



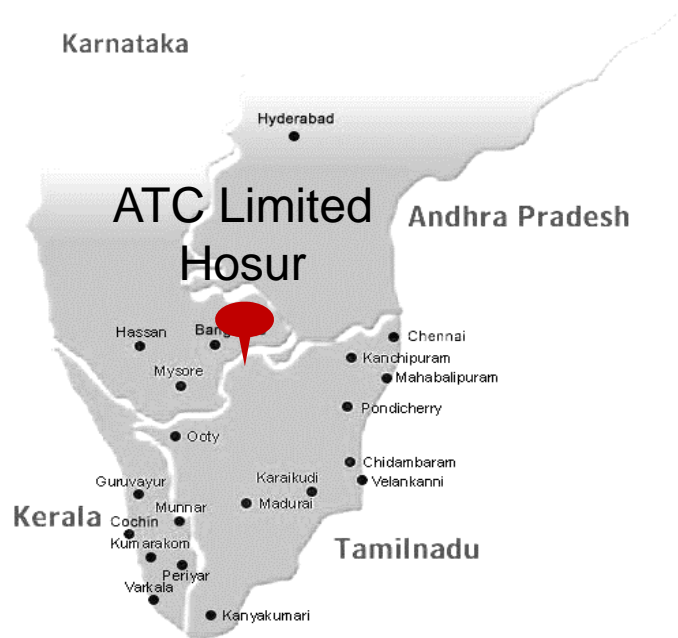
ATC Limited

# National Award for Excellence in Energy Management 2020

## Team Members:

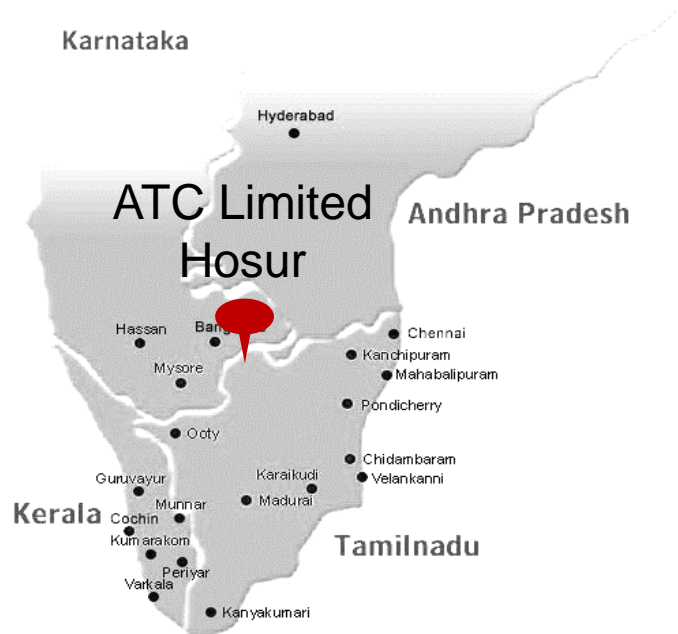
- Hanumant S Kulkarni – HoD Engineering
- P. Rajasekaran – Energy Manager

- Company Profile
- Impact on COVID 19
- Energy Consumption – Overview
- Specific Energy Consumption
- National / Global Benchmarking
- Encon Efforts / savings with cost benefits
- Innovative Projects
- Utilization of Renewable Energy Sources
- Utilization of Waste Material as Fuel
- GHG Inventorisation
- Green Supply Chain
- Team Work, Employee Involvement & Monitoring
- Other Innovative Technologies implemented
- Long Term Vision on EE
- Awards and Recognition



- Factory was established in 1974
- First company to start operations in SIPCOT Hosur belt
- Total land area 11.3 acres, Built up area 1.97 acres
- Green coverage 62%, Road and other open area 19.5%
- Manpower – 156 employees, 160 ESPs, 37 Managers
- Licensed Capacity – 9500 Million Cigarettes / Annum





INTEGRATED MANAGEMENT SYSTEM



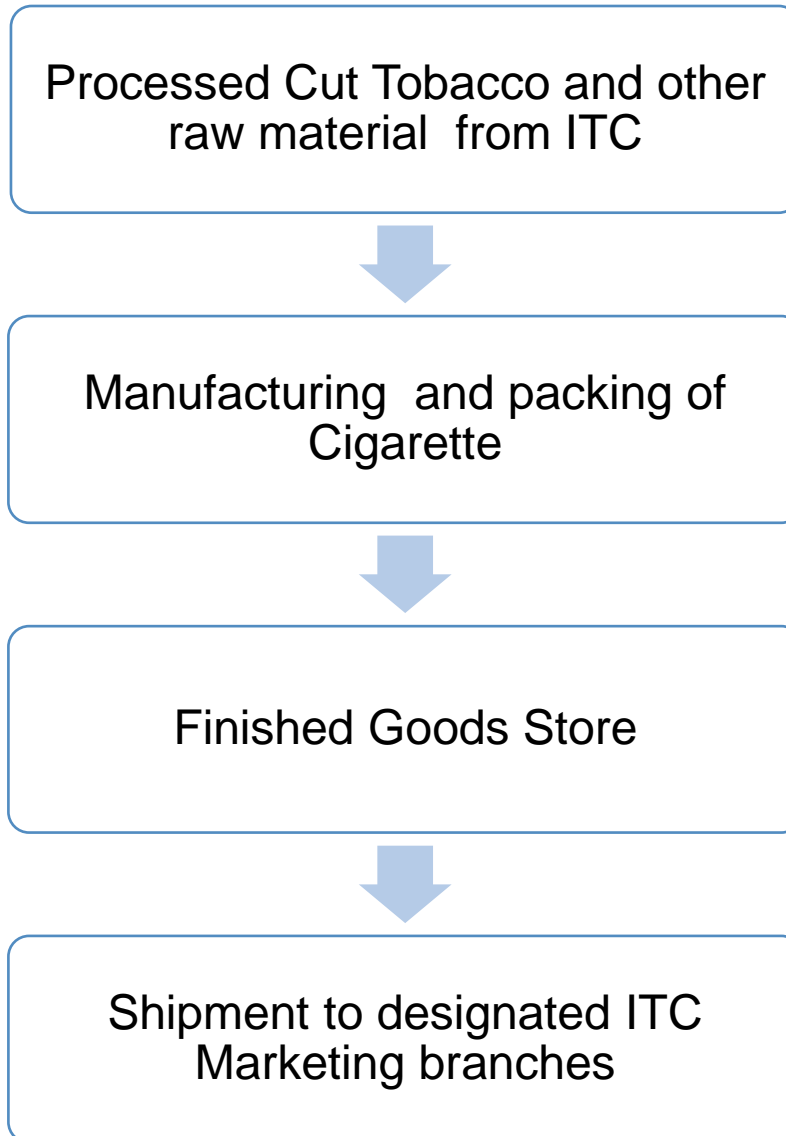
ISO 9001:2015    ISO 14001:2015    ISO 45001:2018

## Health & Safety

- **Nil loss time accidents for the past 11.5 years**
- Several awards for EHS excellence from CII, FICCI, NSCI and TN Government

## Environment

- **Zero waste water discharge Unit**
- **Bench Mark in Energy Conservation, Water Conservation, Waste Minimization**
- 100% Roof Rain Water Harvesting
- Offsite wind power – 1.5MW capacity
- 64% of energy used is from Renewable Energy Source (Wind)
- Excess power generated is sold to TNEB



## COVID 19 Risk Management



**Annual production performance.  
Production remained same as that of  
previous year**

**There has been a  
decrease in the SEC**



Made into 6 zones



Hard partition of SMD



Social dist. exit for SMD



Canteen Dining  
Compartmentation



One Directional Flow



Social Distancing @  
Canteen



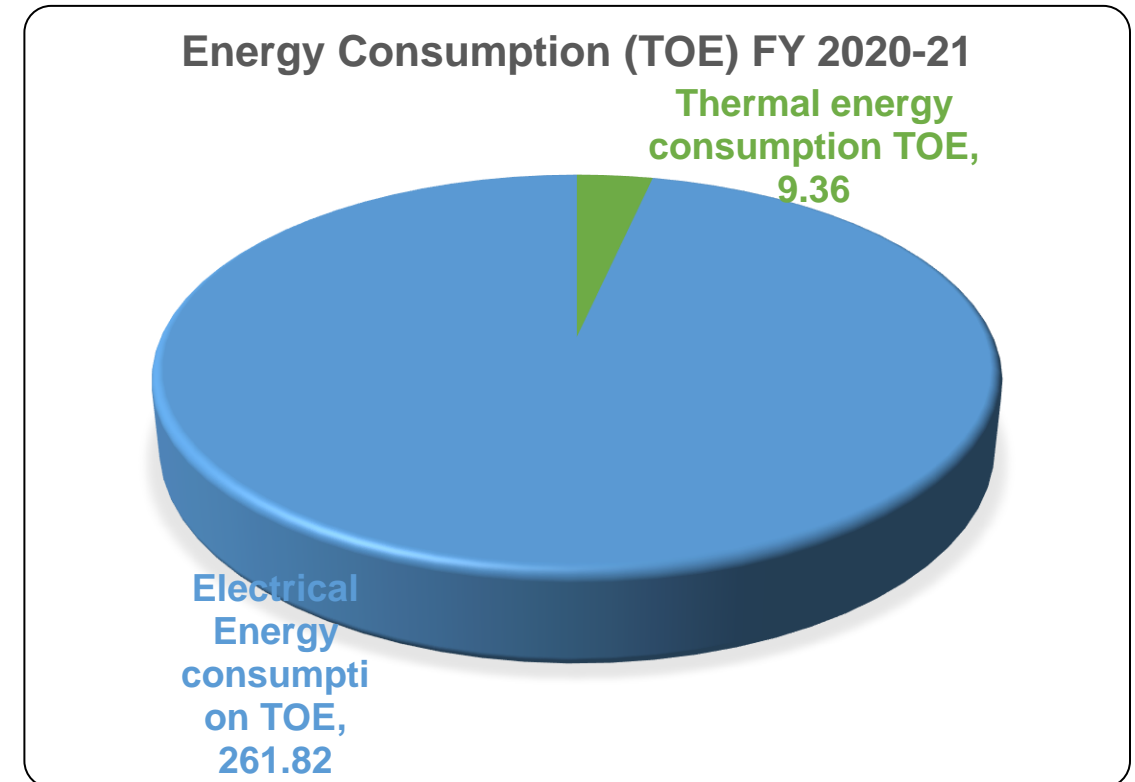
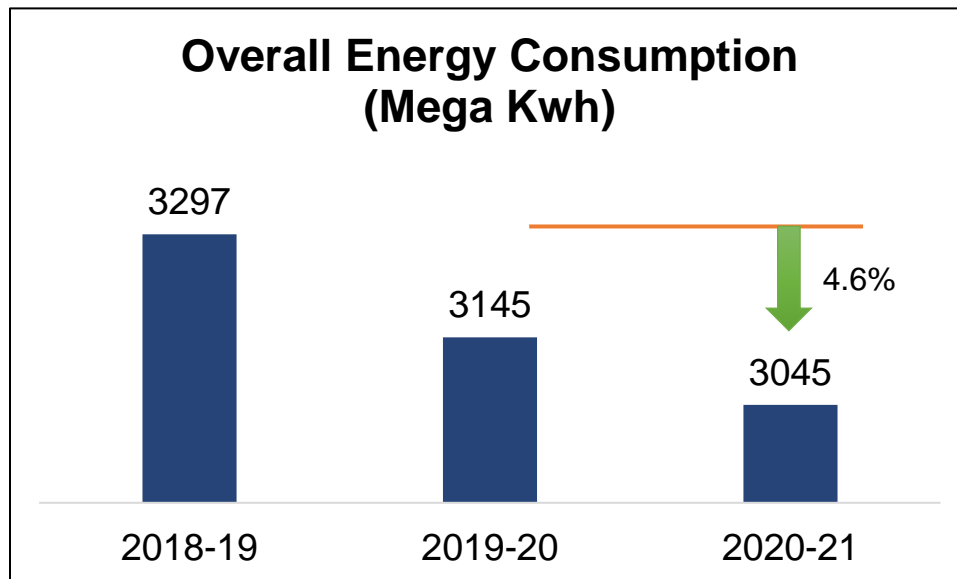
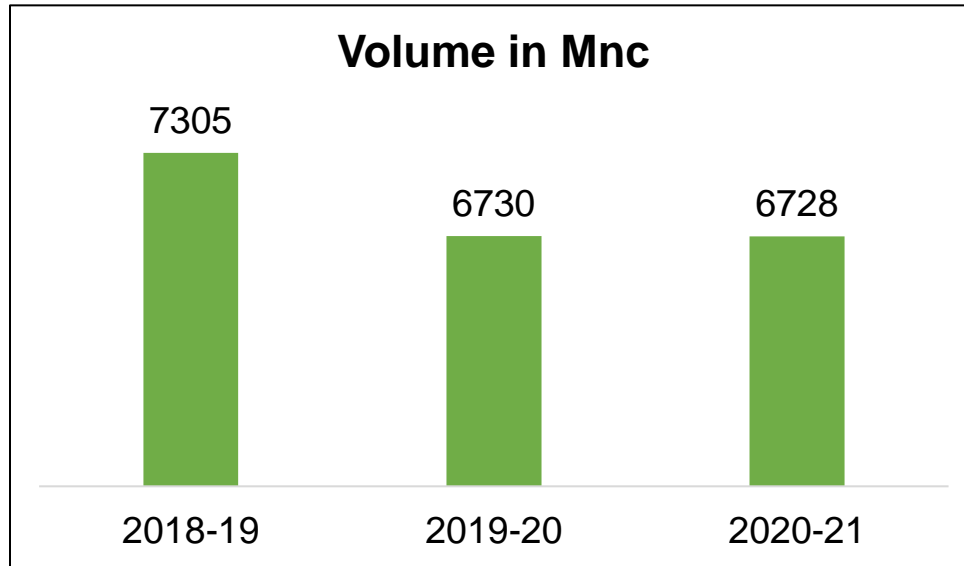
Sanitization of Vehicle



