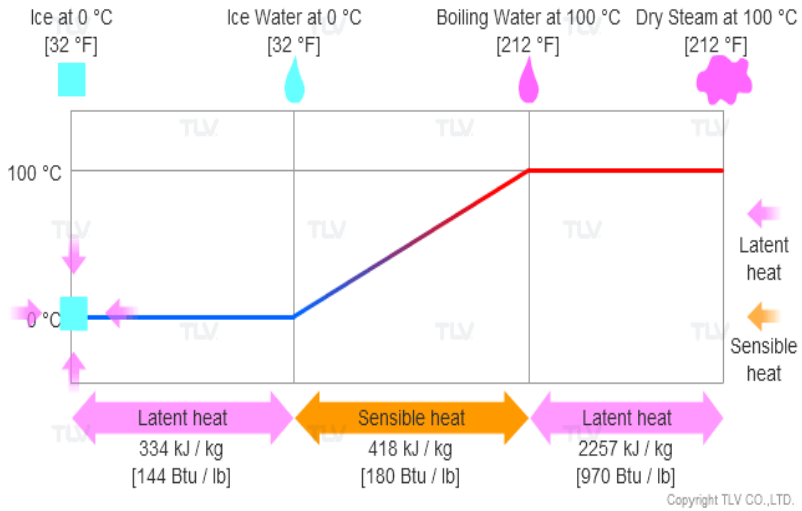
LIST OF MAJOR ENCON PROJECTS IMPLEMENTED IN LAST 3 YEARS

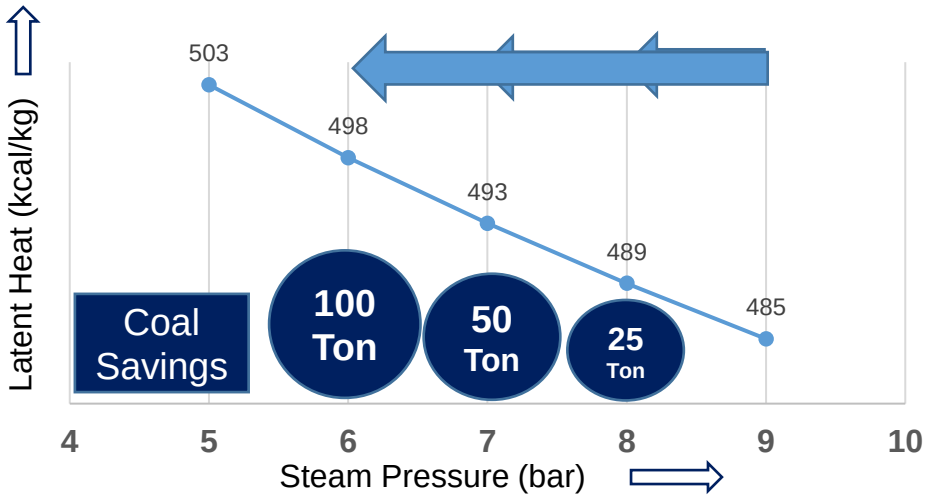
2022-23

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
Total			**0.14**	**543**	**24.74**	**2761**	**14**	

INNOVATIVE PROJECT 1 - PRESSURE REDUCING STATION AT LRD





Limitations

- OEM Objection for pressure reduction
- ~70 different grades
- Operator inconvenience

PRS over PRV

- **Closed Loop control**
- **PLC integration**
- **High accuracy control**

Solution

- Current Heating Chambers Steam Pr@ 10 Bar
- At lower operating pressure results in reduced steam consumption because latent heat is higher in lower steam pressure
- Installed PRS for LRD and reduced steam pressure to 6-7.5 bar
- Pressure setting can be changed from HMI as per the process requirement
- Implementable in steam consuming equipment

Steam Consumption	Overall SSC Reduction
↓ 3%	↓ 2%

Annual Savings (Rs)	Annual Energy Saved
7.9 L	2.15 M Kcal

INNOVATIVE PROJECT 2- PROCESS LAYOUT MODIFICATION

Pneumatic Conveying

Limitations

- Space constraint
- Mechanical Conveyor Inclination $<18^0$

Solution

- Provided 3 stage conveying with mechanical coupling to optimize the loading on motor without crossing 18^0