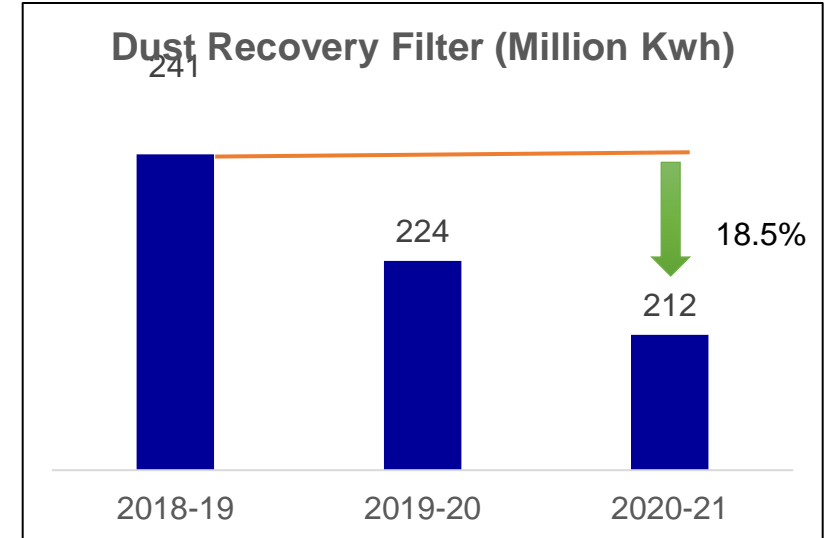
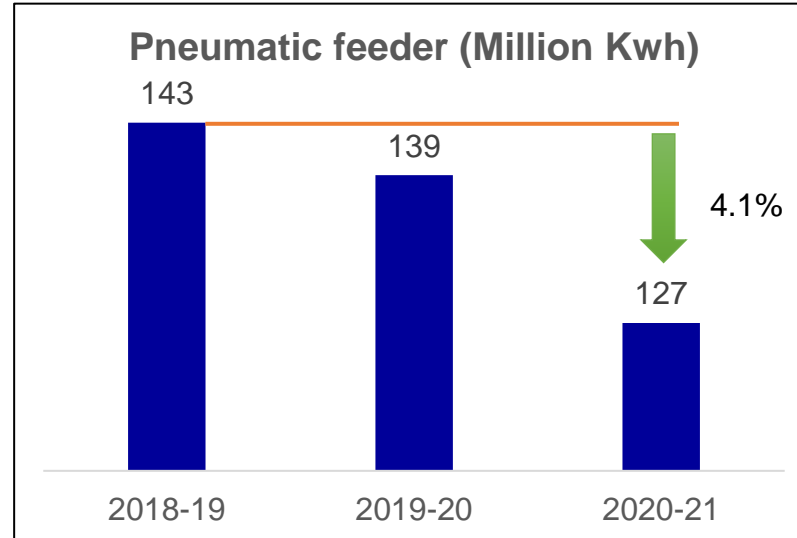
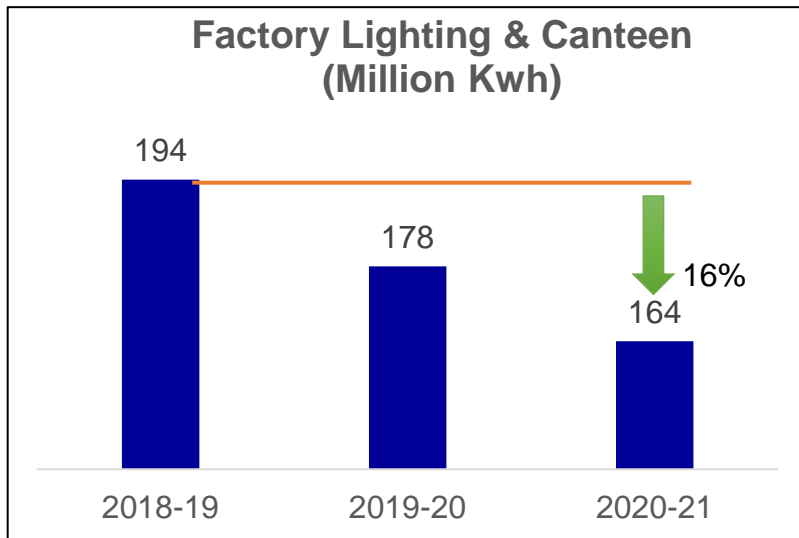
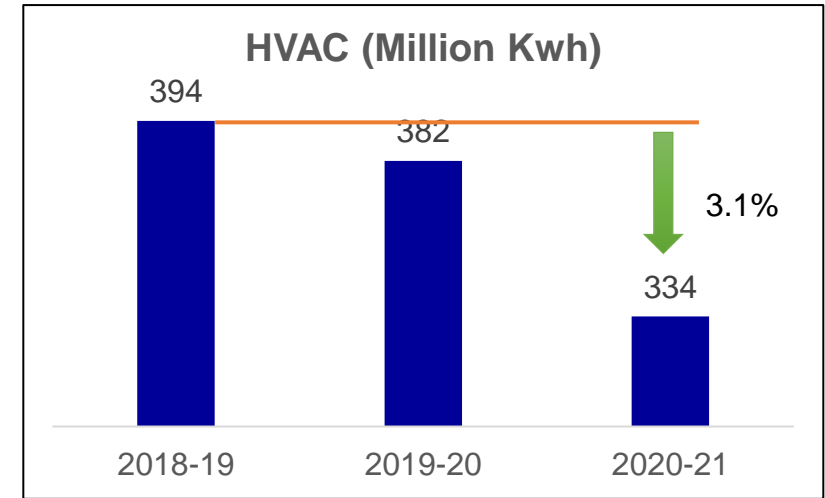
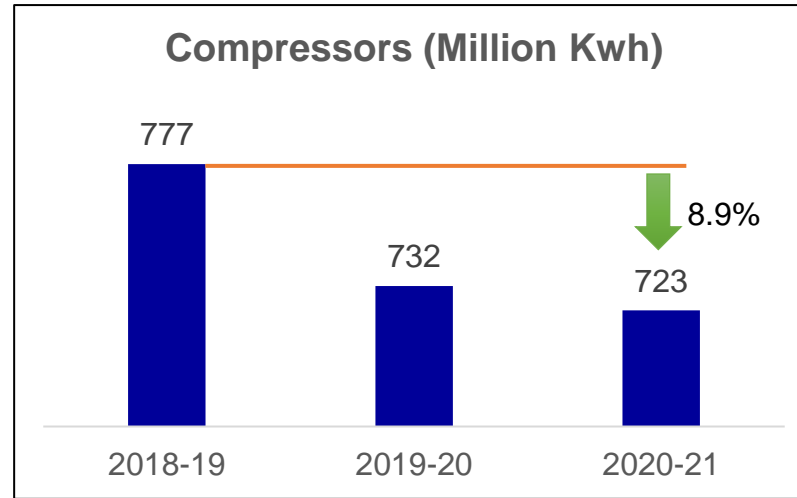
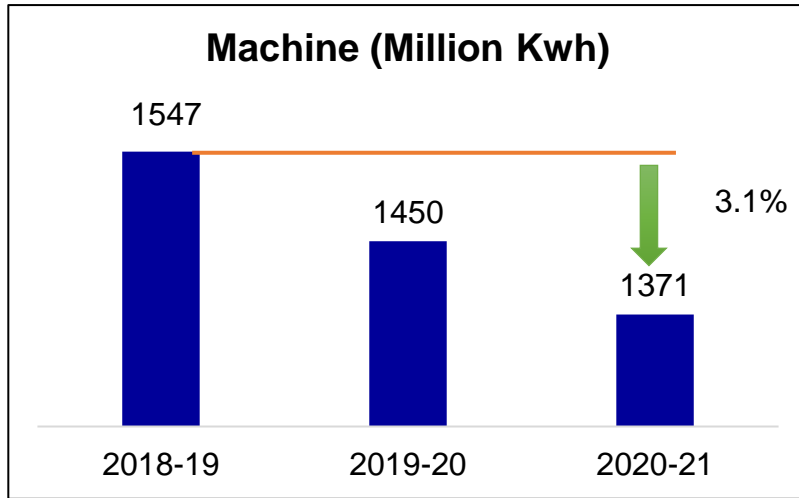
Touch Point Sanitization



Sanitization of Work  
Place

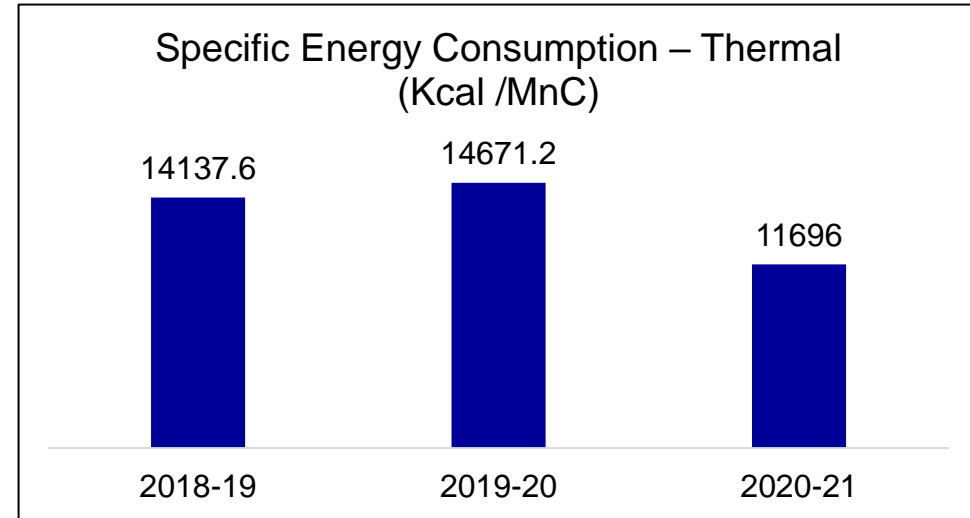
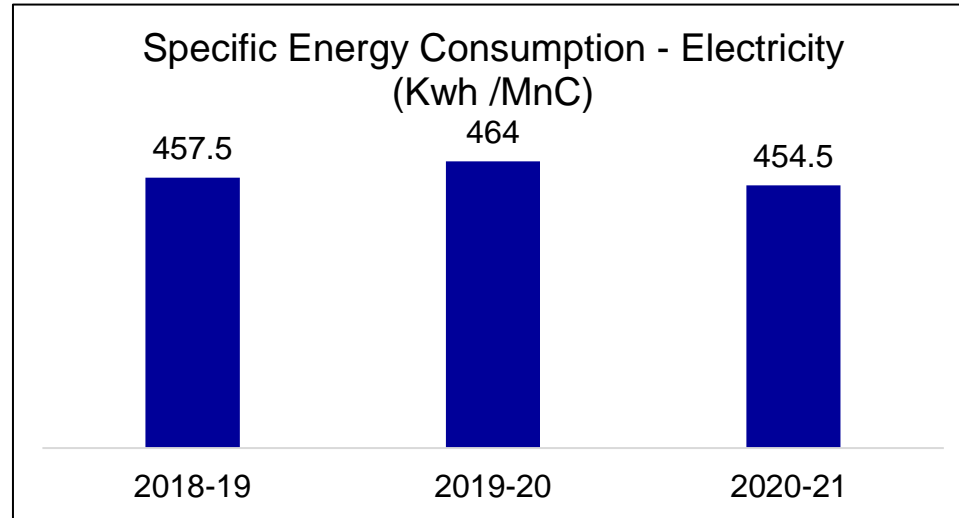


# Energy Consumption in Million Kwh – Overview ....contd

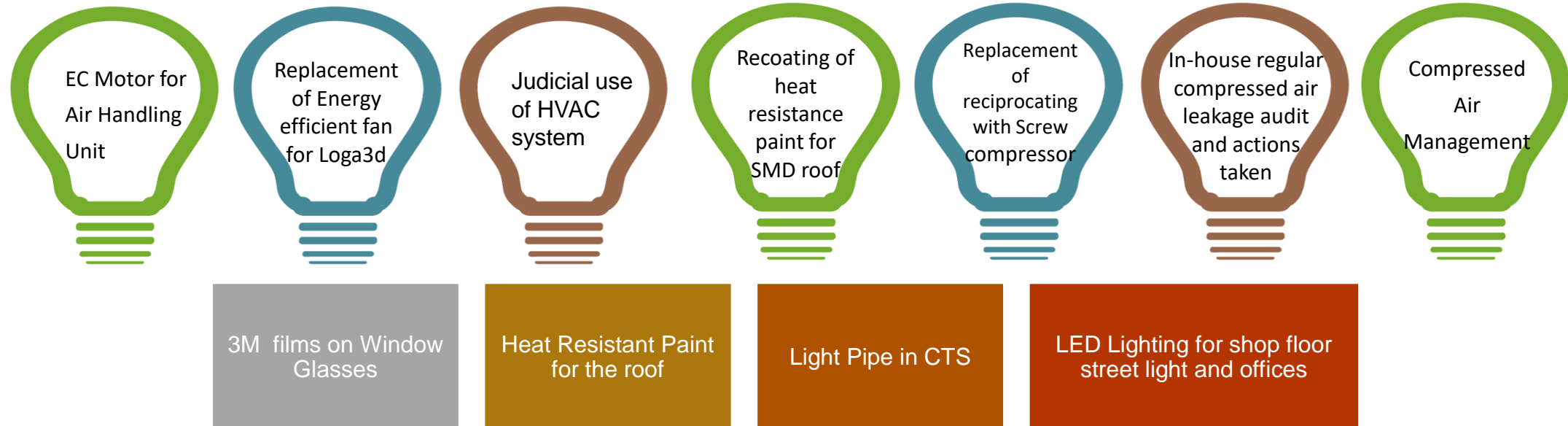




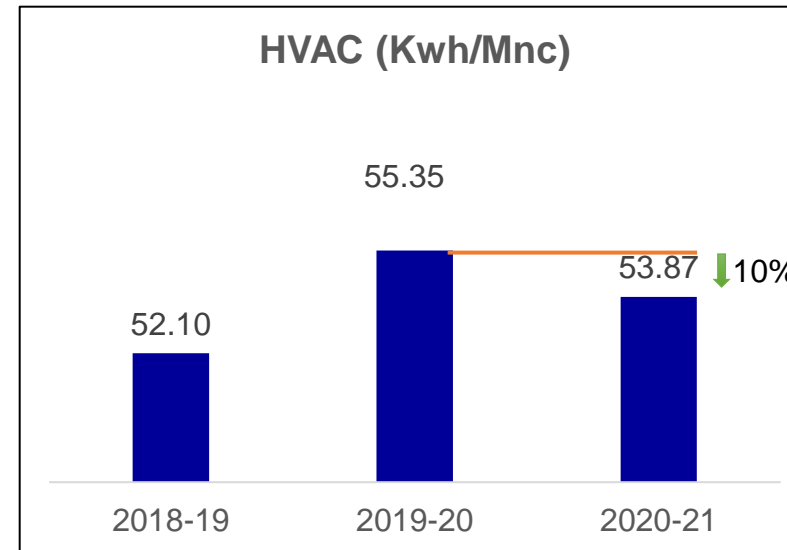
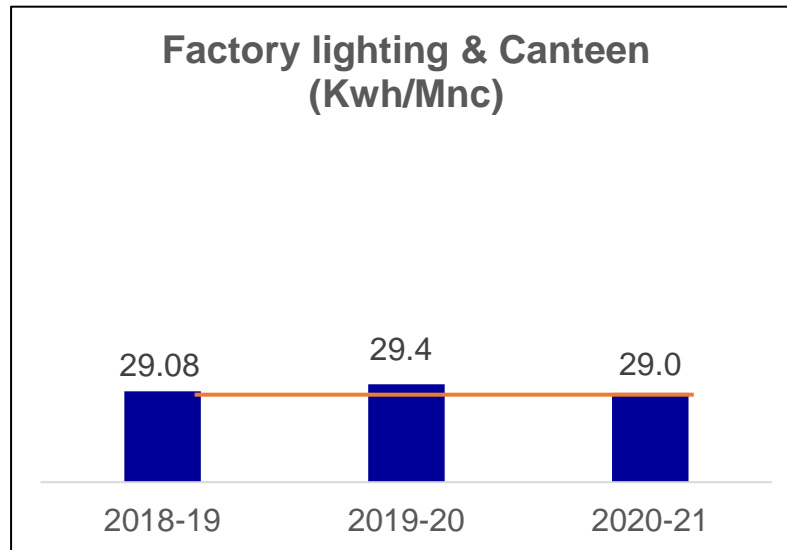
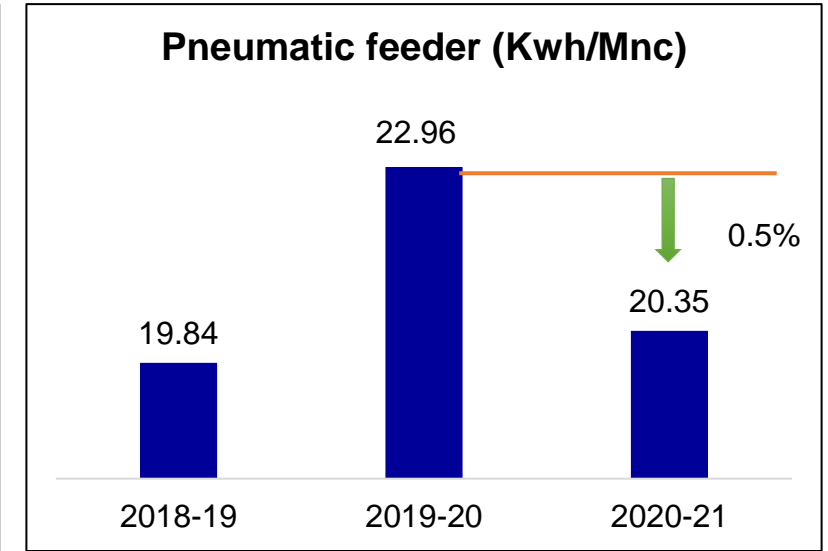
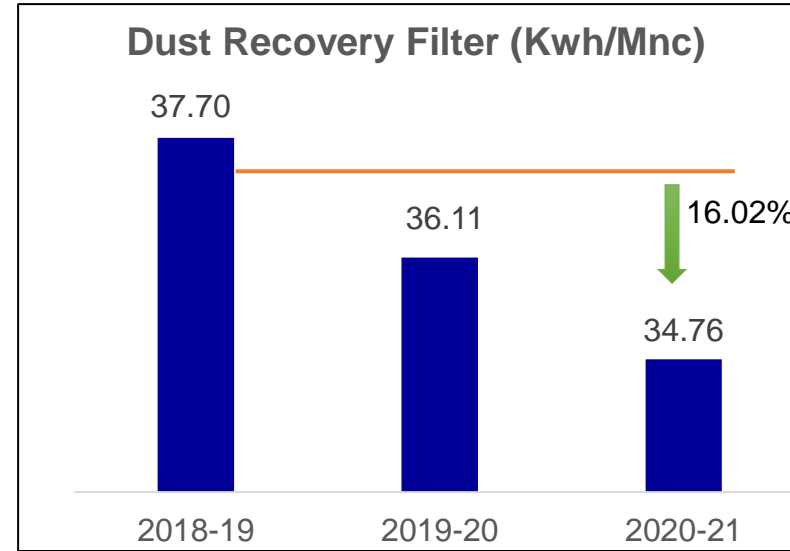
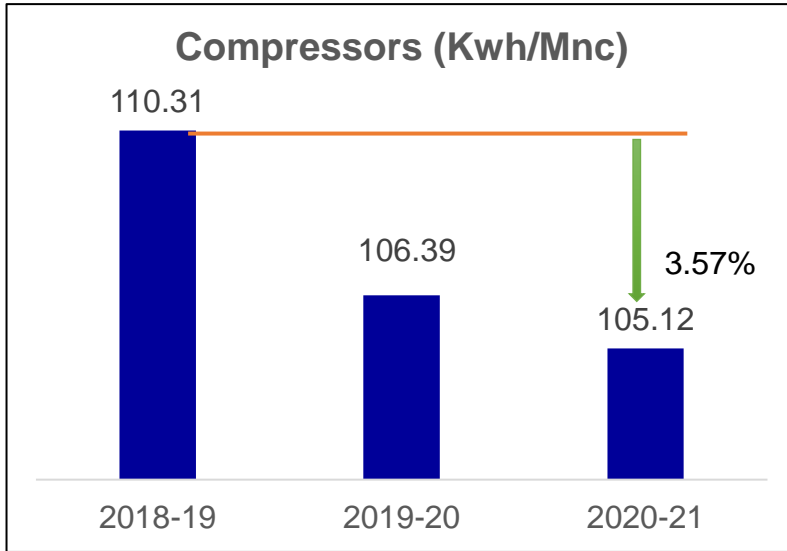
# Specific Energy Consumption