Mechanical Conveying

Mechanical Coupling

Existing Process Layout	Elimination of Motor	Rating Optimization	Product Conveying Pneumatic to Mechanical	Mechanical Coupling- Conveyors	Modified Process Layout
35.7 KW	-0.7 KW	-2.5 KW	-20 KW	-1.5 KW	11 KW

Business Need	Energy Conservation Initiatives Improvement in MTTR and MTBF	Innovation Component	Conversion of Pneumatic airlift to mechanical conveying resulted in Load reduction of 24.7 KW
Project Outcome	Energy Saving Potential– 36398 kWh Savings in Rs. – 1.09 Lakhs (Rs. 3 per kWh) Payback – 32 Months	Organization Benefit	Lower Energy & Maintenance Cost

INNOVATIVE PROJECT 3 - HEAT EXCHANGER SS COILS WITH Al FINS

Conditioning of tobacco leaf improves pliability of the leaf, there by reduces the scrap generation during the process of threshing.

- Improves the yield of lamina production
- Better heat transfer reduces steam consumption

Our application requires

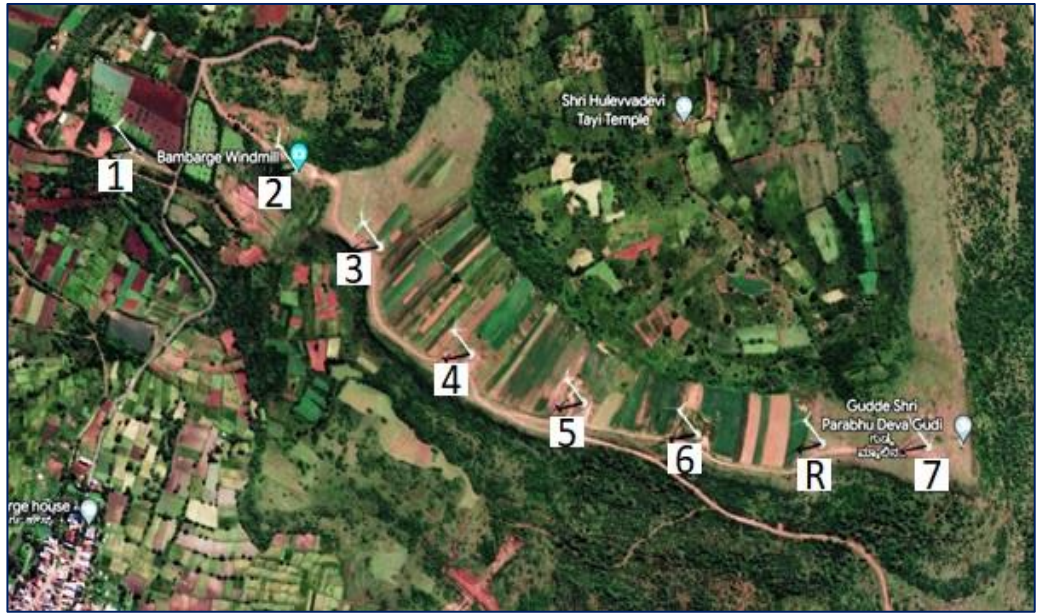
- **Holding of temperature for longer time**
- **Requires lower corrosivity**
- **Lower maintenance as it is continuous operation**

Parameter	Cu and Al	SS and Al
Thermal Conductivity	High	Low
Thermal Inertia	Low	High
Strength	Low	High
Corrosion	Prone	Resistive
Strength	Low	High
Joining	Brazing	Welding

Designed Heat Exchanger with SS Coils and Al Fins and installed at all three conditioning cylinders

Steam Consumption	Overall SSC Reduction	Annual Energy Saved	Annual Savings (Rs)	Replicability
↓ 7%	↓ 1%	3.84 M Kcal	13.73 L	In all GLTs