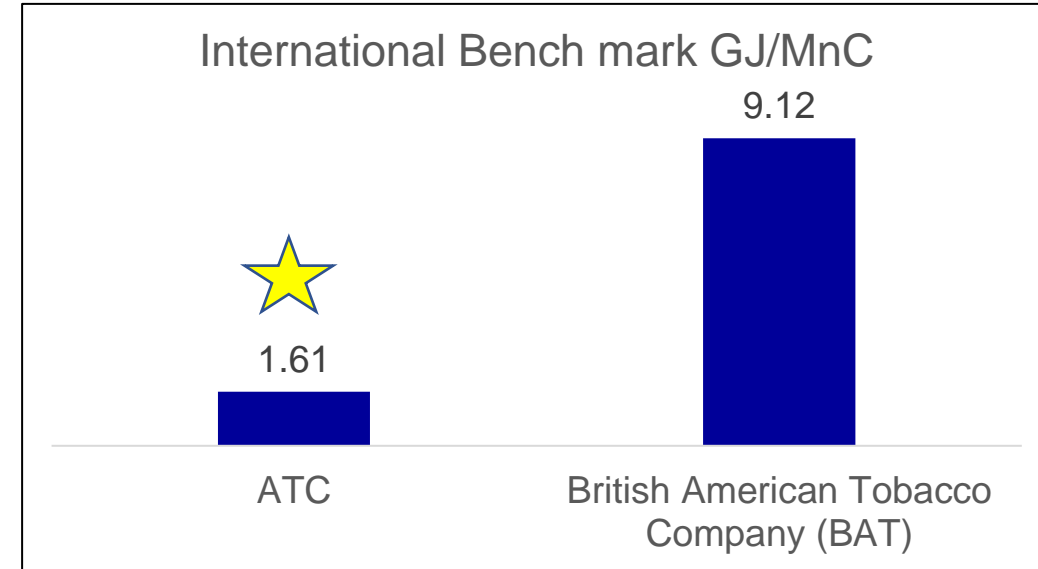
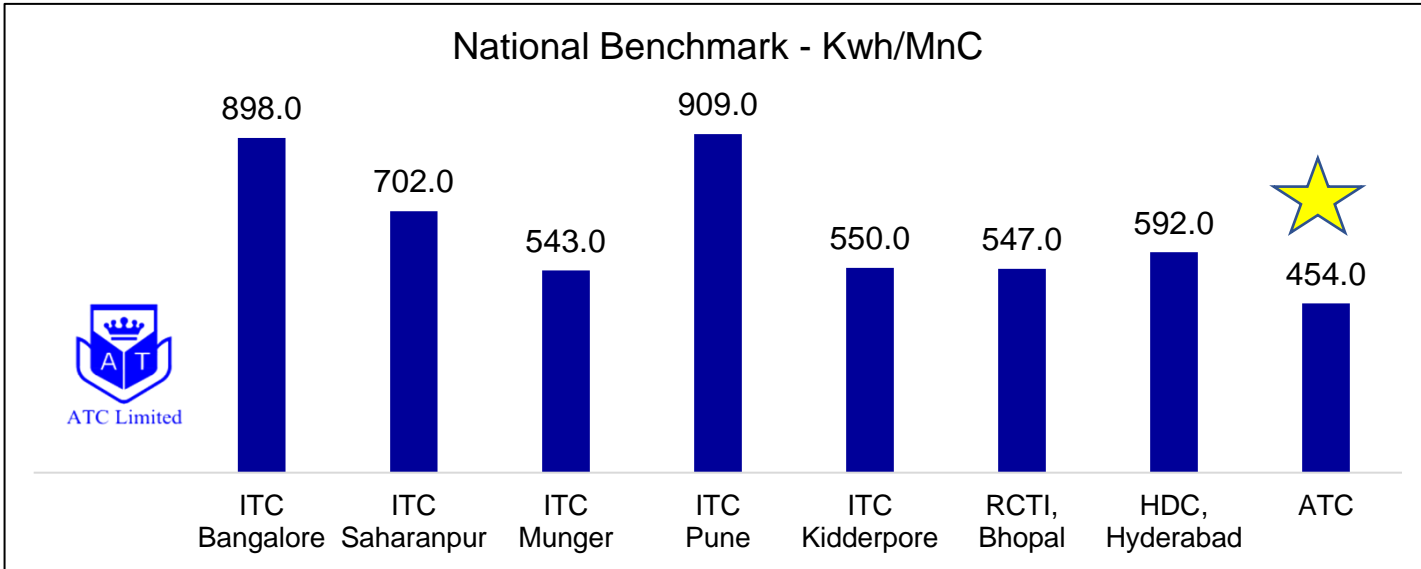
## Key Initiatives



# Specific Energy Consumption



# Information on Competitors, National & Global benchmark



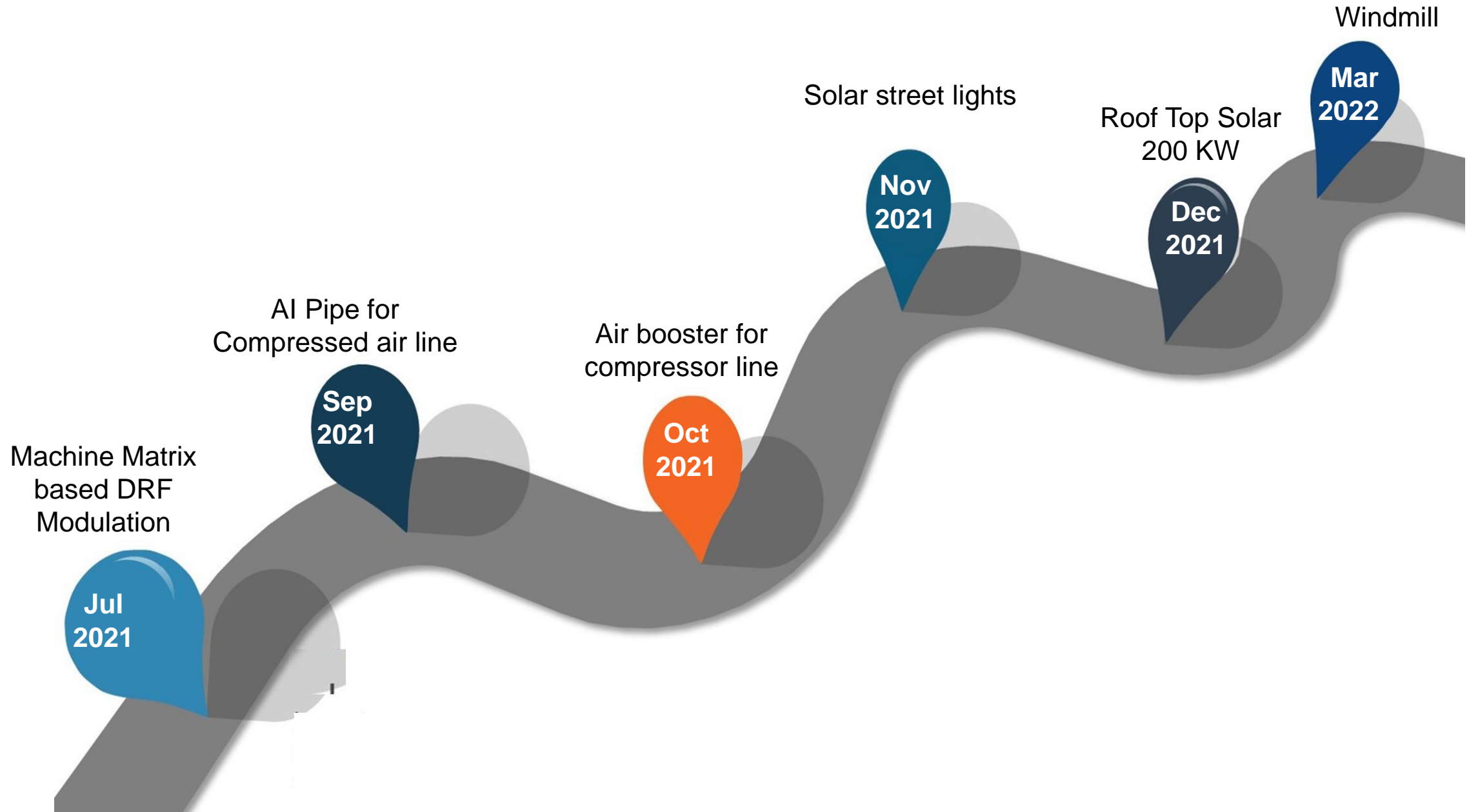
## Specific Energy Consumption Target – Unit / MNC

	2019-20	2020-21	Target 2020-21	Rationale
Overall	464	454	450	3% improvement

Product : Cigarette  
 MOP : No. of Cigarettes produced in million (mnc)

Hence, GJ/mnc is the unit used for Benchmarking in case of Cigarette Industries

# Energy Saving Road Map



- ✓ Investment : Rs.26.3 Lakhs
- ✓ Energy Saving : Kwh 3.6 Lakhs / Annum
- ✓ Cost Saving : Rs.25.23 Lakhs / Annum
- ✓ Payback Period : 12 Months



Reduced 230  
Tones / Annum

Replacement of conventional fans with high efficient FRP fans in AHU and cooling tower

Energy efficient fans for tobacco conveying

VFD for Central Dust recovery system Fans

Air booster for Vision sorter

Replacement of DRF higher H.P motors with energy efficient (EFF1)

Compressor Cutoff valve for Making Machine

Solar water heater offline mode in place of geyser



Introduction of automatic Dampers to cut off Machine suction during machine idle time



Introduction of timer to cut off Mc power during machine idle



Automatic Compressed air Shut off Valve Packing machines



Centralised dust recovery VFD installation



Installation of VFD in Vacuum Pump



Cleaning Compressed air pressure reduction



auto cut off compressed air during wrapper machine stop time/idle time



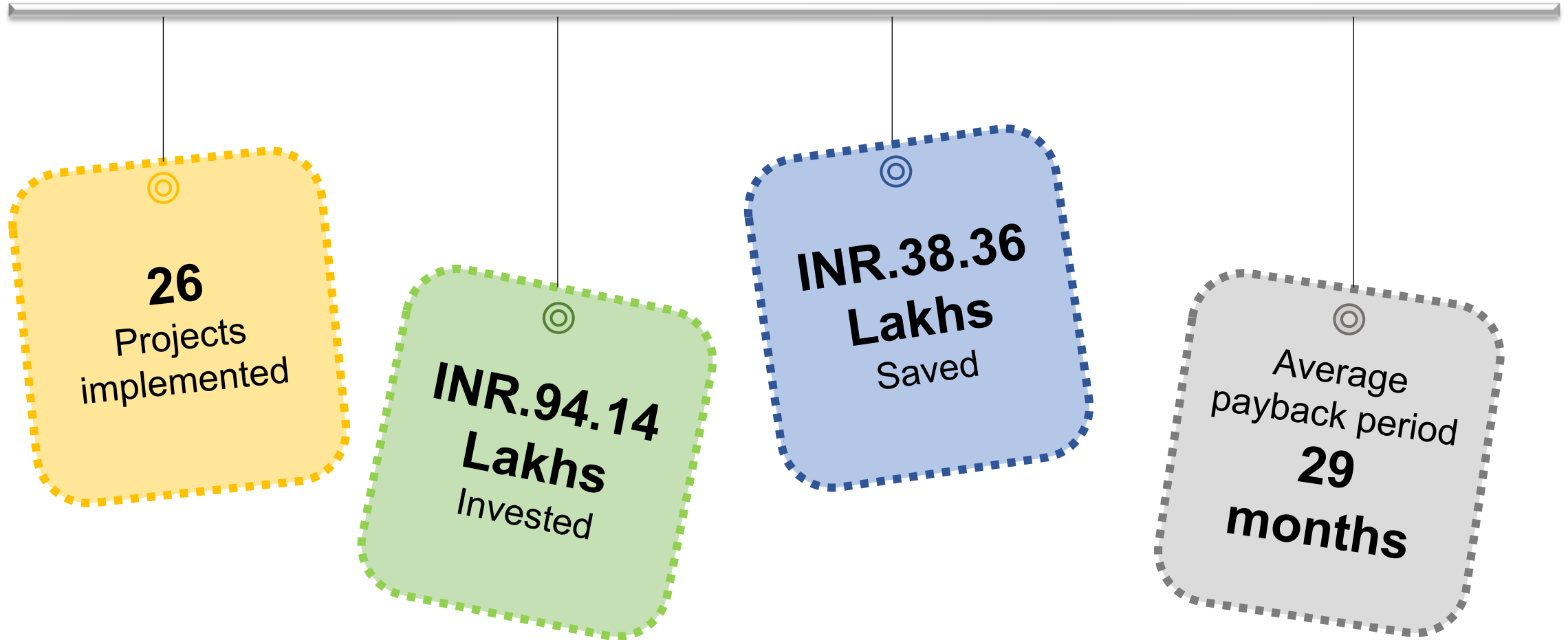
Twilight relay sensor for Street lights

- ✓ Investment : Rs.9.4 Lakhs
- ✓ Energy Saving : Kwh 2.30 Lakhs / Annum
- ✓ Cost Saving : Rs.13.80 Lakhs / Annum
- ✓ Payback Period : 6 Months



Reduced 94.14 Tones / Annum

## Energy Saving Projects executed in last 3 years



# Energy Saving projects implemented : 2018-20 ....contd

SI No.	Type of Energy Saving Project Implemented	Year	Annual Electrical Saving (kWh)	Annual Electrical Cost Saving (INR in Lakhs)	Investment Made (INR in Lakhs)	Payback (Months)
1	Energy Efficient ceiling Fans	2018-19	10000	0.67	0.6	10.79
2	VFD for Laser suction fan	2018-19	20000	1.33	1	9.00
3	T5 Master LED lamps for canteen and Office areas	2018-19	20000	1.33	1.2	10.79
4	AHU Fan close loop activation	2018-19	20000	1.33	0.38	3.42
5	DRF fan frequency Reduction and Modulation	2018-19	10000	0.67	0.42	7.56
6	Cut Off Valve for Compressor line	2018-19	20000	1.33	2.2	19.79
7	Air booster - Compressed air line	2018-19	50000	3.34	2.6	9.36
8	Solar street Lights	2018-19	10000	0.67	1.8	32.38
9	LED light in place of Highmast MV lamp	2018-19	20000	1.33	0.74	6.66
10	LED High bay lights for godowns	2018-19	10000	0.67	0.35	6.30
<b>Total</b>			<b>190000</b>	<b>12.67</b>	<b>11.29</b>	<b>10.69</b>



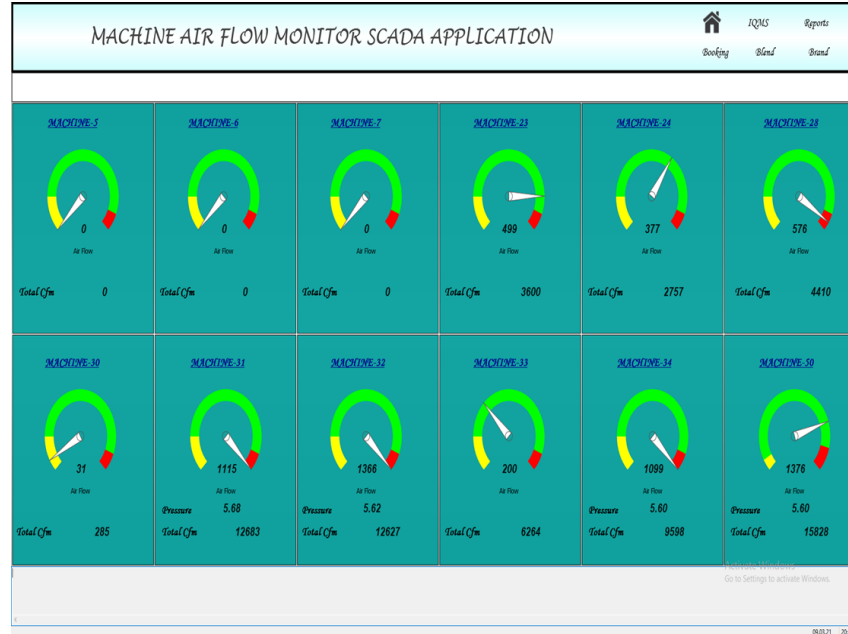
# Energy Saving projects implemented : 2018-21....contd

SI No.	Type of Energy Saving Project Implemented	Year	Annual Electrical Saving (kWh)	Annual Electrical Cost Saving (INR in Lakhs)	Investment Made (INR in Lakhs)	Payback (Months)
1	Recoating of heat resistant paint for SMD roof	2019-20	9000	0.60	5.00	8.3
2	Compressed air leak audit	2019-20	23000	1.53	2.80	1.8
3	EC Motor driven fans for AHU	2019-20	120000	8.00	15.00	1.9
4	Screw compressor in place of reciprocating compressor	2019-20	78000	5.20	50.00	9.6
5	Replacement of Loga making machine fan with energy efficient fan	2019-20	7500	0.50	0.20	0.4
<b>Total</b>			<b>237500</b>	<b>15.84</b>	<b>73.00</b>	<b>4.6</b>

# Energy Saving projects implemented: 2018-21....contd

SI No.	Type of Energy Saving Project Implemented	Year	Annual Electrical Saving (kWh)	Annual Electrical Cost Saving (INR in Lakhs)	Investment Made (INR in Lakhs)	Payback (Months)
1	Energy Efficient HVAC Fans	2020-2021	15000	1.2	1.2	15
2	VFD for Laser suction fan	2020-2021	8000	0.64	0.64	1.4
3	Smart Controller and valves of compressed air Management	2020-2021	21000	1.68	1.68	4
4	AHU Fan close loop activation using Humidity sensor	2020-2021	6700	0.54	0.54	0.46
5	DRF fan frequency optimization close loop control	2020-2021	9000	0.72	0.72	0.38
6	Control Valve for Compressor line for Maker and Packer machine	2020-2021	14000	1.12	1.12	3
7	Air booster - for Vision sorter	2020-2021	4600	0.37	0.37	2.6
8	Solar street Lights	2020-2021	0.01	0.9	0.9	1.8
9	UPS activation in Energy saver mode	2020-2021	11250	0.9	0.9	0.1
10	High pressure Mist Pump inplace of compressed air	2020-2021	17000	1.36	1.36	2.2
11	CFC conveyer in Energy saving mode	2020-2021	5200	0.42	0.42	0.21
<b>Total</b>			<b>111750.01</b>	<b>9.85</b>	<b>9.85</b>	<b>31.15</b>

# Innovative Projects implemented – Online Monitoring of Compressed Air



**AIR FLOW MONITOR OVER ALL REPORTS**

FROM DATE: 3/1/2021  
TO DATE: 3/10/2021

2021-03-09 sh_E	23	6099	16.27603912	598.4375
2021-03-09 sh_E	31	20255	1030	1503
2021-03-09 sh_E	0	0	0	0
2021-03-09 sh_E	28	6681	297.374115	665.104126
2021-03-09 sh_L	6	0	0	0
2021-03-09 sh_E	32	18867	239	1397
2021-03-09 sh_E	24	2271	123.9800034	230.577301
2021-03-09 sh_E	33	10458	192.5563965	352.539093
2021-03-09 sh_L	23	6129	16.27603912	615.8637085
2021-03-09 sh_E	50	25253	1001	2071
2021-03-08 sh_L	32	17406	249	1416
2021-03-08 sh_E	24	1587	0	217.816803
2021-03-08 sh_L	5	0	0	0.694444478
2021-03-08 sh_E	28	5178	0	665.104126
2021-03-08 sh_E	23	5049	16.27603912	677.690979
2021-03-08 sh_L	7	0	0	0

## ADVANTAGES:

- Actual air compressor data storage at centralized location
- Zero compressed air consumption in standby mode
- Actual air consumption and pressure indication in real time
- Pattern recognition for consumption profiles, leakage
- Selectable tolerance windows for error messages
- Determining cylinder leakage
  - ✓ Separation into internal and external leakage

- ✓ Year : 2020-21
- ✓ Investment : Rs.7.0 Lakhs
- ✓ Cost Saving : Rs.2.4 Lakhs / Annum
- ✓ Energy Saving : 34286 Kwh / Annum
- ✓ Payback Period : 35 Months