UTILIZATION OF RENEWABLE ENERGY SOURCES



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		
			Allocation KWH in Lakhs	RE Foot print	% Utilization
2020-21	163	146	70	98.8%	47.6%
2021-22	164	146	45	99.0%	30.5%
2022-23	171	151	58	93.0%	38.3%
Grand Total	**498**	**443**	**173**	**96.9%**	**38.8%**

96%
Machine Uptime

98%
Grid Uptime

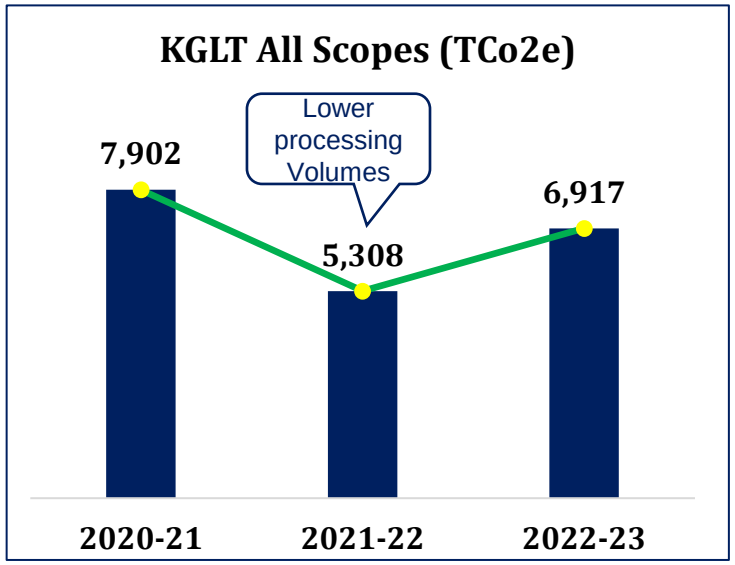
21%
PLF

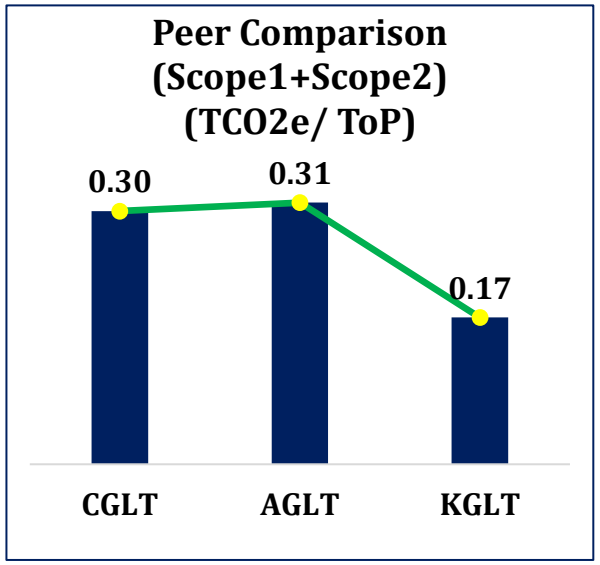
The Captive Wind Farm generates three times the energy requirement. Surplus Energy is wheeled to other Units and Businesses basis on profitability ranking.