Reduced 57.88  
Tones / Annum



Wind energy capacity of 1.5  
MW

Generation of 40 Lakhs  
KWH / Year



Solar water heater  
for Canteen



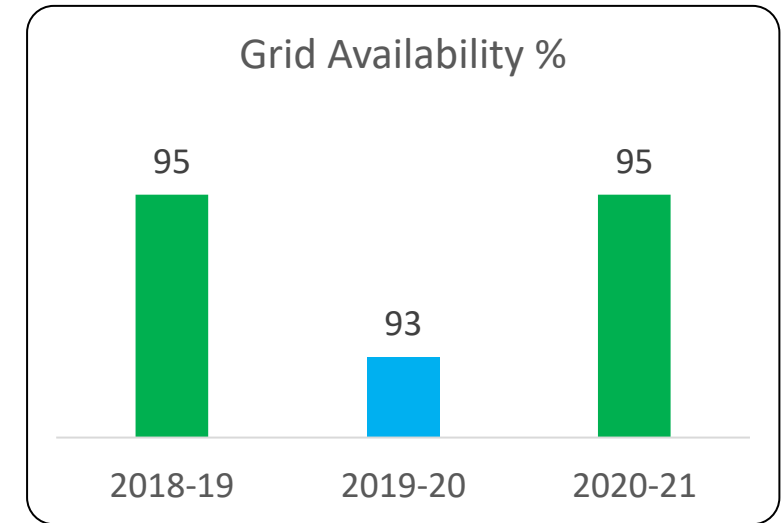
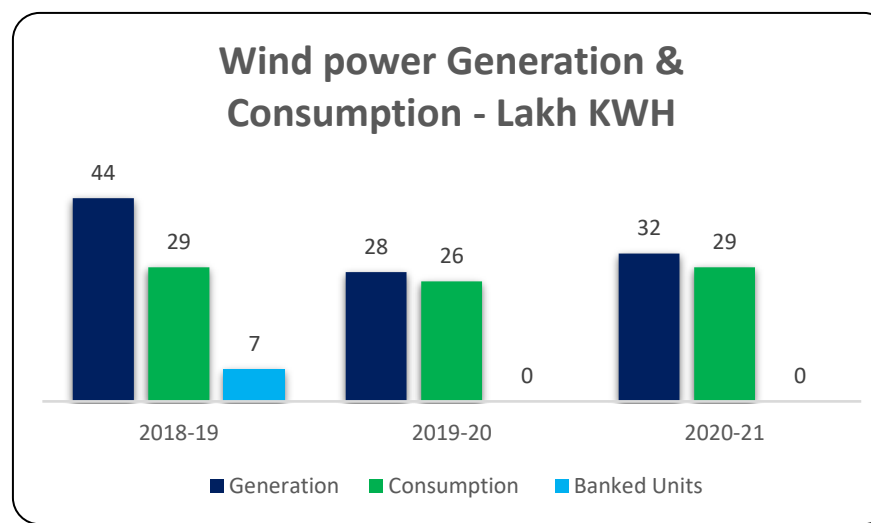
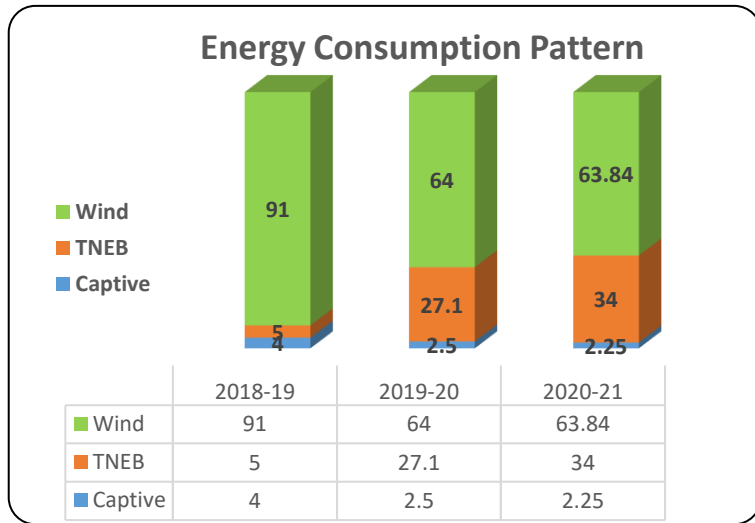
Solar powered street  
light



Biogas Plant for Canteen

Reduced 40% LPG  
consumption per year

# Utilization of Renewable Energy Sources



## Technology: Wind Turbine (Gross Generation)

Type of Energy	Onsite / Offsite	Installed Capacity (MW)	Generation (Million Kwh) 2018-19	% of overall electrical energy 2018-19	Generation (Million Kwh) 2019-20	% of overall electrical energy 2019-20	Generation (Million Kwh) 2020-21	% of overall electrical energy 2020-21
Wind Energy	Off Site	1.5	4.25	128.79	3.54	80.45	3.34	74.22

## Technology: Bio gas

Type of Energy	Installed Capacity (Million Kcal)	Usage (Million Kcal) 2018-19	% of overall Thermal Energy 2018-19	Usage (Million Kcal) 2019-20	% of overall Thermal Energy 2019-20	Usage (Million Kcal) 2020-21	% of overall Thermal Energy 2020-21
Thermal	200	103.01	2.79	107.18	2.83	77.44	1.34

# Utilization of waste material as fuel

Name of the Fuel	2018-19		2019-20		2020-21		Waste Fuel as % of total energy used
	Quantity of waste Fuel used (MT/ year)	Heat Value (million kcal/year)	Quantity of waste Fuel used (MT/ year)	Heat Value (million kcal/year)	Quantity of waste Fuel used (MT/ year)	Heat Value (million kcal/year)	
<b>Biogas from Tobacco Dust and Food Waste</b>	4.40	26.40	3.21	19.28	6.7	21.61	<b>67.29</b>
<b>Cigarette paper</b>	9.00	29.04	7.78	25.11	7.28	23.49	<b>77.64</b>
<b>Oil Cotton Waste</b>	0.28	1.20	0.80	3.43	0.13	0.56	<b>5.19</b>

## GHG Inventorisation and Public Disclosure

- The sustainability report of ATC Limited is submitted to ITC limited Corporate EHS department.
- The ITC Corporate EHS is publishing ATC sustainability data as a part of ITC's Sustainability Report from FY 2013-14 onwards.
- The data is Audited & assured by third party auditors.
- This report clearly depicts the Achievement and Commitment of ATC towards Green House Emission.

### 04/2020...03/2021 - [EN19, EN20, EN21, EN22, EN26] Reduction in Emission, ODS, Air Emissions & Water Discharge (ATC)

#### [EN] Environment

#### Emissions, Effluents, and Waste

#### Refrigerants used

Report only the quantity of refrigerant refilled during the reporting period.  
Calculation for Ozone depleting potential would be done by the system based on the amount and type of refrigerant filled.

#### CFC-12

	Value	Unit	Quality	Comment
Annually	0	t	Exact	

#### R-22

	Value	Unit	Quality	Comment
Annually	0	t	Exact	

#### R-134a

	Value	Unit	Quality	Comment
Annually	0	t	Exact	

#### R 104c

	Value	Unit	Quality	Comment
Annually	0	t	Exact	

#### Waste Water discharges

water discharged by destination.

The common discharge destinations are as follow:

- Municipal drains
- Common treatment facilities (for example CETP in FBD-Pune, Haridwar, PCPB Manpura)
- Land for irrigation (example - as followed in Bhadrachalam)
- River/ lakes/ surface water body
- Ocean/ sea ( for example Fortune Bay Island Resort,



- LPG for cooking
- HSD for Generators



- Purchased electricity from Grid



- Raw Materials transportation
- Finished goods transportation

	Absolute Emission (Metric Tonne)	Emission Intensity (KgCO <sub>2</sub> / Ton of Final Products)	Absolute Emission (Metric Tonne)	Emission Intensity (KgCO <sub>2</sub> / Ton of Final Products)	Absolute Emission (Metric Tonne)	Emission Intensity (KgCO <sub>2</sub> / Ton of Final Products)
2018-19	0.401	4.81	0.079	2.754	0.079	10.76
2019-20	0.431	60.24	0.057	4.37	0.057	7.78
2020-21	0	0	0.079	10.76	0.079	10.76





Reduction of **10%** of kgco<sub>2</sub> / Ton of final product

## Action to achieve the above target

Regular maintenance of  
DG

Reduction of LPG  
consumption by  
maximizing the use of Bio  
gas

Prevention of Refrigerant  
gas emission by  
maintaining chillers in  
good condition

Elimination of SF6  
breaker

Elimination of operation  
of CO<sub>2</sub> fire extinguisher  
during Fire training

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To ensure that its products and services comply with all applicable statutes and regulations;

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To work towards safe and optimal resource use over the life-cycle of its products and services, including recycling of resources wherever possible;

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To work towards ensuring that all goods and services are procured, manufactured and delivered through a system embedding its policies in terms of labour practices, human rights, ethics, occupational health, safety and environment;

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To work towards sourcing significant raw materials, products and services in a manner so as to continuously improve the balance between social, economic and environmental impacts;

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To work towards building capacity such that all the value chain partners, namely the third party manufacturers (TPMs), service providers including transporters and suppliers of significant raw materials, are sensitised and empowered to fulfil their roles and responsibilities towards sustainability;

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To raise the awareness of consumers on responsible disposal of products and packaging;

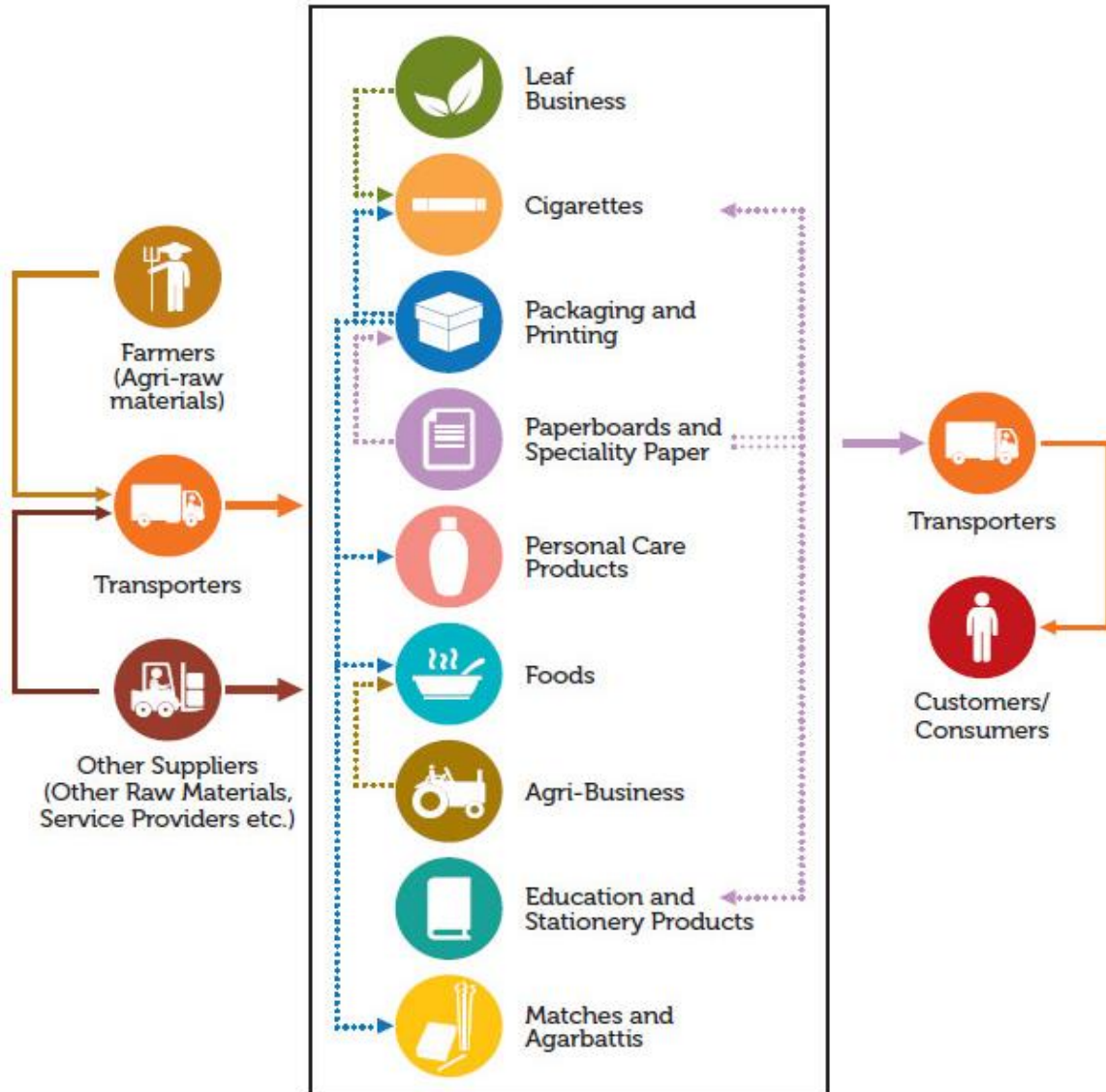
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To continue to progressively factor in relevant social and environmental considerations during the process of development of products / services; To continue to recognise and respect the rights of people who may be owners of traditional knowledge, and other forms of intellectual property, wherever relevant.

# Green Supply Chain – ENCON Projects implemented by Vendor

Being a converter of tobacco into cigarettes for ITC Limited, ATC Limited sources most of its raw materials from ITC Limited.

The material flow across different divisions in ITC Limited is as follows:



- Almost 95% percent of our vendors are from ITC Ltd. Papers and boards are from ITC PSPD, Leaf tobacco is sourced from ILTD, Filters are sourced from ITC Essentra.
- Energy conservation and replication of projects are governed by corporate EHS at ITC Limited. All the projects are tracked for implementation along with the replication projects. So the projects originated in one division, are replicated across divisions.
- We try to maximize the efficiency of our logistic networks by using travelling salesman algorithm to optimize routes and maximize truck loads/dispatch.



## Wind Mill

- Installed Windmill Capacity of 1500KW
- Annual Generation is Kwh 40 Lakhs / Annum

## Benefits

- Renewable Green Energy

- ✓ Investment : Rs.920 Lakhs
- ✓ Cost Saving : Rs.153 Lakhs/Annum
- ✓ Payback Period : 60 Month

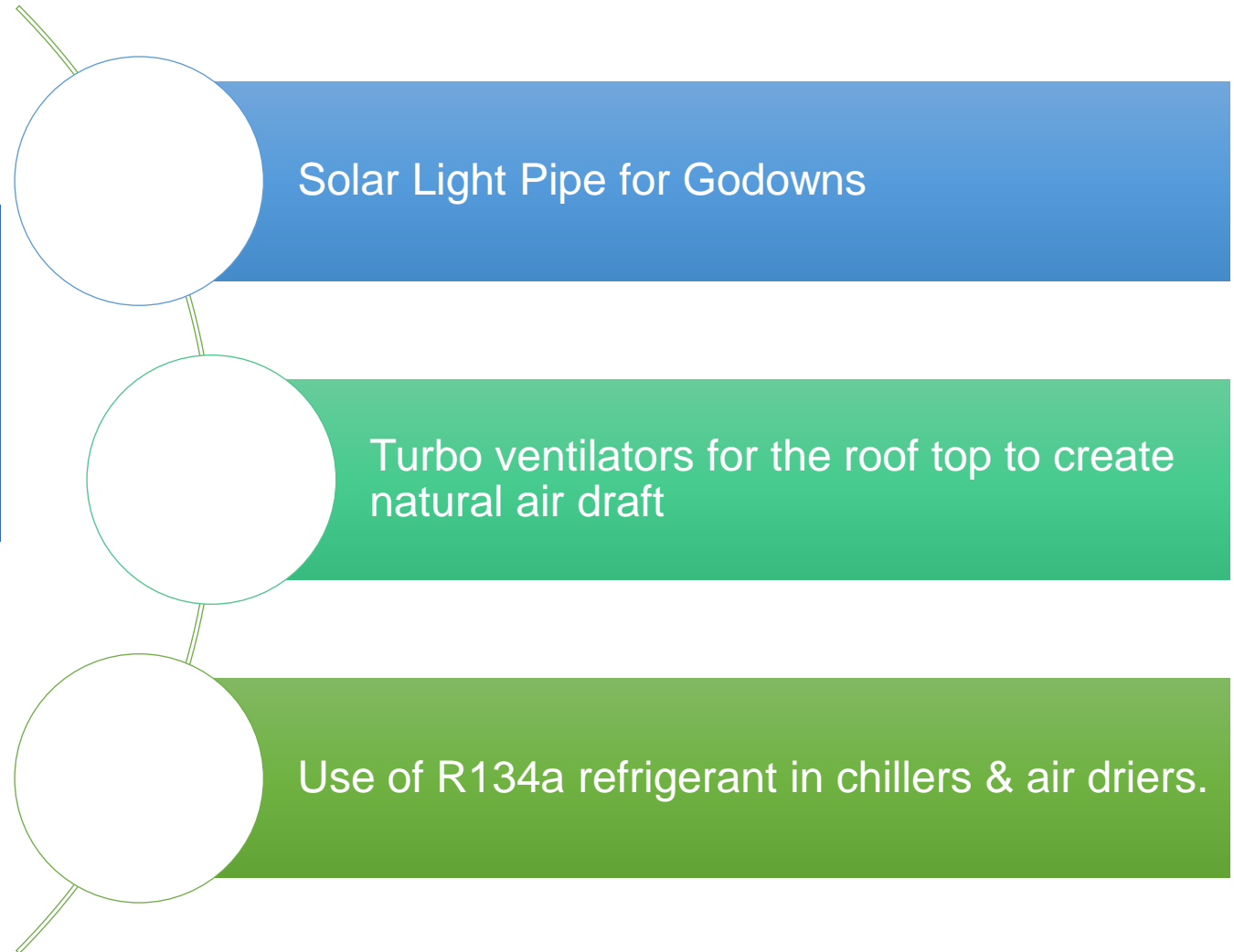


Reduced 1830.5  
Tones / Annum

- ✓ Investment : Rs.2.4 Lakhs
- ✓ Energy Saving: Kwh 0.47 / Annum
- ✓ Cost Saving : Rs.2.98 Lakhs / Annum
- ✓ Payback Period : 10 Months



Reduced 24.581  
Tones / Annum

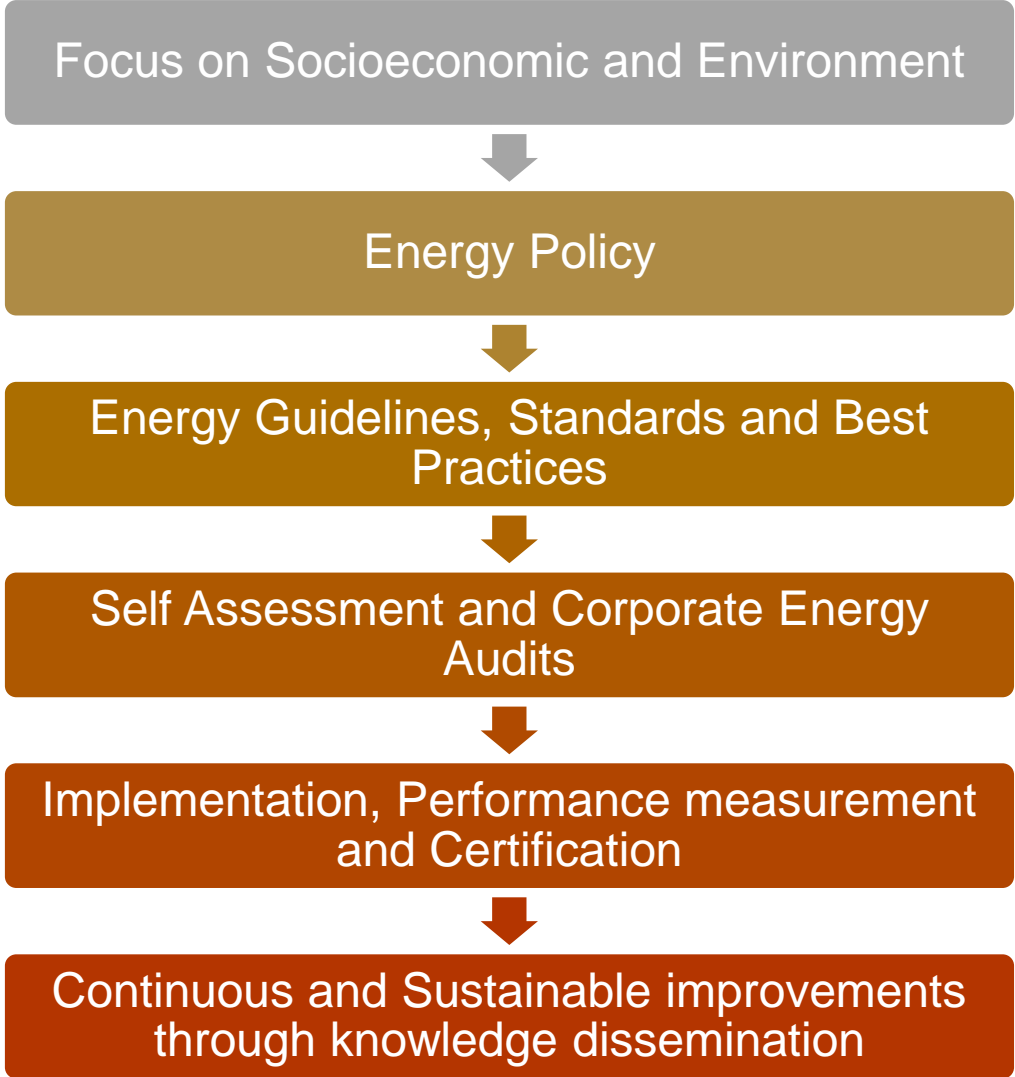


Solar Light Pipe for Godowns

Turbo ventilators for the roof top to create natural air draft

Use of R134a refrigerant in chillers & air driers.

## ATC's Energy Management System



Sustainability Report to ITC in GRI G4 format

Daily energy report which monitors the performance and consumption of energy and water.