GHG INVENTORISATION

GHG Inventorization & Public Disclosure

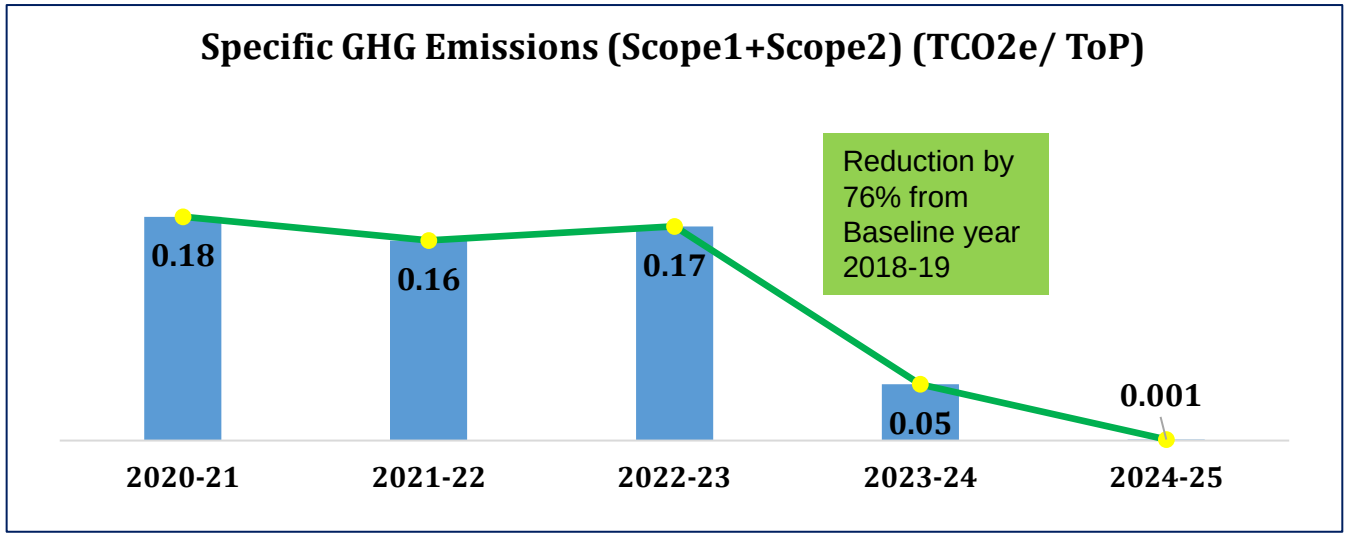
All Scope 1, 2 & 3 emissions being captured and disclosed to public on ITC Portal.
link:
https://www.itcportal.com/sustainability/sustainabilty-reports.aspx



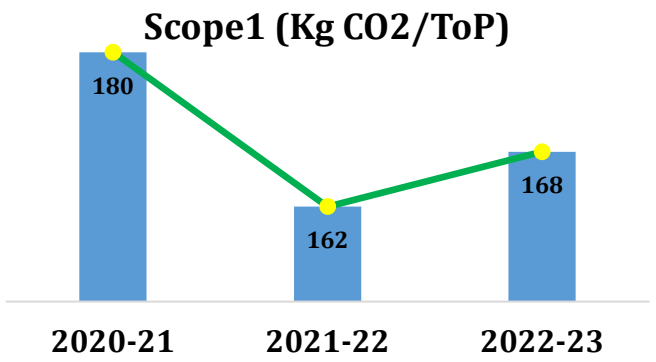


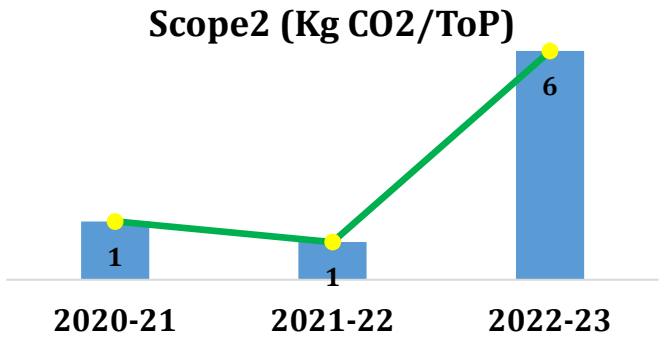
2023 Target for Emission Reduction

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

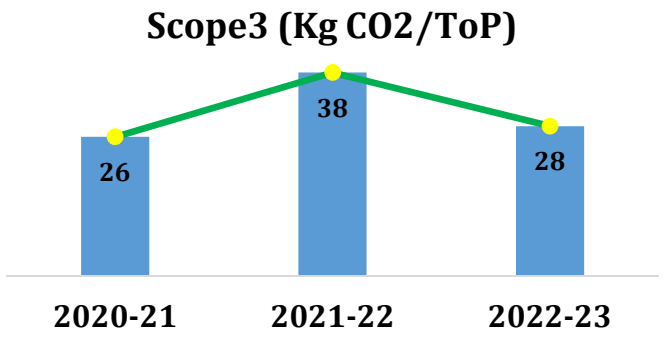


GHG INVENTORISATION – ACTION PLAN





	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



Year	2020-21	2021-22	2022-23
Inward - Kms/Ton	268	1341	351
Outward - Kms/Ton	308	417	276