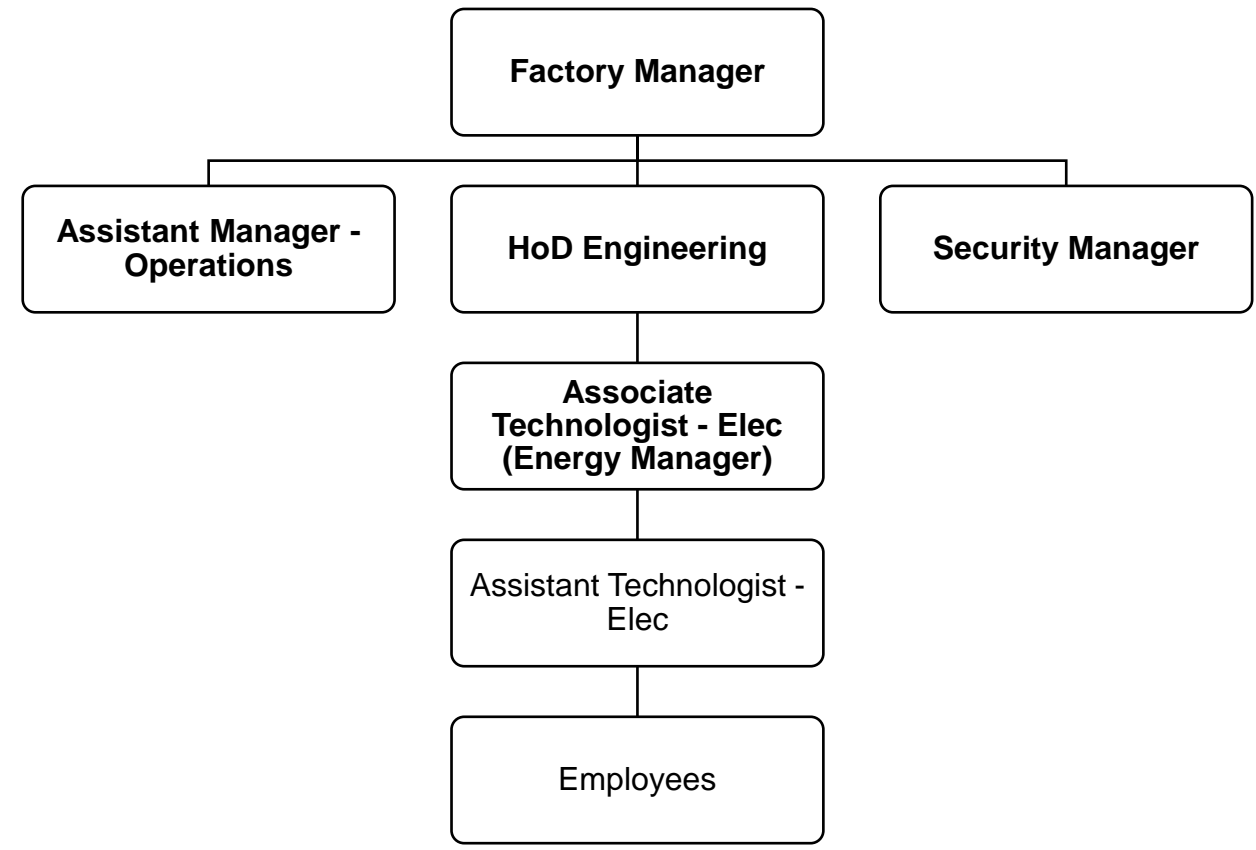
Daily generation report monitors the Specific Energy Consumption (SEC) against target

Monthly report which analyzes the variance in cost and indices data.

Monthly energy trends analysis and reporting.

Daily effluent treatment plant report.

- Energy management group is spearheaded by the Factory Manager.
- The primary responsibility of the energy management lies with the HoD, Engineering Department for continual monitoring and analysis. And he also handles scanning the industry and academia for sustainable initiatives and their impeccable execution.
- Production Manager and departmental in-charges are responsible for the specific energy consumption parameters.
- Employees are the integral part of energy management structure.



Energy Conservation Budget in Lakhs	2018-19	2019-20	2020-21
	75	81	98

## Energy Monitoring Devices

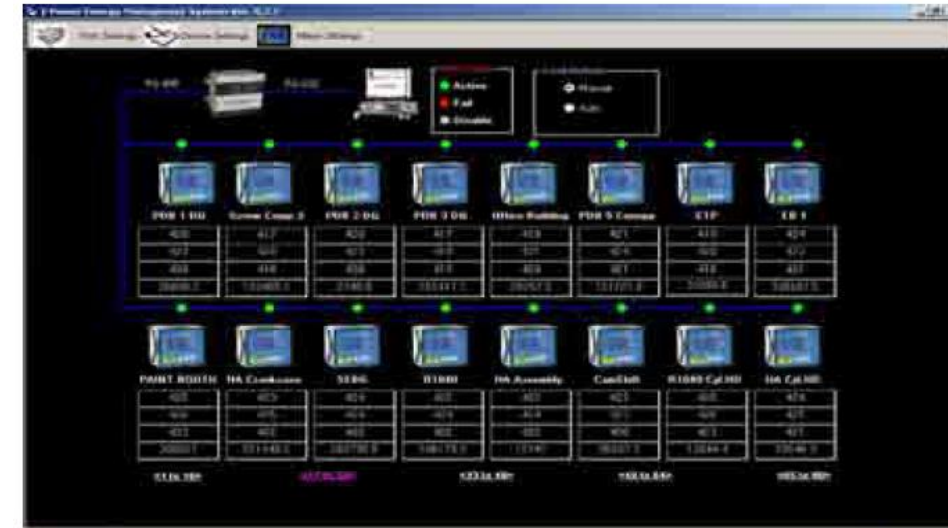


Energy Meters – 45 no's

Diesel Flow Meter – 1 no

Water Flow Meters - 20 no's

## Implementation Methodology



DATE	D/P	EB	DG	Total	M/C	DRF	Comp	HVAC	Lighting	5582	Vacuum
01-Aug-15	24.10	10452.00		10452.00	4284.00	761.00	2195.00	3559.00	758.00	445.00	206.00
02-Aug-15		800.00			352.00	28.00	198.00	39.00	437.00	13.00	1.00
03-Aug-15	27.05	8928.00		8928.00	3421.00	709.00	2114.00	1249.00	755.00	370.00	249.00
04-Aug-15	25.82	11180.00		11180.00	4488.00	771.00	2399.00	2839.00	749.00	492.00	313.00
05-Aug-15	24.62	6530.00	4560.00	11090.00	4913.00	767.00	2424.00	1368.00	746.00	448.00	320.00
06-Aug-15	25.20	10644.00	372.00	11016.00	4408.00	797.00	2398.00	2878.00	784.00	436.00	256.00
07-Aug-15	26.11	10944.00		10944.00	4567.00	796.00	2387.00	1439.00	775.00	575.00	316.00
08-Aug-15	24.41	10428.00		10428.00	4358.00	786.00	2216.00	1581.00	729.00	382.00	205.00
09-Aug-15	28.04	9636.00		9636.00	3634.00	1025.00	2181.00	1340.00	696.00	499.00	203.00
10-Aug-15	24.31	10688.00		10688.00	4174.00	802.00	2250.00	2188.00	759.00	488.00	233.00
11-Aug-15	24.41	10396.00		10396.00	4466.00	785.00	2193.00	1346.00	743.00	472.00	194.00
12-Aug-15	22.94	10704.00		10704.00	4381.00	777.00	2293.00	1656.00	752.00	448.00	214.00
13-Aug-15	24.24	11088.00		11088.00	4497.00	787.00	2360.00	1782.00	757.00	494.00	338.00
14-Aug-15		600.00			0.00	0.00	0.00	0.00	437.00	0.00	0.00
15-Aug-15	No pow	720.00	53.00	773.00	72.00	22.00	228.00	20.00	265.00	28.00	-6.00
16-Aug-15	27.15	8784.00		8784.00	3585.00	670.00	2048.00	776.00	785.00	492.00	218.00
17-Aug-15	23.74	10800.00		10800.00	4401.00	787.00	2260.00	1657.00	747.00	435.00	384.00
18-Aug-15	26.11	11772.00		11772.00	4606.00	794.00	2534.00	2121.00	764.00	482.00	94.00
19-Aug-15	27.80	11604.00		11604.00	4706.00	802.00	2435.00	1975.00	880.00	488.00	298.00
20-Aug-15	24.00	9996.00	84.00	10080.00	4411.00	787.00	2228.00	1033.00	837.00	523.00	112.00
21-Aug-15	24.50	9156.00		9156.00	4240.00	784.00	2097.00	854.00	725.00	529.00	2.00
22-Aug-15		1056.00		1056.00	80.00	25.00	251.00	21.00	448.00	53.00	0.00
23-Aug-15	23.77	10548.00		10548.00	4362.00	794.00	2229.00	1668.00	749.00	492.00	0.00
24-Aug-15	27.71	11160.00		11160.00	4684.00	782.00	2278.00	2034.00	780.00	438.00	0.00
25-Aug-15	26.72	10716.00		10716.00	4537.00	763.00	2222.00	1711.00	744.00	432.00	125.00
26-Aug-15	27.00	10068.00		10068.00	4668.00	789.00	2242.00	1967.00	745.00	432.00	19.00
27-Aug-15	29.33	10080.00		10080.00	4806.00	792.00	2266.00	826.00	740.00	513.00	10.00
28-Aug-15	30.36	10860.00		10860.00	4802.00	778.00	2279.00	1590.00	731.00	486.00	11.00
29-Aug-15		1152.00			158.00	55.00	30.00	439.00	42.00	0.00	0.00
30-Aug-15	15.54	9120.00			2256.00	373.00	1735.00	734.00	335.00	0.00	0.00

Energy Trend



## Energy Conservation Day Celebration



- Energy conservation Week Celebrated every in month of December
- Energy conservation pledge taken by all the participants
- Quiz was organized
- Total no. of Suggestions received from employees – **127**

## World Environment Day Celebration



- World Environmental Day Celebrated every year on 5th June
- Around 1200 saplings planted across Hosur alongwith District Administration, 150 sapling issued to employees and planted 30 inside the Factory premises
- Environmental awareness programme conducted inside the Shopfloor

## Mini HLU with AM14 Buffer



### Key Features:

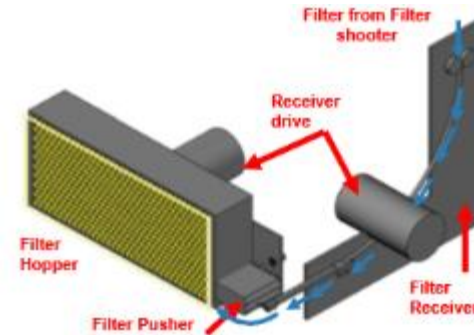
- ✓ Non-uniform cigarette distribution at maker HCF & HLU
- ✓ AM 14 as cigarette buffer on GDX6

Benefit	Productivity gain of 3 operator per day
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Cost	18 L incl taxes
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Vendor	Industrial Automation, Bangalore
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## Indigenous Filter Receiver



### Key Features:

- ✓ Leveraged idle line from existing OEM shooter

Benefit	Productivity gain of 1.5 operator per day
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Cost	11.8 L incl taxes
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Vendor	Vigneshwara Industries, Bangalore
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## Manual Filling to SACFC Filler



In-house developed Vertical Elevator



In-House developed SACFC Filler

### Benefit

- ✓ Elimination of manual CFC filling at 2 packers to Semi automatic filling station at single packer
- ✓ Productivity gain of 3 operators per day

### Cost

9L against OEM cost of

### Vendor

Vigneshwara Industries, Bangalore

## Centralised CFC Conveyor



Centralized palletized area on Floor

### Benefit

- ✓ Elimination of manual palletization at all packers [3 lines]
- ✓ Productivity gain of 6 operators per day
- ✓ Ready for further automation robotic palletizers

### Cost

Total project cost 48L

### Vendor

Trinnovation, Bangalore

# Long Term Vision on EE (Roof Top Solar)



Reduced cost of land and greater utilization

Reduced cost of evacuation

Easier operation and maintenance

Higher Efficiency of inverter / Power convertor

Increased Grid PLF%

- ✓ Investment : Rs.530 Lakhs
- ✓ Energy Saving : Kwh 19 Lakhs / Annum
- ✓ Cost Saving : Rs.100 Lakhs / Annum
- ✓ Payback Period : 63 Months





Renewal of Platinum rated IGBC Green Building Certificate for 3 years (till 2023)



Excellence Award - IGBC Performance Challenge 2020



Prashansa Patra from national safety Council of India



Energy Efficient Unit from CII National Level Energy management 2020



Transition to ISO 45001:2018 and IMS Recertification



Gold Prize in FICCI Safety Excellence Award 2020 under small sector



**Thank you**

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