Initiatives towards GHG emission reduction

- Explore alternates for coal for Existing Boiler
- Bio Fuel fired Boiler 9.0 TPH and Electric Boiler for Canteen

- 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

GHG REDUCTION INITIATIVES - EXISTING & NEW BOILER

Existing 12 TPH Boiler : Bio-fuel Introduction (Investment – Rs 3.5 L)

- **Existing Bunker** to facilitate Tobacco dust and Briquettes
- **Internal resources** for fabrication and modifications
- Achieved **20% bio fuel feeding**

New Boiler – 9 TPH (4.5 x 2) Boiler (Investment- Rs 10.59 Cr)

- Observed **high load variations from 2.5 T to 6 TPH**
- **20% of Bio Fuel** is maximum
- **AFBC boiler 12 TPH operating at 45%** efficiency because of lower loading factor (30-40%)

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%**

GHG REDUCTION INITIATIVES- NEW 3.5 MW SPV PLANT

Detail of SPV system	
Capacity in MWp	3.5
Type	Solar - Ground Mounted
Investment in Rs. Crores	27
Year of Implementation	2023-24
Total Generation	56.7

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**

Unit	RE %	
	W/O Solar	With Solar
KGLT	92 to 99%	99.5%

GREENING OF SUPPLY CHAIN (FY 20-21 TO FY 22-23)

	Initiative	Investment (Rs. Million)	Benefits	Concept
	• Loose Leaf - Smart Curing Barns in place of traditional barns	51.6	**50%** Fuel Savings (334.12 M Kcal)	PID Controlled Temperature and RH
	• Energy Conservation in Tobacco Curing Barns	13.1	**27%** Fuel Savings: (5212.35 M Kcal)	Introduced turbo ventilators for improving heat utilization
	• Installation of Solar PV Plant in Godowns	18.3	**70%** RE Foot print with generation KWH: 4.1L	Introduced 317 kWp SPV system at Raw Material Godown
PDF ITC - Code of Conduct	• Supplier code of conduct - Environment	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		

GREENING OF SUPPLY CHAIN- ACTION PLAN

FOCUS ON TRANSPORTATION & WAREHOUSES

EXPLORE SOLAR FOR LT WHs

FEASIBILITY OF ROOFTOP SOLAR PP

Location of Warehouse	Type	Capacity	IRR
AEPS WH, Ongole	Rooftop	6.0 KWp	12.7%
AEV, Ongole	Rooftop	4.0 KWp	15.7%
ASC, Ongole	Rooftop	3.5 KWp	12.0%
BCAE, Ongole	Rooftop	6.6 KWp	12.7%
EXCEL, Murikipudi	Rooftop	54.0 KWp	22.3%
HSC, Ongole	Rooftop	2 x 50.0 KWp : Solar PV	
ITPL, Rajahmaundry	Rooftop	8.6 KWp	14.9%
KSC, Kontapadu	Rooftop	30.5 KWp	16.6%
BMK, Bangalore	Rooftop	44.0 KWp	17.8%
SRKT, Mysuru	Rooftop	30.0 KWp	12.0%
ASHOKA, Mysuru	Rooftop	28.5 KWp	16.4%

ECO FRIENDLY TRUCKS IN PLACE OF EXISTING TRUCKS

EXPLORE ELECTRIC VEHICLES

TATA ULTRA T.7 Electric

- Range > 100 km
- Payload : 3.7 Tons
- Battery : 62.5 kWh

IPLT RHINO 5536

- Range > 200 km
- Payload : 60 Tons
- Battery : 258 kWh

EMS, ISO 50001 CERTIFICATION & LEARNINGS FROM CII

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: Initiation of Certification process in this FY 23-24

Step 2: Preparation and Final Certification Audit during FY 24-25

Learnings from CII Energy Awards

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

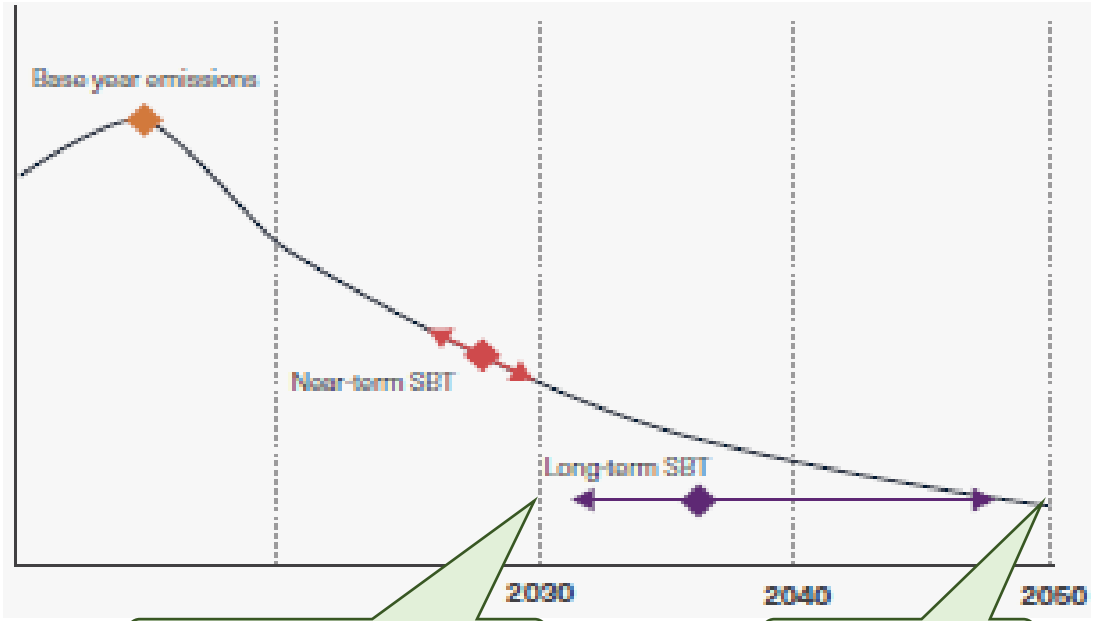
NET ZERO ROADMAP

SUSTAINABLE DEVELOPMENT GOALS

SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

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



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.

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

teri

Baselining & Inventorisation

accenture

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

Awards and Accolades

Enduring Value

DNV

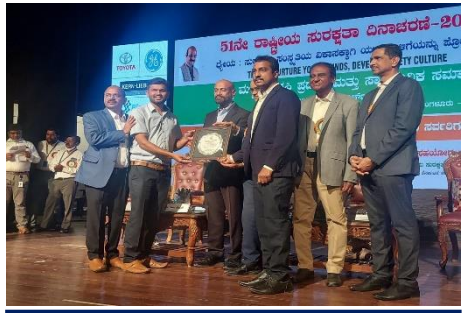
ISO 9001
ISO 14001
ISO 45001

TC-5302

ISO 17025

Shreshta Suraksha Puraskar Award 2020

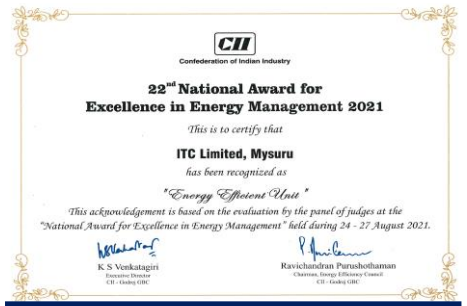
Excellent Energy Efficient Unit 2020



Best Safe Worker Award 2021

First Place In Regional Level Safety Quiz 2021

State Best Boiler Award 2021



Energy Efficient Unit Award 2021

CCQC – 2 Gold Award 2022

NCQC – Excellence Award 2022

NCQC – Best Prototype 2022

2nd Prize In District Fire Fighting Drill 2022

State Best Boiler Attendant 2022

Best Performing Wind Farm 2022

THANK YOU